IMA's Certification for Accountants and Financial Professionals in Business

CMA Exam Support Package

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IMA's Certification for Accountants and Financial Professionals in Business

CMA Part 1 – Financial Planning, Performance, and Control

Examination Practice Questions

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CMA Part 1 – Financial Planning, Performance and Control
Examination Practice Questions

Section A: External Financial Reporting Decisions

1. *CSO: 1A1a LOS: 1A1a*
   The financial statements included in the annual report to the shareholders are **least** useful to which one of the following?

   a. Stockbrokers.
   b. Bankers preparing to lend money.
   c. Competing businesses.
   d. Managers in charge of operating activities.

2. *CSO: 1A1a LOS: 1A1e*
   When a fixed asset is sold for less than book value, which one of the following will decrease?

   a. Total current assets.
   b. Current ratio.
   c. Net profit.
   d. Net working capital.

3. *CSO: 1A1a LOS: 1A1e*
   On July 15, a company entered into a three-month agreement to rent a machine the company needed to complete a special order. The machine would be delivered on August 1, and rental payments are due on the first day of each rental month. The effect this event would have on the company's July 31 financial statements would be to

   a. cause no change in assets, liabilities, or income.
   b. increase both assets and income.
   c. increase both assets and liabilities.
   d. increase liabilities and decrease income.

4. *CSO: 1A1a LOS: 1A1d*
   All of the following are limitations to the information provided on the statement of financial position **except** the

   a. quality of the earnings reported for the enterprise.
   b. judgments and estimates used regarding the collectability, salability, and longevity of assets.
   c. omission of items that are of financial value to the business such as the worth of the employees.
   d. lack of current valuation for most assets and liabilities.

5. *CSO: 1A1a* *LOS: 1A1b*
A statement of financial position provides a basis for all of the following **except**

a. computing rates of return.
b. evaluating capital structure.
c. assessing liquidity and financial flexibility.
d. determining profitability and assessing past performance.

6. *CSO: 1A1b* *LOS: 1A1b*
An income statement could be used by an external investor for all of the following purposes **except** to

a. analyze the company's performance compared to the budget.
b. compare the company's results to those of its competitors.
c. assess the risk of the company achieving future profitability.
d. predict the company's future revenues.

7. *CSO: 1A1b* *LOS: 1A1b*
The financial statement that provides a summary of the firm's operations for a period of time is the

a. income statement.
b. statement of financial position.
c. statement of shareholders' equity.
d. statement of retained earnings.

8. *CSO: 1A1b* *LOS: 1A1e*
Bertram Company had a balance of $100,000 in Retained Earnings at the beginning of the year and $125,000 at the end of the year. Net income for this time period was $40,000. Bertram's Statement of Financial Position indicated that Dividends Payable had decreased by $5,000 throughout the year, despite the fact that both cash dividends and a stock dividend were declared. The amount of the stock dividend was $8,000. When preparing its Statement of Cash Flows for the year, Bertram should show Cash Paid for Dividends as

a. $20,000.
b. $15,000.
c. $12,000.
d. $5,000.

9. *CSO: 1A1b* *LOS: 1A1c*

All of the following are elements of an income statement **except**

a. expenses.
b. shareholders' equity.
c. gains and losses.
d. revenue.

10. *CSO: 1A1c* *LOS: 1A1b*

The statement of shareholders' equity shows a

a. reconciliation of the beginning and ending balances in shareholders' equity accounts.
b. listing of all shareholders' equity accounts and their corresponding dollar amounts.
c. computation of the number of shares outstanding used for earnings per share calculations.
d. reconciliation of the beginning and ending balances in the Retained Earnings account.

11. *CSO: 1A1d* *LOS: 1A1e*

Which one of the following items could be identified on the cash flow statement prepared using the indirect method?

a. The payment of interest expense of $200,000.
b. A change in unrealized holding gains of $50,000.
c. A settlement of a lawsuit that was previously accrued.
d. Depreciation related to buildings and equipment.

12. *CSO: 1A1d* *CSO: 1A1d*

Consider the following financial data for a company that is preparing its cash flow statement.

Amortization expense = $150,000
Cash dividends paid to common shareholders = $75,000
Net income = $1,500,000
Work-in-process inventory increase over the prior year = $300,000
Gain on sale of equipment = $50,000

Using the indirect method, cash flow from operating activities would be

a. $1,225,000.
b. $1,300,000.
c. $1,350,000.
d. $1,375,000.

13. *CSO: 1A1d LOS: 1A1c*
Dividends paid to company shareholders would be shown on the statement of cash flows as

a. operating cash inflows.
b. operating cash outflows.
c. cash flows from investing activities.
d. cash flows from financing activities.

14. *CSO: 1A1d LOS: 1A1c*
All of the following are classifications on the statement of cash flows **except**

a. operating activities.
b. equity activities.
c. investing activities.
d. financing activities.

15. *CSO: 1A1d LOS: 1A1c*
The purchase of fixed assets should be accounted for on the statement of cash flows as a(n)

a. operating activity.
b. investing activity.
c. financing activity.
d. noncash investing and financing activity.

16. *CSO: 1A1d LOS: 1A1c*
A statement of cash flows prepared using the indirect method would have cash activities listed in which one of the following orders?

a. Financing, investing, operating.
b. Investing, financing, operating.
c. Operating, financing, investing.
d. Operating, investing, financing.

17. *CSO: 1A1d LOS: 1A1e*
Kelli Company acquired land by assuming a mortgage for the full acquisition cost. This transaction should be disclosed on Kelli's Statement of Cash Flows as a(n)

a. financing activity.
b. investing activity.
c. operating activity.
d. non-cash financing and investing activity.

18. *CSO: 1A1d* *LOS: 1A1e*
Which one of the following should be classified as an operating activity on the statement of cash flows?

a. A decrease in accounts payable during the year.
b. An increase in cash resulting from the issuance of previously authorized common stock.
c. The purchase of additional equipment needed for current production.
d. The payment of a cash dividend from money arising from current operations.

19. *CSO: 1A1d* *LOS: 1A1b*
When using the statement of cash flows to evaluate a company's continuing solvency, the **most** important factor to consider is the cash

a. balance at the end of the period.
b. flows from (used for) operating activities.
c. flows from (used for) investing activities.
d. flows from (used for) financing activities.

20. *CSO: 1A1d* *LOS: 1A1c*
The most commonly used method for calculating and reporting a company's net cash flow from operating activities on its statement of cash flows is the

a. direct method.
b. indirect method.
c. single-step method.
d. multiple-step method.

21. *CSO: 1A1d* *LOS: 1A1c*
The presentation of the major classes of operating cash receipts (such as receipts from customers) less the major classes of operating cash disbursements (such as cash paid for merchandise) is **best** described as the

a. direct method of calculating net cash provided or used by operating activities.
b. cash method of determining income in conformity with generally accepted accounting principles.
c. format of the statement of cash flows.
d. indirect method of calculating net cash provided or used by operating activities.

22. *CSO: 1A1d LOS: 1A1e*
Which one of the following would result in a decrease to cash flow in the indirect method of preparing a statement of cash flows?

a. Amortization expense.
b. Decrease in income taxes payable.
c. Proceeds from the issuance of common stock.
d. Decrease in inventories.

23. *CSO 1A1d LOS 1A1b*
The information reported in the statement of cash flows should help investors, creditors, and others to assess all of the following **except** the

a. company's ability to pay dividends and meet obligations.
b. company's ability to generate future cash flows.
c. management with respect to the efficient and profitable use of the firm's resources.
d. cash and noncash investing and financing transactions during the period.

24. *CSO: 1A1d LOS: 1A1g*
Larry Mitchell, Bailey Company's controller, is gathering data for the Statement of Cash Flows for the most recent year end. Mitchell is planning to use the indirect method to prepare this statement, and has made the following list of cash inflows for the period.

- Net income of $100,000.
- Securities purchased for investment purposes with an original cost of $100,000 sold for $125,000.
- Proceeds from the issuance of additional company stock totaling $10,000.

The correct amount to be shown as net cash provided by operating activities is

a. $100,000.
b. $135,000.
c. $225,000.
d. $235,000.

25. *CSO: 1A1d LOS: 1A1e*
During the year, Deltech Inc. acquired a long-term productive asset for $5,000, and also borrowed $10,000 from a local bank. These transactions should be reported on Deltech's Statement of Cash Flows as

a. Outflows for Investing Activities, $5,000; Inflows from Financial Activities, $10,000.
b. Inflows from Investing Activities, $10,000; Outflows for Financing Activities, $5,000.
c. Outflows for Operating Activities, $5,000; Inflows from Financing Activities, $10,000.
d. Outflows for Financing Activities, $5,000; Inflows from Investing Activities, $10,000.

26. *CSO: 1A1d LOS: 1A1e*
Atwater Company has recorded the following payments for the current period.

Purchase Trillium stock	$300,000
Dividends paid to Atwater shareholders	200,000
Repurchase of Atwater Company stock	400,000

The amount to be shown in the Investing Activities Section of Atwater's Cash Flow Statement should be

a. $300,000.
b. $500,000.
c. $700,000.
d. $900,000.

27. *CSO: 1A1d LOS: 1A1e*
Carlson Company has the following payments recorded for the current period.

Dividends paid to Carlson shareholders	$150,000
Interest paid on bank loan	250,000
Purchase of equipment	350,000

The total amount of the above items to be shown in the Operating Activities Section of Carlson's Cash Flow Statement should be

a. $150,000.
b. $250,000.
c. $350,000.
d. $750,000.

28. *CSO: 1A1d LOS: 1A1e*
Barber Company has recorded the following payments for the current period.

Interest paid on bank loan	$300,000
Dividends paid to Barber shareholders	200,000
Repurchase of Barber Company stock	400,000

The amount to be shown in the Financing Activities Section of Barber's Cash Flow Statement should be

a. $300,000.
b. $500,000.
c. $600,000.
d. $900,000.

29. *CSO: 1A1d* *LOS: 1A1e*

Selected financial information for Kristina Company for the year just ended is shown below.

Net income	$2,000,000
Increase in accounts receivable	300,000
Decrease in inventory	100,000
Increase in accounts payable	200,000
Depreciation expense	400,000
Cash received from the issue of common stock	800,000
Cash paid for dividends	80,000
Cash paid for the acquisition of land	1,500,000

Kristina's cash flow from financing activities for the year is

a. $(80,000).
b. $720,000.
c. $800,000.
d. $3,520,000.

30. *CSO: 1A1d* *LOS: 1A1c*

An accountant with Nasbo Enterprises Inc. has gathered the following information in order to prepare the Statement of Cash Flows for the current year. Net income of $456,900 includes a deduction of $45,600 for depreciation expense. The company issued $300,000 of dividends this year and purchased one new building for $275,000. The balance sheets from the current period and prior period included the following balances.

	Prior Year	Current Year
Accounts receivable, net	$ 56,860	$ 45,300
Accounts payable	12,900	10,745
Inventory	186,700	194,320

Using the indirect method, what is the amount of cash provided by operating activities?

a. $202,500.
b. $405,205.
c. $504,285.
d. $521,405.

31. *CSO: 1A1d*   *LOS: 1A1e*

For the fiscal year just ended, Doran Electronics had the following results.

Net income	$920,000
Depreciation expense	110,000
Increase in accounts payable	45,000
Increase in accounts receivable	73,000
Increase in deferred income tax liability	16,000

Doran's net cash flow from operating activities is

a. $928,000.
b. $986,000.
c. $1,018,000.
d. $1,074,000.

32. *CSO: 1A1d*   *LOS: 1A1e*

Three years ago, James Company purchased stock in Zebra Inc. at a cost of $100,000. This stock was sold for $150,000 during the current fiscal year. The result of this transaction should be shown in the Investing Activities Section of James' Statement of Cash Flows as

a. Zero.
b. $50,000.
c. $100,000.
d. $150,000.

33. *CSO: 1A1d*   *LOS: 1A1e*

Madden Corporation's controller has gathered the following information as a basis for preparing the Statement of Cash Flows. Net income for the current year was $82,000. During the year, old equipment with a cost of $60,000 and a net carrying value of $53,000 was sold for cash at a gain of $10,000. New equipment was purchased for $100,000. Shown below are selected closing balances for last year and the current year.

	Last Year	Current Year
Cash	$ 39,000	$ 85,000
Accounts receivable net	43,000	37,000
Inventories	93,000	105,000
Equipment	360,000	400,000
Accumulated depreciation - equipment	70,000	83,000
Accounts payable	22,000	19,000
Notes payable	100,000	100,000
Common stock	250,000	250,000
Retained earnings	93,000	175,000

Madden's cash inflow from operating activities for the current year is

a. $63,000.
b. $73,000.
c. $83,000.
d. $93,000.

34. *CSO: 1A1e*   *LOS: 1A1j*

A leading manufacturer of electric vehicles has accumulated customer driving interaction data through its unique pilot driver-assist program. This data will be used to further develop more advanced autonomous features that the company plans to implement in the near future on its most popular model. In integrated reporting, the system used to accumulate and analyze the driving data is **best** categorized as

a. human capital.
b. intellectual capital.
c. natural capital.
d. manufactural capital.

35. *CSO: 1A1e*   *LOS: 1A1h*

Which one of the following statements regarding an integrated report is correct?

a. It only contains financial information.
b. It only focuses on the creation of value over the long term.
c. It should include material matters, both positive and negative.
d. It must be included as a prominent and accessible part of another report.

36. *CSO: 1A2a*   *LOS: 1A2a*
A change in the estimate for bad debts should be

a. treated as an error.
b. handled retroactively.
c. considered as an extraordinary item.
d. treated as affecting only the period of the change.

37. *CSO: 1A2a*   *LOS: 1A2c*
Finer Foods Inc., a chain of supermarkets specializing in gourmet food, has been using the average cost method to value its inventory. During the current year, the company changed to the first-in, first-out method of inventory valuation. The president of the company reasoned that this change was appropriate since it would more closely match the flow of physical goods. This change should be reported on the financial statements as a

a. cumulative-effect type accounting change.
b. retroactive-effect type accounting change.
c. change in an accounting estimate.
d. correction of an error.

38. *CSO: 1A2a*   *LOS: 1A2l*
Best Billiard Company owns 40% of Supreme Table Company's stock at a historical cost of $300,000. Supreme Table recently reported their earnings for the prior year. Best Billiard's proportional share of Supreme Table's prior year net income was $10,000. Best Billiard also received $15,000 in dividends from Supreme Table in the prior year. Best Billiard uses the equity method as the accounting treatment for this investment. Based on the information presented, the proper presentation of this investment would result in Best Billiard reporting

a. a decrease in the book value of their investment in Supreme Table.
b. an increase in the book value of their investment in Supreme Table.
c. their investment in Supreme Table at the original cost.
d. consolidated financial statements with Supreme Table.

39. *CSO: 1A2a*   *LOS: 1A2k*
Under U.S. GAAP, which one of the following statements best describes the effects on the financial statements resulting from a change in the accounting classification for a security from available-for-sale to held-to-maturity?

a. Comprehensive income will be impacted in the future by unrealized gains/losses.
b. Net income will not be impacted in the future by unrealized gains/losses.
c. The balance sheet will be impacted by unrealized gains/losses.
d. No change will occur regarding the accounting treatment for unrealized gains/losses.

40. *CSO: 1A2b LOS: 1A2q*
A company has $100 million of debt that is due in March Year 3. In December Year 2, the company entered into a non-cancelable agreement with its lender to refinance the debt with the same interest rate, and the full principal is due in December Year 5. How should the debt be classified on the December Year 2 balance sheet of the company?

a. Classified as a current liability.
b. Classified as a long-term liability.
c. Considered as an off-balance sheet liability.
d. Classified as a contingent liability.

41. *CSO: 1A2b LOS: 1A2v*
For a corporation that is subject to the U.S. Income Tax Code and reports its financial results in accordance with U.S. GAAP, which one of the following requires the recognition of a deferred tax liability?

a. Subscriptions received in advance and accounted for ratably over the subscription term.
b. An accrual for product warranty expenses that will be incurred and paid in the future.
c. Interest received on state and municipal bonds.
d. Sales accounted for on an accrual basis and on the cash basis for tax purposes.

42. *CSO: 1A2c LOS: 1A2dd*
Which one of the following transactions would affect retained earnings but not additional paid-in capital?

a. Declaration of a small stock dividend.
b. Decrease in the value of an available-for-sale investment.
c. Impairment of a long-term asset.
d. Purchase of treasury stock using the cost method.

43. *CSO: 1A2d LOS: 1A2nn*
During the month of October, a company purchased 1,000 units of inventory for $500 per unit and sold 900 of these units which represented 10% of the company’s annual sales budget in units. The company also incurred administrative costs of $300,000 during October. By applying the matching principle, the total amount of the company’s expenses on its October income statement is

a. $750,000.
b. $800,000.
c. $810,000.
d. $860,000.

44. *CSO: 1A2d* *LOS: 1A2jj*
A consulting company won a $20.8 million three-year contract. The contract requires software development, hosting, and maintenance over three years. The total estimated cost of the project is $17 million, with $10 million expected in year one, $5 million in year two, and $2 million in year three. The billing schedule shows that $5 million will be billed upon start of the work, and then $5 million at each year end. At the end of the first year, the actual cost incurred is $9 million, and total estimated costs are unchanged at $17 million. Using the percentage-of-completion method, how much revenue should be recognized at the end of the first year?

a. $11 million.
b. $10 million.
c. $5 million.
d. No revenue.

45. *CSO: 1A2d* *LOS: 1A2jj*
At the beginning of the year, a company entered into a long-term contract to build a facility for $40 million. Half of the construction would be completed each year for the next two years. At the beginning of the following year, the company received a second contract to construct a second facility for $80 million. This project will last four years with 30%, 25%, 25%, and 20% of the facility completed during the four years, respectively. If the company recognized revenue of $40 million in the second year, the method it used to account for long-term contracts was the

a. completed-contract method under IFRS.
b. completed-contract method under U.S. GAAP.
c. percentage-of-completion method under IFRS.
d. percentage-of-completion method under U.S. GAAP.

46. *CSO: 1A2e* *LOS: 1A2ss*
A company is preparing its financial statements in accordance with U.S. GAAP. Listed below are select financial data for the company.

Net income = $950,000
Depreciation = $40,000
Investment by owners = $60,000
Unrealized gain on available-for-sale securities = $90,000
Foreign currency translation loss = $20,000

What is the amount that would be reported as comprehensive income?

a. $970,000.
b. $1,020,000.
c. $1,060,000.
d. $1,120,000.

47. *CSO: 1A2f* *LOS: 1A2uu*
A fundamental difference between U.S. GAAP and IFRS is that

a. reversal of inventory write-downs is permitted under IFRS; however, reversal of inventory write-downs is prohibited under U.S. GAAP.
b. distribution costs are included in cost of sales under U.S. GAAP; however, distribution costs are excluded from cost of sales under IFRS.
c. inventory is generally valued at the lower of cost or market under IFRS; however, inventory is generally valued at the lower of cost or net realizable value under U.S. GAAP.
d. marketing costs are included in cost of sales under U.S. GAAP; however, marketing costs are excluded from cost of sales under IFRS.

Answer for Section A: External Financial Reporting Decisions

1. Correct answer d. The annual report to shareholders is prepared in accordance with generally accepted accounting principles and is designed to provide information that is pertinent to investors and other external users. Managers responsible for operating activities use internal reports designed to provide information about various aspects of internal functions that measure the effectiveness and efficiency of operations.

2. Correct answer c. The sale of a fixed asset for less than book value will decrease net profit, as the loss on the sale will be recognized on the Income Statement.

3. Correct answer a. Cash has not yet been paid and no expense was incurred before the machine arrived. A recordable transaction has therefore not yet occurred.

4. Correct answer a. The quality of the earnings reported for the enterprise cannot be determined from the Income Statement and is therefore a limitation of that statement. All of the other characteristics listed refer to limitations of the Statement of Financial Position.

5. Correct answer d. The Income Statement is used to determine a firm's profitability and past performance can be evaluated using prior period income statements. All of the other characteristics listed can be determined from the Statement of Financial Position.

6. Correct answer a. An external user would not have access to the company's budgeted numbers.

7. Correct answer a. The purpose of the Income Statement is to provide a summary of a firm's operating activities for a period of time.

8. Correct answer c. Bertram's Cash Paid for Dividends is $12,000 as calculated below.

$$\begin{aligned} \$100{,}000 + \$40{,}000 - \$8{,}000 + \$5{,}000 - X &= \$125{,}000 \\ \$137{,}000 - X &= \$125{,}000 \\ X &= \underline{\underline{\$12{,}000}} \end{aligned}$$

9. Correct answer b. Shareholders' Equity is presented on the Statement of Financial Position (Balance Sheet) while all the other elements listed are components of the Income Statement.

10. Correct answer a. Firms are required to present reconciliations of the beginning and ending balances of their shareholder accounts; this is accomplished by presenting a Statement of Shareholders' Equity.

11. Correct answer d. D is correct as depreciation is shown on both the income statement and the statement of cash flows. A and C would be shown in the income statement and B is not shown in either these statements as it is unrealized.

12. Correct answer b.
Net income + Amortization expense – inventory increase - Gain on sale of equipment
a. $1,500,000 + 150,000 - 300,000 - 50,000 - 75,000 = $1,225,000
b. $1,500,000 + 150,000 - 300,000 - 50,000 = $1,300,000

c. $1,500,000 + 150,000 - 300,000 = $1,350,000
d. $1,500,000 + 150,000 - 300,000 - 50,000 + 75,000 = $1,375,000

13. Correct answer d. The payment of dividends is a financing activity and should be presented as a cash outflow in that section of the Cash Flow Statement.

14. Correct answer b. The Cash Flow Statement does not have an "equity activities" section; equity transactions are presented as financing activities.

15. Correct answer b. The purchase of fixed assets is considered as an investing activity on the statement of cash flows.

16. Correct answer d. The order in which cash activities should be listed on the Cash Flow Statement is Operating Activities, Investing Activities, and Financing Activities.

17. Correct answer d. This transaction would be presented as a non-cash financing and investing activity as the full amount of the acquisition cost was mortgaged.

18. Correct answer a. Changes in current assets and current liabilities are presented as operating activities on the Cash Flow Statement. The other transactions listed are investing or financing activities.

19. Correct answer b. A company's solvency is best represented by the amount of cash that can be generated internally rather than having to borrow from outside sources. This is shown on the Cash Flow Statement as flows from operating activities.

20. Correct answer b. The two methods used to calculate the cash flow from operating activities are the direct method and the indirect method. The indirect method is used more frequently than the direct method.

21. Correct answer a. The direct method of calculating cash flow from operating activities presents major classes of operating cash receipts less major classes of operating cash disbursements.

22. Correct answer b. Decreases in current liabilities such as accounts payable and income taxes payable are deducted from net income when determining cash flow indicating that cash was used to decrease the balances in these accounts.

23. Correct answer c. The statement of cash flows report cash inflows, outflows, and net changes in cash resulting from operating, investing and financing activities. This can also include certain noncash activities. The statement of cash flows does not provide sufficient information to evaluate the performance of management with respect to the uses of the firm's resources.

24. Correct answer a. Bailey's net income of $100,000 is a cash flow from operating activities. The sale of investment securities for $125,000 is an investing activity while the issuance of company stock is a financing activity.

25. Correct answer a. Deltech's $5,000 acquisition of a productive asset is an outflow for investing activities, while the bank loan is an inflow for financing activities.

26. Correct answer a. Atwater's cash flow for investing activities is $300,000 for the purchase of Trillium stock. Both the payment of dividends and the repurchase of Atwater stock are financing activities.

27. Correct answer b. The interest paid on the bank loan ($250,000) should be included as an operating activity on Carlson's cash flow statement. The dividend payment is a financing activity and the equipment purchase is an investment activity.

28. Correct answer c. The Financing Section of Barber's Cash Flow Statement should include the dividend payment and the repurchase of Barber's stock for a total of $600,000.

29. Correct answer b. Kristina's cash flow from financing activities should be $720,000 ($800,000 inflow from the issuance of common stock less the $80,000 payment of dividends).

30. Correct answer c.

Net income	$ 456,900
Depreciation on fixed assets	45,600
Decrease in accounts receivable, net	11,560
Increase in inventory	(7,620)
Decrease in accounts payable	(2,155)
Cash provided by operating activities	$ 504,285

31. Correct answer c. Doran's net cash flow from operating activities is $1,018,000 as shown below.

Net income	$ 920,000
Depreciation expense	+ 110,000
Increase in payables	+ 45,000
Increase in receivables	- 73,000
Increase in tax liability	+ 16,000
Cash flow	$1,018,000

32. Correct answer d. James should include the total value of the sale ($150,000) in the Investing Activities Section of the Cash Flow Statement.

33. Correct answer c. Madden's net cash flow from operating activities is $83,000 as shown below.

Net income	$82,000
Decrease in receivables	+ 6,000
Increase in inventory	-12,000
Depreciation expense	+20,000
Decrease in payables	- 3,000
Gain on equipment sale	-10,000
Cash flow	$83,000

34. Correct answer b. Intellectual capital represents the intangibles critical to the organization, it includes resources such as patents, copyrights, intellectual property and organizational systems.

35. Correct answer is c. An integrated report should include all material matters, both positive and negative, in a balanced way and without material error. “a”, An integrated report contains relevant information, both financial and other. “b” An integrated report should disclose information affect the organization’s ability to create value over the short, medium and long term. “d” An integrated report may be either a standalone report or be part of another report or communication.

36. Correct answer d. A change in estimate for bad debts should be treated as affecting only the period of the change. Changes in estimates are viewed as normal recurring corrections and retrospective treatment is prohibited.

37. Correct answer b. Finer Foods’ change in inventory method should be presented on a retrospective basis to maintain consistency and comparability.

38. Correct answer a.
    300,000+10,000-15,000=295,000   book value of investment decreased by $5,000

39. Correct answer b. Unrealized gains/losses on debt securities classified as available-for-sale securities are recognized in comprehensive income, whereas they are not recognized in either net income or comprehensive income if the debt security is classified as a held-to-maturity security. Therefore, in this case the recognition of unrealized gains/losses in other comprehensive income will discontinue, which means the balance sheet will no longer be impacted as well. Option “a” is not correct because net income is not impacted by unrealized gains/losses on held-to-maturity securities. Option “c” is not correct because unrealized gains/losses will no longer be recognized in other comprehensive income, so the balance sheet is not impacted. Option “d” is not correct because a change will take place (no further recognition of the changes in fair value in other comprehensive income).

40. The debt should be classified as long-term because the Company has the intent and ability to refinance the debt and the agreement was entered into prior to the end of Year 2. Since no principal payments are due until Year 5 when there will be a lump-sum payment, the entire amount should be classified as long-term.

41. Correct answer d. A deferred tax liability is recognized to reflect the difference between the accounting treatment under U.S. GAAP and tax regulations that will result in higher taxes payable in the future. In option “d” income is recognized earlier for U.S. GAAP purposes than for tax purposes, i.e., taxable income is higher in the future and therefore taxes are higher in the future. Option “a” is not correct because subscriptions received in advance are taxed immediately whereas the associated revenue for U.S. GAAP purposes is recognized ratably over the future subscription period, making this an example of a deferred tax asset. Option “b” is not correct because there is no tax deduction in the period when the warranty accrual is made; instead, the deduction is allowable in the future when the actual cash expense is incurred. This means that taxes in the future are lower and this is therefore an example of a tax asset. Option “c” is not correct because this is a permanent tax difference and therefore no deferred tax liability will be recognized.

42. Correct answer c.
   a. This decreases retained earnings and increases stock dividends distributable, part of paid-in capital, so both retained earnings and paid-in capital are affected.
   b. This is recorded as an unrealized loss and is shown in other comprehensive income, affecting neither retained earnings nor paid-in capital.
   c. This results in a loss on the income statement that would reduce retained earnings but not affect paid-in capital.
   d. Treasury stock is its own account, directly affecting neither retained earnings nor paid-in capital, shown as a deduction from paid-in capital and retained earnings.

43. Correct answer a.
   a. (900 x $500) + 300,000
   b. (1,000 x $500) + 300,000
   c. (300,000 x 12 months)/(900/.10) = $400/unit; ($500 + 400) x 900
   d. (300,000 x 12 months)/(900/.10) = $400/unit; ($500 x 1,000) + ($400 x 900)

44. Correct answer a
   When trying to compute revenue in any given year for a particular contract, under percentage completion project, there are four main steps to follow:
   - ❖ Estimate total cost of the project $17.0M.
   - ❖ Compute % of project completed 52.9% = Total cost to date $9.0M /total estimated cost of contract $17.0M.
   - ❖ Compute life to date revenue earned $10.6M = Total project revenue $20.8M X % completed 52.9%.
   - ❖ Deduct life to date revenue recognized prior month (which is zero since this is the first year) from $11.0M.

45. Correct answer b.
   a. IFRS does not allow the completed-contract method.
   b. $40 million for the completion of the first contract
   c. $40 million/2 years + $80 million/4 years assuming revenue claimed evenly over all years, or ($40 x 50%) + ($80 x 25% from wrong year), but revenue under percentage-of-completion would be ($40 million x 50%) + ($80 x 30%), or $44 million
   d. See “c”.

46. Correct answer b.
   Top Golf Products’ comprehensive income = Net Income + Unrealized gain on available for sale securities - Foreign currency translation loss
   950,000 + 90,000 – 20,000 = 1,020,000

47. Correct answer a.
   b. and d. are not the differences between U.S. GAAP and IFRS.
   c. inventory is generally valued at the lower of cost or market under U.S. GAAP; however, inventory is generally valued at the lower of cost or net realizable value under IFRS.

Section B: Planning, Budgeting and Forecasting

1. *CSO: 1B1a* *LOS: 1B1d*
   The management of a food-processing company is analyzing its internal strengths and weaknesses as part of its strategic planning process. Which one of the following is **most** likely considered a strategic internal variable for the company?

   a. Changes in the legal code for food processors.
   b. The economic forces that regulate the local labor supply.
   c. Technological changes in food-processing methods.
   d. The culture at the company's food-processing plant.

2. *CSO: 1B1b* *LOS: 1B1e*
   A company is in the process of developing its mission statement. Which one of the following is **least** appropriate for a company's mission statement?

   a. Defining the purpose of the company.
   b. Identifying what product or service the company is providing.
   c. Promoting a common shared goal on the part of employees.
   d. Explaining the tactics for increasing market share in a specific region.

3. *CSO: 1B1c* *LOS: 1B1h*
   A company sells a product that is aimed at the broad mass market but is perceived as unique throughout its industry. The company is earning above average returns on the product. Which one of the following is the **most** appropriate term for the competitive strategy followed by the company?

   a. Market focus.
   b. Financial leadership.
   c. Cost focus.
   d. Differentiation.

4. *CSO: 1B1d* *LOS: 1B1i*
   The concurrent action of basic competitive forces as defined by Porter's 5 forces model determines the

   a. strategy that a firm should follow to achieve its objectives.
   b. rivalry inside the industry.
   c. entrance barriers that potential players must face to get into the industry.
   d. long-term profitability and the competitive intensity of the industry.

5. *CSO: 1B1d* *LOS: 1B1i*

After leading the market for the past decade, the growth of product ABC is slowing down. In this stage of its life cycle, the product is still generating significant amounts of cash flows that cover the company's investment into new product innovations. According to the BCG Growth-Share Matrix, product ABC is **most** likely an example of a

a. star.
b. cash cow.
c. question mark.
d. dog.

6. *CSO: 1B2a* *LOS: 1B2a*

The major objectives of budgeting are to

a. foster the planning of operations, provide a framework for performance evaluation, and promote communication and coordination among the organization's segments.
b. foster the planning of operations, facilitate the identification of blame for missed budget predictions, and ensure goal congruence between superiors and subordinates.
c. define responsibility centers, provide a framework for performance evaluation, and promote communication and coordination among the organization's segments.
d. define responsibility centers, facilitate the identification of blame for missed budget predictions, and ensure goal congruence between superiors and subordinates.

7. *CSO: 1B2a* *LOS: 1B2c*

The management of a company has just completed a thorough review of its strategic goals and formulated the company's long-term plan and short-term objectives. The **most** appropriate next step for the company is the development of a

a. financial budget.
b. operating budget.
c. capital budget.
d. master budget.

8. *CSO: 1B2a LOS: 1B2b*

Cerawell Products Company is a ceramics manufacturer that is facing several challenges in its operations due to economic and industry conditions. The company is currently preparing its annual plan and budget. Which one of the following is subject to the **least** control by the management of Cerawell in the current fiscal year?

a. A new machine that was purchased this year has not helped reduce Cerawell's unfavorable labor efficiency variances.
b. A competitor has achieved an unexpected technological breakthrough that has given them a significant quality advantage, and has caused Cerawell to lose market share.
c. Vendors have asked that the contract price for the goods they supply to Cerawell be renegotiated and adjusted for inflation.
d. Experienced employees have decided to terminate their employment with Cerawell and go to work for the competition.

9. *CSO: 1B2a LOS: 1B2e*

All of the following are advantages of the use of budgets in a management control system **except** that budgets

a. force management planning.
b. provide performance criteria.
c. promote communication and coordination within the organization.
d. limit unauthorized expenditures.

10. *CSO: 1B2b LOS: 1B2e*

When properly developed and administered, budgets provide the following advantages to the organization **except** to

a. provide a structure for measuring performance.
b. motivate managers and other employees.
c. ensure that the organization makes a profit.
d. promote the efficient allocation of resources.

11. *CSO: 1B2b LOS: 1B2e*

In developing the budget for the next year, which one of the following approaches would most likely result in a successful budget with the **greatest** amount of positive motivation and goal congruence?

a. Permit the divisional manager to develop the goal for the division that in the manager's view will generate the greatest amount of profits.
b. Have senior management develop the overall goals and permit the divisional manager to determine how these goals will be met.
c. Have the divisional and senior management jointly develop goals and objectives while constructing the corporation's overall plan of operation.
d. Have the divisional and senior management jointly develop goals and the divisional manager develop the implementation plan.

12. *CSO: 1B2b* *LOS: 1B2e*
Which one of the following statements concerning approaches for the budget development process is **correct**?

a. The authoritative approach to budgeting discourages strict adherence to strategic organizational goals.
b. To prevent ambiguity, once departmental budgeted goals have been developed, they should remain fixed even if the sales forecast upon which they are based proves to be wrong in the middle of the fiscal year.
c. With the information technology available, the role of budgets as an organizational communication device has declined.
d. Since department managers have the most detailed knowledge about organizational operations, they should use this information as the building blocks of the operating budget.

13. *CSO: 1B2b* *LOS: 1B2e*
Which one of the following items would **most** likely cause the planning and budgeting system to fail? The lack of

a. historical financial data.
b. input from several levels of management.
c. top management support.
d. adherence to rigid budgets during the year.

14. *CSO: 1B2b* *LOS: 1B2e*
All of the following are disadvantages of authoritative budgeting as opposed to participatory budgeting, **except** that it

a. may result in a budget that is not possible to achieve.
b. may limit the acceptance of proposed goals and objectives.
c. reduces the communication between employees and management.
d. reduces the time required for budgeting.

15. *CSO: 1B2d* *LOS: 1B2m*
All of the following statements concerning standard costs are correct **except** that

a. time and motion studies are often used to determine standard costs.
b. standard costs are usually set for one year.
c. standard costs can be used in costing inventory accounts.
d. standard costs are usually stated in total, while budgeted costs are usually stated on a per-unit basis.

16. *CSO: 1B2d LOS: 1B2o*
One approach for developing standard costs incorporates communication, bargaining, and interaction among product line managers, the immediate supervisors for whom the standards are being developed, and the accountants and engineers, before the standards are accepted by top management. This approach would **best** be characterized as a(n)

a. imposed approach.
b. authoritative approach.
c. engineering approach.
d. participative approach.

17. *CSO: 1B2d LOS: 1B2n*
When compared with ideal standards, practical standards

a. produce lower per-unit product costs.
b. result in a less desirable basis for the development of budgets.
c. incorporate very generous allowances for spoilage and worker inefficiencies.
d. serve as a better motivating target for manufacturing personnel.

18. *CSO: 1B2d LOS: 1B2q*
Jura Corporation is developing standards for the next year. Currently XZ-26, one of the material components, is being purchased for $36.45 per unit. It is expected that the component's cost will increase by approximately 10% next year and the price could range from $38.75 to $44.18 per unit depending on the quantity purchased. The appropriate standard for XZ-26 for next year should be set at the

a. current actual cost plus the forecasted 10% price increase.
b. lowest purchase price in the anticipated range to keep pressure on purchasing to always buy in the lowest price range.
c. highest price in the anticipated range to ensure that there are only favorable purchase price variances.
d. price agreed upon by the purchasing manager and the appropriate level of company management.

19. *CSO: 1B2d LOS: 1B2m*
Which one of the following will allow a better use of standard costs and variance analysis to help improve managerial decision-making?

a. Company A does not differentiate between variable and fixed overhead in calculating its overhead variances.
b. Company B uses the prior year's average actual cost as the current year's standard.
c. Company C investigates only negative variances.
d. Company D constantly revises standards to reflect learning curves.

20. *CSO: 1B2d   LOS: 1B2m*
After performing a thorough study of Michigan Company's operations, an independent consultant determined that the firm's labor standards were probably too tight. Which one of the following facts would be **inconsistent** with the consultant's conclusion?

a. A review of performance reports revealed the presence of many unfavorable efficiency variances.
b. Michigan's budgeting process was well-defined and based on a bottom-up philosophy.
c. Management noted that minimal incentive bonuses have been paid in recent periods.
d. Production supervisors found several significant fluctuations in manufacturing volume, with short-term increases on output being followed by rapid, sustained declines.

21. *CSO: 1B2d   LOS: 1B2t*
A company pays its production manager an annual bonus based on how well the manager performs against the production department's annual budgets. The production manager has been overestimating budgeted costs the past few years in order to obtain a higher bonus payment. The production manager's actions are **best** described as

a. motivating employee effort.
b. building budgetary slack.
c. balancing production costs.
d. setting budgeted performance.

22. *CSO: 1B3a* *LOS: 1B3b*

An international nonprofit organization finances medical research. The majority of its revenue and support comes from fund-raising activities, investments, and specific grants from an initial sponsoring corporation. The organization has been in operation for over 15 years, and has just finished a major fund-raising event that raised $500 million for the current fiscal period. The following are selected data from recent financial statements (in millions of dollars).

	Current Year	Past Year
Revenue	$500	$425
Investments (average balances)	210	185
Investment income	16	20
Administrative expense	10	8

A financial analyst wants to determine if the change in investment income during the current year was due to changes in investment strategy, changes in portfolio mix, or other factors. Which one of the following techniques should be used?

a. Ratio analysis that compares changes in the investment portfolio on a monthly basis.
b. Multiple regression analysis that includes independent variables associated with the nature of the investment portfolio and market conditions.
c. Best practice analysis that compares the investment income as a percentage of total assets to a competitor's investment income as a percentage of total assets.
d. Simple linear regression that compares investment income changes over the past five years to determine the nature of the changes.

23. *CSO: 1B3a* *LOS: 1B3a*

For cost estimation simple regression differs from multiple regression in that simple regression uses only

a. one dependent variable, while multiple regression uses all available data to estimate the cost function.
b. dependent variables, while multiple regression can use both dependent and independent variables.
c. one independent variable, while multiple regression uses more than one independent variable.
d. one dependent variable, while multiple regression uses more than one dependent variable.

24. *CSO: 1B3a* *LOS: 1B3a*

A company has accumulated data for the last 24 months in order to determine if there is an independent variable that could be used to estimate shipping costs. Three possible independent variables being considered are packages shipped, miles shipped, and pounds shipped. The quantitative technique that should be used to determine whether any of these independent variables might provide a good estimate for shipping costs is

a. flexible budgeting.
b. linear programming.
c. linear regression.
d. variable costing.

25. *CSO: 1B3a* *LOS: 1B3c*

In order to analyze sales as a function of advertising expenses, the sales manager of Smith Company developed a simple regression model. The model included the following equation, which was based on 32 monthly observations of sales and advertising expenses with a related coefficient of determination of .90.

S = $10,000 + 2.50A
S = sales
A = advertising expenses

If Smith Company's advertising expenses in one month amounted to $1,000, the related point estimate of sales would be

a. $2,500.
b. $11,250.
c. $12,250.
d. $12,500.

26. *CSO: 1B3a* *LOS: 1B3c*

The results of regressing Y against X are as follows.

	Coefficient
Intercept	5.23
Slope	1.54

When the value of X is 10, the estimated value of Y is

a. 6.78.
b. 8.05.
c. 20.63.
d. 53.84.

27. *CSO: 1B3b* *LOS: 1B3d*

Which one of the following techniques would **most** likely be used to analyze reductions in the time required to perform a task, as experience with that task increases?

a. Regression analysis.
b. Learning curve analysis.
c. Sensitivity analysis.
d. Normal probability analysis.

28. *CSO: 1B3b* *LOS: 1B3e*

Aerosub Inc. has developed a new product for spacecraft that includes the manufacturing of a complex part. The manufacturing of this part requires a high degree of technical skill. Management believes there is a good opportunity for its technical force to learn and improve as they become accustomed to the production process. The production of the first unit requires 10,000 direct labor hours. If an 80% learning curve is used and eight units are produced, the cumulative average direct labor hours required per unit of the product will be

a. 5,120 hours.
b. 6,400 hours.
c. 8,000 hours.
d. 10,000 hours.

29. *CSO: 1B3b* *LOS: 1B3d*

A manufacturing firm plans to bid on a special order of 80 units that will be manufactured in lots of 10 units each. The production manager estimates that the direct labor hours per unit will decline by a constant percentage each time the cumulative quantity of units produced doubles. The quantitative technique used to capture this phenomenon and estimate the direct labor hours required for the special order is

a. cost-profit-volume analysis.
b. the Markov process.
c. linear programming analysis.
d. learning curve analysis.

30. *CSO: 1B3b LOS: 1B3e*
A manufacturing company has the opportunity to submit a bid for 20 units of a product on which it has already produced two 10-unit lots. The production manager believes that the learning experience observed on the first two lots will continue for at least the next two lots. The direct labor required on the first two lots was as follows.

- 5,000 direct labor hours for the first lot of 10 units
- 3,000 additional direct labor hours for the second lot of 10 units

The learning rate experienced by the company on the first two lots of this product is

a. 40.0%.
b. 60.0%.
c. 62.5%.
d. 80.0%.

31. *CSO: 1B3b LOS: 1B3e*
Aerosub Inc. has developed a new product for spacecraft that includes the manufacture of a complex part. The manufacturing of this part requires a high degree of technical skill. Management believes there is a good opportunity for its technical force to learn and improve as they become accustomed to the production process. The production of the first unit requires 10,000 direct labor hours. If an 80% learning curve is used, the cumulative direct labor hours required for producing a total of eight units would be

a. 29,520 hours.
b. 40,960 hours.
c. 64,000 hours.
d. 80,000 hours.

32. *CSO: 1B3b* *LOS: 1B3e*

Propeller Inc. plans to manufacture a newly designed high-technology propeller for airplanes. Propeller forecasts that as workers gain experience, they will need less time to complete the job. Based on prior experience, Propeller estimates a 70% cumulative learning curve and has projected the following costs.

Cumulative number	Manufacturing Projections	
of units produced	Average cost per unit	Total costs
1	$20,000	$20,000
2	14,000	28,000

If Propeller manufactures eight propellers, the total manufacturing cost would be

a. $50,660.
b. $54,880.
c. $62,643.
d. $112,000.

33. *CSO: 1B3b* *LOS: 1B3e*

Martin Fabricating uses a cumulative average-time learning curve model to monitor labor costs. Data regarding two recently completed batches of a part that is used in tractor-trailer rigs is as follows.

Batch Number	Number of Units	Cumulative Average Hours Per Unit
1	50	20
2	50	16

If the same rate of learning continues for the next several batches produced, which of the following best describes (1) the type (i.e., degree) of learning curve that the firm is experiencing and (2) the average hours per unit for units included in the 201-400 range of units produced (i.e., the last 200 units)?

	Type (Degree) of Learning Curve	Average Hours Per Unit for Units 201-400
a.	20%	10.24.
b.	80%	10.24.
c.	80%	7.68.
d.	20%	3.84.

34. *CSO: 1B3b LOS: 1B3e*
Propeller Inc. plans to manufacture a newly designed high-technology propeller for airplanes. Propeller forecasts that as workers gain experience, they will need less time to complete the job. Based on prior experience, Propeller estimates a 70% cumulative learning curve and has projected the following costs.

Cumulative number of units produced	Manufacturing Projections: Average cost per unit	Manufacturing Projections: Total costs
1	$20,000	$20,000
2	14,000	28,000

If Propeller produces eight units, the average manufacturing cost per unit will be

a. $1,647.
b. $6,860.
c. $9,800.
d. $14,000.

35. *CSO: 1B3b LOS: 1B3e*
In competing as a subcontractor on a military contract, Aerosub Inc. has developed a new product for spacecraft that includes the manufacturing of a complex part. Management believes there is a good opportunity for its technical force to learn and improve as they become accustomed to the production process. Accordingly, management estimates an 80% learning curve would apply to this unit. The overall contract will call for supplying eight units. Production of the first unit requires 10,000 direct labor hours. The estimated total direct labor hours required to produce the seven additional units would be

a. 30,960 hours.
b. 40,960 hours.
c. 56,000 hours.
d. 70,000 hours.

36. *CSO: 1B3b LOS: 1B3e*
A manufacturing company required 800 direct labor hours to produce the first lot of four units of a new motor. Management believes that a 90% learning curve will be experienced over the next four lots of production. How many direct labor hours will be required to manufacture the **next** 12 units?

a. 1,792.
b. 1,944.
c. 2,016.
d. 2,160.

37. *CSO: 1B3b* *LOS: 1B3e*

Propeller Inc. plans to manufacture a newly designed high-technology propeller for airplanes. Propeller forecasts that as workers gain experience, they will need less time to complete the job. Based on prior experience, Propeller estimates a 70% cumulative learning curve and has projected the following costs.

Cumulative number of units produced	Manufacturing Projections: Average cost per unit	Total costs
1	$20,000	$20,000
2	14,000	28,000

The estimated cost of an order for seven additional propellers, after completing production of the first propeller, would be

a. $34,880.
b. $54,880.
c. $92,000.
d. $98,000.

38. *CSO: 1B3c* *LOS: 1B3g*

Johnson Software has developed a new software package. Johnson's sales manager has prepared the following probability distribution describing the relative likelihood of monthly sales levels and relative income (loss) for the company's new software package.

Monthly Sales In Units	Probability	Income (Loss)
10,000	.2	$(4,000)
20,000	.3	10,000
30,000	.3	30,000
40,000	.2	60,000

If Johnson decides to market its new software package, the expected value of additional monthly income will be

a. $23,200.
b. $24,000.
c. $24,800.
d. $25,000.

39. *CSO: 1B3c* *LOS: 1B3g*

According to recent focus sessions, Norton Corporation has a "can't miss" consumer product on its hands. Sales forecasts indicate either excellent or good results, with Norton's sales manager assigning a probability of .6 to a good results outcome. The company is now studying various sales compensation plans for the product and has determined the following contribution margin data.

	Contribution Margin
If sales are excellent and	
Plan 1 is adopted	$300,000
Plan 2 is adopted	370,000
If sales are good and	
Plan 1 is adopted	240,000
Plan 2 is adopted	180,000

On the basis of this information, which of the following statements is **correct**?

a. Plan 2 should be adopted because it is $10,000 more attractive than Plan 1.
b. Plan 1 should be adopted because it is $8,000 more attractive than Plan 2.
c. Plan 1 should be adopted because of the sales manager's higher confidence in good results.
d. Either Plan should be adopted, the decision being dependent on the probability of excellent sales results.

40. *CSO: 1B3c* *LOS: 1B3g*

Denton Inc. manufactures industrial machinery and requires 100,000 switches per year in its assembly process. When switches are received from a vendor they are installed in the specific machine and tested. If the switches fail, they are scrapped and the associated labor cost of $25 is considered lost productivity. Denton purchases "off the shelf" switches as opposed to custom-made switches and experiences quality problems with some vendors' products. A decision must be made as to which vendor to buy from during the next year based on the following information.

Vendor	Price per switch	Percentage expected to pass the test
P	$35	90%
Q	37	94%
R	39	97%
S	40	99%

Which vendor should Denton's controller recommend to management?

a. Vendor P.
b. Vendor Q.
c. Vendor R.
d. Vendor S.

41. *CSO: 1B3c LOS: 1B3g*
Scarf Corporation's controller has decided to use a decision model to cope with uncertainty. With a particular proposal, currently under consideration, Scarf has two possible actions, invest or not invest in a joint venture with an international firm. The controller has determined the following.

Action 1: Invest in the Joint Venture
Events and Probabilities:
Probability of success = 60%.
Cost of investment = $9.5 million.
Cash flow if investment is successful = $15.0 million.
Cash flow if investment is unsuccessful = $2.0 million.
Additional costs to be paid = $0
Costs incurred up to this point = $650,000.
Action 2: Do Not Invest in the Joint Venture
Events
Costs incurred up to this point = $650,000.
Additional costs to be paid = $100,000.

Which one of the following alternatives correctly reflects the respective expected values of investing versus not investing?

a. $300,000 and $(750,000).
b. $(350,000) and $(100,000).
c. $300,000 and (100,000).
d. $(350,000) and $(750,000).

42. *CSO: 1B3c LOS: 1B3g*
Allbee Company has three possible investment opportunities. The controller calculated the payoffs and probabilities, as follows.

	Probabilities		
Payoffs	Investment A	Investment B	Investment C
$(20,000)	.3	.2	.3
(10,000)	.1	.2	.1
30,000	.3	.2	.2
70,000	.2	.2	.3
100,000	.1	.2	.1

The cost of investments A, B, and C are the same. Using the expected-value criterion, which one of the following rankings of these investments, from highest payoff to lowest payoff, is correct?

a. A, B, C.
b. B, A, C.
c. C, A, B.
d. B, C, A.

43. *CSO: 1B3c* *LOS: 1B3g*
The sales manager of Serito Doll Company has suggested that an expanded advertising campaign costing $40,000 would increase the sales and profits of the company. He has developed the following probability distribution for the effect of the advertising campaign on company sales.

Sales increase (units)	Probability
15,000	.10
30,000	.35
45,000	.10
60,000	.25
75,000	.20

The company sells the dolls at $5.20 each. The cost of each doll is $3.20. Serito's expected incremental profit, if the advertising campaign is adopted, would be

a. $6,500.
b. $46,500.
c. $53,000.
d. $93,000.

44. *CSO: 1B3c* *LOS: 1B3g*
Stock X has the following probability distribution of expected future returns.

Probability	Expected Return
.10	-20%
.20	5%
.40	15%
.20	20%
.10	30%

The expected rate of return on stock X would be

a. 10%.
b. 12%.
c. 16%.
d. 19%.

45. *CSO: 1B3c LOS: 1B3g*

Which one of the following four probability distributions provides the highest expected monetary value?

Alternative #1		Alternative #2		Alternative #3		Alternative #4	
Prob.	Cash Inflows	Prob.	Cash Inflows	Prob.	Cash Inflows	Prob.	Cash Inflows
10%	$50,000	10%	$50,000	10%	$50,000	10%	$150,000
20%	75,000	20%	75,000	20%	75,000	20%	100,000
40%	100,000	45%	100,000	40%	100,000	40%	75,000
30%	150,000	25%	150,000	30%	125,000	30%	50,000

a. Alternative #1.
b. Alternative #2.
c. Alternative #3.
d. Alternative #4.

46. *CSO: 1B3c LOS: 1B3g*

A company is developing its budget for the upcoming month. The financial planning department has developed the following range of sales activity and the associated probabilities for each level of budgeted sales.

Sales Estimate	Probability
$120,000	25%
170,000	40%
200,000	35%

The company's cost of goods sold averages 80% of sales, and the relationship is expected to remain consistent in the next fiscal year. What is the expected value of the company's budgeted cost of goods sold?

a. $134,400.
b. $136,000.
c. $168,000.
d. $170,000.

47. *CSO: 1B3c LOS: 1B3g*

The Lions Club is planning to sell pretzels at a local football game and has estimated sales demand as follows.

Sales demand	8,000	10,000	12,000	15,000
Probability	10%	40%	30%	20%

The cost of the pretzels varies with the quantity purchased as follows.

Purchase quantity	8,000	10,000	12,000	15,000
Cost per unit	\$1.25	\$1.20	\$1.15	\$1.10

Any unsold pretzels would be donated to the local food bank. The calculated profits at the various sales demand levels and purchase quantities are as follows.

	Expected Profits at Various Purchase Quantity Levels			
Sales Demand	8,000	10,000	12,000	15,000
8,000	\$6,000	\$4,000	\$ 2,200	\$ (500)
10,000	6,000	8,000	6,200	3,500
12,000	6,000	8,000	10,200	7,500
15,000	6,000	8,000	10,200	13,500

Which one of the following purchase quantities would you recommend to the Lions Club?

a. 8,000.
b. 10,000.
c. 12,000.
d. 15,000.

48. *CSO: 1B4a* *LOS: 1B4g*

StoniBrook Industries produces decorative hardware used by home construction firms and sold in do-it-yourself retail outlets. The business is highly competitive with little opportunity for raising prices. StoniBrook's master budget for the next fiscal year is shown below.

Sales	$8,400,000
Cost of goods sold*	6,000,000
Advertising	500,000
Sales salaries	400,000
Sales commissions	168,000
Administrative expenses	350,000
Operating income	$ 982,000

*50% direct material, 30% direct labor, 20% fixed overhead

The following events could impact the budget.

- Renegotiation of a union contract resulting in a 3.5% wage increase for factory workers.
- A 5% increase in the cost of 20% of its material.
- Elimination of sales commissions with an equal increase in sales salaries.

If all of these events occur, the incremental change in StoniBrook's operating income will be

a. $123,000 decrease.
b. $93,000 decrease.
c. $45,000 increase.
d. $75,000 increase.

49. *CSO: 1B4a* *LOS: 1B4d*

All of the following are criticisms of the traditional budgeting process **except** that it

a. makes across-the-board cuts when early budget iterations show that planned expenses are too high.
b. incorporates non-financial measures as well as financial measures into its output.
c. overemphasizes a fixed time horizon such as one year.
d. is not used until the end of the budget period to evaluate performance.

50. *CSO: 1B4a* *LOS: 1B4c*
What would be the correct chronological order of preparation for the following budgets?

I. Cost of goods sold budget.
II. Production budget.
III. Purchases budget.
IV. Administrative budget.

a. I, II, III, IV.
b. III, II, IV, I.
c. IV, II, III, I.
d. II, III, I, IV.

51. *CSO: 1B4a* *LOS: 1B4c*
Which one of the following **best** describes the order in which budgets should be prepared when developing the annual master operating budget?

a. Production budget, direct material budget, revenue budget.
b. Production budget, revenue budget, direct material budget.
c. Revenue budget, production budget, direct material budget.
d. Revenue budget, direct material budget, production budget.

52. *CSO: 1B4d* *LOS: 1B4a*
A budgeting approach that requires a manager to justify the entire budget for each budget period is known as

a. performance budgeting.
b. program budgeting.
c. zero-base budgeting.
d. incremental budgeting.

53. *CSO: 1B4d* *LOS: 1B4a*
A company's board of directors has requested a full in-depth review of all budgeted items for next fiscal year's operating budget. The controller of the company subsequently advised all business unit heads that the company will not automatically approve operating budget items for next fiscal year simply because they were approved in the past, and that all operating budget items for next fiscal year will need to be justified. Based on the above information, which one of the following budgeting systems is the company **most** likely using?

a. Activity-based budgeting.
b. Zero-based budgeting.
c. Project budgeting.
d. Flexible budgeting.

54. *CSO: 1B4e* *LOS: 1B4c*

The type of budget that is continually updated to add a new budget period as the most recent budget period is completed is called a(n)

a. activity-based budget.
b. flexible budget.
c. rolling budget.
d. zero-based budget.

55. *CSO: 1B4f* *LOS: 1B4g*

A construction company has an annual master budget that shows straight-line depreciation expense of $516,000 for the year. The master budget shows a production volume of 206,400 units and production is expected to occur uniformly throughout the year. The capacity for the facility is 215,000 units. During February, the company produced 16,340 units of product and actual depreciation expense recorded was $40,500. The company controls manufacturing costs with a flexible budget. The flexible budget amount for depreciation expense for March would be

a. $39,216.
b. $40,500.
c. $40,850.
d. $43,000.

56. *CSO: 1B4f* *LOS: 1B4d*

Rainbow Inc. recently appointed Margaret Joyce as vice president of finance and asked her to design a new budgeting system. Joyce has changed to a monthly budgeting system by dividing the company's annual budget by twelve. Joyce then prepared monthly budgets for each department and asked the managers to submit monthly reports comparing actual to budget. A sample monthly report for Department A is shown below.

Rainbow Inc.
Monthly Report for Department A

	Actual	Budget	Variance
Units	1,000	900	100F
Variable production costs			
Direct material	$2,800	$2,700	$100U
Direct labor	4,800	4,500	300U
Variable factory overhead	4,250	4,050	200U
Fixed costs			
Depreciation	3,000	2,700	300U
Taxes	1,000	900	100U
Insurance	1,500	1,350	150U
Administration	1,100	990	110U
Marketing	1,000	900	100U
Total costs	$19,450	$18,090	$1,360U

This monthly budget has been imposed from the top and will create behavior problems. All of the following are causes of such problems **except**

a. the use of a flexible budget rather than a fixed budget.
b. top management authoritarian attitude toward the budget process.
c. the inclusion of non-controllable costs such as depreciation.
d. the lack of consideration for factors such as seasonality.

57. *CSO: 1B4f* *LOS: 1B4d*

When compared to static budgets, flexible budgets

a. offer managers a more realistic comparison of budget and actual fixed cost items under their control.
b. provide a better understanding of the capacity variances during the period being evaluated.
c. encourage managers to use less fixed costs items and more variable cost items that are under their control.
d. offer managers a more realistic comparison of budget and actual revenue and cost items under their control.

58. *CSO: 1B5a* *LOS: 1B5o*

Tut Company's selling and administrative costs for the month of August, when it sold 20,000 units, were as follows.

	Costs	
	Per Unit	Total
Variable costs	$18.60	$372,000
Step costs	4.25	85,000
Fixed costs	8.80	176,000
Total selling and administrative costs	$31.65	$633,000

The variable costs represent sales commissions paid at the rate of 6.2% of sales. The step costs depend on the number of salespersons employed by the company. In August there were 17 persons on the sales force. However, two members have taken early retirement effective August 31. It is anticipated that these positions will remain vacant for several months. Total fixed costs are unchanged within a relevant range of 15,000 to 30,000 units per month. Tut is planning a sales price cut of 10%, which it expects will increase sales volume to 24,000 units per month. If Tut implements the sales price reduction, the total budgeted selling and administrative costs for the month of September would be

a. $652,760.
b. $679,760.
c. $714,960.
d. $759,600.

59. *CSO: 1B5a* *LOS: 1B5c*

Netco's sales budget for the coming year is as follows.

Item	Volume in Units	Sales Price	Sales Revenue
1	200,000	$50	$10,000,000
2	150,000	10	1,500,000
3	300,000	30	9,000,000
	Total sales revenue		$20,500,000

Items 1 and 3 are different models of the same product. Item 2 is a complement to Item 1. Past experience indicates that the sales volume of Item 2 relative to the sales volume of Item 1 is fairly constant. Netco is considering an 10% price increase for the coming year for Item 1, which will cause sales of Item 1 to decline by 20%, while simultaneously causing sales of Item 3 to increase by 5%. If Netco institutes the price increase for Item 1, total sales revenue will decrease by

a. $1,050,000.
b. $850,000.
c. $750,000.
d. $550,000.

60. *CSO: 1B5a LOS: 1B5i*
Hannon Retailing Company prices its products by adding 30% to its cost. Hannon anticipates sales of $715,000 in July, $728,000 in August, and $624,000 in September. Hannon's policy is to have on hand enough inventory at the end of the month to cover 25% of the next month's sales. What will be the cost of the inventory that Hannon should budget for purchase in August?

a. $509,600.
b. $540,000.
c. $560,000.
d. $680,000.

61. *CSO: 1B5a LOS: 1B5f*
Streeter Company produces plastic microwave turntables. Sales for the next year are expected to be 65,000 units in the first quarter, 72,000 units in the second quarter, 84,000 units in the third quarter, and 66,000 units in the fourth quarter. Streeter maintains a finished goods inventory at the end of each quarter equal to one half of the units expected to be sold in the next quarter. How many units should Streeter produce in the second quarter?

a. 72,000 units.
b. 75,000 units.
c. 78,000 units.
d. 84,000 units.

62. *CSO: 1B5a LOS: 1B5f*
Ming Company has budgeted sales at 6,300 units for the next fiscal year, and desires to have 590 good units on hand at the end of that year. Beginning inventory is 470 units. Ming has found from past experience that 10% of all units produced do not pass final inspection, and must therefore be destroyed. How many units should Ming plan to produce in the next fiscal year?

a. 6,890.
b. 7,062.
c. 7,133.
d. 7,186.

63. *CSO: 1B5a LOS: 1B5f*
Savior Corporation assembles backup systems for home computers. For the first quarter, the budget for sales is 67,500 units. Savior will finish the fourth quarter of last year with an inventory of 3,500 units, of which 200 are obsolete. The target ending inventory is 10 days of sales (based upon 360 days). What is the budgeted production for the first quarter?

a. 75,000.
b. 71,700.
c. 71,500.
d. 64,350

64. *CSO: 1B5a LOS: 1B5f*
Sunrise Company produces light switches. Sales for the next year are expected to be 65,000 units in the first quarter, 72,000 units in the second quarter, 84,000 units in the third quarter, and 66,000 units in the fourth quarter. Sunrise usually maintains a finished goods inventory at the end of each quarter equal to one half of the units expected to be sold in the next quarter. However, due to a work stoppage, the finished goods inventory at the end of the first quarter is 8,000 units less than it should be. How many units should Sunrise produce in the second quarter?

a. 75,000 units.
b. 78,000 units.
c. 80,000 units.
d. 86,000 units.

65. *CSO: 1B5a* *LOS: 1B5f*
Data regarding Rombus Company's budget are shown below.

Planned sales	4,000 units
Material cost	$2.50 per pound
Direct labor	3 hours per unit
Direct labor rate	$7 per hour
Finished goods beginning inventory	900 units
Finished goods ending inventory	600 units
Direct materials beginning inventory	4,300 units
Direct materials ending inventory	4,500 units
Materials used per unit	6 pounds

Rombus Company's production budget will show total units to be produced of

a. 3,700.
b. 4,000.
c. 4,300.
d. 4,600.

66. *CSO: 1B5a* *LOS: 1B5f*
Krouse Company is in the process of developing its operating budget for the coming year. Given below are selected data regarding the company’s two products, laminated putter heads and forged putter heads, that are sold through specialty golf shops.

	Putter Heads	
	Forged	Laminated
Raw materials		
Steel	2 pounds @ $5/lb.	1 pound @ $5/lb.
Copper	None	1 pound @ $15/lb.
Direct labor	1/4 hour @ $20/hr.	1 hour @ $22/hr.
Expected sales (units)	8,200	2,000
Selling price per unit	$30	$80
Ending inventory target (units)	100	60
Beginning inventory (units)	300	60
Beginning inventory (cost)	$5,250	$3,120

Manufacturing overhead is applied to units produced on the basis of direct labor hours. Variable manufacturing overhead is projected to be $25,000, and fixed manufacturing overhead is expected to be $15,000.

The estimated cost to produce one unit of the laminated putter head is

a. $42.
b. $46.
c. $52.
d. $62.

67. *CSO: 1B5a LOS: 1B5d*

Tidwell Corporation sells a single product for $20 per unit. All sales are on account, with 60% collected in the month of sale and 40% collected in the following month. A partial schedule of cash collections for January through March of the coming year reveals the following receipts for the period.

	Cash Receipts		
	January	February	March
December receivables	$32,000		
From January sales	54,000	$36,000	
From February sales		66,000	$44,000

Other information includes the following.

- Inventories are maintained at 30% of the following month's sales.
- Assume that March sales total $150,000.

The number of units to be purchased in February is

a. 3,850 units.
b. 4,900 units.
c. 6,100 units.
d. 7,750 units.

68. *CSO: 1B5a LOS: 1B5i*

Stevens Company manufactures electronic components used in automobile manufacturing. Each component uses two raw materials, Geo and Clio. Standard usage of the two materials required to produce one finished electronic component, as well as the current inventory, are shown below.

Material	Standard Per Unit	Price	Current Inventory
Geo	2.0 pounds	$15/lb.	5,000 pounds
Clio	1.5 pounds	$10/lb.	7,500 pounds

Stevens forecasts sales of 20,000 components for each of the next two production periods. Company policy dictates that 25% of the raw materials needed to produce the next period's projected sales be maintained in ending direct materials inventory.

Based on this information, the budgeted direct material purchases for the coming period would be

	Geo	Clio
a.	$450,000	$450,000.
b.	$675,000	$300,000.
c.	$675,000	$400,000.
d.	$825,000	$450,000.

69. *CSO: 1B5a* *LOS: 1B5i*

Petersons Planters Inc. budgeted the following amounts for the coming year.

Beginning inventory, finished goods	$ 10,000
Cost of goods sold	400,000
Direct material used in production	100,000
Ending inventory, finished goods	25,000
Beginning and ending work-in-process inventory	Zero

Overhead is estimated to be two times the amount of direct labor dollars. The amount that should be budgeted for direct labor for the coming year is

a. $315,000.
b. $210,000.
c. $157,500.
d. $105,000.

70. *CSO: 1B5a* *LOS: 1B5i*

Over the past several years, McFadden Industries has experienced the following regarding the company's shipping expenses.

Fixed costs	$16,000
Average shipment	15 pounds
Cost per pound	$.50

Shown below are McFadden's budget data for the coming year.

Number of units shipped	8,000
Number of sales orders	800
Number of shipments	800
Total sales	$1,200,000
Total pounds shipped	9,600

McFadden's expected shipping costs for the coming year are

a. $4,800.
b. $16,000.
c. $20,000.
d. $20,800.

71. *CSO: 1B5a* *LOS: 1B5g*
Swan Company is a maker of men's slacks. The company would like to maintain 20,000 yards of fabric in ending inventory. The beginning fabric inventory is expected to contain 25,000 yards. The expected yards of fabric needed for sales is 90,000. Compute the yards of fabric that Swan needs to purchase.

a. 85,000.
b. 90,000.
c. 95,000.
d. 135,000.

72. *CSO: 1B5a* *LOS: 1B5g*
Manoli Gift Shop maintains a 35% gross profit margin percentage, and carries an ending inventory balance each month sufficient to support 30% of the next month's expected sales. Anticipated sales for the fourth quarter are as follows.

October	$42,000
November	58,000
December	74,000

What amount of goods should Manoli Gift Shop plan to purchase during the month of November?
a. $40,820.
b. $51,220.
c. $52,130.
d. $62,800.

73. *CSO: 1B5a* *LOS: 1B5g*
In preparing the direct material purchases budget for next quarter, the plant controller has the following information available.

Budgeted unit sales	2,000
Pounds of materials needed per unit	4
Cost of materials per pound	$3
Pounds of materials on hand	400
Finished units on hand	250
Target ending units inventory	325
Target ending inventory of pounds of materials	800

How many pounds of materials must be purchased?

a. 2,475.
b. 7,900.
c. 8,700.
d. 9,300.

74. *CSO: 1B5a LOS: 1B5g*
Playtime Toys estimates that it will sell 200,000 dolls during the coming year. The beginning inventory is 12,000 dolls; the target ending inventory is 15,000 dolls. Each doll requires two shoes which are purchased from an outside supplier. The beginning inventory of shoes is 20,000; the target ending inventory is 18,000 shoes. The number of shoes that should be purchased during the year is

a. 396,000 shoes.
b. 398,000 shoes.
c. 402,000 shoes.
d. 404,000 shoes.

75. *CSO: 1B5a LOS: 1B5g*
Maker Distributors has a policy of maintaining inventory at 15% of the next month's forecasted sales. The cost of Maker's merchandise averages 60% of the selling price. The inventory balance as of May 31 is $63,000, and the forecasted dollar sales for the last seven months of the year are as follows.

June	$700,000
July	600,000
August	650,000
September	800,000
October	850,000
November	900,000
December	840,000

What is the budgeted dollar amount of Maker's purchases for July?

a. $355,500.
b. $360,000.
c. $364,500.
d. $399,000.

76. *CSO: 1B5a LOS: 1B5m*
All of the following would appear on a projected schedule of cost of goods manufactured **except** for

a. ending work-in-process inventory.
b. beginning finished goods inventory.
c. the cost of raw materials used.
d. applied manufacturing overhead.

77. *CSO: 1B5a LOS: 1B5j*
A company that manufactures furniture is establishing its budget for the upcoming year. All of the following items would appear in its overhead budget **except** for the

a. overtime paid to the workers who perform production scheduling.
b. cost of glue used to secure the attachment of the legs to the tables.
c. fringe benefits paid to the production supervisor.
d. freight charges paid for the delivery of raw materials to the company.

78. *CSO: 1B5a LOS: 1B5l*
Using the following budget data for Valley Corporation, which produces only one product, calculate the company's predetermined factory overhead application rate for variable overhead.

Units to be produced	11,000
Units to be sold	10,000
Indirect materials, varying with production	$ 1,000
Indirect labor, varying with production	10,000
Factory supervisor's salary, incurred regardless of production	20,000
Depreciation on factory building and equipment	30,000
Utilities to operate factory machines	12,000
Security lighting for factory	2,000
Selling, general and administrative expenses	5,000

a. $2.09.
b. $2.30.
c. $4.73.
d. $5.20.

79. *CSO: 1B5a LOS: 1B5m*
Given the following data for Scurry Company, what is the cost of goods sold?

Beginning inventory of finished goods	$100,000
Cost of goods manufactured	700,000
Ending inventory of finished goods	200,000
Beginning work-in-process inventory	300,000
Ending work-in-process inventory	50,000

a. $500,000.
b. $600,000.
c. $800,000.
d. $950,000.

80. *CSO: 1B5a LOS: 1B5q*
A company operates 10 offices. In the prior year, the total cost of operating the offices was $1,000,000 of which $140,000 consisted of fixed costs. All else remaining equal, what will be the budgeted costs if the company were to operate 12 offices?

a. $1,028,000.
b. $1,032,000.
c. $1,172,000.
d. $1,200,000.

81. *CSO: 1B5b, LOS: 1B5v*
Consider the following data for a company for the month just ended.

Sales	$4,000,000
Gross margin (based on sales)	25%
Decrease in inventories	$160,000
Decrease in accounts payable for inventories	$275,000

The estimated cash disbursements for inventories were

a. $2,565,000.
b. $2,840,000.
c. $3,115,000.
d. $3,275,000.

82. *CSO: 1B5b LOS: 1B5s*
Many companies use comprehensive budgeting in planning for the next year's activities. When both an operating budget and a financial budget are prepared, which one of the following is **correct** concerning the financial budget?

	Included in the Financial Budget		
	Capital Budget	Pro-forma Balance Sheet	Cash Budget
a.	Yes	No	Yes.
b.	No	Yes	No.
c.	Yes	Yes	Yes.
d.	No	No	No.

83. *CSO: 1B5b* *LOS: 1B5u*
Granite Company sells products exclusively on account, and has experienced the following collection pattern: 60% in the month of sale, 25% in the month after sale, and 15% in the second month after sale. Uncollectible accounts are negligible. Customers who pay in the month of sale are given a 2% discount. If sales are $220,000 in January, $200,000 in February, $280,000 in March, and $260,000 in April, Granite's accounts receivable balance on May 1 will be

a. $107,120.
b. $143,920.
c. $146,000.
d. $204,000.

84. *CSO: 1B5b* *LOS: 1B5t*
Myers Company uses a calendar-year and prepares a cash budget for each month of the year. Which one of the following items should be considered when developing July's cash budget?

a. Federal income tax and social security tax withheld from employee's June paychecks to be remitted to the Internal Revenue Service in July.
b. Quarterly cash dividends scheduled to be declared on July 15 and paid on August 6 to shareholders of record as of July 25.
c. Property taxes levied in the last calendar year scheduled to be paid quarterly in the coming year during the last month of each calendar quarter.
d. Recognition that 0.5% of the July sales on account will be uncollectible.

85. *CSO: 1B5b*   *LOS: 1B5t*

Brown Company estimates that monthly sales will be as follows.

January	$100,000
February	150,000
March	180,000

Historical trends indicate that 40% of sales are collected during the month of sale, 50% are collected in the month following the sale, and 10% are collected two months after the sale. Brown's accounts receivable balance as of December 31 totals $80,000 ($72,000 from December's sales and $8,000 from November's sales). The amount of cash Brown can expect to collect during the month of January is

a. $76,800.
b. $84,000.
c. $108,000.
d. $133,000.

86. *CSO: 1B5b*   *LOS: 1B5u*

Cooper Company's management team is preparing a cash budget for the coming quarter. The following budgeted information is under review.

	January	February	March
Revenue	$700,000	$800,000	$500,000
Inventory purchases	350,000	425,000	225,000
Other expenses	150,000	175,000	175,000

The company expects to collect 40% of its monthly sales in the month of sale and 60% in the following month. 50% of inventory purchases are paid in the month of purchase, and the other 50% in the following month. All payments for other expenses are made in the month incurred.

Cooper forecasts the following account balances at the beginning of the quarter.

Cash	$100,000
Accounts receivable	300,000
Accounts payable (Inventory)	500,000

Given the above information, the projected change in cash during the coming quarter will be

a. $412,500.
b. $300,000.
c. $112,500.
d. $ -0-.

87. *CSO: 1B5b LOS: 1B5u*
Bootstrap Corporation anticipates the following sales during the last six months of the year.

July	$460,000
August	500,000
September	525,000
October	500,000
November	480,000
December	450,000

20% of Bootstrap's sales are for cash. The balance is subject to the collection pattern shown below.

Percentage of balance collected in the month of sale	40%
Percentage of balance collected in the month following sale	30%
Percentage of balance collected in the second month following sale	25%
Percentage of balance uncollectible	5%

What is the planned net accounts receivable balance as of December 31?

a. $279,300.
b. $294,000.
c. $360,000.
d. $367,500.

88. *CSO: 1B5b LOS: 1B5u*
Projected monthly sales of Wallstead Corporation for January, February, March, and April are as follows.

January	$300,000
February	340,000
March	370,000
April	390,000

- The company bills each month's sales on the last day of the month.
- Receivables are booked gross and credit terms of sale are: 2/10, n/30.
- 50% of the billings are collected within the discount period, 30% are collected by the end of the month, 15% are collected by the end of the second month, and 5% become uncollectible.

Budgeted cash collections for Wallstead Company during April would be

a. $343,300.
b. $347,000.
c. $349,300.
d. $353,000.

89. *CSO: 1B5b* *LOS: 1B5u*

Tip-Top Cleaning Supply carries a large number of different items in its inventory, giving the firm a competitive advantage in its industry. Below is part of Tip-Top's budget for the first quarter of next year.

Sales	$855,000
Cost of goods sold	425,000
Rent and salary expenses	375,000

Historically, all of the sales are on account and are made evenly over the quarter. 5% of all sales are determined to be uncollectible and written off. The balance of the receivables is collected in 50 days. This sales and collection experience is expected to continue in the first quarter. The projected balance sheet for the first day of the quarter includes the following account balances.

Cash	$ 10,000
Accounts receivable (net)	450,000
Inventory	900,000
Accounts payable	800,000

How much cash can Tip-Top anticipate collecting in the first quarter (based on a 360-day year)?

a. $811,000.
b. $830,000.
c. $901,250.
d. $902,500.

90. *CSO: 1B5b* *LOS: 1B5u*

Monroe Products is preparing a cash forecast based on the following information.

- Monthly sales: December $200,000; January $200,000; February $350,000; March $400,000.
- All sales are on credit and collected the month following the sale.
- Purchases are 60% of next month's sales and are paid for in the month of purchase.
- Other monthly expenses are $25,000, including $5,000 of depreciation.

If the January beginning cash balance is $30,000, and Monroe is required to maintain a minimum cash balance of $10,000, how much short-term borrowing will be required at the end of February?

a. $60,000.
b. $70,000.
c. $75,000.
d. $80,000.

91. *CSO: 1B5b* *LOS: 1B5u*
Prudent Corporation's budget for the upcoming accounting period reveals total sales of $700,000 in April and $750,000 in May. The sales cash collection pattern is

20% of each month's sales are cash sales.
5% of a month's credit sales are uncollectible.
70% of a month's credit sales are collected in the month of sale.
25% of a month's credit sales are collected in the month following the sale.

If Prudent anticipates the cash sale of a piece of old equipment in May for $25,000, May's total budgeted cash receipts would be

a. $560,000.
b. $702,500.
c. $735,000.
d. $737,500.

92. *CSO: 1B5b* *LOS: 1B5u*
ANNCO sells products on account, and experiences the following collection schedule.

In the month of sale	10%
In the month after sale	60%
In the second month after sale	30%

At December 31, ANNCO reports accounts receivable of $211,500. Of that amount, $162,000 is due from December sales, and $49,500 from November sales. ANNCO is budgeting $170,000 of sales for January. If so, what amount of cash should be collected in January?

a. $129,050.
b. $174,500.
c. $211,500.
d. $228,500.

93. *CSO: 1B5b* *LOS: 1B5u*

Brooke Company's management team is preparing a cash budget for the coming quarter. The following budgeted information is under review.

	January	February	March
Revenue	$700,000	$800,000	$500,000
Inventory purchases	350,000	425,000	225,000
Other expenses	150,000	175,000	175,000

The company expects to collect 40% of its monthly sales in the month of sale and 60% in the following month. 50% of inventory purchases are paid in the month of purchase, and 50% in the following month. Payments for all other expenses are made in the month incurred.

Brooke forecasts the following account balances at the beginning of the quarter.

Cash	$200,000
Accounts receivable	300,000
Accounts payable (Inventory)	400,000

Given the above information, the projected ending cash balance for February will be

a. $712,500.
b. $500,000.
c. $232,500.
d. $120,000.

94. *CSO: 1B5b* *LOS: 1B5u*

Health Foods Inc. has decided to start a cash budgeting program to improve overall cash management. Information gathered from the past year reveals the following cash collection trends.

40% of sales are on credit
50% of credit sales are collected in month of sale
30% of credit sales are collected first month after sale
15% of credit sales are collected second month after sale
5% of credit sales result in bad debts

Gross sales for the last five months were as follows.

January	$220,000
February	240,000
March	250,000
April	230,000
May	260,000

Sales for June are projected to be $255,000. Based on this information, the expected cash receipts for March would be

a. $230,000.
b. $237,400.
c. $242,000.
d. $243,200.

95. *CSO: 1B5b LOS: 1B5u*

Tidwell Corporation sells a single product for $20 per unit. All sales are on account, with 60% collected in the month of sale and 40% collected in the following month. A schedule of cash collections for January through March of the coming year reveals the following receipts for the period.

	Cash Receipts		
	January	February	March
December receivables	$32,000		
From January sales	54,000	$36,000	
From February sales		66,000	$44,000
From March sales			72,000

Other information includes the following.

- Inventories are maintained at 30% of the following month's sales.
- Tidwell desires to keep a minimum cash balance of $15,000. Total payments in January are expected to be $106,500, which excludes $12,000 of depreciation expense. Any required borrowings are in multiples of $1,000.
- The December 31 balance sheet for the preceding year revealed a cash balance of $24,900.

Ignoring income taxes, the financing needed in January to maintain the firm's minimum cash balance is

a. $8,000.
b. $10,600.
c. $11,000.
d. $23,000.

96. *CSO: 1B5b LOS: 1B5u*

Data regarding Johnsen Inc.'s forecasted dollar sales for the last seven months of the year and Johnsen's projected collection patterns are as follows.

Forecasted sales	
June	$700,000
July	600,000
August	650,000
September	800,000
October	850,000
November	900,000
December	840,000

Types of sales	
Cash sales	30%
Credit sales	70%

Collection pattern on credit sales (5% determined to be uncollectible)	
During the month of sale	20%
During the first month following the sale	50%
During the second month following the sale	25%

Johnsen's budgeted cash receipts from sales and collections on account for September are

a. $635,000.
b. $684,500.
c. $807,000.
d. $827,000.

97. *CSO: 1B5b* *LOS: 1B5u*

The Mountain Mule Glove Company is in its first year of business. Mountain Mule had a beginning cash balance of $85,000 for the quarter. The company has a $50,000 short-term line of credit. The budgeted information for the first quarter is shown below.

	January	February	March
Sales	$60,000	$40,000	$50,000
Purchases	35,000	40,000	75,000
Operating costs	25,000	25,000	25,000

All sales are made on credit and are collected in the second month following the sale. Purchases are paid in the month following the purchase, while operating costs are paid in the month that they are incurred. How much will Mountain Mule need to borrow at the end of the quarter if the company needs to maintain a minimum cash balance of $5,000 as required by a loan covenant agreement?

a. $0.
b. $5,000.
c. $10,000.
d. $45,000.

98. *CSO: 1B5c* *LOS: 1B5r*

A firm is considering a capital project. According to the project plan, an existing piece of equipment with a historical cost of $400,000 and a current selling price of $10,000 will be disposed. The old equipment has been depreciated on a straight-line basis with no salvage value for 18 of its estimated 20-year useful life. The new equipment has a cost of $500,000, and the firm expects it will have to invest $20,000 in inventory and $24,000 in accounts receivable in the new project. The firm's effective income tax rate is 40%. The required net initial investment for the new project is

a. $498,000.
b. $522,000.
c. $534,000.
d. $544,000.

99. *CSO: 1B6a* *LOS: 1B6b*

Calculate the pro forma after-tax profit for next year based on the data below.

	Results for last year	Projections for next year
Sales	$100,000	10% increase
Variable cost	60,000	10% increase
Salaries	15,000	5% increase
Other expenses	5,000	20% increase
Income tax rate	30%	No change

a. $15,000.
b. $15,575.
c. $16,100.
d. $18,200.

Answer for Section B: Planning, Budgeting and Forecasting

1. Correct answer d. Internal environmental variables for a company include a company's culture, structure and resources. External environmental factors include economic forces, political-legal forces, technological forces and sociocultural forces.

2. Correct answer d. The determination of organizational objectives is the first step in the planning process. A mission statement is a formal, written document that defines the organization's purpose in society, for example, to produce and distribute certain goods of high quality in a manner beneficial to the public, employees, shareholders and other constituencies. Therefore, a mission statement does not announce specific operating plans. It does not describe strategies for technological development, market expansion or product differentiation because these are tasks for operating management.

3. Correct answer d. The differentiation strategy is aimed at the broad mass market and involves the creation of a product or service that is perceived throughout its industry as unique. Differentiation is a viable strategy for earning above-average returns in a specific business because the resulting brand loyalty lowers customers' sensitivity to price. Increased costs can usually be passed on to the buyers.

4. Correct answer d. Michael Porter developed a comprehensive model of the structure of industries and competition. One feature is his analysis of the five competitive forces that determine long-term profitability measured by long-term return on investment. This analysis determines the attractiveness of an industry.

5. Correct answer b. Product ABC is an example of a cash cow. It is a high-market share (dominating the market for the past decade) but low growth (continuously slowing down) product. It also generates a huge amount of cash flows.

6. Correct answer a. A budget is a realistic plan for the future expressed in quantitative terms. The process of budgeting forces a company to establish goals, determine the resources necessary to achieve those goals and anticipate future difficulties in their achievement. A budget is also a control tool because it establishes standards and facilitates comparison of actual and budgeted performance. Since a budget establishes standards and accountability, it motivates good performance by highlighting the work of effective managers. Moreover, the nature of the budgeting process fosters communication of goals to company subunits and coordination of their efforts. Budgeting activities by entities within the company must be coordinated because they are interdependent. Thus, the sales budget is a necessary input to the formulation of the production budget. In turn, production requirements must be known before purchases and expense budgets can be developed and all other budgets must be completed before the preparation of the cash budget.

7. Correct answer d. A master budget translates the organization's short-term objectives into action steps. An organization determines short-term objectives for the budget period based on strategic goals, long-term objectives and plans, operating results of past periods, and expected future operating and environmental factors including economic, industry, and marketing conditions.

8. Correct answer b. Cerawell has no control over the actions of its competitors; it can only respond to these actions, e.g., increase the company's research and development efforts. Cerawell has some control over the other alternatives presented.

9. Correct answer d. Budget preparation forces management planning can provide performance criteria, and promotes communication and coordination within an organization. However, a budget cannot control unauthorized expenditures – these are usually caused by weak internal controls.

10. Correct answer c. Successful Budgets would provide all the advantages mentioned except to ensure profit to the organization.

11. Correct answer d. Participation in budget preparation at all levels promotes acceptance of budgets and allows those who have to implement plans to participate in the planning process.

12. Correct answer d. Those closest to operations should participate in budget development as they are most knowledgeable and can supply reliable information on which to base the budget.

13. Correct answer c. A budget that is not supported by top management has very little chance of success as subordinates will attach little importance to the budget and will focus on what management considers to be important.

14. Correct answer d. One of the few advantages of top-down budgeting is that it is less time-consuming than participatory budgeting as there is little need for discussion and compromise.

15. Correct answer d. Standard costing traces direct costs to a cost object. As a result, standard costs are most often stated as unit costs. Budgeted costs are generally presented as total costs as one of the objectives of budgeting is to forecast the overall financial condition.

16. Correct answer d. The involvement of all those affected in the development of standard costs is the team development approach. The alternative answers presented generally include those who are not operationally involved.

17. Correct answer d. Ideal standards are those achieved under ideal working conditions and are, therefore, difficult to achieve under realistic working conditions. Practical standards are developed under actual working conditions and are, therefore, a better motivating target for manufacturing personnel.

18. Correct answer d. The price agreed upon by the purchasing manager and the appropriate level of company management is the most reasonable selection as it takes into consideration actual experience and future plans for requiring the component.

19. Correct answer d. Standards that reflect current experience are realistic and will provide the best information for decision making.

20. Correct answer b. The fact that Michigan's budgeting process was based on a bottom-up philosophy would indicate that standards were being set by those with operational knowledge. This is inconsistent with the consultant's findings that labor standards are too tight.

21. Correct answer b.
Budgetary slack describes the practice of underestimating budgeted revenues, or overestimating budgeted costs, to make budgeted targets more easily achievable. It frequently occurs when budget variances (the differences between actual results and budgeted amounts) are used to evaluate performance.

22. Correct answer b.
Regression analysis explains the behavior of a dependent variable in terms of one or more independent variables. Multiple regression analysis is the best approach because it allows the regression of change in investment income on more than one independent variable.

23. Correct answer c. Simple regression analysis estimates the relationship between the dependent variable and one independent variable while multiple regression analysis estimates the relationship between the dependent variable and two or more independent variables.

24. Correct answer c. Using linear regression, there are three criteria for selecting the independent variable: economic plausibility, goodness of fit, and the slope of the regression line.

25. Correct answer d.

Sales (S)	=	\$10,000 + 2.50A	(A = \$1,000)
	=	\$10,000 + 2.50 (\$1,000)	
	=	\$10,000 + \$2,500	
	=	<u>\$12,500</u>	

26. Correct answer c.

Y	=	1.54X + 5.23
	=	1.54 (10) + 5.23
	=	15.4 + 5.23
	=	<u>20.63</u>

27. Correct answer b. Learning curve analysis is a function that shows how labor hours per unit decline as units of production increase due to workers learning and becoming better at their jobs.

28. Correct answer a. In the cumulative average-time learning model, the cumulative average time per unit declines by a constant percentage each time the cumulative quantity of units produced doubles.

Unit 1	10,000 hrs.	
Unit 2	8,000 hrs.	(10,000 x .80)
Unit 4	6,400 hrs.	(8,000 x .80)
Unit 8	<u>5,120 hrs.</u>	(6,400 x .80)

29. Correct answer d. Learning curve analysis utilizes the cumulative average-time learning model. The cumulative average time per unit declines by a constant percentage each time the cumulative quantity of units produced doubles.

30. Correct answer d. Average hrs. for 20 units = <u>(5,000 + 3,000) ÷ 20 units</u>
Average hrs. for 10 units = 5,000 ÷ 10 units

= 400 hours ÷ 500 hours
= <u>80% Learning rate</u>

31. Correct answer b. Cumulative direct labor hours = 8 units x 5,120 hours*
= 40,960 hours

* Unit 1 10,000 hrs.
Unit 2 8,000 hrs. (10,000 x .80)
Unit 4 6,400 hrs. (8,000 x .80)
Unit 8 5,120 hrs. (6,400 x .80)

32. Correct answer b.

Unit 4	$9,800 cost	($14,000 x .70)
Unit 8	$6,860 cost	($9,800 x .70)

Total Cost = 8 units x $6,860 cost per unit
= $54,880

33. Correct answer c. Learning curve = 16 hours ÷ 20 hours
= 80%

Hours per batch:

Batch 4	12.80 hours	(16 hours x .80)
Batch 8	10.24 hours	(12.80 hours x .80)

Average hrs. Units 201-400 = (400 units x 10.24) – (200 units x 12.80)
= 4,096 – 2,560
= 1,536 hours ÷ 200 units
= 7.68 hours

34. Correct answer b.

Units	Average cost/unit	
4	$9,800	($14,000 x .70)
8	$6,860	($9,800 x .70)

35. Correct answer a. Total hours for next 7 units = 8 unit total hours – first unit hours
= (8 x 5,120*) – 10,000
= 40,960 – 10,000
= 30,960 hours

* Unit 1 10,000 hrs.
Unit 2 8,000 hrs. (10,000 x .80)
Unit 4 6,400 hrs. (8,000 x .80)
Unit 8 5,120 hrs. (6,400 x .80)

36. Correct answer a.

Lot 1	= 800 ÷ 4 units	=	200 per unit
Lot 2	= (800 x .9) ÷ 4 units	=	180 per unit
Lot 4	= (1,440 x .9) ÷ 8 units	=	162 per unit

Hours for next 12 units = (16 x 162) - 800 for first 4 units
= 2,592 - 800
= 1,792 hours

As the cumulative quantity doubles the cumulative average time is reduced by 10%.

Lot	Cum. Units	Cum. Average per Unit	Cum. Production Hours
1	4	200	800
2	8	180	1,440
4	16	162	2,592
Less hours to complete Lot 1			(800)
Total hours to complete lots 2-4 (12 units)			1,792

37. Correct answer a.

Unit 4	$9,800	($14,000 x .70)
Unit 8	$6,860	($9,800 x .70)

Cost of next 7 units = (8 x $6,860) - $20,000 for first unit
= $54,880 - $20,000
= $34,880

38. Correct answer a.

Expected value = (.2 x $60,000) + (.3 x $30,000) + (.3 x $10,000) – (.2 x $4,000)
= $12,000 + $9,000 + $3,000 - $800
= $23,200

39. Correct answer b.

Plan 1expected value	= ($300,000 x .4) + ($240,000 x .6)	= $264,000
Plan 2 expected value	= ($370,000 x .4) + ($180,000 x .6)	= $256,000
	Plan 1 is greater by	$ 8,000

40. Correct answer d. Recommend Vendor S which has the least cost (initial purchase plus the cost of failure) as shown below.

Vendor P	= (100,000 x $35) + [(100,000 x .10) x ($35 + $25)]	= $4.1 million
Vendor Q	= (100,000 x $37) + [(100,000 x .06) x ($37 + $25)]	= $4.072 million
Vendor R	= (100,000 x $39) + [(100,000 x .03) x ($39 + $25)]	= $4.092 million
Vendor S	= (100,000 x $40) + [(100,000 x .01) x ($40 + $25)]	= $4.065 million

41. Correct answer c. For both actions, the $650,000 is sunk cost and should not be considered.

Expected value of investing = .6 ($15.0 mil - $9.5 mil) + .4 ($2.0 mil - $9.5 mil)
= $3.3 mil - $3.0 mil
= $300,000

Value of not investing = ($100,000) additional costs to be paid

42. Correct answer d. Ranking is B: $34,000, C: $30,000, A: $26,000 calculated as follows.

Investment A = .3 (-$20,000) + .1 (-$10,000) + .3 ($30,000) + .2 ($70,000) + .1 ($100,000)
= -$6,000 + -$1,000 + $9,000 + $14,000 + $10,000
= $26,000

Investment B = .2 (-$20,000) + .2 (-$10,000) + .2 ($30,000) + .2 ($70,000) + .2 ($100,000)
= -$4,000 + -$2,000 + $6,000 + $14,000 + $20,000
= $34,000

Investment C = .3 (-$20,000) + .1 (-$10,000) + .2 ($30,000) + .3 ($70,000) + .1 ($100,000)
= -$6,000 + -$1,000 + $6,000 + $21,000 + $10,000
= $30,000

43. Correct answer c.
Increased units sold = .1 (15,000) + .35 (30,000) + .1 (45,000) + .25 (60,000) + .2 (75,000)
= 1,500 + 10,500 + 4,500 + 15,000 + 15,000
= 46,500 units

Increased profit = [46,500 x ($5.20 - $3.20)] - $40,000
= $93,000 - $40,000
= $53,000

44. Correct answer b.
Expected return = .1 (-.20) + .2 (.05) + .4 (.15) + .2 (.20) + .1 (.30)
= -.02 + .01 + .06 + .04 + .03
= .12 or 12%

45. Correct answer a. Alternative #1 has the highest expected value as shown below.

Alternative #1 = .1($50,000) + .2($75,000) + .4($100,000) + .3($150,000)
= $105,000
Alternative #2 = .1($50,000) + .2($75,000) + .45($100,000) + .25($150,000)
= $102,500
Alternative #3 = .1($50,000) + .2($75,000) + .4($100,000) + .3($125,000)
= $97,500
Alternative #4 = .1($150,000) + .2($100,000) + .4($75,000) + .3($50,000)
= $80,000

46. Correct answer a. The expected value is calculated by weighting each sales estimate by the probability of occurrence. Consequently, the expected value of sales is $168,000 [($120,000 x 25%) + ($170,000 x 40%) + (200,000 x 35%)]. Cost of goods sold is therefore, $134,400 (80% x $168,000).

47. Correct answer c. Recommend purchasing 12,000 based on expected demand of 11,400.

Expected demand = .1(8,000) + .4(10,000) + .3(12,000) + .2(15,000)
= 11,400

48. Correct answer b.
Material cost: $6,000,000 x .50 = $3,000,000
Labor cost: $6,000,000 x .30 = $1,800,000
Increase in labor cost: $1,800,000 x .035 $63,000
Inc. in material cost: $3,000,000 x .2 x .05 $30,000
$63,000 + $30,000 = $93,000 increase in cost = $93,000 decrease in op. income
$93,000 - $168,000 commission = $75,000 increase in income
($3,000,000 x .035) + ($1,800,000 x .2 x .05) = $123,000 decrease in income
$123,000 - $168,000 = $45,000 increase in income

49. Correct answer b. Incorporating non-financial as well as financial measures is beneficial to an organization. The other alternatives given are disadvantages or misuses of traditional budgets.

50. Correct answer d. The production budget and the purchases budget must be completed before the cost of goods sold budget can be completed. An administrative budget may also be dependent on the planned sales and manufacturing activity and is generally completed after all production revenues and costs have been budgeted.

51. Correct answer c. The revenue or sales budget provides the foundation for a master budget and is therefore prepared first. The production budget is dependent on the amount of projected sales and the direct material budget is based on the forecasted production quantity.

52. Correct answer c. The zero-based budgeting approach looks at operations as if they were just beginning and requires justification for all revenues and expenditures.

53. Correct answer b. In zero-based budgeting, the budgeting process requires that managers prepare budgets from a zero base and all budget items have an in-depth review and analyses.

54. Correct answer c. A rolling budget (or continuous budget) is a plan that always covers a specified future period by adding a period in the future and dropping a period just ended. It forces management to continuously focus on the future specified time period. The time period is always the same length, but the actual time period covered by the budget moves forward with the passage of time,

55. Correct answer d. Since depreciation is a fixed cost, that cost will be the same each month regardless of production. Therefore, the budget for March would show depreciation of $43,000 ($516,000 annual depreciation divided by 12 months).

56. Correct answer a. Flexible budgets are based on actual output rather than comparing output to a static budget. Flexible budgets make it easier to identify realistic positive and negative variances.

57. Correct answer d. Flexible budgets are based on the output actually achieved and therefore provide a realistic comparison of budgeted and actual revenue and costs.

58. Correct answer a. Netco's sales will decrease by $1,050,000 as shown below.

Item 1	=	(200,000 x .8) x ($50 x 1.1)		
	=	160,000 x $55	=	$ 8,800,000
Item 2	=	(160,000 x .75) x $10	=	1,200,000
Item 3	=	(300,000 x 1.05) x $30	=	9,450,000
			Total sales revenue	$19,450,000
			Original budget	-20,500,000
			Revenue decrease	$-1,050,000

59. Correct answer a. Tut's selling and administrative costs total $652,760 as shown below.

Variable costs	($18.60 x .90) x $24,000	=	$401,760
Step costs	($85,000 ÷ 17) x 15	=	75,000
Fixed costs		=	176,000
	Total costs		$652,760

60. Correct answer b. Hannon's budget for purchased inventory should be $540,000.

August	$728,000 ÷ 1.3	=	$560,000 x .75	=	$420,000
September	$624,000 ÷ 1.3	=	$480,000 x .25	=	120,000
					$540,000

61. Correct answer c. Streeter should produce 78,000 units as shown below.

Production for 2nd quarter	72,000 x .5	=	36,000
Production for 3rd quarter	84,000 x .5	=	42,000
	Production		78,000

62. Correct answer c. Ming should plan to produce 7,133 units next fiscal year.

Sales – Beg. Inventory + Ending Inventory				
6,300 – 470 + 590	=	6,420 units		
To cover 10% scrap	=	6,420 ÷ .9	=	7,133 units

63. Correct answer b. Savior's production budget for the first quarter is 71,700 units.

Daily sales	=	67,500 ÷ (360 ÷ 4)	=	750 units sold per day
10 days' sales	=	750 x 10 days	=	7,500 units for ending inventory
Production	=	67,500 + 7,500 – (3,500 – 200)	=	71,700 units

64. Correct answer d. Streeter should produce 86,000 units as shown below.

Ending inventory	=	(72,000 x .5) – 8,000	=	28,000 units
Production	=	72,000 – 28,000 + (84,000 x .5)	=	86,000 units

65. Correct answer a. Rombus should produce 3,700 units as shown below.

Production	=	Sales – Beg. Inventory + Ending inventory
	=	4,000 – 900 + 600
	=	3,700 units

66. Correct answer c. The cost of one laminated putter head is $52 calculated as follows.

Production	=	8,200 – 300 + 100	=	8,000 forged units
Direct labor	=	8,000 x .25 hrs.	=	2,000 hours for forged units
	=	2,000 x 1.0 hrs.	=	2,000 hours for laminated units
Variable O/H/hr.	=	$25,000 ÷ 4,000 hrs.	=	$6.25/hr.
Fixed O/H/hr.	=	$15,000 ÷ 4,000 hrs.	=	$3.75/hr.

Laminated putter head cost:	Steel	$ 5.00
	Copper	15.00
	Direct labor	22.00
	Variable overhead	6.25
	Fixed overhead	3.75
	Total cost	$52.00

67. Correct answer c. The units to be purchased in February total 6,100 units as shown below.

February unit sales	=	($66,000 + $44,000) ÷ $20	=	5,500 units
March unit sales	=	$150,000 ÷ $20	=	7,500 units
February purchase	=	(5,500 x .7) + (7,500 x .3)	=	6,100 units

68. Correct answer b. Stevens should purchase $675,000 of Geo and $300,000 of Clio.

Production components	=	20,000 first period + (20,000 x .25) second period = 25,000
Pounds of Geo	=	(25,000 x 2 lbs.) – 5,000 inventory = 45,000 lbs.
Cost of Geo	=	45,000 x $15 = $675,000
Pounds of Clio	=	(25,000 x 1.5 lbs.) – 7,500 inventory = 30,000 lbs.
Cost of Clio	=	30,000 x $10 = $300,000

69. Correct answer d. The amount that should be budgeted for direct labor is $105,000.

Cost of production	=	$400,000 - $10,000 + $25,000	=	$415,000
Cost of Direct labor + O/H	=	$415,000 - $100,000 material	=	$315,000
Cost of Direct labor	=	$315,000 ÷ 3*	=	$105,000

*Overhead = 2 x direct labor

70. Correct answer d. McFadden's expected shipping costs total $20,800 as shown below.

Shipping costs	=	(9,600 lbs. x $.50/lb.) + $16,000 fixed cost
	=	$20,800

71. Correct answer a. Swan needs to purchase 85,000 yards of fabric as shown below.

Sales – Ending Inventory + Beginning Inventory	=	
90,000 – 25,000 + 20,000	=	85,000 yards

72. Correct answer a. Manoli should purchase goods totaling $40,820 as shown below.

November:	$58,000 x .65	=	
	$37,700 x .70	=	$26,390
December:	$74,000 x .65	=	
	$48,100 x .30	=	$14,430
	Total purchases		$40,820

73. Correct answer c. The company should purchase 8,700 pounds of material as shown below.

Units to be completed	=	2,000 – 250 + 325	=	2,075
Pounds required	=	2,075 units x 4 lbs.	=	8,300
Pounds purchased	=	8,300 – 400 + 800	=	8,700

74. Correct answer d. The number of shoes to be purchased is 404,000 as shown below.

Dolls to be completed	=	200,000 – 12,000 + 15,000	=	203,000
Shoes needed	=	203,000 x 2	=	406,000
Shoes purchased	=	406,000 – 20,000 + 18,000	=	404,000

75. Correct answer c. The budget for Maker's July purchases is $364,500 as shown below.

July:	$600,000 x .60	=	
	$360,000 x .85	=	$306,000
August:	$650,000 x .60	=	
	$390,000 x .15	=	58,500
	Total purchases		$364,500

76. Correct answer b. Beginning finished goods inventory would have been produced in a prior period and, therefore, should not be included on a projected schedule of cost of goods manufactured.

77. Correct answer d. Freight charges paid for the delivery of raw materials are generally associated with the cost of making a product and not included as part of overhead.

78. Correct answer a. Valley's predetermined overhead application rate is $2.09.

(Indirect material + Indirect labor + Utilities) ÷ Production
($1,000 + $10,000 + $12,000) ÷ 11,000 = $2.09

79. Correct answer b. Scurry's cost of goods sold is $600,000 as shown below.

Beg. finished goods + Cost of goods manufactured - Ending finished goods
$100,000 + $700,000 - $200,000 = $600,000
$123,000 - $168,000 = $45,000 increase in income

80. Correct answer c.
$1,000,000 - $140,000 = $860,000 variable costs / 10 stores in 2014 =

Variable costs per store =	$86,000
Number of stores =	x 12
Total budgeted variable costs:	$1,032,000
Plus: The fixed costs	$ 140,000
Total budgeted costs	$1,172,000

81. Correct answer c. The cost of goods sold was $3,000,000 [$4,000,000 sales x (1.0 – 25% gross margin)]. Purchases equal cost of goods sold adjusted for the change in inventories. A decrease in inventories signifies that purchases were less than cost of goods sold. Hence, purchases for April were $2,840,000 ($3,000,000 COGS - $160,000 decrease in inventories). A decrease in payables related to inventories indicates that cash disbursements exceeded purchases. Accordingly, the cash outflow for inventories was $3,115,000 ($2,840,000 + $275,000 decrease in accounts payable).

82. Correct answer c. A financial budget consists of the capital expenditure budget, the cash budget detailing inflows, outflows, and borrowing needs, and the balance sheet. These statements combined with the budgeted income statement produce the Statement of Cash Flows.

83. Correct answer c. Granite's accounts receivable balance will be $146,000 as shown below.

May A/R balance	=	15% of March + 40% of April
	=	.15 ($280,000) + .4 ($260,000)
	=	$146,000

84. Correct answer a. The employee taxes withheld and due to be remitted in July is the only item listed that actually affects cash flows in the month of July.

85. Correct answer c. The expected cash collections for Brown total $108,000.

Cash collections	=	$8,000 + [($72,000 ÷ .6) x .5] + ($100,000 x .4)
	=	$8,000 + $60,000 + $40,000
	=	$108,000

86. Correct answer c. Cooper's cash balance will increase $112,500 as shown below.

Opening balance	$100,000	February A/R	+800,000
A/R balance	+300,000	February A/P	- 425,000
A/P balance	- 500,000	February Other	- 175,000
January A/R	+700,000	March A/R*	+200,000
January A/P	- 350,000	March A/P**	- 112,500
January Other	- 150,000	March Other	- 175,000
		Cash balance	$212,500
		Less opening	100,000
		Cash increase	$112,500

* $500,000 x .4
** $225,000 x .5

87. Correct answer b. Planned net accounts receivable balance as of December 31 is $294,000:

November ($480,000 x .8 x .25) = $96,000
December ($450,000 x .8 x .55) = $198,000
Total AR as of December $294,000

88. Correct answer a. Wallstead's April cash collections total $343,000 as shown below.

March discounted collections	=	($370,000 x .5) x .98	=	$181,300
March undiscounted collections	=	$370,000 x .3	=	111,000
February collections	=	$340,000 x .15	=	51,000
		Total collections		$343,300

89. Correct answer a. Tip-Top's first quarter collections total $811,000 as shown below.

Collectible sales first quarter	=	$855,000 x .95	=	$812,250
Daily collectible sales	=	$812,250 ÷ 90 days	=	$9,025
40 days of sales	=	$9,025 x 40 days	=	$361,000
Total collections	=	$361,000 + $450,000*	=	$811,000

*Net A/R from last quarter

90. Correct answer b. Monroe will need to borrow $70,000 as shown below.

	January	February
Opening balance	$ 30,000	$ 0
Plus collections	200,000	200,000
Less purchases*	210,000	240,000
Less other expenses	20,000	20,000
Closing balance	$ 0	$-60,000

Required borrowing = $60,000 + $10,000 = $70,000

*January = Feb. sales $350,000 x .6
February = March sales $400,000 x .6

91. Correct answer c. Prudent's May cash receipts budget is $735,000 as shown below.

Collections from April sales	=	($700,000 x .8) x .25	=	$140,000
May cash sales	=	$750,000 x .2	=	150,000
May A/R collections	=	($750,000 x .8) x .70	=	420,000
Sale of equipment				25,000
		Total cash collections		$735,000

92. Correct answer b. ANNCO's January cash collections total $174,500 as shown below.

November sales collections	=			$ 49,500
December sales collections	=	($162,000 ÷ .9) x .6	=	108,000
January sales collections	=	$170,000 x .1	=	17,000
		Total cash collections		$174,500

93. Correct answer c. Brooke's February cash balance is $232,500 as shown below.

	January		February	
Opening balance	$200,000		$ 55,000	
Accounts receivable	300,000	(Dec.)	420,000	(700,000 x .6)
Accounts receivable	280,000	(700,000 x .4)	320,000	(800,000 x .4)
Accounts payable	400,000	(Dec.)	175,000	(350,000 x .5)
Accounts payable	175,000	(350,000 x .5)	212,500	(425,000 x .5)
Other expense	150,000		175,000	
Cash balance	$ 55,000		$232,500	

94. Correct answer c. Health Foods' March cash receipts total $242,000 as shown below.

March cash sales	=	$250,000 x .6	=	$150,000
March sales collections	=	($250,000 x .4 x .5)	=	50,000
February sales collections	=	($240,000 x .4 x .3)	=	28,800
January sales collections	=	($220,000 x .4 x .15)	=	13,200
		Total cash collections		$242,000

95. Correct answer c. The company will need to borrow $11,000 in January as shown below.

Opening balance	$ 24,900	
January collections	86,000	($32,000 + $54,000)
January expenses	106,500	
Closing balance	$ 4,400	
Less minimum balance	15,000	
Borrowing need	$ 10,600	rounded to $11,000

96. Correct answer b. Johnsen's budgeted cash receipts total $684,500 as shown below.

September cash sales	=	($800,000 x .3)	=	$240,000
September sales collections	=	($800,000 x .7 x .2)	=	112,000
August sales collections	=	($650,000 x .7 x .5)	=	227,500
July sales collections	=	($600,000 x .7 x .25)	=	105,000
		Total cash collections		$684,500

97. Correct answer c. Mountain Mule will need to borrow $10,000 as shown below.

	January	February	March
Opening balance	$85,000	$60,000	$ 0
Collections	---	---	60,000
Purchases	---	35,000	40,000
Operating expenses	25,000	25,000	25,000
Closing balance	$60,000	$ 0	$ -5,000

With required balance of $5,000 and negative cash of $5,000, need to borrow $10,000.

98. Correct answer b. The net initial investment=initial outlay of new equipment ($500,000)+increase to working capital ($44,000)-net after-tax cash flow from the disposal of the old equipment ($22,000).

The cash inflow from the disposal of the old equipment is calculated as follows:

Disposal value	$ 10,000
- Net book value [$400,000-($400,000/20*18)]	(40,000)
Loss on disposal	($ 30,000)
* Tax rate	40%
Tax benefit from disposal	$12,000
+ Disposal value	10,000
After-tax cash inflow from disposal	$22,000

99. Correct answer b.
Pro forma Sales = $ 100,000 * 1.10 = $ 110,000
Pro forma variable cost(Cost of a Sales) = $60,000* 1.10 = $66,000
Pro forma Gross a Profit = $ 110,000-$ 66,000= $ 44,000
Pro forma expenses- salaries = $15,000*1.05 = $ 15,750
Pro forma historical expenses = $ 5,000* 1.20 = $6,000
Pro forma profit before tax = $44,000-$15,750-$6,000 = $22,250
Pro forma profit after tax = $ 22,250-$6,675 = $15,575

Section C: Performance Management

1. *CSO: 1C1a LOS: 1C1d*
A major **disadvantage** of a static budget is that

a. it is more difficult to develop than a flexible budget.
b. it is made for only one level of activity.
c. variances tend to be smaller than when flexible budgeting is used.
d. variances are more difficult to compute than when flexible budgeting is used.

2. *CSO: 1C1a LOS: 1C1d*
Arkin Co.'s controller has prepared a flexible budget for the year just ended, adjusting the original static budget for the unexpected large increase in the volume of sales. Arkin's costs are mostly variable. The controller is pleased to note that both actual revenues and actual costs approximated amounts shown on the flexible budget. If actual revenues and actual costs are compared with amounts shown on the original (static) budget, what variances would arise?

a. Both revenue variances and cost variances would be favorable.
b. Revenue variances would be favorable and cost variances would be unfavorable.
c. Revenue variances would be unfavorable and cost variances would be favorable.
d. Both revenue variances and cost variances would be unfavorable.

3. *CSO: 1C1a LOS: 1C1k*
A project manager has been asked to provide an explanation regarding a $2,220 favorable material variance on a playground equipment project. After further analysis, the project manager was able to break down the material variance to an unfavorable price variance of $1,700 and a favorable quantity variance of $3,920. The **best** explanation of the variances is that the

a. decision by the purchasing department to use a new supplier resulted in the purchase of the materials for a lower price.
b. excellent scheduling by the production department enabled the purchasing department to reduce shipping costs.
c. purchasing department purchased a higher quality material, resulting in less wasted materials.
d. human resources department failed to hire adequately trained workers causing materials to be wasted.

4. *CSO: 1C1b LOS: 1C1e*
A company prepared a master budget based on 100 budgeted sales units with a $100 sales price per unit, a variable cost per unit of $50, and $2,000 in total fixed cost. The actual sales quantity was 70 units. When preparing a flexible budget, the operating income is

a. $1,500.
b. $3,000.
c. $3,500.
d. $5,000.

5. *CSO: 1C1b LOS: 1C1d*

Use of a standard cost system can include all of the following advantages **except** that it

a. assists in performance evaluation.
b. emphasizes qualitative characteristics.
c. permits development of flexible budgeting.
d. allows employees to better understand what is expected of them.

6. *CSO: 1C1b LOS: 1C1e*

Which one of the following statements is **correct** concerning a flexible budget cost formula? Variable costs are stated

a. per unit and fixed costs are stated in total.
b. in total and fixed costs are stated per unit.
c. in total and fixed costs are stated in total.
d. per unit and fixed costs are stated per unit.

7. *CSO: 1C1b LOS: 1C1e*

The monthly sales volume of Shugart Corporation varies from 7,000 units to 9,800 units over the course of a year. Management is currently studying anticipated selling expenses along with the related cash resources that will be needed. Which of the following types of budgets (1) should be used by Shugart in planning, and (2) will provide Shugart the **best** feedback in performance reports for comparing planned expenditures with actual amounts?

	Planning	Performance Reporting
a.	Static	Static.
b.	Static	Flexible.
c.	Flexible	Static.
d.	Flexible	Flexible.

8. *CSO: 1C1b* *LOS: 1C1f*

The following performance report was prepared for Dale Manufacturing for the month of April.

	Actual Results	Static Budget	Variance
Sales units	100,000	80,000	20,000F
Sales dollars	$190,000	$160,000	$30,000F
Variable costs	125,000	96,000	29,000U
Fixed costs	45,000	40,000	5,000U
Operating income	$ 20,000	$ 24,000	$ 4,000U

Using a flexible budget, Dale's total sales-volume variance is

a. $4,000 unfavorable.
b. $6,000 favorable.
c. $16,000 favorable.
d. $20,000 unfavorable.

9. *CSO: 1C1b* *LOS: 1C1h*

Of the following pairs of variances found in a flexible budget report, which pair is **most** likely to be related?

a. Material price variance and variable overhead efficiency variance.
b. Labor rate variance and variable overhead efficiency variance.
c. Material usage variance and labor efficiency variance.
d. Labor efficiency variance and fixed overhead volume variance.

10. *CSO: 1C1b* *LOS: 1C1e*

An advantage of using a flexible budget compared to a static budget is that in a flexible budget

a. shortfalls in planned production are clearly presented.
b. standards can easily be changed to adjust to changing circumstances.
c. fixed cost variances are more clearly presented.
d. budgeted costs for a given output level can be compared with actual costs for the same level of output.

11. *CSO: 1C1c* *LOS: 1C1i*

The benefits of management by exception reporting include all of the following **except** a reduction in

a. reports production costs.
b. information overload.
c. reliance on advance planning.
d. unfocused management actions.

12. *CSO: 1C1d LOS: 1c1j*
Lee manufacturing uses a standard cost system with overhead applied based on direct labor hours. The manufacturing budget for the production of 5,000 units for the month of June included 10,000 hours of direct labor at $15 per hour, $150,000. During June, 4,500 units were produced, using 9,600 direct labor hours, incurring $39,360 of variable overhead, and showing a variable overhead efficiency variance of $2,400 unfavorable. The standard variable overhead rate per direct labor hour was

a. $3.85.
b. $4.00.
c. $4.10.
d. $6.00.

13. *CSO: 1C1d LOS: 1C1k*
MinnOil performs oil changes and other minor maintenance services (e.g., tire pressure checks) for cars. The company advertises that all services are completed within 15 minutes for each service. On a recent Saturday, 160 cars were serviced resulting in the following labor variances: rate, $19 unfavorable; efficiency, $14 favorable. If MinnOil's standard labor rate is $7 per hour, determine the actual wage rate per hour and the actual hours worked.

	Wage Rate	Hours Worked
a.	$6.55	42.00.
b.	$6.67	42.71.
c.	$7.45	42.00.
d.	$7.50	38.00.

14. *CSO: 1C1e LOS: 1C1l*
A company applies variable overhead based upon direct labor hours and has a variable overhead efficiency variance that is $25,000 favorable. A possible cause of this variance is that

a. higher skilled labor was used.
b. electricity rates were lower than expected.
c. less supplies were used than anticipated.
d. less units of finished goods were produced.

15. *CSO: 1C1e LOS: 1C1s*
A company has a raw material price variance that is unfavorable. An analysis of this variance indicates that the company's only available supplier of one of its raw materials unexpectedly raised the price of the material. The action management should take regarding this situation is to

a. negatively evaluate the performance of the purchasing manager.
b. negatively evaluate the performance of the production manager.
c. change the raw material price standard.
d. ask the production manager to lower the material usage standard to compensate for higher material costs.

16. *CSO: 1C1e* *LOS: 1C1s*

The following information is from the accounting records of St. Charles Enterprises.

	Static Budget	Actual
Sales volume (units)	82,000	75,000
Selling price/unit	$ 15.00	$ 15.00
Variable cost/unit	9.00	9.25
Fixed cost	280,000	285,000

A staff assistant performed a comparison of budget and actual data, and calculated an unfavorable operating income variance of $65,750. The assistant concluded that performance did not meet expectations because there was an unfavorable variance in operating income. Which one of the following is the **best** evaluation of this preliminary conclusion?

a. Both the conclusion and the variance calculation are correct.
b. The conclusion is incorrect, but the variance calculation is informative.
c. The conclusion is correct, but the variance calculation could be more informative.
d. Both the conclusion and the variance calculation are incorrect.

17. *CSO: 1C1e* *LOS: 1C1s*

For a given time period, a company had a favorable material quantity variance, a favorable direct labor efficiency variance, and a favorable fixed overhead volume variance. Of the following, the one factor that could **not** have caused all three variances is

a. the purchase of higher quality materials.
b. the use of lower-skilled workers.
c. the purchase of more efficient machinery.
d. an increase in production supervision.

18. *CSO: 1C1e* *LOS: 1C1a*

Marten Company has a cost-benefit policy to investigate any variance that is greater than $1,000 or 10% of budget, whichever is larger. Actual results for the previous month indicate the following.

	Budget	Actual
Raw material	$100,000	$89,000
Direct labor	50,000	54,000

The company should investigate

a. neither the material variance nor the labor variance.
b. the material variance only.
c. the labor variance only.
d. both the material variance and the labor variance.

19. *CSO: 1C1e LOS: 1C1s*

A company has a direct labor price variance that is favorable. Of the following, the **most** serious concern the company may have about this variance is that

a. the circumstances giving rise to the favorable variance will not continue in the future.
b. the production manager may not be using human resources as efficiently as possible.
c. the cause of the favorable variance may result in other larger unfavorable variances in the value-chain.
d. actual production is less than budgeted production.

20. *CSO: 1C1e LOS: 1C1k*

Frisco Company recently purchased 108,000 units of raw material for $583,200. Three units of raw materials are budgeted for use in each finished good manufactured, with the raw material standard set at $16.50 for each completed product. Frisco manufactured 32,700 finished units during the period just ended and used 99,200 units of raw material. If management is concerned about the timely reporting of variances in an effort to improve cost control and bottom-line performance, the materials purchase price variance should be reported as

a. $6,050 unfavorable.
b. $9,920 favorable.
c. $10,800 unfavorable.
d. $10,800 favorable.

21. *CSO: 1C1e LOS: 1C1k*

Christopher Akers is the chief executive officer of SBL Inc., a masonry contractor. The financial statements have just arrived showing a $3,000 loss on the new stadium job that was budgeted to show a $6,000 profit. Actual and budget information relating to the materials for the job are as follows.

	Actual	Budget
Bricks - number of bundles	3,000	2,850
Bricks - cost per bundle	$7.90	$8.00

Which one of the following is a **correct** statement regarding the stadium job for SBL?

a. The price variance was favorable by $285.
b. The price variance was favorable by $300.
c. The efficiency variance was unfavorable by $1,185.
d. The flexible budget variance was unfavorable by $900.

22. *CSO: 1C1e LOS: 1C1k*
A company isolates its raw material price variance in order to provide the earliest possible information to the manager responsible for the variance. The budgeted amount of material usage for the year was computed as follows.

150,000 units of finished goods x 3 pounds/unit x $2.00/pound = $900,000.

Actual results for the year were the following.

Finished goods produced	160,000 units
Raw materials purchased	500,000 pounds
Raw materials used	490,000 pounds
Cost per pound	$2.02

The raw material price variance for the year was

a. $9,600 unfavorable.
b. $9,800 unfavorable.
c. $10,000 unfavorable.
d. $20,000 unfavorable.

23. *CSO: 1C1e LOS: 1C1l*
Lee Manufacturing uses a standard cost system with overhead applied based on direct labor hours. The manufacturing budget for the production of 5,000 units for the month of May included the following information.

Direct labor (10,000 hours at $15 per hour)	$150,000
Variable overhead	30,000
Fixed overhead	80,000

During May, 6,000 units were produced, and the direct labor efficiency variance was $1,500 unfavorable. Based on this information, the actual number of direct labor hours used in May was

a. 9,900 hours.
b. 10,100 hours.
c. 11,900 hours.
d. 12,100 hours.

24. *CSO: 1C1e LOS: 1C1k*
At the beginning of the year, Douglas Company prepared the following monthly budget for direct materials.

Units produced and sold	10,000	15,000
Direct material	$15,000	$22,500

At the end of the month, the company's records showed that 12,000 units were produced and sold and $20,000 was spent for direct materials. The variance for direct materials is

a. $2,000 favorable.
b. $2,000 unfavorable.
c. $5,000 favorable.
d. $5,000 unfavorable.

25. *CSO: 1C1e LOS: 1C1k*
Randall Company uses standard costing and flexible budgeting and is evaluating its direct labor. The total budget variance can usually be broken down into two other variances identified as the

a. direct labor rate variance and direct labor efficiency variance.
b. direct labor cost variance and the direct labor volume variance.
c. direct labor rate variance and direct labor volume variance.
d. direct labor cost variance and direct labor efficiency variance.

26. *CSO: 1C1e LOS: 1C1k*
Richter Company has an unfavorable materials efficiency (usage) variance for a particular month. Which one of the following is **least** likely to be the cause of this variance?

a. Inadequate training of the direct labor employees.
b. Poor performance of the shipping employees.
c. Poor design of the production process or product.
d. Poor quality of the raw materials.

27. *CSO: 1C1e LOS: 1C1k*
A company had a total labor variance of $15,000 favorable and a labor efficiency variance of $18,000 unfavorable. The labor price variance was

a. $3,000 favorable.
b. $3,000 unfavorable.
c. $33,000 favorable.
d. $33,000 unfavorable.

28. *CSO: 1C1e LOS: 1C1r*
Cordell Company uses a standard cost system. On January 1 of the current year, Cordell budgeted fixed manufacturing overhead cost of $600,000 and production at 200,000 units. During the year, the firm produced 190,000 units and incurred fixed manufacturing overhead of $595,000. The production volume variance for the year was

a. $5,000 unfavorable.
b. $10,000 unfavorable.
c. $25,000 unfavorable.
d. $30,000 unfavorable.

29. *CSO: 1C1e LOS: 1C1r*
Highlight Inc. uses a standard cost system and applies factory overhead to products on the basis of direct labor hours. If the firm recently reported a favorable direct labor efficiency variance, then the

a. variable overhead spending variance must be favorable.
b. variable overhead efficiency variance must be favorable.
c. fixed overhead volume variance must be unfavorable.
d. direct labor rate variance must be unfavorable.

30. *CSO: 1C1e LOS: 1C1r*
Harper Company's performance report indicated the following information for the past month.

Actual total overhead	$1,600,000
Budgeted fixed overhead	1,500,000
Applied fixed overhead at $3 per labor hour	1,200,000
Applied variable overhead at $.50 per labor hour	200,000
Actual labor hours	430,000

Harper's total overhead spending variance for the month was

a. $100,000 favorable.
b. $115,000 favorable.
c. $185,000 unfavorable.
d $200,000 unfavorable.

31. *CSO: 1C1e LOS: 1C1r*
The JoyT Company manufactures Maxi Dolls for sale in toy stores. In planning for this year, JoyT estimated variable factory overhead of $600,000 and fixed factory overhead of $400,000. JoyT uses a standard costing system, and factory overhead is allocated to units produced on the basis of standard direct labor hours. The denominator level of activity budgeted for this year was 10,000 direct labor hours, and JoyT used 10,300 actual direct labor hours.

Based on the output accomplished during this year, 9,900 standard direct labor hours should have been used. Actual variable factory overhead was $596,000, and actual fixed factory overhead was $410,000 for the year. Based on this information, the variable overhead spending variance for JoyT for this year was

a. $24,000 unfavorable.
b. $2,000 unfavorable.
c. $4,000 favorable.
d. $22,000 favorable.

32. *CSO: 1C1e LOS: 1C1r*
A company has a fixed overhead volume variance that is $10,000 unfavorable. The **most** likely cause for this variance is that

a. the production supervisory salaries were greater than planned.
b. the production supervisory salaries were less than planned.
c. more was produced than planned.
d. less was produced than planned.

33. *CSO: 1C1e LOS: 1C1r*
When using a flexible budgeting system, the computation for the variable overhead spending variance is the difference between

a. actual variable overhead and the previously budgeted amount.
b. the previously budgeted amount and actual inputs times the budgeted rate.
c. the amount applied to work-in-process and actual variable overhead.
d. actual variable overhead and actual inputs times the budgeted rate.

34. *CSO: 1C1e LOS: 1C1s*

Fortune Corporation's Marketing Department recently accepted a rush order for a nonstock item from a valued customer. The Marketing Department filed the necessary paperwork with the Production Department, which complained greatly about the lack of time to do the job the right way. Nevertheless, the Production Department accepted the manufacturing commitment and filed the required paperwork with the Purchasing Department for the needed raw materials. A purchasing clerk temporarily misplaced the paperwork. By the time the paperwork was found, it was too late to order from the company's regular supplier. A new supplier was located, and that vendor quoted a very attractive price. The materials arrived and were rushed into production, bypassing the normal inspection processes (as directed by the Production Department supervisor) to make up for lost time. Unfortunately, the goods were of low quality and created considerable difficulty for Fortune's assembly-line personnel. Which of the following **best** indicates the responsibility for the materials usage variance in this situation?

a. Purchasing.
b. Purchasing and Marketing.
c. Marketing and Production.
d. Purchasing, Marketing, and Production.

35. *CSO: 1C1e* *LOS: 1C1s*

Johnson Inc. has established per unit standards for material and labor for its production department based on 900 units normal production capacity as shown below.

3 lbs. of direct materials @ $4 per lb.	$12
1 direct labor hour @ $15 per hour	15
Standard cost per unit	$27

During the year 1,000 units were produced. The accounting department has charged the production department supervisor with the following unfavorable variances.

Materials Quantity Variance		Material Price Variance	
Actual usage	3,300 lbs.	Actual cost	$12,600
Standard usage	3,000 lbs.	Standard cost	12,000
Unfavorable	300 lbs.	Unfavorable	$600

Bob Sterling, the production supervisor, has received a memorandum from his boss stating that he did not meet the established standards for material prices and quantity and corrective action should be taken. Sterling is very unhappy about the situation and is preparing to reply to the memorandum explaining the reasons for his dissatisfaction. All of the following are valid reasons for Sterling's dissatisfaction **except** that the

a. material price variance is the responsibility of the purchasing department.
b. cause of the unfavorable material usage variance was the acquisition of substandard material.
c. standards have not been adjusted to the engineering changes.
d. variance calculations fail to properly reflect that actual production exceeded normal production capacity.

36. *CSO: 1C1e* *LOS: 1C1s*

During the month of May, Tyler Company experienced a significant unfavorable material efficiency variance in the production of its single product at one of Tyler's plants. Which one of the following reasons would be **least** likely to explain why the unfavorable variance arose?

a. Inferior materials were purchased.
b. Actual production was lower than planned production.
c. Workers used were less-skilled than expected.
d. Replacement production equipment had just been installed.

37. *CSO: 1C2a* *LOS: 1C2b*

A company's production manager is accountable for controlling costs while manufacturing quality products. The manager also provides recommendations for equipment improvements and replacements. In this market, customers are very sensitive to the product's quality. What type of responsibility center is the production manager in charge of?

a. Cost center.
b. Investment center.
c. Profit center.
d. Revenue center.

38. *CSO: 1C2a* *LOS: 1C2a*

Sara Bellows, manager of the telecommunication sales team, has the following department budget.

Billings - long distance	$350,000
Billings - phone card	75,000
Billings - toll free	265,000

Her responsibility center is **best** described as a

a. cost center.
b. revenue center.
c. profit center.
d. investment center.

39. *CSO: 1C2a* *LOS: 1C2b*

The production manager of the Super T-shirt Company is responsible for the activity of her department and the costs associated with production. Super T adheres to a responsibility centered budget process, and the manager's performance is measured by how well she performs to budget. Recently, the dark horse team won the local college basketball tournament. As a result, the sales department, which operates as a profit center, received an order for 10,000 t-shirts, but only if they could be delivered in three days. The production manager said she could meet the schedule, but only by incurring overtime pay that would cause her to be over budget for hourly wages paid. What would be the **best** course of action for the sales department and the production manager to undertake in this case?

a. Accept the order and overrun the production manager's budget.
b. Refuse the overtime and produce only what the production department is capable of while staying within the budget.
c. Accept the order and ignore the effect on the production department budget when conducting the performance review.
d. Charge the overtime to the sales department's budget.

40. *CSO: 1C2a LOS: 1C2f*

Most firms allocate corporate and other support costs to divisions and departments for all of the following reasons **except** to

a. remind profit-center managers that earnings must be adequate to cover some share of the indirect costs.
b. stimulate profit-center managers to put pressure on central managers to control service costs.
c. create competition between divisions and departments, and their managers.
d. fix accountability and evaluate profit centers.

41. *CSO: 1C2a LOS: 1C2f*

Which one of the following allocation approaches will ensure that the production departments do not underestimate their planned usage of service at the start of the budget period as well as make the service departments cost efficient?

a. The use of actual rates and actual hours for both fixed and variable costs.
b. Budgeted rates and standard hours allowed for output attained for variable costs and budgeted rates and capacity available for fixed costs.
c. The use of rates and quantities based on long-term historical averages for both variable and fixed costs.
d. The use of a budgeted lump-sum amount based on estimates provided by the production departments for both variable and fixed costs.

42. *CSO: 1C2b LOS: 1C2h*

Which one of the following is an **incorrect** description of transfer pricing?

a. It measures the value of goods or services furnished by a profit center to other responsibility centers within a company.
b. If a market price exists, this price may be used as a transfer price.
c. It measures exchanges between a company and external customers.
d. If no market price exists, the transfer price may be based on cost.

43. *CSO: 1C2b* *LOS: 1C2i*

Manhattan Corporation has several divisions that operate as decentralized profit centers. At the present time, the Fabrication Division has excess capacity of 5,000 units with respect to the UT-371 circuit board, a popular item in many digital applications. Information about the circuit board follows.

Market price	$48
Variable selling/distribution costs on external sales	5
Variable manufacturing cost	21
Fixed manufacturing cost	10

Manhattan's Electronic Assembly Division wants to purchase 4,500 circuit boards either internally, or else use a similar board in the marketplace that sells for $46. The Electronic Assembly Division's management feels that if the first alternative is pursued, a price concession is justified, given that both divisions are part of the same firm. The **best** process to determine the price ultimately charged by the Fabrication Division to the Assembly Division for the circuit board is to

a. establish the price by top management.
b. establish the price by an arbitration committee.
c. establish the price through negotiations between the Fabrication's and Electronic Assembly's Division management.
d. set the price equal to the price that would be charged if the Fabrication Department had no excess capacity.

44. *CSO: 1C2b LOS: 1C2i*

Happy Time Industries uses segment reporting for all of its decentralized divisions. It has several products that are transferred from one division to other divisions. Happy Time wants to motivate the manager of the selling division to produce efficiently. Assuming the following methods are available, the **optimal** transfer pricing method should be a

a. cost-based transfer price that uses actual amounts.
b. cost-based transfer price that uses budgeted amounts.
c. variable cost-based transfer price that uses actual amounts.
d. market-based transfer price.

45. *CSO: 1C2b LOS: 1C2k*

Morrison's Plastics Division, a profit center, sells its products to external customers as well as to other internal profit centers. Which one of the following circumstances would justify the Plastics Division selling a product internally to another profit center at a price that is below the market-based transfer price?

a. The buying unit has excess capacity.
b. The selling unit is operating at full capacity.
c. Routine sales commissions and collection costs would be avoided.
d. The profit centers' managers are evaluated on the basis of unit operating income.

46. *CSO: 1C2b LOS: 1C2i*

With respect to a firm's transfer pricing policy, an advantage of using a dual pricing arrangement is that it

a. provides an incentive for the supplying subunit to control costs.
b. exposes the supplying subunit to the discipline of market prices.
c. promotes goal congruence between the supplying and buying subunits of the firm.
d. simplifies tax calculations when the buying and supplying subunits are taxed in different jurisdictions.

47. *CSO: 1C2b LOS: 1C2j*
Manhattan Corporation has several divisions that operate as decentralized profit centers. At the present time, the Fabrication Division has excess capacity of 5,000 units with respect to the UT-371 circuit board, a popular item in many digital applications. Information about the circuit board follows.

Market price	$48
Variable selling/distribution costs on external sales	5
Variable manufacturing cost	21
Fixed manufacturing cost	10

Manhattan's Electronic Assembly Division wants to purchase 4,500 circuit boards either internally, or else use a similar board in the marketplace that sells for $46. The Electronic Assembly Division's management feels that if the first alternative is pursued, a price concession is justified, given that both divisions are part of the same firm. To optimize the overall goals of Manhattan, the minimum price to be charged for the board from the Fabrication Division to the Electronic Assembly Division should be

a. $21.
b. $26.
c. $31.
d. $46.

48. *CSO: 1C2b LOS: 1C2k*
Kern Manufacturing has several divisions and evaluates performance using segment income. Since sales include transfers to other divisions, Kern has established a price for internal sales as cost plus 10%. Red Division has requested 10,000 units of Green Division's product. Green Division is selling its product externally at a 60% markup over cost. The corporate policy will encourage the Green Division to

a. transfer the product to the Red Division because all costs are being covered and the division will earn a 10% profit.
b. reject the sale to the Red Division because it does not provide the same markup as external sales.
c. accept the sale to the Red Division if it is operating at full capacity and the sale will contribute to fixed costs.
d. transfer the product to the Red Division if it does not require the Green Division to give up any external sales.

49. *CSO: 1C2b LOS: 1C2i*

A company uses negotiated transfer prices between divisions. All of the following are advantages for this type of transfer pricing model **except** that negotiated transfer prices

a. achieve goal congruence.
b. are simple and quick to implement.
c. are useful for evaluating individual division performance.
d. allow divisions to make their own decisions.

50. *CSO: 1C2b LOS: 1C2j*

Natural Lumber Company has two divisions. The Forestry Division cuts down trees and sells them to the Sawing Division. The Sawing Division cuts the lumber into boards that are sold to external customers for further manufacturing into building products. The costs and market prices for the two divisions are listed below. Each tree on average can be made into 25 boards.

Division	Amounts
Forestry Division	
Variable cost per tree	$400
Fixed cost per tree	$800
Desirable full cost markup %	8%
Sawing Division	
Variable cost per board	$10
Fixed cost per board	$30
Market price per tree supplied (external supplier)	$1,300
Market price per board sold (external customer)	$100

Market prices can fluctuate slightly and the market is moderately competitive. All of the trees harvested by the Forestry Division can be sold to an external customer by at least the full cost. What is the **best** range of negotiated transfer prices for each tree from the Forestry Division to the Sawing Division assuming each division has the incentive to improve its own profitability?

a. $1,296 to $1,300.
b. $1,200 to $1,300.
c. $432 to $1,296.
d. $400 to $1,200.

51. *CSO: 1C3a LOS: 1C3c*
A restaurant chain has 30 different hamburger choices and has recently added the Come Hungry, a quadruple burger, to its menu for a three-month trial period. The product's partial income statement after three months is shown below.

Sales	$ 550,000
Variable costs	375,000
Product advertising (2/3 for product launch, 1/3 ongoing)	180,000
Allocated fixed direct restaurant costs	120,000
Profit (loss) before allocation of corporate costs	$(125,000)

The effect on the company's profit because of the addition of this new product was to

a. decrease income by $5,000.
b. increase income by $115,000.
c. decrease income by $125,000.
d. increase income by $175,000.

52. *CSO: 1C3b LOS: 1C3d*
Superior Tables is a table manufacturer. The company is considering eliminating the Easy Living product line because of losses over the past year. Results for the year just ended for the Easy Living product line are as follows.

Sales (20,000 units)	$ 6,000,000
Variable manufacturing costs	2,700,000
Fixed manufacturing costs	2,400,000
Administrative costs	2,000,000
Operating loss	($1,100,000)

None of the fixed manufacturing costs can be eliminated, but 25% of the administrative costs are variable and can be eliminated if the product line is eliminated. Based on the information above, should the Easy Living product line be eliminated?

a. No, because eliminating the product line would only save $500,000 of administrative costs still resulting in an overall loss.
b. No, because eliminating the product line would increase the operating loss by ($2,800,000).
c. Yes, because eliminating the product line would increase the operating income by $1,100,000.
d. Yes, because eliminating the product line would increase the operating income by $1,500,000 from the saved administrative costs.

53. *CSO: 1C3b* *LOS: 1C3q*
Consider the following categories of performance measures.

I. Profitability measures.
II. Customer-satisfaction measures.
III. Efficiency, quality, and time measures.
IV. Innovation measures.

A cruise line operates on a national scale in a very competitive marketplace. In view of this information, which measures should the company use in the evaluation of its managers?

a. I only.
b. I and II.
c. II and III.
d. I, II, III, and IV.

54. *CSO: 1C3b* *LOS: 1C3a*
All of the following are considered appropriate goals for measuring a division manager's efficiency for a budgeting period **except**

a. budgeted operating income.
b. a targeted share of the market.
c. earnings per share projections.
d. a reduction in the organizational structure (fewer employees doing a given amount of work).

55. *CSO: 1C3b* *LOS: 1C3a*
David Burke is manager of claims processing for Continental Health Care System. His performance is evaluated using various measures agreed upon in advance with Diane Lewis, general manager. Lewis asked Burke to recommend several measures to evaluate the performance of his unit next year. Which one of the following performance measures would likely have the **least** positive effect on Burke's motivation and performance?

a. Processing cost per claim.
b. Average processing time per claim.
c. Percentage of claims processed accurately the first time.
d. Total dollar amount of claims processed per month.

56. *CSO: 1C3b* *LOS: 1C3a*
Paul Cooper, shipping manager for DFG Distributors, is responsible for managing the staff and all related transportation equipment to fill orders for bakery products from local retailers and deliver the products to those retailers. Which one of the following groups of three performance measures **most** likely would result in the highest level of goal congruence?

a. Labor cost per order; transportation cost per order; number of orders completed per day.
b. The percentage of orders filled on time; the percentage of orders filled accurately; average cost to fill and deliver an order.
c. Customer satisfaction; elapsed time to complete an order; percentage of orders filled accurately.
d. Orders completed per employee per day; employee injuries per hour worked; number of vehicle accidents per year.

57. *CSO: 1C3b* *LOS: 1C3a*
P.C. Programs Inc. produces software for individual users and small businesses. Rita Morgan manages the customer hot line department for the firm and is responsible for answering customer questions related to software products produced by all divisions of the firm. For purposes of promoting goal congruence, which one of the following would be the **least** appropriate measure of her performance?

a. Average time to provide an answer or solution to a customer.
b. Number of calls to the hot line for each new release of software.
c. Average time a customer is on hold.
d. Number of customer complaints due to incorrect responses given to customers.

58. *CSO: 1C3b* *LOS: 1C3a*
Which one of the following should be used for evaluating the performance of the Repair and Maintenance Department that repairs production equipment in a firm devoted to making keyboards for computers?

a. The variance between the firm's budgeted and actual net income.
b. The total factory overhead variances.
c. The fixed overhead volume variances.
d. The response time and degree of satisfaction among the production departments.

59. *CSO: 1C3b LOS: 1C3a*
Albert Hathaway recently joined Brannen University as the chief information officer of the University Computing Services Department. His assigned task is to help reduce the recurrent problem of cost overruns due to uncontrolled computer usage by the user community, while at the same time not curtailing the use of information technology for research and teaching. To ensure goal congruence, which one of the following algorithms should be used to allocate the cost of the University Computing Services Department to other departments within the university?

a. Actual rate times actual hours of computer usage.
b. Actual rate times budgeted hours of computer usage.
c. Budgeted rate times actual hours of computer usage.
d. Budgeted rate times budgeted hours of computer usage.

60. *CSO: 1C3d LOS: 1C3i*
For several years, Northern Division of Marino Company has maintained a positive residual income. Northern is currently considering investing in a new project that will lower the division's overall return on investment (ROI) but increase its residual income. What is the relationship between the expected rate of return on the new project, the firm's cost of capital, and the division's current ROI?

a. The expected rate of return on the new project is higher than the division's current return on investment, but lower than the firm's cost of capital.
b. The firm's cost of capital is higher than the expected rate of return on the new project, but lower than the division's current return on investment.
c. The division's current return on investment is higher than the expected rate of return on the new project, but lower than the firm's cost of capital.
d. The expected rate of return on the new project is higher than the firm's cost of capital, but lower than the division's current return on investment.

61. *CSO: 1C3d LOS: 1C3i*
The management team of a company is evaluating the use of either return on investment or residual income as a measure of the performance of the company's lines of business. In a presentation about the two measures, which of the following statements are correct?

I. Both measures include key elements such as revenues, costs, and level of investments, which are critical for top management decision making.
II. Both measures avoid all potential goal-congruency problems within the organization.
III. The only disadvantage of the measures is that they both have a long-term focus, rather than a short-term focus.
IV. Both measures can be manipulated to suit the user's purposes as the calculation is based on accounting numbers.

a. I and II only.
b. II and III only.
c. III and IV only.
d. I and IV only.

62. *CSO: 1C3d LOS: 1C3e*

A company has recently implemented responsibility accounting in all 7 segments of the company. The following information is available for Segment W for the last quarter.

Net working capital	$1,200,000
Property, plant and equipment, net	3,175,000
Revenues	8,000,000
Cost of sales	6,350,000
General and administrative expenses	180,000

Based on the information provided, if the company treats Segment W as an investment center, what is the return on investment for the last quarter?

a. 33.6%.
b. 37.7%.
c. 46.3%.
d. 74.4%.

63. *CSO: 1C3d LOS: 1C3f*

KHD Industries is a multidivisional firm that evaluates its managers based on the return on investment (ROI) earned by their divisions. The evaluation and compensation plans use a targeted ROI of 15% (equal to the cost of capital) and managers receive a bonus of 5% of basic compensation for every one-percentage point that the division's ROI exceeds 15%. David Evans, manager of the Consumer Products Division, has made a forecast of the division's operations and finances for next year that indicates the ROI would be 24%. In addition, new short-term programs were identified by the Consumer Products Division and evaluated by the finance staff as follows.

Program	Projected ROI
A	13%
B	19%
C	22%
D	31%

Assuming no restrictions on expenditures, what is the optimal mix of new programs that would add value to KHD Industries?

a. A, B, C, and D.
b. B, C, and D only.
c. C and D only.
d. D only.

64. *CSO: 1C3d* *LOS: 1C3f*

Performance results for four geographic divisions of a manufacturing company are shown below.

Division	Target Return on Investment	Actual Return on Investment	Return on Sales
A	18%	18.1%	8%
B	16	20.0	8
C	14	15.8	6
D	12	11.0	9

The division with the **best** performance is

a. Division A.
b. Division B.
c. Division C.
d. Division D.

65. *CSO: 1C3d* *LOS: 1C3f*

Vincent Hospital has installed a new computer system. The system was designed and constructed based on the anticipated number of hours of usage required by the various hospital departments according to projections made by the departmental managers. Virtually all of the operating costs of the system are fixed. What would be the **most** systematic and rational manner in which to allocate the new computer system costs to the various hospital departments?

a. To each department equally.
b. By the anticipated number of hours of usage.
c. By actual usage by each department.
d. By the revenue generated in each department.

66. *CSO: 1C3d* *LOS: 1C3i*

Oakmont Company has two divisions, Household Appliances and Construction Equipment. The manager of the Household Appliances Division is evaluated on the basis of return on investment (ROI). The manager of the Construction Equipment Division is evaluated on the basis of residual income. The cost of capital has been 12% and the return on investment has been 16% for the two divisions. Each manager is currently considering a project with a 14% rate of return. According to the current evaluation system for managers, which manager(s) would have incentive to undertake the project?

a. Both managers would have incentive to undertake the project.
b. Neither manager would have incentive to undertake the project.
c. The manager of the Household Appliances Division would have incentive to undertake the project while the manager of the Construction Equipment Division would not have incentive to undertake the project.
d. The manager of the Construction Equipment Division would have incentive to undertake the project while the manager of the Household Appliances Division would not have incentive to undertake the project.

67. *CSO: 1C3e* *LOS: 1C3g*
A company is concerned that its divisional managers are not making decisions that are in the **best** interests of the overall corporation. In order to prevent this, the company should use a performance evaluation system that focuses on

a. flexible budget variances.
b. operating income.
c. controllable costs.
d. residual income.

68. *CSO: 1C3e* *LOS: 1C3g*
A company's management is planning on making an investment of UAE Dirham (AED) 1,000,000 to establish a new division in the United Arab Emirates. The new division is expected to generate sales of AED 720,000 and net income of AED 250,000 in Year 1. If the company's required rate of return is 10%, what is the division's residual income in Year 1?

a. AED 100,000.
b. AED 150,000.
c. AED 225,000.
d. AED 620,000.

69. *CSO: 1C3f* *LOS: 1C3k*
A company uses return on investment (ROI) to compare its divisions, using this evaluation to determine division manager bonuses. Which method of asset measurement would provide the **best** method of comparison?

a. Book value.
b. Current cost.
c. Historical cost.
d. Depreciated cost.

70. *CSO: 1C3q* *LOS: 1C3l*
To ensure that a divisional vice president places appropriate focus on both the short-term and the long-term objectives of the division, the **best** approach would be to evaluate the vice president's performance by using

a. return on investment (ROI) which permits easy and quick comparisons to other similar divisions.
b. residual income since it will eliminate the rejection of capital investments that have a return less than ROI but greater than the cost of capital.
c. division segment margin or profit margin.
d. financial and nonfinancial measures, including the evaluation of quality, customer satisfaction, and market performance.

71. *CSO: 1C3h* *LOS: 1C3m*
The balanced scorecard provides an action plan for achieving competitive success by focusing management attention on critical success factors. Which one of the following is **not** one of the competitive success factors commonly focused upon in the balanced scorecard?

a. Competitor business strategies.
b. Financial performance measures.
c. Internal business processes.
d. Employee innovation and learning.

72. *CSO: 1C3h* *LOS: 1C3m*
Which one of the following statements about a balanced scorecard is **incorrect**?

a. It seeks to address the problems associated with traditional financial measures used to assess performance.
b. The notion of value chain analysis plays a major role in the drawing up of a balanced scorecard.
c. It relies on the perception of the users with regard to service provided.
d. It is directly derived from the scientific management theories.

Answer for Section C: Performance Management

1. Correct answer b. A static budget is based on the level of output planned at the start of the budget period and does not change no matter what the level of actual output is. Comparison of actual activities to static budget levels is difficult and often misleading.

2. Correct answer b. If a company experiences an increase in sales volume, the actual revenue will be greater than the master budget revenue (favorable variance) and the actual costs will be greater than the master budget costs (unfavorable variances).

3. Correct answer c. It would result in an unfavorable price variance and a favorable quantity variance.

4. Correct answer a. This is the operating income in case of flexible budget and sale quantity is 70 units, calculated as: (70unit*$100=$7,000)-variable cost (70unit*$50=$3,500)-fixed cost ($2,000) = $1,500.

5. Correct answer b. The use of a standard cost system has several benefits but they are generally based on quantitative factors and not qualitative characteristics.

6. Correct answer a. For flexible budgets, variable costs are given per unit so that comparisons can be readily made at various levels of output. Fixed costs are expected to remain the same over the relevant range and, therefore, are given in total.

7. Correct answer d. Flexible budgets are preferable for both planning purposes and performance reporting as the flexible budget can be based on the actual amount of output and then compared to the actual revenue and costs.

8. Correct answer c. The sales-volume variance is $16,000 favorable as shown below.

	Flexible Budget	Static Budget
Units	100,000	80,000
Sales dollars	$200,000	$160,000
Variable costs	120,000	96,000
Fixed costs	40,000	40,000
Operating income	$ 40,000	$ 24,000

Sales volume variance = $40,000 - $24,000 = $16,000 F

9. Correct answer c. Efficiency variances are sometimes referred to as usage variances and measure quantity used. Material usage and labor efficiency (usage) are likely to be related, e.g., poor quality material will likely cause excess usage and require additional labor.

10. Correct answer d. A static budget is based on projected output while a flexible budget is based on actual output. As a result, the actual cost of the actual output can be compared to the budgeted cost for the actual output.

11. Correct answer c. The use of management by exception reporting requires the same amount of advanced planning as any other type of variance reporting. The time savings of management by exception arises in potentially investigating fewer variances.

12. Correct answer b. The standard variable overhead rate per direct labor hour is $4.00 calculated as follows.

Standard hours/unit	=	10,000 hours ÷ 5,000 units		
	=	2 hours/unit		
Standard hours for output	=	4,500 units x 2 hours		
	=	9,000 hours		
VOH efficiency variance:	(9,000 – 9,600) x R		=	-$2,400
	-600R		=	-$2,400
	R		=	$4.00

13. Correct answer d. The actual wage rate per hour is $7.50 and the actual hours worked equals 38 as shown below.

Actual hours:	(X – 40) x $7	=	-$14
	X – 40	=	-2
	X	=	38 hours
Wage rate:	(X - $7) x 38	=	$19
	X - $7	=	$ .50
	X	=	$7.50

14. Correct answer a. If variable overhead is applied on the basis of direct labor hours and overhead spending is $25,000 less than expected, it means that labor was very efficient, e.g., highly skilled labor.

15. Correct answer c. With a single supplier, the purchasing manager should not be held responsible for the price variance. The standard material price should be increased.

16. Correct answer c. The conclusion regarding the operating income is correct but the variance information could be more specific, e.g., lower sales, higher variable cost, and higher fixed costs all contributed to the operating income variance.

17. Correct answer b. The use of lower-skilled labor is not likely to lead to a favorable direct labor efficiency variance but is more likely to cause this variance to be unfavorable. Lower-skilled labor could also affect the material quantity variance negatively.

18. Correct answer b. The material variance should be investigated since it is $11,000 which is greater than 10% of the budget ($100,000 x .1). The direct labor variance is $4,000 which is less than 10% of budget ($50,000 x .1) so it would not be investigated under the company policy.

19. Correct answer c. A favorable direct labor price variance could indicate that lower-skilled labor is being used that what was planned. This could lead to unfavorable labor use and material usage variances that more than offset the favorable price variance.

20. Correct answer d. Frisco's purchase price variance is $10,800 F calculated as follows.

Price per unit purchased:	$583,200 ÷ 108,000	=	$5.40	
Standard price per unit:	$16.50 ÷ 3	=	$5.50	
Purchase price variance	($5.50 - $5.40) x 108,000		=	$10,800 F

21. Correct answer b. SBL's material price variance is $300 F as shown below.

Price variance	=	(Actual price – Standard price) x Actual quantity
	=	($7.90 - $8.00) x 3,000
	=	$300 F

22. Correct answer c. The raw material price variance (purchase price variance) is $10,000 U as shown below.

Price variance	=	(Actual price – Standard price) x Actual quantity
	=	($2.02 - $2.00) x 500,000
	=	$10,000 U

23. Correct answer d. The actual direct labor hours used by Lee Manufacturing is 12,100 calculated as follows.

Efficiency variance: (Actual quantity – Standard quantity) x Standard price

Standard quantity	=	6,000 units x 2 hours per unit	
	=	12,000 hours	
Actual hours:	(X-12,000) x $15	=	$1,500
	X – 12,000	=	100
	X	=	12,100

24. Correct answer b. Douglas' direct material variance is $2,000 U as shown below.

Material standard price/unit	=	$15,000 ÷ 10,000
	=	$1.50
Material variance	=	($1.50 x 12,000) - $20,000
	=	$18,000 - $20,000
	=	$2,000 U

25. Correct answer a. The rate variance will show how the price paid for direct labor varies from the standard price. The efficiency variance shows how the number of direct labor hours used varies from the standard number of direct labor hours.

26. Correct answer b. Employees in the Shipping Department have nothing to do with the amount of material used in the production process. All of the other answers could affect the quantity of material used.

27. Correct answer c. The company had a favorable labor price of $33,000 as shown below.

$$X - \$18,000 = \$15,000$$
$$X = \underline{\underline{\$33,000\ F}}$$

28. Correct answer d. Cordell's production volume variance is $30,000 U as shown below.

Standard fixed cost per unit =$600,000 ÷ 200,000
=$3 per unit
Product volume variance =(190,000 – 200,000) x $3
=$30,000 U

29. Correct answer b. If variable overhead is applied on the basis of direct labor hours and the number of direct labor hours used is favorable, then the variable overhead efficiency (usage) variance must also be favorable.

30. Correct answer b. Harper's total overhead spending variance is $115,000 favorable calculated as follows.

Variable overhead	=	Actual total overhead – Fixed overhead
	=	$1,600,000 - $1,500,000
	=	$100,000
Spending variance	=	(Input x Standard rate) – Actual variable overhead
	=	(430,000 x $.50) - $100,000
	=	$115,000 F

31. Correct answer d. JoyT's variable overhead spending variance is $22,000 favorable calculated as follows.

Spending variance	=	(Input x Standard rate) – Actual variable overhead
	=	(10,300 x $60*) - $596,000
	=	$22,000 F

*$600,000 ÷ 10,000

32. Correct answer d. A fixed overhead volume variance is dependent on quantity, above or below the planned quantity. An unfavorable volume variance means that production was less than planned.

33. Correct answer d. The spending variance is the difference between actual and budgeted rates times the actual base input.

34. Correct answer d. All the departments bear some responsibility for the usage variance: Marketing because the rush order was accepted; Purchasing because of the delay in ordering the materials, and Production for bypassing the normal inspection process.

35. Correct answer d. The materials quantity variance does reflect the fact that 1,000 units were produced rather that the planned 900 units. By indicating the standard usage is 3,000 (3 per unit), the standard usage for the actual output is compared with the actual material usage.

36. Correct answer b. Unfavorable material usage variances are generally caused by inferior materials or lower-skilled workers. Unfavorable usage variances shown that more material than the standard quantity was used; this is not likely to be caused by lower-than-planned production.

37. Correct answer a. The manager is accountable only for controlling costs.

38. Correct answer b. A sales team is generally only accountable for sales dollars; this type of responsibility center is, therefore, a revenue center.

39. Correct answer d. If the Sales Department operates as a profit center and accepts a rush order, it should incur the extra cost of the rush order. The overtime required should not be charged to the Production Department as the manager would then be inclined to reject the order as not beneficial to the department goals.

40. Correct answer b. If corporate and support costs are being allocated to divisions and departments, there is very little incentive for central managers to control costs no matter how much pressure they receive from profit-center managers.

41. Correct answer b. The use of budgeted rates and standard hours ensures that all departments know what rates will be charged and how many hours will be charged. This allows usage to be properly planned and encourages service providers to be efficient.

42. Correct answer c. A transfer price is the price one business unit charges for a product or service supplied to another business unit of the same organization. This pricing structure does not apply to external customers.

43. Correct answer c. The management of the two divisions should negotiate the transfer price. Negotiation is most likely to ensure that both managers are satisfied with the resultant price.

44. Correct answer d. A market-based transfer price will motivate the manager of the selling division to be efficient in order to earn the greatest profit or contribution margin.

45. Correct answer c. Selling the product internally allows the division to avoid paying sales commissions and incurring the cost of collections thus justifying a transfer price that is lower than the market price. Other costs such as promotion and advertising might also be avoided.

46. Correct answer c. Dual pricing promotes goal congruence, e.g., the selling division receives full cost plus markup price which allows the division to earn a profit while the buying division pays the market price and is no worse off than if purchasing from an outside vendor. The organization as a whole is unaffected by the internal transfers.

47. Correct answer a. Since the Fabrication Division has excess capacity, the minimum price to be charged would be $21 to cover the variable manufacturing costs. The selling and distribution costs will be avoided, and the fixed costs will be incurred whether or not the 4,500 units are sold to the Electronic Assembly Division.

48. Correct answer d. As long as Green Division has excess capacity and does not have to turn down any sales at a 60% markup, Green will transfer product to Red Division at cost plus 10%.

49. Correct answer b. A disadvantage of negotiated transfer prices is that it takes time for managers from each division to negotiate a price.

50. Correct answer b.
$1,200 to $1,300 is the best range of negotiated transfer prices because the minimum price is the recovery of the full cost of $1,200 ($400 + $800) and the maximum price is the market price of $1,300.

51. Correct answer a. 550,000 – 375,000 – 180,000, but 2/3 of the advertising costs will not recur

52. Correct answer b. because eliminating the product line would increase the operating loss.
-$6,000,000 (lost revenue) + $2,700,000 (variable manufacturing costs saved) + $500,000 (25% of administrative costs saved) = ($2,800,000)

53. Correct answer d. The company should use all the categories of performance measurement to ensure that it remains competitive and profitable.

54. Correct answer c. Earnings per share depend not only on net income but also on the number of shares outstanding. Managers generally have no control over the number of shares issued and should not be measured on earnings per share.

55. Correct answer d. Measuring performance on the total dollars processed would lead to paying attention to those claims with the greatest dollar value and ignoring smaller claims, not a good process for customer satisfaction.

56. Correct answer b. Cooper is expected to fill and deliver orders accurately at the least cost to the company. Measuring his performance on the percentage of on-time and accurate orders plus the cost to fill and deliver orders would result in Cooper pursuing the proper goals.

57. Correct answer b. Morgan is responsible for assisting customers accurately and quickly. The number of calls received regarding a new product should be the concern of the product developers; this might affect Morgan's staff's ability to shorten customer "hold" time but is not her responsibility.

58. Correct answer d. The Repair and Maintenance Department is expected to keep the production equipment in good working order to facilitate keyboard production. If the production departments are satisfied, it is a good indication that Repair and Maintenance is doing a good job.

59. Correct answer c. A budgeted rate should be established so that all departments know in advance how much they will be charged for actual usage. Using this rate also encourages cost control in the Computer Department.

60. Correct answer d. In order to increase residual income, the expected return on the new project must be higher than the cost of capital (required rate of return) but lower than the current return on investment.

61. Correct answer d. II is incorrect because both ROI and RI may cause goal-congruency problems within the organization.

III is incorrect because a disadvantage of both ROI and RI is that they have a short term focus, capturing financial performance for only a single year.

62. Correct answer a.
Net Income = Revenues-Cost of Sales-G&A Expenses=8,000,000-6,350,000-180,000=1,470,000
Net Investment=Net Working Capital+Property and Equipment=1,200,000+3,175,000=4,375,000
ROI=Net Income/Net Investment=1,470,000/4,375,000=33.6%

63. Correct answer b. All projects with a projected ROI that is greater than the required rate of return (cost of capital) would add value to KHD Industries. Without capital restrictions, Projects B, C, and D should be selected.

64. Correct answer b. Division B has the highest actual return on investment and 8% return on sales, the second highest return. The division with the highest return on sales actually failed to meet its target return on investment.

65. Correct answer b. Since the system was constructed on the basis of the anticipated number of hours of usage, it is reasonable to base the allocation on the same measure.

66. Correct answer d. As long as the project return is above the cost of capital, the manager of the Construction Equipment Division will accept the project. The manager of the Household Appliances Division, measured on the basis of ROI, will not accept a projected rate of return of 14% when the current ROI of the division is 16%.

67. Correct answer d. Using residual income as a performance measure means that a business unit should continue to expand as long as projects earn a return in excess of the required rate of return.

68. Correct answer b, AED 150,000 = AED 250,000 net income – (AED 1,000,000 investment x 10% minimum rate of return).

69. Correct answer b. Current cost eliminates differences in the investment base caused by different price levels.

70. Correct answer d. To focus on both long-term and short-term objectives, a variety of performance measures should be used. Using a single measure such as ROI can cause negative actions such as rejecting projects that meet the hurdle but might adversely affect the division's rate of return.

71. Correct answer a. The four perspectives of the balanced scorecard include options b, c, and d plus the customer perspective. Competitor business strategies are not included.

72. Correct answer d. The balanced scorecard is not based on scientific management theory but is a flexible means of translating a company's strategy into a comprehensive set of performance measures.

Section D: Cost Management

1. *CSO: 1D1a LOS: 1D1a*
Manchester Airlines is in the process of preparing a contribution margin income statement that will allow a detailed look at its variable costs and profitability of operations. Which one of the following cost combinations should be used to evaluate the variable cost per flight of the company's Boston-Las Vegas flights?

   a. Flight crew salary, fuel, and engine maintenance.
   b. Fuel, food service, and airport landing fees.
   c. Airplane depreciation, baggage handling, and airline marketing.
   d. Communication system operation, food service, and ramp personnel.

2. *CSO: 1D1a LOS: 1D1a*
Which one of the following items would **not** be considered a manufacturing cost?

   a. Cream for an ice cream maker.
   b. Sales commissions for a car manufacturer.
   c. Plant property taxes for an ice cream maker.
   d. Tires for an automobile manufacturer.

3. *CSO: 1D1a LOS: 1D1a*
Taylor Corporation is determining the cost behavior of several items in order to budget for the upcoming year. Past trends have indicated the following dollars were spent at three different levels of output.

	Unit Levels		
	10,000	12,000	15,000
Cost A	$25,000	$29,000	$35,000
Cost B	10,000	15,000	15,000
Cost C	15,000	18,000	22,500

In establishing a budget for 14,000 units, Taylor should treat Costs A, B, and C, respectively, as

   a. semi-variable, fixed, and variable.
   b. variable, fixed, and variable.
   c. semi-variable, semi-variable, and semi-variable.
   d. variable, semi-variable, and semi-variable.

4. *CSO: 1D1a LOS: 1D1a*
Which one of the following refers to a cost that remains the same as the volume of activity decreases within the relevant range?

a. Average cost per unit.
b. Variable cost per unit.
c. Unit fixed cost.
d. Total variable cost.

5. *CSO: 1D1a LOS: 1D1a*
Fowler Co. provides the following summary of its total budgeted production costs at three production levels.

	Volume in Units		
	1,000	1,500	2,000
Cost A	$1,420	$2,130	$2,840
Cost B	$1,550	$2,200	$2,900
Cost C	$1,000	$1,000	$1,000
Cost D	$1,630	$2,445	$3,260

The cost behavior of each of the Costs A through D, respectively, is

a. semi-variable, variable, fixed, and variable.
b. variable, semi-variable, fixed, and semi-variable.
c. variable, fixed, fixed, and variable.
d. variable, semi-variable, fixed, and variable.

6. *CSO: 1D1a LOS: 1D1a*
Roberta Johnson is the manager of SleepWell Inn, one of a chain of motels located throughout the United States. An example of an operating cost at SleepWell that is semivariable is

a. the security guard’s salary.
b. electricity.
c. postage for reservation confirmations.
d. local yellow pages advertising.

7. *CSO: 1D1a LOS: 1D1b*
The marketing manager of Ames Company has learned the following about a new product that is being introduced by Ames. Sales of this product are planned at $100,000 for the first year. Sales commission expense is budgeted at 8% of sales plus the marketing manager's incentive budgeted at an additional ½%. The preparation of a product brochure will require 20 hours of marketing salaried staff time at an average rate of $100 per hour, and 10 hours, at $150 per hour, for an outside illustrator's effort. The variable marketing cost for this new product will be

a. $8,000.
b. $8,500.
c. $10,000.
d. $10,500.

8. *CSO: 1D1a LOS: 1D1c*
Indirect and common costs often make up a significant portion of the cost of a product. All of the following are reasons for indirect cost allocation to cost objects **except** to

a. reduce total costs identified with products.
b. measure income and assets for external reporting purposes.
c. justify costs for reimbursement purposes.
d. provide information for economic decision making.

9. *CSO: 1D1a LOS: 1D1a*
The relevant range refers to the activity levels over which

a. cost relationships hold constant.
b. costs fluctuate.
c. production varies.
d. relevant costs are incurred.

10. *CSO: 1D1a LOS: 1D1a*
Cell Company has discovered that the cost of processing customer invoices is strictly variable within the relevant range. Which one of the following statements concerning the cost of processing customer invoices is **incorrect**?

a. The total cost of processing customer invoices will increase as the volume of customer invoices increases.
b. The cost per unit for processing customer invoices will decline as the volume of customer invoices increases.
c. The cost of processing the 100th customer invoice will be the same as the cost of processing the first customer invoice.
d. The average cost per unit for processing a customer invoice will equal the incremental cost of processing one more customer invoice.

11. *CSO: 1D1a LOS: 1D1a*
When identifying fixed and variable costs, which one of the following is a typical assumption concerning cost behavior?

a. General and administrative costs are assumed to be variable costs.
b. Cost behavior is assumed to be realistic for all levels of activity from zero to maximum capacity.
c. Total costs are assumed to be linear when plotted on a graph.
d. The relevant time period is assumed to be five years.

12. *CSO: 1D1a LOS: 1D1a*
Lar Company has found that its total electricity cost has both a fixed component and a variable component within the relevant range. The variable component seems to vary directly with the number of units produced. Which one of the following statements concerning Lar's electricity cost is **incorrect**?

a. The total electricity cost will increase as production volume increases.
b. The total electricity cost per unit of production will increase as production volume increases.
c. The variable electricity cost per unit of production will remain constant as production volume increases.
d. The fixed electricity cost per unit of production will decline as production volume increases.

13. *CSO: 1D1a LOS: 1D1a*
A company has observed the following costs at different production levels.

	Unit Production Level		
	25,000	50,000	75,000
Cost A	$3,250	$5,250	$7,250
Cost B	7,500	7,500	7,500
Cost C	2,750	5,500	8,250
Cost D	1,750	2,500	3,000

What are the cost behaviors of Costs A, B, C, and D, respectively?

a. Variable, fixed, variable, mixed.
b. Mixed, fixed, variable, mixed.
c. Mixed, fixed, mixed, variable.
d. Variable, fixed, mixed, variable.

14. *CSO: 1D1b LOS: 1D1e*
A manufacturing company uses machine hours as the only overhead cost allocation base. The accounting records contain the following information.

	Estimated	Actual
Manufacturing overhead costs	$200,000	$240,000
Machine hours	40,000	50,000

Using actual costing, the amount of manufacturing overhead costs allocated to jobs is

a. $300,000.
b. $250,000.
c. $240,000.
d. $200,000.

15. *CSO: 1D1b LOS: 1D1e*
Kimber Company has the following unit cost for the current year.

Raw material	$20.00
Direct labor	25.00
Variable manufacturing overhead	10.00
Fixed manufacturing overhead	15.00
Total unit cost	$70.00

Fixed manufacturing cost is based on an annual activity level of 8,000 units. Based on these data, the total manufacturing cost expected to be incurred to manufacture 9,000 units in the current year is

a. $560,000.
b. $575,000.
c. $615,000.
d. $630,000.

16. *CSO: 1D1b LOS: 1D1a*
A review of Plunkett Corporation's accounting records for last year disclosed the following selected information.

Variable costs	
Direct materials used	$ 56,000
Direct labor	179,100
Manufacturing overhead	154,000
Selling costs	108,400
Fixed costs	
Manufacturing overhead	267,000
Selling costs	121,000
Administrative costs	235,900

In addition, the company suffered a $27,700 uninsured factory fire loss during the year. What were Plunkett's product costs and period costs for last year?

	Product	Period
a.	$235,100	$914,000.
b.	$497,500	$651,600.
c.	$656,100	$493,000.
d.	$683,800	$465,300.

17. *CSO: 1D1b LOS: 1D1e*
Normal costing systems are said to offer a user several distinct benefits when compared with actual costing systems. Which one of the following is **not** a benefit associated with normal costing systems?

a. More timely costing of jobs and products.
b. A smoothing of product costs throughout the period.
c. Improved accuracy of job and product costing.
d. A more economical way of attaching overhead to a job or product.

18. *CSO: 1D1b LOS: 1D1e*
From the following budgeted data, calculate the budgeted indirect cost rate that would be used in a normal costing system.

Total direct labor hours	250,000
Direct costs	$10,000,000
Total indirect labor hours	50,000
Total indirect-labor-related costs	$ 5,000,000
Total indirect non-labor related costs	$ 7,000,000

a. $20.
b. $28.
c. $40.
d. $48.

19. *CSO: 1D1c LOS: 1D1e*
A company planned to produce 50,000 units with $500,000 of manufacturing overhead. The budgeted machine hours per unit is two hours. The company's actual results indicated it spent $505,000 for manufacturing overhead, produced 49,000 units, and used 99,000 machine hours. Under a standard cost system that allocates overhead based upon machine hours, the manufacturing overhead traced to the products would total

a. $505,000.
b. $500,000.
c. $495,000.
d. $490,000.

20. *CSO: 1D1c* *LOS: 1D1e*

Merlene Company uses a standard cost accounting system. Data for the last fiscal year are as follows.

	Units
Beginning inventory of finished goods	100
Production during the year	700
Sales	750
Ending inventory of finished goods	50

	Per Unit
Product selling price	$200
Standard variable manufacturing cost	90
Standard fixed manufacturing cost	20*

Budgeted selling and administrative costs (all fixed)	$45,000

*Denominator level of activity is 750 units for the year.

There were no price, efficiency, or spending variances for the year, and actual selling and administrative expenses equaled the budget amount. Any volume variance is written off to cost of goods sold in the year incurred. There are no work-in-process inventories.

The amount of operating income earned by Merlene for the last fiscal year using variable costing was

a. $21,500.
b. $22,500.
c. $28,000.
d. $31,000.

21. *CSO: 1D1c* *LOS: 1D1e*

Loyal Co. produces three types of men's undershirts: T-shirts, V-neck shirts, and athletic shirts. In the Folding and Packaging Department, operations costing is used to apply costs to individual units, based on the standard time allowed to fold and package each type of undershirt. The standard time to fold and package each type of undershirt is as follows.

T-shirt	40 seconds per shirt
V-neck shirt	40 seconds per shirt
Athletic shirt	20 seconds per shirt

During the month of April, Loyal produced and sold 50,000 T-shirts, 30,000 V-neck shirts, and 20,000 athletic shirts. If costs in the Folding and Packaging Department were $78,200 during April, how much folding and packaging cost should be applied to each T-shirt?

a. $.52134.
b. $.6256.
c. $.7820.
d. $.8689.

22. *CSO: 1D1d* *LOS: 1D1g*

Dremmon Corporation uses a standard cost accounting system. Data for the last fiscal year are as follows.

	Units
Beginning inventory of finished goods	100
Production during the year	700
Sales	750
Ending inventory of finished goods	50

Per Unit	
Product selling price	$200
Standard variable manufacturing cost	90
Standard fixed manufacturing cost	20*

Budgeted selling and administrative costs (all fixed) $45,000

*Denominator level of activity is 750 units for the year.

There were no price, efficiency, or spending variances for the year, and actual selling and administrative expenses equaled the budget amount. Any volume variance is written off to cost of goods sold in the year incurred. There are no work-in-process inventories.

Assuming that Dremmon used absorption costing, the amount of operating income earned in the last fiscal year was

a. $21,500.
b. $27,000.
c. $28,000.
d. $30,000.

23. *CSO: 1D1d* *LOS: 1D1g*

Chassen Company, a cracker and cookie manufacturer, has the following unit costs for the month of June.

Variable manufacturing cost	Variable marketing cost	Fixed manufacturing cost	Fixed marketing cost
$5.00	$3.50	$2.00	$4.00

A total of 100,000 units were manufactured during June of which 10,000 remain in ending inventory. Chassen uses the first-in, first-out (FIFO) inventory method, and the 10,000 units are the only finished goods inventory at month-end. Using the full absorption costing method, Chassen's finished goods inventory value would be

a. $50,000.
b. $70,000.
c. $85,000.
d. $145,000.

24. *CSO: 1D1d LOS: 1D1g*
Consider the following situation for Weisman Corporation for the prior year.

- The company produced 1,000 units and sold 900 units, both as budgeted.
- There were no beginning or ending work-in-process inventories and no beginning finished goods inventory.
- Budgeted and actual fixed costs were equal, all variable manufacturing costs are affected by volume of production only, and all variable selling costs are affected by sales volume only.
- Budgeted per unit revenues and costs were as follows.

	Per Unit
Sales price	$100
Direct materials	30
Direct labor	20
Variable manufacturing costs	10
Fixed manufacturing costs	5
Variable selling costs	12
Fixed selling costs ($3,600 total)	4
Fixed administrative costs ($1,800 total)	2

The operating income for Weisman for the prior year using absorption costing was

a. $13,600.
b. $14,200.
c. $15,300.
d. $15,840.

25. *CSO: 1D1d LOS: 1D1f*
When comparing absorption costing with variable costing, the difference in operating income can be explained by the difference between the

a. units sold and the units produced, multiplied by the unit sales price.
b. ending inventory in units and the beginning inventory in units, multiplied by the budgeted fixed manufacturing cost per unit.
c. ending inventory in units and the beginning inventory in units, multiplied by the unit sales price.
d. units sold and the units produced, multiplied by the budgeted variable manufacturing cost per unit.

26. *CSO: 1D1d LOS: 1D1g*

Mill Corporation had the following unit costs for the recently concluded calendar year.

	Variable	Fixed
Manufacturing	$8.00	$3.00
Nonmanufacturing	$2.00	$5.50

Inventory for Mill's sole product totaled 6,000 units on January 1 and 5,200 units on December 31. When compared to variable costing income, Mill's absorption costing income is

a. $2,400 lower.
b. $2,400 higher.
c. $6,800 lower.
d. $6,800 higher.

27. *CSO: 1D1d LOS: 1D1f*

Which of the following correctly shows the treatment of (1) factory insurance, (2) direct labor, and (3) finished goods shipping costs under absorption costing and variable costing?

	Absorption Costing		Variable Costing	
	Product Cost	Period Cost	Product Cost	Period Cost
a.	1, 2	3	2	1, 3.
b.	2	1, 3	1, 2	3.
c.	1, 2	3	1	2, 3.
d.	1	2, 3	2, 3	1.

28. *CSO: 1D1d*   *LOS: 1D1g*

Troughton Company manufactures radio-controlled toy dogs. Summary budget financial data for Troughton for the current year are as follows.

Sales (5,000 units at $150 each)	$750,000
Variable manufacturing cost	400,000
Fixed manufacturing cost	100,000
Variable selling and administrative cost	80,000
Fixed selling and administrative cost	150,000

Troughton uses an absorption costing system with overhead applied based on the number of units produced, with a denominator level of activity of 5,000 units. Underapplied or overapplied manufacturing overhead is written off to cost of goods sold in the year incurred. The $20,000 budgeted operating income from producing and selling 5,000 toy dogs planned for this year is of concern to Trudy George, Troughton's president. She believes she could increase operating income to $50,000 (her bonus threshold) if Troughton produces more units than it sells, thus building up the finished goods inventory. How much of an increase in the number of units in the finished goods inventory would be needed to generate the $50,000 budgeted operating income?

a. 556 units.
b. 600 units.
c. 1,500 units.
d. 7,500 units.

29. *CSO: 1D1e*   *LOS: 1D1f*

If a manufacturing company uses variable costing to cost inventories, which of the following costs are considered inventoriable costs?

a. Only raw material, direct labor, and variable manufacturing overhead costs.
b. Only raw material, direct labor, variable and fixed manufacturing overhead costs.
c. Only raw material, direct labor, variable manufacturing overhead and variable selling and administrative costs.
d. Only raw material and direct labor costs.

30. *CSO: 1C1e*   *LOS: 1D1f*

Xylon Company uses direct (variable) costing for internal reporting and absorption costing for the external financial statements. A review of the firm's internal and external disclosures will likely find

a. a difference in the treatment of fixed selling and administrative costs.
b. a higher inventoriable unit cost reported to management than to the shareholders.
c. a contribution margin rather than gross margin in the reports released to shareholders.
d. internal income figures that vary closely with sales and external income figures that are influenced by both units sold and productive output.

31. *CSO: 1D1e LOS: 1D1g*
Bethany Company has just completed the first month of producing a new product but has not yet shipped any of this product. The product incurred variable manufacturing costs of $5,000,000, fixed manufacturing costs of $2,000,000, variable marketing costs of $1,000,000, and fixed marketing costs of $3,000,000.

If Bethany uses the variable cost method to value inventory, the inventory value of the new product would be

a. $5,000,000.
b. $6,000,000.
c. $8,000,000.
d. $11,000,000.

32. *CSO: 1D1e LOS: 1D1g*
Consider the following situation for Donaldson Company for the prior year.

- The company produced 1,000 units and sold 900 units, both as budgeted.
- There was no beginning or ending work-in-process inventories and no beginning finished goods inventory.
- Budgeted and actual fixed costs were equal, all variable manufacturing costs are affected by volume of production only, and all variable selling costs are affected by sales volume only.
- Budgeted per unit revenues and costs were as follows.

	Per Unit
Sales price	$100
Direct materials	30
Direct labor	20
Variable manufacturing costs	10
Fixed manufacturing costs	5
Variable selling costs	12
Fixed selling costs ($3,600 total)	4
Fixed administrative costs ($1,800 total)	2

Assuming that Donaldson uses variable costing, the operating income for the prior year was

a. $13,600.
b. $14,200.
c. $14,800.
d. $15,300.

33. *CSO: 1D1e* *LOS: 1D1g*

During the month of May, Robinson Corporation sold 1,000 units. The cost per unit for May was as follows.

	Cost Per Unit
Direct materials	$ 5.50
Direct labor	3.00
Variable manufacturing overhead	1.00
Fixed manufacturing overhead	1.50
Variable administrative costs	.50
Fixed administrative costs	3.50
Total	$15.00

May's income using absorption costing was $9,500. The income for May, if variable costing had been used, would have been $9,125. The number of units Robinson produced during May was

a. 750 units.
b. 925 units.
c. 1,075 units.
d. 1,250 units.

34. *CSO: 1D1e* *LOS: 1D1f*

Which one of the following is the **best** reason for using variable costing?

a. Fixed factory overhead is more closely related to the capacity to produce than to the production of specific units.
b. All costs are variable in the long term.
c. Variable costing is acceptable for income tax reporting purposes.
d. Variable costing usually results in higher operating income than if a company uses absorption costing.

35. *CSO: 1D1e* *LOS: 1D1f*

Dawn Company has significant fixed overhead costs in the manufacturing of its sole product, auto mufflers. For internal reporting purposes, in which one of the following situations would ending finished goods inventory be higher under direct (variable) costing rather than under absorption costing?

a. If more units were produced than were sold during a given year.
b. If more units were sold than were produced during a given year.
c. In all cases when ending finished goods inventory exists.
d. None of these situations.

36. *CSO: 1D1e   LOS: 1D1f*
A manufacturing company is contemplating switching from their current costing approach, variable costing, to absorption costing. Relevant data for the company in January 20X2 is as follows.

Selling price	$30/unit
Units produced	40,000
Units sold	30,000
Inventory as of 1/1/X2	None
Direct materials	$6/unit
Direct labor	$3/unit
Variable overhead	$2/unit
Variable selling and administrative expense	$1/unit
Fixed selling and administrative expense	$75,000
Fixed manufacturing overhead	$160,000

Based on the information above, the company's operating income using absorption costing is

a. $415,000.
b. $345,000.
c. $335,000.
d. $305,000.

37. *CSO: 1D1e   LOS: 1D1h*
During the first month of its operations, a company manufactured a product with variable production costs of $50 per unit. Fixed manufacturing overhead totaled $1,800,000 and is allocated based upon units produced. During the month, the company completed 15,000 units, sold 12,000 units, and incurred no variances. If the company's operating income under absorption costing was $400,000, its operating income (loss) under variable costing was

a. $760,000.
b. $40,000.
c. ($50,000).
d. ($110,000).

38. *CSO: 1D1f* *LOS: 1D1l*

A petroleum company acquires crude oil and manufactures it into three intermediate products, differing only in grade. The products are Grade One, Grade Two and Grade Three. No beginning and ending inventories of finished goods or work-in-process existed on November 1. There were no separable costs and the joint production costs for November are shown below.

Crude oil acquired and put into production	$4,000,000
Direct labor and related costs	2,000,000
Manufacturing overhead	3,000,000

The November output and sales for each grade of products are shown below.

	Grade One	Grade Two	Grade Three
Barrels produced	300,000	240,000	120,000
Barrels sold	80,000	120,000	120,000
Price per barrel sold	$30	$40	$50

The portion of the company's joint production costs assigned to Grade Two based on physical output is

a. $1,636,363.
b. $3,272,727.
c. $3,375,000.
d. $4,090,909.

39. *CSO: 1D1f* *LOS: 1D1j*

The primary purpose for allocating common costs to joint products is to determine

a. the selling price of a by-product.
b. whether or not one of the joint products should be discontinued.
c. the variance between budgeted and actual common costs.
d. the inventory cost of joint products for financial reporting.

40. *CSO: 1D1f* *LOS: 1D1j*

The distinction between joint products and by-products is largely dependent on

a. historical costs.
b. prime costs.
c. market value.
d. salvage value.

41. *CSO: 1D1f* *LOS: 1D1j*
In a production process where joint products are produced, the **primary** factor that will distinguish a joint product from a by-product is the

a. relative total sales value of the products.
b. relative total volume of the products.
c. relative ease of selling the products.
d. accounting method used to allocate joint costs.

42. *CSO: 1D1f* *LOS: 1D1l*
All of the following are methods of allocating joint costs to joint products **except**

a. physical quantities method.
b. net realizable value method.
c. separable production cost method.
d. gross market value method.

43. *CSO: 1D1f* *LOS: 1D1l*
Tucariz Company processes Duo into two joint products, Big and Mini. Duo is purchased in 1,000 gallon drums for $2,000. Processing costs are $3,000 to process the 1,000 gallons of Duo into 800 gallons of Big and 200 gallons of Mini. The selling price is $9 per gallon for Big and $4 per gallon for Mini. Big can be processed further into 600 gallons of Giant if $1,000 of additional processing costs are incurred. Giant can be sold for $17 per gallon. If the net-realizable-value method were used to allocate costs to the joint products, the total cost of producing Giant would be

a. $5,600.
b. $5,564.
c. $5,520.
d. $4,600.

44. *CSO: 1D1f* *LOS: 1D1l*
Fairchild Company processes raw material into two joint products, A and B. 8,000 gallons of A and 2,000 gallons of B were produced using $20,000 raw material and $30,000 processing costs were incurred. The per gallon selling price is $90 for A and $40 for B. If the sales value at split-off method is used to allocate joint costs to the final products, the per gallon cost (rounded to the nearest cent) of producing A is

a. $5.63 per gallon.
b. $5.00 per gallon.
c. $4.50 per gallon.
d. $3.38 per gallon.

45. *CSO: 1D1f* *LOS: 1D1l*

Tempo Company produces three products from a joint process. The three products are sold after further processing as there is no market for any of the products at the split-off point. Joint costs per batch are $315,000. Other product information is shown below.

	Product A	Product B	Product C
Units produced per batch	20,000	30,000	50,000
Further processing and marketing cost per unit	$ 0.70	$3.00	$1.72
Final sales value per unit	5.00	6.00	7.00

If Tempo uses the net realizable value method of allocating joint costs, how much of the joint costs will be allocated to each unit of Product C?

a. $2.10.
b. $2.65.
c. $3.15.
d. $3.78.

46. *CSO: 1D1f* *LOS: 1D1l*

Fitzpatrick Corporation uses a joint manufacturing process in the production of two products, Gummo and Xylo. Each batch in the joint manufacturing process yields 5,000 pounds of an intermediate material, Valdene, at a cost of $20,000. Each batch of Gummo uses 60% of the Valdene and incurs $10,000 of separate costs. The resulting 3,000 pounds of Gummo sells for $10 per pound. The remaining Valdene is used in the production of Xylo which incurs $12,000 of separable costs per batch. Each batch of Xylo yields 2,000 pounds and sells for $12 per pound. Fitzpatrick uses the net realizable value method to allocate the joint material costs. The company is debating whether or not to process Xylo further into a new product, Zinten, which would incur an additional $4,000 in costs and sell for $15 per pound. If Zinten is produced, income would increase by

a. $2,000.
b. $5,760.
c. $14,000.
d. $26,000.

47. *CSO: 1D2a* *LOS: 1D2a*

A company sells specialty advertising items that are designed and produced to meet each customer’s specific needs. Prominently displaying the customer’s company name, these items are used by the customer to give to its clients as a form of promotion. The **most** appropriate cost accumulation system for the company to use is

a. actual costing.
b. job order costing.
c. life-cycle costing.
d. process costing.

48. *CSO: 1D2a LOS: 1D2c*
Darden Manufacturing, a calendar-year corporation, had $17,000 of spoilage during April that production management characterized as abnormal. The spoilage was incurred on Job No. 532, that was sold three months later for $459,000. Which of the following correctly describes the impact of the spoilage on Darden's unit manufacturing cost for Job No. 532 and on the year's operating income?

	Unit Manufacturing Cost	Operating Income
a.	Increase.	No effect.
b.	Increase.	Decrease.
c.	No effect.	Decrease.
d.	No effect.	Not enough information to judge.

49. *CSO: 1D2a LOS: 1D2b*
Baldwin Printing Company uses a job order costing system and applies overhead based on machine hours. A total of 150,000 machine hours have been budgeted for the year. During the year, an order for 1,000 units was completed and incurred the following.

Direct material costs	$1,000
Direct labor costs	1,500
Actual overhead	1,980
Machine hours	450

The accountant calculated the inventory cost of this order to be $4.30 per unit. The annual budgeted overhead in dollars was

a. $577,500.
b. $600,000.
c. $645,000.
d. $660,000.

50. *CSO: 1D2a* *LOS: 1D2b*
John Sheng, cost accountant at Starlet Company, is developing departmental factory overhead application rates for the company's tooling and fabricating departments. The budgeted overhead for each department and the data for one job are shown below.

	Departments	
	Tooling	Fabricating
Supplies $ 850	$ 200	
Supervisors' salaries	1,500	2,000
Indirect labor	1,200	4,880
Depreciation	1,000	5,500
Repairs 4,075	3,540	
Total budgeted overhead	$8,625	$16,120
Total direct labor hours	460	620
Direct labor hours on Job #231	12	3

Using the departmental overhead application rates, total overhead applied to Job #231 in the Tooling and Fabricating Departments will be

a. $225.
b. $303.
c. $537.
d. $671.

51. *CSO: 1D2b* *LOS: 1D2b*
Mack Inc. uses a weighted-average process costing system. Direct materials and conversion costs are incurred evenly during the production process. During the month of October, the following costs were incurred.

Direct materials	$39,700
Conversion costs	70,000

The work-in-process inventory as of October 1 consisted of 5,000 units, valued at $4,300, that were 20% complete. During October, 27,000 units were transferred out. Inventory as of October 31 consisted of 3,000 units that were 50% complete. The weighted-average inventory cost per unit completed in October was

a. $3.51.
b. $3.88.
c. $3.99.
d. $4.00.

52. *CSO: 1D2b*   *LOS: 1D2b*

During December, Krause Chemical Company had the following selected data concerning the manufacture of Xyzine, an industrial cleaner.

Production Flow		Physical Units	
Completed and transferred to the next department		100	
Add:	Ending work-in-process inventory	10	(40% complete as to conversion)
	Total units to account for	110	
Less:	Beginning work-in-process inventory	20	(60% complete as to conversion)
	Units started during December	90	

All material is added at the beginning of processing in this department, and conversion costs are added uniformly during the process. The beginning work-in-process inventory had $120 of raw material and $180 of conversion costs incurred. Material added during December was $540 and conversion costs of $1,484 were incurred. Krause uses the weighted-average process-costing method. The total raw material costs in the ending work-in-process inventory for December is

a. $120.
b. $72.
c. $60.
d. $36.

53. *CSO: 1D2b*   *LOS: 1D2c*

A company that uses a process costing system inspects its goods at the 60% stage of completion. If the firm's ending work-in-process inventory is 80% complete, how would the firm account for its normal and abnormal spoilage?

a. Both normal and abnormal spoilage costs would be added to the cost of the good units completed during the period.
b. Both normal and abnormal spoilage costs would be written off as an expense of the period.
c. Normal spoilage costs would be added to the cost of the good units completed during the period; in contrast, abnormal spoilage costs would be written off as a loss.
d. Normal spoilage costs would be allocated between the cost of good units completed during the period and the ending work-in-process inventory. In contrast, abnormal spoilage costs would be written off as a loss.

54. *CSO: 1D2b LOS: 1D2c*
When considering normal and abnormal spoilage, which one of the following is theoretically the **best** accounting method for spoilage in a process-costing system?

a. Both normal and abnormal spoilage cost should be charged to a separate expense account.
b. Normal spoilage cost should be charged to good units and abnormal spoilage cost should be charged to a separate expense account.
c. Both normal and abnormal spoilage costs should be charged to good units.
d. Normal spoilage costs should be charged to a separate expense account and abnormal spoilage cost should be charged to good units.

55. *CSO: 1D2b LOS: 1D2b*
Southwood Industries uses a process costing system and inspects its goods at the end of manufacturing. The inspection as of June 30 revealed the following information for the month of June.

Good units completed	16,000
Normal spoilage (units)	300
Abnormal spoilage (units)	100

Unit costs were: materials, \$3.50; and conversion costs, \$6.00. The number of units that Southwood would transfer to its finished goods inventory and the related cost of these units are

	Units Transferred	Cost
a.	16,000	\$152,000.
b.	16,000	\$154,850.
c.	16,000	\$155,800.
d.	16,300	\$154,850.

56. *CSO: 1D2b* *LOS: 1D2f*

Colt Company uses a weighted-average process cost system to account for the cost of producing a chemical compound. As part of production, Material B is added when the good are 80% complete. The company started 70,000 additional units during the month; and had the following work-in-process inventories at the beginning and end of the month.

Beginning	20,000 units, 90% complete
Ending	25,000 units, 60% complete

How many equivalent units would Material B costs have been assigned to at the end of the month?

a. 65,000.
b. 70,000.
c. 85,000.
d. 90,000.

57. *CSO: 1D2b* *LOS: 1D2b*

Oster Manufacturing uses a weighted-average process costing system and has the following costs and activity during October.

Materials	$40,000
Conversion cost	32,500
Total beginning work-in-process inventory	$72,500
Materials	$ 700,000
Conversion cost	617,500
Total production costs - October	$1,317,500
Production completed	60,000 units
Work-in-process, October 31	20,000 units

All materials are introduced at the start of the manufacturing process, and conversion cost is incurred uniformly throughout production. Conversations with plant personnel reveal that, on average, month-end in-process inventory is 25% complete. Assuming no spoilage, how should Oster's October manufacturing cost be assigned?

	Production Completed	Work-in-Process
a.	$1,042,500	$347,500.
b.	$1,095,000	$222,500.
c.	$1,155,000	$235,000.
d.	$1,283,077	$106,923.

58. *CSO: 1D2b* *LOS: 1D2f*

San Jose Inc. uses a weighted-average process costing system. All materials are introduced at the start of manufacturing, and conversion costs are incurred evenly throughout production. The company started 70,000 additional units during the month; and had the following work-in-process inventories at the beginning and end of the month.

Beginning	30,000 units, 40% complete
Ending	24,000 units, 25% complete

Assuming no spoilage or defective units, the total equivalent units used to assign costs for materials and for conversion costs, respectively, are

	Materials	Conversion Cost
a.	70,000	70,000.
b.	82,000	82,000.
c.	100,000	70,000.
d.	100,000	82,000.

59. *CSO: 1D2b* *LOS: 1D2b*

During December, Krause Chemical Company had the following selected data concerning the manufacture of Xyzine, an industrial cleaner.

Production Flow		Physical Units	
Completed and transferred to the next department		100	
Add:	Ending work-in-process inventory	10	(40% complete as to conversion)
	Total units to account for	110	
Less:	Beginning work-in-process inventory	20	(60% complete as to conversion)
	Units started during December	90	

All material is added at the beginning of processing in this department, and conversion costs are added uniformly during the process. The beginning work-in-process inventory had $120 of raw material and $180 of conversion costs incurred. Material added during December was $540 and conversion costs of $1,484 were incurred. Krause uses the weighted-average process-costing method. The total conversion cost assigned to units transferred to the next department in December was

a. $1,664.
b. $1,600.
c. $1,513.
d. $1,484.

60. *CSO: 1D2b* *LOS: 1D2f*

During December, Krause Chemical Company had the following selected data concerning the manufacture of Xyzine, an industrial cleaner.

	Production Flow	Physical Units	
Completed and transferred to the next department		100	
Add:	Ending work-in-process inventory	10	(40% complete as to conversion)
	Total units to account for	110	
Less:	Beginning work-in-process inventory	20	(60% complete as to conversion)
	Units started during December	90	

All material is added at the beginning of processing in this department, and conversion costs are added uniformly during the process. The beginning work-in-process inventory had $120 of raw material and $180 of conversion costs incurred. Material added during December was $540 and conversion costs of $1,484 were incurred. Krause uses the first-in, first-out (FIFO) process-costing method. The equivalent units of production used to calculate conversion costs for December was

a. 110 units.
b. 104 units.
c. 100 units.
d. 92 units.

61. *CSO: 1D2b* *LOS: 1D2f*

Jones Corporation uses a first-in, first-out (FIFO) process costing system. Jones has the following unit information for the month of August.

	Units
Beginning work-in-process inventory, 100% complete for materials, 75% complete for conversion cost	10,000
Units completed and transferred out	90,000
Ending work-in-process inventory, 100% complete for materials, 60% complete for conversion costs	8,000

The number of equivalent units of production for conversion costs for the month of August is

a. 87,300.
b. 88,000.
c. 92,300.
d. 92,700.

62. *CSO: 1D2b* *LOS: 1D2f*
Waller Co. uses a weighted-average process-costing system. Material B is added at two different points in the production. 40% of Material B is added when the units are 20% completed, and the remaining 60% of Material B is added when the units are 80% completed. At the end of the quarter, there are 22,000 units in process, all of which are 50% completed. With respect to Material B, the ending units in process represent how many equivalent units?

a. 4,400 units.
b. 8,800 units.
c. 11,000 units.
d. 22,000 units.

63. *CSO: 1D2b* *LOS: 1D2c*
A company produces disk brakes for mountain bikes. During the current reporting period, the company has normal spoilage of 700 units. At the beginning of the current reporting period, the company had 3,400 units in inventory and started and completed 5,600 units. 4,900 units were transferred out, and ending inventory had 3,100 units. In this reporting period, the abnormal spoilage for the company disk brakes production was

a. 300 units.
b. 400 units.
c. 1,000 units.
d. 5,200 units.

64. *CSO: 1D2b* *LOS: 1D2f*
A company uses process costing to manufacture Product X and has the following physical unit flow information available for the month of January.

Beginning work-in-process inventory, January 1	32,000
Started in production during January	200,000
Completed production during January	184,000
Ending work-in-process inventory, January 31	48,000

The beginning inventory was 60% complete for direct materials and 30% complete for conversion costs. The ending inventory was 90% complete for direct materials and 60% complete for conversion costs. Using the first-in, first-out method, the equivalent units of production for direct materials are

a. 195,200.
b. 208,000.
c. 214,400.
d. 216,000.

65. *CSO: 1D2c* *LOS: 1D2a*
A company's operations include a high level of fixed costs and produce a variety of products. What type of costing system should be recommended?

a. Job-order costing.
b. Process costing.
c. Process value analysis.
d. Activity-based costing.

66. *CSO: 1D2c* *LOS: 1D2a*
When using activity-based costing techniques, which one of the following departmental activities would be expected to use machine hours as a cost driver to allocate overhead costs to production?

a. Plant cafeteria.
b. Machine setups.
c. Material handling.
d. Robotics painting.

67. *CSO: 1D2c* *LOS: 1D2a*
A company is considering the implementation of an activity-based costing and management program. The company

a. should focus on manufacturing activities and avoid implementation with service-type functions.
b. would probably find a lack of software in the marketplace to assist with the related recordkeeping.
c. would normally gain added insights into causes of cost.
d. would likely use fewer cost pools than it did under more traditional accounting methods.

68. *CSO: 1D2c* *LOS: 1D2a*
All of the following are likely to be used as a cost allocation base in activity-based costing **except** the

a. number of different materials used to manufacture the product.
b. units of materials used to manufacture the product.
c. number of vendors supplying the materials used to manufacture the product.
d. cost of materials used to manufacture the product.

69. *CSO: 1D2c* *LOS: 1D2h*

Pelder Products Company manufactures two types of engineering diagnostic equipment used in construction. The two products are based upon different technologies, x-ray and ultra-sound, but are manufactured in the same factory. Pelder has computed the manufacturing cost of the x-ray and ultra-sound products by adding together direct materials, direct labor, and overhead cost applied based on the number of direct labor hours. The factory has three overhead departments that support the single production line that makes both products. Budgeted overhead spending for the departments is as follows.

Department			
Engineering design	Material handling	Setup	Total
$6,000	$5,000	$3,000	$14,000

Pelder's budgeted manufacturing activities and costs for the period are as follows.

	Product	
Activity	X-Ray	Ultra-Sound
Units produced and sold	50	100
Direct materials used	$5,000	$8,000
Direct labor hours used	100	300
Direct labor cost	$4,000	$12,000
Number of parts used	400	600
Number of engineering changes	2	1
Number of product setups	8	7

The budgeted cost to manufacture one ultra-sound machine using the activity-based costing method is

a. $225.
b. $264.
c. $293.
d. $305.

70. *CSO: 1D2c LOS: 1D2h*

The Chocolate Baker specializes in chocolate baked goods. The firm has long assessed the profitability of a product line by comparing revenues to the cost of goods sold. However, Barry White, the firm's new accountant, wants to use an activity-based costing system that takes into consideration the cost of the delivery person. Listed below are activity and cost information relating to two of Chocolate Baker's major products.

	Muffins	Cheesecake
Revenue	$53,000	$46,000
Cost of goods sold	26,000	21,000
Delivery Activity		
Number of deliveries	150	85
Average length of delivery	10 Minutes	15 Minutes
Cost per hour for delivery	$20.00	$20.00

Using activity-based costing, which one of the following statements is **correct**?

a. The muffins are $2,000 more profitable.
b. The cheesecakes are $75 more profitable.
c. The muffins are $1,925 more profitable.
d. The muffins have a higher profitability as a percentage of sales and, therefore, are more advantageous.

71. *CSO: 1D2c* *LOS: 1D2h*

Atmel Inc. manufactures and sells two products. Data with regard to these products are given below.

	Product A	Product B
Units produced and sold	30,000	12,000
Machine hours required per unit	2	3
Receiving orders per product line	50	150
Production orders per product line	12	18
Production runs	8	12
Inspections	20	30

Total budgeted machine hours are 100,000. The budgeted overhead costs are shown below.

Receiving costs	$ 450,000
Engineering costs	300,000
Machine setup costs	25,000
Inspection costs	200,000
Total budgeted overhead costs	$ 975,000

Using activity-based costing, the per unit overhead cost allocation of receiving costs for product A is

a. $3.75.
b. $10.75.
c. $19.50.
d. $28.13.

72. *CSO: 1D2c* *LOS: 1D2h*

A profitable company with five departments uses plantwide overhead rates for its highly diversified operation. The firm is studying a change to either allocating overhead by using departmental rates or using activity-based costing (ABC). Which one of these two methods will likely result in the use of a greater number of cost allocation bases and more accurate costing results?

	Greater Number of Allocation Bases	More Accurate Costing Results
a.	Departmental	Departmental.
b.	Departmental	ABC.
c.	ABC	Departmental.
d.	ABC	ABC.

73. *CSO: 1D2d LOS: 1D2j*
Under life-cycle costing, research and development costs are considered

a. upstream costs.
b. production process costs.
c. downstream costs.
d. manufacturing costs.

74. *CSO: 1D3a LOS: 1D3k*
A manufacturing company uses a standard cost system that applies overhead based upon direct labor hours. The manufacturing budget for the production of 7,500 units for the month is shown below.

Direct labor (15,000 hours at $20 per hour)	$ 300,000
Variable overhead	50,000
Fixed overhead	105,000

During the month, 8,000 units were produced, and the fixed overhead budget variance was $1,000 unfavorable. Fixed overhead during the month was

a. underapplied by $7,000.
b. underapplied by $6,000.
c. overapplied by $6,000.
d. overapplied by $7,000.

75. *CSO: 1D3a LOS: 1D3e*
In practice, items such as wood screws and glue used in the production of school desks and chairs would **most** likely be classified as

a. direct labor.
b. factory overhead.
c. direct materials.
d. period costs.

76. *CSO: 1D3b LOS: 1D3c*
Young Company is beginning operations, and is considering three alternative ways in which to allocate manufacturing overhead to individual units produced. Young can use a plantwide rate, departmental rates, or activity-based costing. Young will produce many types of products in its single plant, and not all products will be processed through all departments. In which one of the following independent situations would reported net income for the first year be the same regardless of which overhead allocation method had been selected?

a. All production costs approach those costs that were budgeted.
b. The sales mix does not vary from the mix that was budgeted.
c. All manufacturing overhead is a fixed cost.
d. All ending inventory balances are zero.

77. *CSO: 1D3b LOS: 1D3d*
The **most** important criterion in accurate cost allocations is

a. using a simple allocation method.
b. allocating fixed and variable costs by using the same allocation base.
c. using homogeneous cost pools.
d. using multiple drivers for each cost pool.

78. *CSO: 1D3b LOS: 1D3g*
Cynthia Rogers, the cost accountant for Sanford Manufacturing, is preparing a management report which must include an allocation of overhead. The budgeted overhead for each department and the data for one job are shown below.

	Department	
	Tooling	Fabricating
Supplies	$ 690	$ 80
Supervisor's salaries	1,400	1,800
Indirect labor	1,000	4,000
Depreciation	1,200	5,200
Repairs	4,400	3,000
Total budgeted overhead	$8,690	$14,080
Total direct labor hours	440	640
Direct labor hours on Job #231	10	2

Using the departmental overhead application rates, and allocating overhead on the basis of direct labor hours, overhead applied to Job #231 in the Tooling Department would be

a. $44.00
b. $197.50
c. $241.50
d. $501.00.

79. *CSO: 1D3b LOS: 1D3g*
Patterson Corporation expects to incur $70,000 of factory overhead and $60,000 of general and administrative costs next year. Direct labor costs at $5 per hour are expected to total $50,000. If factory overhead is to be applied per direct labor hour, how much overhead will be applied to a job incurring 20 hours of direct labor?

a. $28.
b. $120.
c. $140.
d. $260.

80. *CSO: 1D3b* *LOS: 1D3d*
Departmental overhead rates are considered to be preferable to plant-wide overhead rates when the

a. plant-wide rate is related to several identified cost drivers.
b. individual cost drivers cannot accurately be determined with respect to cause-and-effect relationships.
c. cost drivers, such as direct labor, are the same over all processes.
d. products manufactured do not pass through the same departments and do not use the same manufacturing techniques.

81. *CSO: 1D3c* *LOS: 1D3f*
Henry Manufacturing, which uses direct labor hours to apply overhead to its product line, undertook an extensive renovation and modernization program two years ago. Manufacturing processes were reengineered, considerable automated equipment was acquired, and 60% of the company's nonunion factory workers were terminated.
Which of the following statements would apply to the situation at Henry?

I. The company's factory overhead rate has likely increased.
II. The use of direct labor hours seems to be appropriate.
III. Henry will lack the ability to properly determine labor variances.
IV. Henry has likely reduced its ability to quickly cut costs in order to respond to economic downturns.

a. I, II, III, and IV.
b. I and IV only.
c. II and IV only.
d. I and III only.

82. *CSO: 1D3c* *LOS: 1D3h*
Jones Tax Company has three divisions - Compliance, Tax Planning, and Financial Consulting. Based on the divisional data presented below, which one of the allocation bases for common company expenses would likely have the **least** negative behavioral impact on the Financial Consulting Division manager?

		Compliance	Tax Planning	Financial Consulting
Revenues	$4,500,000	$6,000,000	$4,500,000	
Variable expenses		1,500,000	3,750,000	2,250,000
No. of employees		68	76	56

a. Revenues.
b. Contribution margin.
c. Equal sharing.
d. Number of employees.

83. *CSO: 1D3c* *LOS: 1D3g*

Atmel Inc. manufactures and sells two products. Data with regard to these products are given below.

	Product A	Product B
Units produced and sold	30,000	12,000
Machine hours required per unit	2	3
Receiving orders per product line	50	150
Production orders per product line	12	18
Production runs	8	12
Inspections	20	30

Total budgeted machine hours are 100,000. The budgeted overhead costs are shown below.

Receiving costs	$450,000
Engineering costs	300,000
Machine setup costs	25,000
Inspection costs	200,000
Total budgeted overhead	$975,000

The cost driver for engineering costs is the number of production orders per product line. Using activity-based costing, the engineering cost per unit for Product B would be

a. $4.00.
b. $10.00.
c. $15.00.
d. $29.25.

84. *CSO: 1D3d* *LOS: 1D3p*

When allocating costs from one department to another, a dual-rate cost-allocation method may be used. The dual-rate cost-allocation method is **most** useful when

a. two or more cost pools are to be allocated.
b. two or more departments' costs are to be allocated.
c. two or more products are produced.
d. costs are separated into variable-cost and fixed-cost subpools.

85. *CSO: 1D3d* *LOS: 1D3p*

The management of ROX Company wishes to encourage all other departments to use the legal department, as circumstances warrant. To accomplish this, legal department costs should be

a. allocated to users on the basis of the actual cost of hours used.
b. allocated to users on the basis of the budgeted cost of actual hours used.
c. allocated to users on the basis of standard cost for the type of service provided.
d. absorbed as a corporate expense.

86. *CSO: 1D3d LOS: 1D3o*
Boston Furniture Company manufactures several steel products. It has three production departments, Fabricating, Assembly, and Finishing. The service departments include Maintenance, Material Handling, and Designing. Currently, the company does not allocate service department costs to the production departments. John Baker, who has recently joined the company as the new cost accountant, believes that service department rates should be developed and charged to the production departments for services requested. If the company adopts this new policy, the production department managers would be **least** likely to

a. request an excessive amount of service.
b. replace outdated and inefficient systems.
c. refrain from using necessary services.
d. be encouraged to control costs.

87. *CSO: 1D3d LOS: 1D3p*
Cotton Company has two service departments and three operating departments. In allocating service department costs to the operating departments, which of the following three methods (direct, step-down, reciprocal) will result in the same amount of service department costs being allocated to each operating department, regardless of the order in which the service department costs are allocated?

a. Direct and reciprocal methods only.
b. Step-down and reciprocal methods only.
c. Direct and step-down methods only.
d. Direct method only.

88. *CSO: 1D3d LOS: 1D3p*
Wilcox Industrial has two support departments, the Information Systems Department and the Personnel Department, and two manufacturing departments, the Machining Department and the Assembly Department. The support departments service each other as well as the two production departments. Company studies have shown that the Personnel Department provides support to a greater number of departments than the Information Systems Department. Which one of the following departmental allocations is present in the reciprocal method of departmental allocation? The costs of the

a. Assembly Department are allocated to the Information Systems Department and the Personnel Department.
b. Information Systems Department are allocated to the Machining Department and the costs of the Machining Department are allocated to the Assembly Department.
c. Personnel Department are allocated solely to the Information Systems Department.
d. Information Systems Department are allocated to the Personnel Department, Machining Department, and Assembly Department.

89. *CSO: 1D3d LOS: 1D3p*

Wilcox Industrial has two support departments, the Information Systems Department and the Personnel Department, and two manufacturing departments, the Machining Department and the Assembly Department. The support departments service each other as well as the two production departments. Company studies have shown that the Personnel Department provides support to a greater number of departments than the Information Systems Department. If Wilcox uses the step-down method of departmental allocation, which one of the following cost allocations would **not** occur? Some of the costs of the

a. Personnel Department would be allocated to the Information Systems Department.
b. Information Systems Department would be allocated to the Personnel Department.
c. Personnel Department would be allocated to the Assembly Department.
d. Personnel Department would be allocated to the Assembly Department and the Machining Department.

90. *CSO: 1D3d LOS: 1D3p*

Render Inc. has four support departments (maintenance, power, human resources, and legal) and three operating departments. The support departments provide services to the operating departments as well as to the other support departments. The method of allocating the costs of the support departments that **best** recognizes the mutual services rendered by support departments to other support departments is the

a. direct allocation method.
b. dual-rate allocation method.
c. step-down allocation method.
d. reciprocal allocation method.

91. *CSO: 1D3d LOS: 1D3p*

Logo Inc. has two data services departments (the Systems Department and the Facilities Department) that provide support to the company's three production departments (Machining Department, Assembly Department, and Finishing Department). The overhead costs of the Systems Department are allocated to other departments on the basis of computer usage hours. The overhead costs of the Facilities Department are allocated based on square feet occupied (in thousands). Other information pertaining to Logo is as follows.

Department	Overhead	Computer Usage Hours	Square Feet Occupied
Systems	$200,000	300	1,000
Facilities	100,000	900	600
Machining	400,000	3,600	2,000
Assembly	550,000	1,800	3,000
Finishing	620,000	2,700	5,000
		9,300	11,600

If Logo employs the direct method of allocating service department costs, the overhead of the Systems Department would be allocated by dividing the overhead amount by

a. 1,200 hours.
b. 8,100 hours.
c. 9,000 hours.
d. 9,300 hours.

92. *CSO: 1D3d LOS: 1D3p*

Adam Corporation manufactures computer tables and has the following budgeted indirect manufacturing cost information for next year.

	Support Departments		Operating Departments		Total
	Maintenance	Systems	Machining	Fabrication	
Budgeted overhead	$360,000	$95,000	$200,000	$300,000	$955,000
Support work furnished					
From Maintenance		10%	50%	40%	100%
From Systems	5%		45%	50%	100%

If Adam uses the step-down method, beginning with the Maintenance Department, to allocate support department costs to production departments, the total overhead (rounded to the nearest dollar) for the Machining Department to allocate to its products would be

a. $415,526.
b. $422,750.
c. $442,053.
d. $445,000.

93. *CSO: 1D3d LOS: 1D3p*
Wilcox Industrial has two support departments, the Information Systems Department and the Personnel Department, and two manufacturing departments, the Machining Department and the Assembly Department. The support departments service each other as well as the two production departments. Company studies have shown that the Personnel Department provides support to a greater number of departments than does the Information Systems Department. If Wilcox uses the direct method of departmental allocation, which one of the following cost allocations would occur? Some of the costs of the

a. Personnel Department would be allocated to the Information Systems Department.
b. Machining Department would be allocated to the Information Systems Department.
c. Information Systems Department would be allocated to the Assembly Department.
d. Assembly Department would be allocated to the Machining Department.

94. *CSO: 1D3d LOS: 1D3p*
Logo Inc. has two data services departments (the Systems Department and the Facilities Department) that provide support to the company's three production departments (Machining Department, Assembly Department, and Finishing Department). The overhead costs of the Systems Department are allocated to other departments on the basis of computer usage hours. The overhead costs of the Facilities Department are allocated based on square feet occupied (in thousands). Other information pertaining to Logo is as follows.

Department	Overhead	Computer Usage Hours	Square Feet Occupied
Systems	$200,000	300	1,000
Facilities	100,000	900	600
Machining	400,000	3,600	2,000
Assembly	550,000	1,800	3,000
Finishing	620,000	2,700	5,000
		9,300	11,600

Logo employs the step-down method of allocating service department costs and begins with the Systems Department. Which one of the following correctly denotes the amount of the Systems Department's overhead that would be allocated to the Facilities Department and the Facilities Department's overhead charges that would be allocated to the Machining Department?

	Systems to Facilities	Facilities to Machining
a.	$0	$20,000.
b.	$19,355	$20,578.
c.	$20,000	$20,000.
d.	$20,000	$24,000.

95. *CSO: 1D3d* *LOS: 1D3p*
Adam Corporation manufactures computer tables and has the following budgeted indirect manufacturing cost information for next year.

	Support Departments		Operating Departments		
	Maintenance	Systems	Machining	Fabrication	Total
Budgeted					
overhead	$360,000	$95,000	$200,000	$300,000	$955,000
Support work furnished					
From Maintenance		10%	50%	40%	100%
From Systems	5%		45%	50%	100%

If Adam uses the direct method to allocate support department costs to production departments, the total overhead (rounded to the nearest dollar) for the Machining Department to allocate to its products would be

a. $418,000.
b. $422,750.
c. $442,053.
d. $445,000.

96. *CSO: 1D4a* *LOS: 1D4e*
A production system in which a unit is produced only when needed in the next step in the production line is called a

a. just-in-time system.
b. back-flush system.
c. Pareto system.
d. material requirements planning system.

97. *CSO: 1D4a* *LOS: 1D4e*
Presario Inc. recently installed just-in-time production and purchasing systems. If Presario's experience is similar to that of other companies, Presario will likely

a. reduce the number of suppliers with which it does business.
b. increase the size of individual orders of raw materials.
c. increase the dollar investment in finished goods inventory.
d. be less reliant on sales orders as a "trigger" mechanism for production runs.

98. *CSO: 1D4b* *LOS: 1D4f*
Which one of the following is a characteristic of enterprise resource planning?

a. It enables companies to respond quickly to changes in the marketplace.
b. It enables supply chain management to integrate with the financial accounting subsystem.
c. It creates a decentralized database that collects and feeds data into software applications.
d. It provides customers with superior products and services.

99. *CSO: 1D4c* *LOS: 1D4h*

The theory of constraints focuses on removing bottlenecks, which generally has the effect of reducing

a. operating costs and increasing inventory levels.
b. operating costs and keeping inventory levels unchanged.
c. neither operating costs nor inventory levels.
d. both operating costs and inventory levels.

100. *CSO: 1D4d* *LOS: 1D4g*

According to the theory of constraints, all of the following activities help to relieve the problem of a bottleneck in operations **except**

a. eliminating idle time at the bottleneck operation.
b. reducing setup time at the bottleneck operation.
c. shifting products that do not have to be made on bottleneck machines to non-bottleneck machines.
d. increasing the efficiency of operations at non-bottleneck machines.

101. *CSO: 1D4d* *LOS: 1D4h*

When demand for a product or products exceeds production capacity, which one of the following is the first step that managers should take?

a. Spend money to eliminate the bottleneck.
b. Focus their efforts on constraint identification.
c. Change the throughput of operations.
d. Apply activity-based management to solve the problem.

102. *CSO: 1D5a* *LOS: 1D5c*

A company desires to prepare two sets of financial statements. Conventional financial statements would be prepared along with a set that is totally consistent with value-chain analysis. How would customer service costs be treated in the two statements?

	Conventional Financial Statements	Value-Chain Financial Statements
a.	Inventoriable cost	Product cost.
b.	Inventoriable cost	Non-product cost.
c.	Noninventoriable cost	Product cost.
d.	Noninventoriable cost	Non-product cost.

103. *CSO: 1D5a* *LOS: 1D5b*
Which one of the following lists of functions is in proper value chain order?

a. Research and development, marketing, and customer services.
b. Production, marketing, and production design.
c. Production design, distribution, and marketing.
d. Research and development, customer service, and distribution.

104. *CSO: 1D5b* *LOS: 1D5d*
Consider the following manufacturing-related activities.

I. Conducting the final assembly of wooden furniture.
II. Moving completed production to the finished goods warehouse.
III. Painting newly-manufactured automobiles.
IV. Setting up a machine related to a new production run.
V. Reworking defective goods to bring them up to quality standards.

The activities that would be classified as value-added activities are

a. II, III, IV, and V only.
b. I, IV, and V only.
c. I, III, and V only.
d. I and III only.

105. *CSO: 1D5b* *LOS: 1D5d*
A manufacturing company incurred the following costs during the last quarter, related to product development and production.

Materials storage	$ 50,000
Product design	180,000
Materials handling and moving	41,000
Direct materials	400,000
Quality inspections	62,000

What amount of costs should be classified as value-added?

a. $491,000.
b. $553,000.
c. $580,000.
d. $642,000.

106. *CSO: 1D5c LOS: 1D5e*
From the perspective of the management accountant, which one of the following represents a **major** disadvantage of business process reengineering?

a. The focus is, to a large extent, on short-term results.
b. It often results in a decreased use of centralized data bases.
c. Internal control mechanisms are often disassembled.
d. It results in heavier maintenance for legacy systems.

107. *CSO: 1D5f LOS: 1D5h*
Retail Partners Inc., which operates eight discount store chains, is seeking to reduce the costs of its purchasing activities through reengineering and a heavier use of electronic data interchange (EDI). Which of the following benchmarking techniques would be appropriate in this situation?

I. A comparison of the purchasing costs and practices of each of Retail Partners' store chains to identify their internal "best in class."
II. A comparison of the practices of Retail Partners to those of Discount City, another retailer, whose practices are often considered "best in class."
III. A comparison of the practices of Retail Partners to those of Capital Airways, an international airline, whose practices are often considered "best in class."
IV. An in-depth review of a retail trade association publication on successful electronic data interchange applications.

a. II and IV only.
b. I and II only.
c. I and IV only.
d. I, II, III, and IV.

108. *CSO: 1D5f LOS: 1D5h*
All of the following are examples of benchmarking standards **except**

a. the performance of the unit during the previous year.
b. the best performance of the unit in comparable past periods.
c. a comparison with a similar unit within the same company.
d. the best performance of a competitor with a similar operation.

109. *CSO: 1D5g* *LOS: 1D5m*
Leese Inc. has the following quality financial data for its most recent fiscal year.

Rework costs	$110,000
Warranty repair costs	280,000
Product line inspection	95,000
Design engineering	300,000
Supplier evaluation	240,000
Labor training	150,000
Product testing	65,000
Breakdown maintenance	70,000
Product scrap	195,000
Cost of returned goods	180,000
Customer support	35,000
Product liability claims	80,000

The total amount of prevention costs that should be reported in a Cost of Quality report for the year is

a. $390,000.
b. $450,000.
c. $690,000.
d. $755,000.

110. *CSO: 1D5g* *LOS: 1D5l*
When measuring the cost of quality, the cost of inspecting incoming raw materials is a(n)

a. prevention cost.
b. appraisal cost.
c. internal failure cost.
d. external failure cost.

111. *CSO: 1D5g* *LOS: 1D5l*
In measuring the cost of quality, which one of the following is considered an appraisal cost?

a. Rework cost.
b. Product testing cost.
c. Warranty claims cost.
d. Equipment maintenance cost.

112. *CSO: 1D5g*   *LOS: 1D5l*

External failure costs include all of the following costs **except** those related to

a. lost sales and lost customers.
b. warranty obligations.
c. product liability suits.
d. product field testing.

113. *CSO: 1D5g*   *LOS: 1D5l*

When evaluating the cost of quality in an organization, which one of the following would be considered an internal failure cost?

a. The cost to rework defective units.
b. The cost to inspect units produced.
c. The warranty repair costs.
d. Product testing.

Answer for Section D: Cost Management

1. Correct answer b. The variable costs per flight would include fuel, food service, and landing fees. Other costs mentioned such as salaries, depreciation, marketing, and communications would not vary with individual flights.

2. Correct answer b. Sales commissions on cars would be part of the cost of the car dealership, not the manufacturer. Options a and d are direct material costs while option c would be charged to manufacturing overhead.

3. Correct answer a. Cost A appears to be semi-variable or mixed as it varies between quantities but does not vary consistently so a portion must be fixed and a portion variable. Cost B is fixed in the relevant range (14,000 units) and Cost C varies consistently for all quantities and therefore must be variable.

4. Correct answer b. The variable cost per unit would remain the same as the volume decreases. All other costs listed would change with a change in volume.

5. Correct answer d. Cost A is variable as it is consistently $1.42 per unit for each quantity. Cost B is semi-variable as it varies between quantities but not consistently so a portion must be fixed. Cost C is fixed as it is the same for all quantities. Cost D, like Cost A, is variable at $1.63 per unit.

6. Correct answer b. The cost of electricity could be semi-variable with a fixed monthly charge plus a per unit charge for usage. All other costs listed are either fixed (a and d) or variable (c).

7. Correct answer b. The variable marketing cost would include the 8% sales commission plus the ½% manager's incentive, 8.5% x $100,000 = $8,500.

8. Correct answer a. The allocation of indirect costs to cost objects would increase total costs identified with products rather than reduce total costs identified.

9. Correct answer a. The relevant range is the band of activity or volume over which certain cost relationships such as fixed costs remain valid.

10. Correct answer b. If a cost is strictly variable within the relevant range, the unit cost will be consistently the same and will not increase or decrease with a change in volume.

11. Correct answer c. One of the basic assumptions of cost behavior is that a cost can be approximated by a linear cost function within the relevant range. A linear cost function is one in which the graph of total costs versus the level of activity is a straight line.

12. Correct answer b. The variable per unit component of Lar's electricity cost will remain constant over the relevant range and not change with an increase or decrease in volume.

13. Correct answer b.
Cost A = mixed or semi-variable

$3,250 / 25,000 = 0.13	$5,250 / 50,000 = 0.105	$7,250 / 75,000 = 0.097

Cost B = fixed
Cost C = variable

$2,750 / 25,000 = 0.11	$5,500 / 50,000 = 0.11	$8,250 / 75,000 = 0.11

Cost D = mixed or semi-variable

$1,750 / 25,000 = 0.07	$2,500 / 50,000 = 0.05	$3,000 / 75,000 = 0.04

14. Correct answer c.
50,000 mh × $240,000 / 50,000 mh allocation rate = $240,000

15. Correct answer c. Kimber's total manufacturing cost will be $615,000 as shown below.

Variable cost:	9,000 units x ($20 + $25 + $10)	=	$495,000
Fixed cost:	8,000 units x $15	=	120,000
	Total manufacturing cost		$615,000

16. Correct answer c. Plunkett's product costs were $656,100 and the period costs were $493,000, as shown below.

	Product Costs		Period Costs
Direct material	$ 56,000	Variable selling	$108,400
Direct labor	179,100	Fixed selling	121,000
Variable overhead	154,000	Administrative	235,900
Fixed overhead	267,000	Fire loss	27,700
Total product costs	$656,100	Total period costs	$493,000

17. Correct answer c. The only difference between actual costing and normal costing is that actual costing uses actual indirect-cost rates while normal costing uses budgeted indirect cost rates. Therefore, normal costing does not improve the accuracy of job or product costing.

18. Correct answer d. The budgeted indirect cost rate would be $48 as shown below.

($5,000,000 + $7,000,000) ÷ 250,000 = $48 per hour

19. Correct answer d.
a. As given; correct under an actual cost system.
b. As given
c. $500,000/(50,000 x 2) = $5 per machine hour; $5 x 99,000; correct under a normal cost system
d. $500,000/(50,000 x 2) = $5 per machine hour; $5 x 49,000 x 2

20. Correct answer b. Merlene's operating income is $22,500 calculated as follows.

Sales (750 x $200)	$150,000
COGS (750 x $90)	67,500
Contribution	82,500
Fixed period costs	15,000
Selling & administrative	45,000
Operating income	$ 22,500

21. Correct answer d. The cost applied to each T-shirt is $.8689 calculated as follows.

Total seconds used	=	(50,000 + 30,000) (40) + (20,000 x 20)
	=	3,600,000
Cost per second	=	$78,200 ÷ 3,600,000
	=	$.0217222
Cost per T-shirt	=	40 x $.0217222
	=	$.868888

22. Correct answer a. Dremmon's operating income was $21,500 calculated as follows.

Sales (750 x $200)	$150,000
COGS [750 x ($90 + $20)]	82,500
Underapplied fixed cost (50 x $20)	1,000
Selling & administrative	45,000
Operating income	$ 21,500

23. Correct answer b. Chassen's finished goods inventory would total $70,000 as absorption costing includes both variable ($5.00) and fixed ($2.00) manufacturing costs ($7.00 x 10,000 units).

24. Correct answer c. Weisman's operating income using absorption costing was $15,300 calculated as follows.

Sales (900 x $100)	$90,000
COGS [900 x ($30 + $20 + $10 + $5)]	58,500
Variable selling (900 x $12)	10,800
Fixed selling	3,600
Fixed administrative	1,800
Operating income	$15,300

25. Correct answer b. The difference between variable and absorption costing is the treatment of fixed manufacturing overhead. All fixed manufacturing overhead is expensed during the period using variable resulting in lower operating income. The difference is the fixed manufacturing overhead that is included in inventory when using absorption costing.

26. Correct answer a. Mill's absorption costing income would be $2,400 lower than variable income because 800 units that had been previously inventoried were sold. These 800 units times $3.00 of fixed manufacturing overhead unit cost accounts for the $2,400.

27. Correct answer a. Absorption costing would include factory insurance and direct labor as product costs, expensing only shipping costs as period costs. Variable costing would include only direct labor as product cost and expense the other two costs.

28. Correct answer c. Fixed manufacturing overhead is applied to each product at the rate of $20 ($100,000 ÷ 5,000). If Troughton manufactures an additional 1,500 units, fixed manufacturing overhead would be over-applied by $30,000 (1,500 x $20). As stated in the problem, the company would reduce the cost of goods sold by the amount of over-applied overhead, thus increasing operating income by $30,000 to the desired $50,000.

29. Correct answer a. Variable costing, also call direct costing, includes all variable manufacturing costs in inventory, e.g., direct materials, direct labor, and variable overhead.

30. Correct answer d. Xylon's internal income figures would vary closely with sales because fixed overhead costs are treated as period costs when using variable costing. Under absorption costing, all overhead costs are attached to the units produced; there, some fixed costs are inventoried for those units produced but not sold.

31. Correct answer a. The value of Bethany's inventory is $5,000,000, equal to the variable manufacturing cost.

32. Correct answer c. Donaldson's operating income based on variable costing is $14,800 calculated as follows.

Sales (900 x $100)	$90,000
COGS [900 x ($30 + $20 + $10)]	54,000
Fixed manufacturing (1,000 x $5)	5,000
Variable selling (900 x $12)	10,800
Fixed selling	3,600
Fixed administrative	1,800
Operating income	$14,800

33. Correct answer d. Robinson produced 1,250 units based on the difference between the variable costing income and absorption costing income.

Income difference	$9,500 - $9,125	=	$375
Units of fixed O/H	$375 ÷ $1.50	=	250 inventory units
Units produced	1,000 sales + 250 inventory	=	1,250 units

34. Correct answer a. Using variable costing, fixed overhead is treated as a period cost rather than a product costs that becomes part of inventory. It can be argued that this is more appropriate as the fixed costs of equipment, space, etc. should not be inventoried but expensed annually.

35. Correct answer d. Because fixed manufacturing overhead is included in inventory, finished goods inventory will be higher under absorption costing than when using variable costing where fixed manufacturing is expensed.

36. Correct answer b.

Type of Cost	Absorption Costing	Variable Costing
Direct material	$6	$6
Direct labor	$3	$3
Variable manufacturing overhead	$2	$2
Fixed manufacturing overhead ($160,000/40,000)	$4	$0
Manufacturing cost per unit	$15	$11

Income Statement (Absorption Costing)
For the Month Ended January 31, 2012

Sales (30,000 x $30)		$900,000
Cost of goods sold		
Inventory, January 1	$-0-	
Cost of good manufactured (40,000 units x $15)	600,000	
Cost of goods available for sales	600,000	
Inventory, January 31 (10,000 units x $15)	(150,000)	
Cost of goods sold		450,000
Gross Profit		450,000
Variable selling and administrative expenses (30,000 units x $1)	30,000	
Fixed selling and administrative expenses	75,000	105,000
Operating income		$345,000

37. Correct answer b. 400,000 – [(1,800,000/15,000) x (15,000 – 12,000)]

38. Correct answer b, Total joint production costs incurred were $9,000,000 ($4,000,000 + $2,000,000 + $3,000,000). The total physical output was 660,000 barrels (300,000 barrels of Grade One + 240,000 barrels of Grade Two + 120,000 barrels of Grade Three). Therefore, on a physical output basis, Grade Two should be allocated $3,272,767 [(240,000/660,000) x $9,000,000].

39. Correct answer d. The allocation of common costs to joint products is for financial reporting purposes, basically inventory costing and computing the cost of goods sold.

40. Correct answer c. By-products have a lower sales value than do joint or main products.

41. Correct answer a. Joint products generally have a higher sales value than by-products.

42. Correct answer c. Separable production cost method is not a method for allocating joint costs.

43. Correct answer a. The total costs for producing Giant are $5,600 calculated as follows.

Joint cost allocation:	Giant	Mini	Total
Sales value	$10,200	$800	$11,000
Less further processing	1,000	--	1,000
Net realizable value	$ 9,200	$800	$10,000
% allocation	92%	8%	

Giant joint cost:	$5,000 x 92%	$4,600
Cost to process further		1,000
Total cost		$5,600

44. Correct answer a. The per gallon cost of Big is $5.63 calculated as follows.

Joint cost allocation:	Big	Mini	Total
Sales value	$72,000	$8,000	$80,000
% allocation	90%	10%	

Cost per unit of Big	90% x $50,000	=	$45,000
	$45,000 ÷ 8,000	=	$5.625 /unit

45. Correct answer d. The joint cost per unit of Product C is $3.78 calculated as follows.

Net realizable value:			
Product A	20,000 x ($5.00 - $.70)	=	$ 86,000
Product B	30,000 x ($6.00 - $3.00)	=	90,000
Product C	50,000 x ($7.00 - $1.72)	=	264,000
Total			$440,000

Product C allocation	$264,000 ÷ $440,000	=	60%
	$315,000 x 60%	=	$189,000
Unit joint cost	$189,000 ÷ 50,000	=	$3.78

46. Correct answer a. If Zinten is produced, income would increase by $2,000 calculated as follows.

Change in income:	=	Xylo – Zinten sales differential – Additional cost
	=	[2,000 x ($15 - $12)] - $4,000
	=	$6,000 - $4,000
	=	$2,000

47. Corrector answer b. Job order costing is appropriate when each order is a distinct product or service as it is in this scenario.

48. Correct answer c. Abnormal spoilage is spoilage that should not arise under efficient production conditions and is written off as a loss in the period in which it is detected. Therefore, there would be no effect on the unit manufacturing cost of Job 532 but operating income would decrease.

49. Correct answer b. Baldwin's annual budgeted overhead is $600,000 calculated as follows.

Overhead cost per unit	$4.30 – ($1,000 ÷ 1,000) – ($1,500 ÷ 1,000)	=	$1.80
Overhead hours per unit	450 ÷ 1,000	=	.45 hr.
Overhead budget per unit	$1.80 ÷ .45	=	$4.00
Total overhead budget	150,000 x $4.00	=	$600,000

50. Correct answer b. Total overhead applied to Job #231 is $303 as shown below.

Tooling overhead/hr.	$8,625 ÷ 460 hours	=	$18.75
Fabricating overhead/hr.	$16,120 ÷ 620 hours	=	$26.00
Job #231 overhead	($18.75 x 12) + ($20.00 x 3)	=	$303.00

51. Correct answer d. The weighted average inventory cost per unit completed in October is $4.00 calculated as follows.

Equivalent units:	Units transferred out		27,000
	Ending inventory (3,000 x .5)		1,500
	Total		28,500
Cost incurred:	$4,300 + $39,700 + $70,000	=	$114,000
Unit cost:	$114,000 ÷ 28,500	=	$4.00/unit

52. Correct answer c. The total raw material cost in ending inventory is $60 calculated as follows. Since material is added at the beginning of the manufacturing process, all units are 100% complete with regard to material.

Material cost	=	$120 + $540
	=	$660
Unit cost	=	$660 ÷ 110 units
	=	$6.00
EI raw material	=	$6.00 x 10 units
	=	$60

53. Correct answer d. Normal spoilage is allocated to the units produced during the period while abnormal spoilage is treated as a period cost.

54. Correct answer b. Normal spoilage should be part of the normal cost of manufacturing goods and should be charged to good units produced. Abnormal spoilage, not a part of normal operations, should be expensed as a period cost when detected.

55. Correct answer b. Southwood would transfer 16,000 units to finished goods inventory at a cost of $154,850 as shown below.

Inventory cost	=	Cost of good units + Cost of normal spoilage
	=	[16,000 x ($3.50 + $6.00)] + {300 x ($3.50 + $6.00)]
	=	$152,000 + $2,850
	=	$154,850

56. Correct answer a. The units in 20,000 beginning work-in-process plus the 70,000 units started during the month = 90,000 total units.
90,000 units less the ending inventory work-in-process 25,000 units = 65,000 units completed during the month.
Units must be 80% complete before adding Material B, and the ending inventory is only 60% complete. Therefore, the equivalent units to assign Material B costs would be 65,000 units.

57. Correct answer c. Oster's October manufacturing cost should be assigned $1,155,000 to production completed and $235,000 to work-in-process inventory calculated as follows.

Material at 100%	=	($700,000 + $40,000) ÷ (60,000 + 20,000)
	=	$740,000 ÷ 80,000
	=	$9.25/unit
Equivalent conversion units	=	60,000 + (20,000 x .25)
	=	65,000 units
Conversion cost	=	($32,500 + $617,500) ÷ 65,000
	=	$10/unit
Cost of production	=	60,000 x ($9.25 + $10)
	=	$1,155,000
Cost of work-in-process	=	(20,000 x $9.25) + (5,000 x $10)
	=	$235,000

58. Correct answer d.
The equivalent units used to assign material costs = units in beginning inventory plus the units started during the month = 30,000 + 70,000 = 100,000 units.
The equivalent units used to assign conversion costs = units completed during the month plus the ending work-in-process units = 76,000 + (24,000 x .25) = 82,000 units.

59. Correct answer b. The total conversion cost transferred to the next department is $1,600 calculated as follows.

Equivalent conversion units	=	100 + (10 x 40%)
	=	104 units
Conversion costs	=	$180 + $1,484
	=	$1,664
Unit conversion cost	=	$1,664 ÷ 104
	=	$16
Cost transferred	=	$1,664 – (4 x $16)*
	=	$1,600

*Ending work-in-process equivalent units

60. Correct answer d. Krause's equivalent units for conversion costs total 92 calculated as follows.

Beginning WIP Inventory:	20 units x (100% - 60%)	=	8 units
December units – Ending WIP:	90 units – [10 x (100% - 40%)	=	84 units
Total			92 units

61. Correct answer a. Jones' equivalent units for conversion costs total 87,300 calculated as follows.

Units started in August (X):	=	10,000 + X – 8,000 = 90,000
	=	88,000 units
Plus Beginning WIP Inv.	=	10,000 x (100$ - 75%)
	=	2,500 units
Less Ending WIP Inv.	=	8,000 x (100% - 60%)
	=	3,200 units
Total Equivalent Units	=	88,000 + 2,500 - 3,200
	=	87,300 units

62. Correct answer b. Waller's equivalent units for material in ending work-in-process inventory total 8,800 as shown below.

22,000 units x 40% material = 8,800 units

63. Correct answer a.
Total spoilage = beginning units + units started and completed − units transferred out − ending units = 3,400 + 5,600 − 4,900 − 3,100 = 1,000
Abnormal spoilage = Total spoilage − Normal spoilage = 1,000 − 700 = 300.

64. Correct answer b. Under FIFO, EUP are based solely on work performed during the current period. The EUP equals the sum of the work done on the beginning work-in-process inventory, units started and completed in the current period, and the ending work-in-process inventory. Given that the beginning work-in-process was 60% complete as to materials, the current period is charged for 12,800 EUP (32,000 units x 40%). Since 184,000 units were completed during the period, 152,000 (184,000 – 32,000 in BWIP) must have been stated and completed during the period. They represent 152,000 EUP. Finally, the EUP for ending work-in-process equal 43,200 (48,000 x 90%). Thus, total EUP for January are $208,000 (12,800 + 152,000 + 43,200).

65. Correct answer d. ABC is a methodology that recognizes causal relationships of cost drivers to activities. Activity-based Costing (ABC) is the optimal choice when there is a need for improved product costing, making for better decision-making. ABC is the theoretically preferred method of overhead allocation. The more diverse a company's line of services or the more significant the volume differences among its products or services, the more beneficial implementation of ABC will be.

66. Correct answer d. Robotics painting would be machine-based and would logically be allocated to products on the basis of machine hours. The other three options would more appropriately be allocated on the basis of direct labor or charged to overhead.

67. Correct answer c. Activity-based costing is an approach to costing that focuses on cost drivers. It uses these drivers to assign costs to products and services. As a result, a company would normally gain insight into the causes of cost.

68. Correct answer d. Using activity-based costing, the cost of materials is one of the costs that needs to be allocated based on the cost driver, e.g., the number of units used per product.

69. Correct answer b. Using activity-based costing, the cost to manufacture one ultrasound machine is $264 calculated as follows.

Cost per engineering change:	$6,000 ÷ (2 + 1)	=	$2,000
Material handling per part:	$5,000 ÷ (400 + 600)	=	$5
Cost per product setup:	$3,000 ÷ (8 + 7)	=	$200

Ultrasound direct material ($8,000 ÷ 100)	$ 80
Ultrasound direct labor ($12,000 ÷ 100)	120
Material handling [(600 ÷ 100) x $5]	30
Engineering change ($2,000 ÷ 100)	20
Setups [($200 ÷ 100) x 7]	14
Manufacturing cost	$264

70. Correct answer c. The muffins are $1,925 more profitable as shown below.

Cost of muffin delivery:	[(150 x 10) ÷ 60] x $20	=	$500
Cost of cheesecake delivery:	[(85 x 15) ÷ 60] x $20	=	$425

Muffin profit:	$53,000 - $26,000 - $500	=	$26,500
Cheesecake profit:	$46,000 - $21,000 - $425	=	24,575
Profit difference			$ 1,925

71. Correct answer a. The per unit overhead cost allocation of receiving costs for product A is $3.75 as shown below.

Receiving costs per order:	$450,000 ÷ (50 + 150)	=	$2,250
Per unit of Product A:	(50 x $2,250) ÷ 30,000	=	$3.75

72. Correct answer d. Activity-based costing generally uses a greater number of allocation bases or cost drivers and therefore results in more accurate costing.

73. Correct answer a. Upstream costs include research and development costs.

74. Correct answer c. Applied fixed overhead is calculated by taking the predetermined overhead rate for fixed overhead and multiplying it by the standard number of hours.

In this case, the predetermined fixed overhead rate would be $7 per hour ($105,000/15,000 hours = $7 per hour). Direct labor hour per unit = 15,000 labor hours/ 7,500 units = 2 direct labor hours per unit. The standard number of hours used to apply fixed overhead would be 16,000 hours (8,000 units × 2 direct labor hours per unit = 16,000 direct labor hours)

Multiply the predetermined fixed overhead rate by the standard number of direct labor hours as follows: ($7/hour × 16,000 direct labor hours = $112,000 applied fixed overhead.
Since the fixed overhead budget variance was $1,000 unfavorable, or exceeding the budgeted amount, then the actual fixed overhead was $106,000 ($105,000 + $1,000). The fixed overhead budget variance is calculated by taking the difference between the applied fixed overhead and the actual fixed overhead. So,

if applied fixed overhead was $112,000 and actual fixed overhead was 106,000, then Fixed overhead in April was overapplied by $112,000 – $106,000 = $6,000

75. Correct answer b. Since it is difficult to assign quantities and costs of items such as screws and glue to specific products, they are generally charged to factory overhead.

76. Correct answer d. Only in the situation where all overhead costs were expensed, e.g., zero inventory balances, would the reported net income be the same.

77. Correct answer c. Homogenous cost pools are those in which all of the costs have the same or similar cause-and-effect or benefits received relationship with the cost allocation base.

78. Correct answer b. The Tool Department overhead applied to Job #231 is $197.50 calculated as follows.

Tooling overhear per hour:	$8,690 ÷ 440 hrs.	=	$19.75
Job #231 overhead:	$19.75 x 10 hrs.	=	$197.50

79. Correct answer c. The overhead applied to a job incurring 20 hours of direct labor is $140 as shown below.

Total budgeted direct labor hours:	$50,000 ÷ $5	=	10,000 hrs.
Overhead cost/direct labor hour:	$70,000 ÷ 10,000	=	$7 per hr.
Overhead cost for 20 hours:	20 x $7	=	$140

80. Corrector answer d. When various products are manufactured, multiple overhead rates are preferable to a single overhead rate.

81. Correct answer b. Statements I and IV would apply. The factory overhead rate is likely increased as expenses such as depreciation have increased. The increase in automation makes it more difficult to respond to economic changes as the company cannot simply layoff or hire workers. Statements II and III are incorrect as machine hours would be more appropriate and Haney will still be able to calculate labor variances.

82. Correct answer d. Allocation on the basis of the number of employees would have the least negative impact on the Financial Consulting Division as the division has only 28% of the total employees while it has 30% of revenues and 30% of variable expenses.

83. Correct answer c. The engineering cost per unit of Product B is $15 calculated as follows.

Engineering cost per order:	$300,000 ÷ (12 +18)	=	$10,000
Engineering cost per Product B:	$10,000 x 18	=	$180,000
Cost per unit of Product B:	$180,000 ÷ 12,000	=	$15.00

84. Correct answer d. The dual-rate cost-allocation method classifies costs in each cost pool into two subcost pools, a variable-cost subpool and a fixed cost subpool, with each of these subpools having a different cost allocation base.

85. Correct answer d. If the cost of legal services is allocated on the basis of usage, departments will be very careful about usage. To encourage usage, the cost should be absorbed as a corporate expense.

86. Correct answer a. Allocating service department costs to production departments is most likely to cause production managers to be more careful about the use of services and not request excessive service.

87. Correct answer a. Depending on the step-down sequence used, different allocation of support departments to operating departments will result. Therefore, the correct response is direct and reciprocal methods only.

88. Correct answer d. The reciprocal method of departmental allocation explicitly includes the mutual services provided among all support departments. Therefore, the Information Systems Department would be allocated all users including the Personnel Department.

89. Correct answer b. The general step-down sequence begins with the support department that renders the greatest amount of service. Thus, the Personnel Department would be first and the Information Systems Department would not be allocated to the Personnel Department.

90. Correct answer d. The reciprocal allocation method allocates costs by explicitly including the mutual services provided among support departments and allows for the full incorporation of interdepartmental relationships.

91. Correct answer b. Using the direct method of allocation, only the hours of the production departments would be included in the allocation base (3600 + 1800 + 2700 = 8100).

92. Correct answer c. Total overhead in the Machining Department is $442,053 as presented below.

Machining overhead	$200,000
Maintenance ($360,000 x .5)	180,000
Systems [($95,000 + $36,000*) x .473687**]	62,053
Total overhead	$442,053

*Maintenance allocated to Systems ($360,000 x 10%)
**1.05 x 45%

93. Correct answer c. Using the direct method of cost allocation, all support departments are allocated directly to production departments. Relationships between support departments are not included in the allocation.

94. Correct answer d. Using the step-down method, Logo should allocate $20,000 of Systems to Facilities and $24,000 of Facilities to Machining as shown below.

% allocation Systems to Facilities:	900 ÷ (9,300 – 300)	=	10%
Allocation	$200,000 x 10%	=	$20,000
% allocation Facilities to Mach.	2,000 ÷ (11,600 – 600 – 1,000	=	20%
Allocation	($100,000 + $20,000*) x 20%	=	$24,000

*Systems to Facilities allocation

95. Correct answer d. The total overhead allocated by the Machining Department to Adam's product is $445,000 calculated as follows.

% allocation Maint. to Mach.:	50% ÷ (40% + 50%)	=	.555
Allocation	.555 x $360,000	=	$199,800
% allocation Systems to Mach.:	45% ÷ (45% + 50%)	=	.4736842
Allocation	.4736842 x $95,000	=	$45,200
Total allocation	$199,800 + $45,200 + $200,000	=	$445,000

96. Corrector answer c.
$200,000*[300/(450+300)]=$80,000

97. Correct answer a. The use of just-in-time production generally involves developing relationships with a minimum number of suppliers that reliably deliver high quality products.

98. Correct answer b.
Integration and central database are most important features of ERP systems. It provides integration among many of the organization's major business processes.

99. Correct answer d.
The theory of constraints was developed to help reduce inventory level and operating costs.

100. Correct answer d. According to the theory of constraints, increasing the efficiency of operations at non-bottleneck machines will make the slowdowns at bottlenecks worse as it will increase the traffic at bottlenecks.

101. Correct answer b. A company must first locate the source of the production constraint before it can effectively work to increase production capacity.

102. Correct answer c. In conventional financial statements, customer service costs are generally part of sales and administrative costs and not associated with a product. In value-chain statements, customer service is treated as part of the value chain and therefore associated with product cost.

103. Correct answer a. In option A, the functions are in the proper order while in the other options the functions are out of order, e.g., in option B, production design must precede production.

104. Correct answer d. Activities I and III are the only activities that actually increase the value of the product and would, therefore, be classified as value-added activities.

105. Correct answer c. This answer is correct as only the direct materials and product design costs should be considered value-added. (180,000 + 400,000) = 580,000.

106. Correct answer c. A major disadvantage of business process reengineering is that as processes are changed to be more efficient, the internal controls that were established previously can be ignored or overlooked and may not be replaced with new controls.

107. Correct answer d. Retail Partners would benefit from all of these benchmarking techniques as all would identify best practices.

108. Correct answer a. Option A does not compare the business unit to any other standard, e.g., best practice, and is not an example of benchmarking standards.

109. 92. Correct answer c. Prevention costs include Design Engineering ($300,000), Supplier Evaluation ($240,000), and Labor Training ($150,000) for a total of $690,000. All of these activities would likely take place prior to production to improve quality and prevent costly errors.

110. Correct answer b. Appraisal costs are incurred to detect individual units that do not conform to specifications, e.g., inspecting raw materials.

111. Correct answer b. Appraisal costs are incurred to detect individual units that do not conform to specifications, e.g., product testing costs.

112. Correct answer d. External failure costs are incurred by non-conforming products after shipment to customers. Product field testing would occur during the design phase and therefore prior to shipment.

113. Correct answer a. Internal failure costs are incurred by non-conforming products prior to shipment, e.g., the cost to rework defective units.

Section E: Internal Controls

1. *CSO: 1E1a* *LOS: 1E1b*
   When assessing a company's internal control structure policies and procedures, the primary consideration is whether they

   a. prevent management override.
   b. relate to the control environment.
   c. reflect management's philosophy and operating style.
   d. affect the financial statement assertions.

2. *CSO: 1E1a* *LOS: 1E1c*
   Which one of the following auditor findings would **most** likely raise a red flag about a company's internal control environment?

   a. The company has an established independent audit committee.
   b. Only select committees of the board have access to outside attorneys.
   c. The role of the company's CEO and board chairman are separate.
   d. The board nominations committee selects only independent directors.

3. *CSO: 1E1b* *LOS: 1E1g*
   The basic concepts implicit in internal accounting controls include the following.

   - The cost of the system should not exceed benefits expected to be attained.
   - The overall impact of the control procedure should not hinder operating efficiency.

   Which one of the following recognizes these two factors?

   a. Limitations.
   b. Management responsibility.
   c. Methods of data processing.
   d. Reasonable assurance.

4. *CSO: 1E1b LOS: 1E1j*
Which one of the following functions performed in an organization is a violation of internal control?

a. A mail clerk opening the mail compares the check received with the source document accompanying the payment, noting the amount paid, then forwards the checks daily (along with a listing of the cash receipts) to the Cashier for deposit.
b. A mail clerk opening the mail compares the check received with the source document accompanying the payment, noting the amount paid, then forwards the source documents that accompany the payments (along with a listing of the cash receipts) to Accounts Receivable, on a daily basis, for posting to the subsidiary ledger.
c. At the end of the week the Cashier prepares a deposit slip for all of the cash receipts received during the week.
d. The General Ledger clerk compares the summary journal entry, received from the Cashier for cash receipts applicable to outstanding accounts, with the batch total for posting to the Subsidiary Ledger by the Accounts Receivable clerk.

5. *CSO: 1E1b LOS: 1E1i*
In order to properly segregate duties, which function within the computer department should be responsible for reprocessing the errors detected during the processing of data?

a. Department manager.
b. Systems analyst.
c. Computer programmer.
d. Data control group.

6. *CSO: 1E1c LOS: 1E1q*
The U.S. Public Company Accounting Oversight Board (PCAOB) seeks to protect investors by requiring public companies to

a. integrate an internal control audit with the financial statement audit.
b. disclose the identity of owners with more than 5% ownership interest.
c. disclose executive compensation and bonuses.
d. have an independent audit committee within the board of directors.

7. *CSO: 1E1c LOS: 1E1n*
The risk associated with auditors failing to identify material misstatements in a financial statement is referred to as

a. control risk.
b. inherent risk.
c. unsystematic risk.
d. detection risk.

8. *CSO: 1E1d* *LOS: 1E1t*
A company is headquartered in the U.S. and has international subsidiaries in several countries. One of the company's international subsidiaries created several off-the-book accounts to pay bribes to foreign officials, and these payments were not properly reflected in the subsidiary's books and records. The subsidiary has certain internal controls in place, but does not utilize the COSO internal controls framework and does not have a compliance program in place. Based on the information presented, all of the following are violations by the subsidiary under the internal control provisions of U.S. Foreign Corrupt Practices act **except** the

a. use of bribery payments.
b. failure to use the COSO framework for internal controls.
c. failure to have internal controls to ensure that transactions were appropriately recorded.
d. lack of a compliance program as part of its system of internal controls.

9. *CSO: 1E1d* *LOS: 1E1t*
With respect to the internal control provisions of the U.S. Foreign Corrupt Practices Act (FCPA), all of the following statements are true **except** that

e. the FCPA prescribes a particular set of internal controls that companies are required to develop and implement.
f. internal controls are used by companies to help provide reasonable assurance regarding reliability of financial reporting.
g. access to company assets are permitted in accordance with management's general and specific authorization.
h. good internal controls can help prevent not only FCPA violations, but also other illegal or unethical conduct.

10. *CSO: 1E2a* *LOS: 1E2b*
A computer virus is different from a "Trojan Horse" because the virus can

a. corrupt data.
b. alter programming instructions.
c. replicate itself.
d. erase executable files.

11. *CSO: 1E2a* *LOS: 1E2c*
In situations where it is crucial that data be entered correctly into an accounting information system, the **best** method of data control would be to use

a. key verification.
b. compatibility tests.
c. limit checks.
d. reasonableness tests.

12. *CSO: 1E2a LOS: 1E2k*
The data entry staff of National Manufacturing Inc. has responsibility for converting all of the plant's shipping information to computerized records. The information flow begins when the shipping department sends a copy of a shipping order to the data entry staff. A data entry operator scans the shipping order information onto a hand-held data storage device. Verification clerks then check the computerized record with the original shipping orders. When a given batch of files has been reviewed and corrected, as necessary, the information is uploaded to the company's mainframe system at the home office.

The **most** effective way to visualize and understand this set of activities would be through the use of a

a. program flowchart.
b. decision table.
c. document flowchart.
d. Gantt chart.

13. *CSO: 1E2b LOS: 1E2f*
Which one of the following is **most** likely considered a processing control for an entity's accounting application system?

a. Validity check.
b. Transaction log.
c. Spooling.
d. Check digit.

14. *CSO: 1E2b LOS: 1E2c*
The **most** appropriate control to verify that a user is authorized to execute a particular on-line transaction is a

a. password.
b. challenge/response system.
c. compatibility check.
d. closed-loop verification.

15. *CSO: 1E2b LOS: 1E2e*
Which one of the following is the **most** appropriate technique to restrict access to computer programs and databases to authorized personnel?

a. Conduct intrusion-prevention training.
b. Provide color-coded employee identification badges.
c. Deploy electronic detectors.
d. Develop unique account numbers for each user.

16. *CSO: 1E2c* *LOS: 1E2d*
In securing the client/server environment of an information system, a principal disadvantage of using a single level sign-on password is the danger of creating a(n)

a. trap door entry point.
b. single point of failure.
c. administrative bottleneck.
d. lock-out of valid users.

17. *CSO: 1E2c* *LOS: 1E2e*
Which one of the following represents a weakness in the internal control system of an electronic data processing system?

a. The data control group reviews and tests procedures and handles the reprocessing of errors detected by the computer.
b. The accounts receivable clerk prepares and enters data into the computer system and reviews the output for errors.
c. The systems analyst designs new systems and supervises testing of the system.
d. The computer operator executes programs according to operating instructions and maintains custody of programs and data files.

18. *CSO: 1E2c* *LOS: 1E2i*
Confidential data can be securely transmitted over the internet by using

a. single-use passwords.
b. firewalls.
c. encryption.
d. digital signatures.

19. *CSO: 1E2c* *LOS: 1E2i*
All of the following are examples of encryption techniques used for computer security **except**

a. public key.
b. private key.
c. primary key.
d. authentication key.

20. *CSO:1E2c LOS: 1E2j*
The chief information technology officer introduced a technology to prevent unauthorized external access to its client's network. The technology described by the chief information officer is **most** likely

a. data encryption.
b. a firewall.
c. a public key.
d. a private key.

21. *CSO: 1E2d LOS: 1E2l*
An owner of a company has entered into a contract with a hardware vendor ensuring that in the event of a disaster, the vendor would provide the company with computer equipment. The owner has also entered into a lease contract with a building owner ensuring that in the event of a disaster, the company will be provided with an empty floor in the building to allow for the continuation of its business. Which one of the following **best** describes this disaster recovery plan?

a. Mirrored data center.
b. Hot site.
c. Recovery operations center.
d. Cold site.

22. *CSO: 1E2e LOS: 1E2n*
When attempting to restore computing facilities at an alternate site following a disaster, which one of the following should be restored first?

a. Online system.
b. Batch system.
c. Operating system.
d. Decision support system.

23. *CSO: 1E2e LOS: 1E2m*
A company is following a plan to continue operations if a place of business is affected by disasters. The plan is **most** likely called

a. crisis communication planning.
b. continuous availability planning.
c. business continuity planning.
d. strategic planning.

Answer for Section E: Internal Controls

1. Correct answer d. One of the main objectives of internal controls is to provide reasonable assurance of reliability of financial reporting (financial statement assertions).

2. Correct answer b.
   All committees of the board should have access to outside attorneys and consultants other than the corporation's normal counsel and consultants. Under the provisions of SOX, the audit committee of an SEC reporting company is entitled to such representation independently.

3. Correct answer d. The benefits of internal controls must always exceed the costs of implementing them. Implementing a system of absolute assurance is overly costly; thus only reasonable assurance can be obtained.

4. Correct answer c. Cashier prepares deposit slip for all cash receipts received. This action involves two functions that are not segregated: custody of assets and recording of transactions. In addition, the summary is not done in a timely manner.

5. Correct answer d. In order to properly segregate duties within the computer department, the responsibility to reprocess the errors detected during processing of the data should be given to the data control group and not to department manager, who should have access to review transactions, but not process transactions; nor to systems analyst, who should have access to view and analyze transactions, but not process transactions, and not to the computer programmer, who should have access to programs, not transactions.

6. Correct answer b. Direct deposit of pay in lieu of distribution of physical paychecks is an example of an effective safeguarding control that limits access to the organization's assets to authorized personnel.

7. Correct answer a. Policies of strong internal control, segregation of duties, and requiring employees to take vacations is an effective way of deterring fraud. In addition, periodic rotation of employees would also strengthen the control. These practices help prevent collusion and decrease the opportunity for employees to hide fraudulent behavior.

8. Correct answer b.
   The FCPA has several internal control provisions but does not stipulate the use of the COSO Framework. Other frameworks are permissible as long as they encompass the components of a control environment, risk assessment, information and communication procedures, monitoring activities and control policies and procedures.

9. Correct answer a. The FCPA does not specify the particular set of controls a company must implement. It gives companies flexibility to develop and maintain its set of internal controls that is appropriate to its nature, needs and circumstances.

10. Correct answer c. Viruses are computer programs that propagate themselves from one computer to another without the user's knowledge. Trojan horses are restricted to a specific computer, these are voluntarily installed as regular programs, but, behind the scenes, they contain codes that a hacker can activate later to take over the computer.

11. Correct answer a. Key verification is one of the data controls. A record's key is the group of values that uniquely identify the record. No application process should be able to alter the data in these key fields.

12. Correct answer c. Flowcharting is the representation of a process using pictorial symbols. A document flowchart would be an effective way to visualize how the document (a copy of a shipping order) flows through various departments.

13. Correct answer b.
Transaction logs are considered processing controls. Check digit and validity check are considered input controls. Spooling is considered an output control.

14. Correct answer c. Compatibility check is most appropriate control to verify that the user is authorized to execute a particular on-line transaction. It verifies the user access information, such as user ID, password and security profile is correct.

15. Correct answer d. The development of a unique account number for each user in a company allows only authorized users to gain access to a system through a process of identification.

16. Correct answer b. Single sign-on, although a great convenience to users, because they don't need to remember multiple passwords and user-ids and can assess all IT resources using single sign-on data. This, however, becomes a single-point of failure, if the sign-on does not work and the user is not able to access any of the IT resources.

17. Correct answer d. Computer Operator executes programs and maintains custody of programs and files. This action involves two functions that are not segregated: recording of transactions and custody of assets.

18. Correct answer c. Encryption technology converts data into a code. Unauthorized users may still be able to access the data, but without the encryption key, they will be unable to decode the information; thus, encrypting confidential data is a secure way of transmitting it over the Internet.

19. Correct answer c. Encryption technology converts data into a code. Unauthorized users may still be able to access the data, but without the encryption key, they will be unable to decode the information. Two major types of encryption software exist: public key and private key. An example of authentication is assigning each user a unique identifier and password. Not even information security personnel should be able to view unencrypted passwords.

20. Correct answer b. A firewall is designed to manage and control the Internet traffic that is allowed to access a company's protected computer network with the key goal of protecting a company's computer network from threats.

21. Correct answer d. A cold site plan is an arrangement where a company leases empty space in a building that will serve as a data center. In the event of a disaster, the leased empty space is available and ready to receive whatever hardware the company needs to run a business. A company's management in this situation must also obtain contracts from hardware equipment vendors that in the event of a disaster the vendor will provide the company with hardware equipment.

22. Correct answer c. Operating system should be the first one to be restored at an alternate site so the operations can continue with minimum of amount of interruption; while other systems, such as decision support, online system, can be restored later.

23. Correct answer c.
Business continuity planning is a methodology used to create and validate a plan for maintaining continuous business operations before, during and after disaster and disruptive events.

Section F: Technology and Analytics

1. *CSO: 1F1a LOS: 1F1b*
   A company's accounting information system needs to capture the information of the financing cycle, which encompasses all transactions involving

   a. sales to customers and the collection of cash receipts for those sales.
   b. the purchase and payment of supplies and services it consumes.
   c. the hiring, training, and payment of employees.
   d. the investment of capital, borrowing money, payment of interest, and loan repayments.

2. *CSO: 1F1b LOS: 1F1e*
   A primary advantage of an ERP system is

   a. program-data dependence.
   b. separate data updating for different functions.
   c. data redundancy.
   d. centralization of data.

3. *CSO: 1F1b LOS: 1F1d*
   An ERP system

   a. integrates multiple aspects of an organization's activities into one system.
   b. is part of the accounting information system.
   c. is focused on supply chain optimization.
   d. covers financial information only.

4. *CSO: 1F2a LOS: 1F2b*
   Which one of the following statements **best** describes COBIT?

   a. It is a control model to meet the needs of IT governance and ensure the integrity of information and information systems.
   b. It is a benchmarking tool that helps management compare its marketing practices against best-in-class.
   c. It is a control framework that provides the board of directors with reasonable assurance of adequate internal controls.
   d. It is a risk management framework that helps external auditors provide assurance of accurate financial reporting.

5. *CSO: 1F2a* *LOS: 1F2a*
A hotel chain allows its customers to sign up for their loyalty program online. Management discovered that many customers misspelled their mailing addresses when inputting their personal information. The company revised the online form so that the customer can only select from a list of cities and streets instead of typing on their own when inputting addresses. This measure is an example of managing the data's

a. availability.
B. integrity.
c. usability.
d. security.

6. *CSO: 1F2a* *LOS: 1F2b*
Which one of the following **best** defines COBIT?

a. A framework for the governance and management of enterprise information and technology, aimed at the whole enterprise.
b. A control framework published by the Committee of Sponsoring Organizations.
c. A set of guidelines intended to help shareholders understand the IT systems utilized by management.
d. A set of risks and responses to technology challenges.

7. *CSO: 1F2c* *LOS: 1F2e*
After a systems programmer was terminated and passwords were disabled, the company's server crashed and it erased all of its files and software. The terminated employee had installed a virus in the operating system and executed it via a back door. Which one of the following measures would **most** likely have prevented this occurrence?

a. A policy to encrypt all data and files maintained on its server.
b. Daily backup of all data on the server.
c. An intrusion detection system used to create logs of network traffic.
d. An advanced firewall used to detect intrusions.

8. *CSO: 1F2c* *LOS: 1F2e*
An equipment manufacturer uses an online order-entry system for its customers so that they can order electronic parts from anywhere in the world. Due to the cost and sensitive nature of several of the electronic parts, the manufacturer needs to maintain a secure order-entry system. The **most** effective technique for monitoring the security of access is

a. requiring users to change passwords to the order-entry system on an annual basis.
b. using an access log to identify unsuccessful access attempts to the order-entry system.
c. tracing a selection of transactions through the order-entry system.
d. introducing advanced firewall protections to the order-entry system.

9. *CSO: 1F3a* *LOS: 1F3a*
An analyst prepared a forecast using newly developed system features. The analyst recently left the company and her replacement was unable to understand how to use these system functionalities. In accordance with system development life-cycle best practices, which one of the following controls would have prevented this situation from occurring?

a. End-user computing efforts are outlined.
b. Documentation standards and procedures are developed.
c. Backup activities and requirements are put into place.
d. Changes made to the system are monitored and evaluated.

10. *CSO: 1F3a* *LOS: 1F3a*
The systems development life cycle approach is **best** suited for projects that are

a. large and unstructured.
b. large and structured.
c. complex and small.
d. expensive and customized.

11. *CSO: 1F3b* *LOS: 1F3d*
To improve efficiency, a company is considering utilizing a tool developed by a third party that reviews sales contracts and identifies elements and clauses relevant to revenue recognition. The company is **most** likely using a tool that is employing

a. business intelligence.
b. artificial intelligence.
c. blockchain.
d. control monitoring.

12. *CSO: 1F3c* *LOS: 1F3e*
Which one of the following options would allow multiple employees to use a browser to remotely access and use application software?

a. Virtualization.
b. Cloud computing.
c. Distributed ledger.
d. Blockchain.

13. *CSO: 1F4a LOS: 1F4b*
Analyzing text data taken from online customer reviews in order to identify significant patterns is an example of data mining with

a. structured data.
b. unstructured data.
c. semi-structured data.
d. predictive data.

14. *CSO: 1F4a LOS: 1F4f*
An organization wants to utilize business intelligence (BI) to assist in the evaluation of key metrics. The IT manager has suggested incorporating a dashboard feature in its BI tool. Which one of the following is the main reason that management should implement the dashboard feature?

a. It allows management to have as many different charts as possible.
b. It shows patterns and trends in data across the organization.
c. It is designed to focus on metrics that have not been met.
d. It can automatically generate reorders of important materials for production.

15. *CSO: 1F4b LOS: 1F4g*
Which one of the following **best** describes data mining?

a. Searching through large amounts of computerized data to find useful patterns and trends.
b. Examining raw data in order to draw conclusions from that data.
c. Integrating data, technology, and analytics to optimize business decisions.
d. Inspecting, cleansing, revising, and modeling raw data in order to find valuable data.

16. *CSO: 1F4c LOS: 1F4o*
A company developed the following multiple regression equation, utilizing ten years of data, and uses it to estimate the cost of its product.

Total cost = F + a*L + b*M
Where: F = fixed costs
L = labor rate per hour
M = material cost per pound

Which one of the following changes would **most** likely have the greatest impact on invalidating the results of this model?

a. Changing the source of material to a low-cost foreign source.
b. A significant reduction in factory overhead.
c. A significant change in labor productivity.
d. Renegotiation of the union contract resulting in a higher wage rate.

17. *CSO: 1F4c* *LOS: 1F4m*
An analysis of historical hotel occupancy data concluded that the decline in food and beverage revenue was due mostly to the low hotel occupancy. This is an example of

a. descriptive analytics.
b. diagnostic analytics.
c. predictive analytics.
d. prescriptive analytics.

18. *CSO: 1F4d* *LOS: 1F4bb*
A hospital has observed an increase in the number of cases of a disease and has asked an analyst to collect data on the cases over the last three years. The analyst noted that the disease appeared three years ago during the second quarter of the year. Since then, the third and fourth quarters of each year showed significant spikes in the number of cases when compared to the first two quarters. What is the **best** way to present these findings?

a. Table, showing the number of cases in each month for the last three years.
b. Pie chart, showing the number of cases in each quarter of the last three years.
c. Scatter plot chart, showing the change in the number of cases for each quarter of the last three years.
d. Bar graph, showing the number of cases in each quarter of the last three years.

Answer for Section F: Technology and Analytics

1. Correct answer d. The financing cycle encompasses all transactions involving the investment of capital in the company, borrowing money, payment of interest, and loan repayments.

2. Correct answer d. An advantage of an ERP system is the elimination of data redundancy through the use of a central database. In principle, information about an item of data is stored once and all functions have access to it. Thus, when the item (e.g. Price) is updated, the change is effectively made for all functions. The result is reliability (data integrity).

3. Correct answer a. ERP system integrates all aspects of an organization’s activities—such as accounting, finance, marketing, human resources, manufacturing, inventory management— into one system.

4. Correct answer a. The purpose of COBIT is to provide management and business process owners with an information technology (IT) governance model that helps in delivering value from IT and understanding and managing the risks associated with IT. COBIT helps bridge the gaps amongst business requirements, control needs and technical issues. It is a control model to meet the needs of IT governance and ensure the integrity of information and information systems.

5. Correct answer b. It is an example of managing the data’s integrity through input control.

6. COBIT is a framework for the governance and management of enterprise information and technology, aimed at the whole enterprise. Enterprise IT means all the technology and information processing the enterprise puts in place to achieve its goals, regardless of where this happens in the enterprise. In other words, enterprise IT is not limited to the IT department of an organization, but certainly includes it.

7. Correct answer c. The intrusion prevention system issues warning alerts on suspicious traffic but also automatically takes steps to stop a suspected attack.

8. Correct answer b, An access log should be used to record all attempts to use the system. The date and time, codes used, mode of access and data involved can all be recorded. The system should monitor unsuccessful attempts because repeated attempts could suggest that someone is trying random character sequences in order to identify a password for a valid user.

9. Correct answer b. The control that would have best prevented this situation is clear documentation standards and procedures have been developed. This process is initiated in the ‘physical design’ phase of the SDLC.

10. Correct answer b. The life cycle approach is best employed when systems are large and highly structured. For this reason, having a systems development plan is critical to the smooth running of the project.

11. Correct answer b. Artificial intelligence is knowledge demonstrated by machines that use judgment to make decisions.

12. Correct answer b Cloud computing is the process of using a browser to remotely access software, data storage, hardware and applications.

13. Correct answer b. Unstructured data is information that doesn’t reside in a traditional row-column database. It often includes text and multimedia.

14. Correct answer b. A dashboard is a common feature of BI tools that allows management to monitor key performance indicators and show trends over time.

15. Correct answer a. The stem is asking for the definition of data mining. This option provides the best definition of data mining. Option “b” is not correct because this statement describes data analytics. Option “c” is not correct because this statement describes business analytics. Option “d” is not correct because this statement describes data analysis.

16. Correct answer c. With a significant change in labor productivity, the labor rate is no longer “purchasing” the same amount of product. Therefore, there is a significant impact on the reliability of the model.

17. Correct answer b. It is an example of diagnostic analytics. Diagnostic analysis describes the reason for the historical results.

18. Correct answer d. The hospital is interested in showing that there has been an increase in cases of the illness. Additionally, it wants to communicate important trends, such as when the illness started presenting and the fact that spikes were noted in Q3 and Q4. The best way to present that data would be with a tool that can easily and clearly show discrete number of cases over time. This would best be accomplished with a bar chart that shows the number of cases in each quarter. Higher bars would show the spikes in the number of cases in Q3 and Q4. A bar chart/graph (histogram) is the perfect tool to show frequency of categories (in this case, the count of the number of cases observed in each quarter).

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CMA Part 2 – Strategic Financial Management

Examination Practice Questions

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Examination Practice Questions

Section A: Financial Statement Analysis

1. *CSO: 2A1a LOS: 2A1a*
Gordon has had the following financial results for the last four years.

	Year 1	Year 2	Year 3	Year 4
Sales	$1,250,000	$1,300,000	$1,359,000	$1,400,000
Cost of goods sold	750,000	785,000	825,000	850,000
Gross profit	500,000	515,000	534,000	550,000
Inflation factor	1.00	1.03	1.07	1.10

Gordon has analyzed these results using vertical common-size analysis to determine trends. The performance of Gordon can **best** be characterized by which one of the following statements?

a. The common-size gross profit percentage has decreased as a result of an increasing common-size trend in cost of goods sold.
b. The common-size trend in sales is increasing and is resulting in an increasing trend in the common-size gross profit margin.
c. The common-size trend in cost of goods sold is decreasing which is resulting in an increasing trend in the common-size gross profit margin.
d. The increased trend in the common-size gross profit percentage is the result of both the increasing trend in sales and the decreasing trend in cost of goods sold.

2. *CSO: 2A1a LOS: 2A1a*
Shown below are components of a company's financial statements.

Sales revenue	$600,000
Cost of goods sold	300,000
Total assets	2,400,000
Total equity	1,500,000
Net income	120,000

What percentage value would net income be on a common size financial statement?

a. 5%.
b. 8%.
c. 20%.
d. 40%.

3. *CSO: 2A1b LOS: 2A1b*

A financial analyst is reviewing a competitor's income statements for the past two years.

	Year 1	Year 2
Sales	£250,000	£275,000
Cost of goods sold	155,000	160,000
Gross profit	95,000	115,000
Selling expenses	35,000	40,000
General expenses	45,000	50,000
Operating income before income taxes	15,000	25,000
Taxes related to operations	2,500	3,500
Net income	£ 12,500	£ 21,500

The financial analyst is able to conclude that the competitor's

a. common size income statements will show operating income before income taxes at 22% for Year 2.
b. common size income statements will show taxes related to operations at 16% for Year 2.
c. common base year income statements will show that gross profit increased by 17% in Year 2 as compared to Year 1.
d. common base year income statements will show that selling expenses increased by 14% in Year 2 as compared to Year 1.

4. *CSO: 2A1b LOS: 2A1b*

A company's financial statements from the past two years have the following values.

	Previous year	Current year
Sales revenue	$6,000,000	$6,600,000
Net income	500,000	540,000
Total assets	10,000,000	10,500,000
Inventory	600,000	500,000

Using horizontal analysis, what account has the **largest** percentage change?

a. Sales revenue.
b. Net income.
c. Total assets.
d. Inventory.

5. *CSO: 2A2a LOS: 2A2a*
In analyzing the short-term liquidity of a firm, many analysts prefer to use the quick (or acid test) ratio rather than the current ratio. The primary reason for this preference is that the

a. quick ratio excludes account receivables.
b. current ratio includes marketable securities which may be mispriced.
c. pro-forma cash flow statements focus on cash only.
d. Conversion of inventory into cash is less reliable.

6. *CSO: 2A2a LOS: 2A2a*
The balance sheet of a luggage manufacturer reports the following.

Cash	$531,000
Accounts receivable	439,000
Inventory	300,000
Marketable securities	200,000
Current liabilities	500,000
Long term liabilities	676,000

Based on the information provided, the luggage manufacturer's quick ratio is

a. 1.25
b. 1.94
c. 2.34
d. 2.94

7. *CSO: 2A2a* *LOS: 2A2a*

Broomall Corporation has decided to include certain financial ratios in its year-end annual report to shareholders. Selected information relating to its most recent fiscal year is provided below.

• Cash	$10,000
• Accounts receivable	20,000
• Prepaid expenses	8,000
• Inventory	42,000
• Accounts payable	15,000
• Notes payable (due in 90 days)	25,000
• Bonds payable (due in 10 years)	35,000
• Net credit sales for year	220,000
• Cost of goods sold	140,000

Broomall's working capital at year end is

a. $40,000.
b. $37,000.
c. $28,000.
d. $10,000.

8. *CSO: 2A2a* *LOS: 2A2b*

All of the following are affected when merchandise is purchased on credit **except**

a. total current assets.
b. net working capital.
c. total current liabilities.
d. current ratio.

9. *CSO: 2A2a LOS: 2A2a*

Birch Products Inc. has the following current assets.

Cash	$ 250,000
Marketable securities	100,000
Accounts receivable	800,000
Inventories 1,450,000	
Total current assets	$2,600,000

If Birch's current liabilities are $1,300,000, the firm's

a. current ratio will decrease if a payment of $100,000 cash is used to pay $100,000 of accounts payable.
b. current ratio will not change if a payment of $100,000 cash is used to pay $100,000 of accounts payable.
c. quick ratio will decrease if a payment of $100,000 cash is used to purchase inventory.
d. quick ratio will not change if a payment of $100,000 cash is used to purchase inventory.

10. *CSO: 2A2a LOS: 2A2a*

Shown below are beginning and ending balances for certain of Grimaldi Inc.'s accounts.

	January 1	December 31
Cash	$ 48,000	$ 62,000
Marketable securities	42,000	35,000
Accounts receivable	68,000	47,000
Inventory	125,000	138,000
Plant & equipment	325,000	424,000
Accounts payable	32,000	84,000
Accrued liabilities	14,000	11,000
7% bonds payable	95,000	77,000

Grimaldi's acid test ratio or quick ratio at the end of the year is

a. 0.83.
b. 1.02.
c. 1.15.
d. 1.52.

11. *CSO: 2A2a LOS: 2A2b*
Davis Retail Inc. has current assets of $7,500,000 and a current ratio of 2.3 times before purchasing $750,000 of merchandise on credit for resale. After this purchase, the current ratio will

a. remain at 2.3 times.
b. be higher than 2.3 times.
c. be lower than 2.3 times.
d. be exactly 2.53 times.

12. *CSO: 2A2a LOS: 2A2a*
Shown below are selected data from Fortune Company's most recent financial statements.

Marketable securities	$10,000
Accounts receivable	60,000
Inventory	25,000
Supplies	5,000
Accounts payable	40,000
Short-term debt payable	10,000
Accruals	5,000

What is Fortune's net working capital?

a. $35,000.
b. $45,000.
c. $50,000.
d. $80,000.

13. *CSO: 2A2a LOS: 2A2b*
Garstka Auto Parts must increase its acid test ratio above the current 0.9 level in order to comply with the terms of a loan agreement. Which one of the following actions is **most** likely to produce the desired results?

a. Expediting collection of accounts receivable.
b. Selling auto parts on account.
c. Making a payment to trade accounts payable.
d. Purchasing marketable securities for cash.

14. *CSO: 2A2a LOS: 2A2b*
The owner of a chain of grocery stores has bought a large supply of mangoes and paid for the fruit with cash. This purchase will adversely impact which one of the following?

a. Working capital.
b. Current ratio.
c. Quick or acid test ratio.
d. Price earnings ratio.

15. *CSO: 2A2a* *LOS: 2A2a*
Selected financial data for Boyd Corporation are shown below.

	January 1	December 31
Cash	$ 48,000	$ 62,000
Accounts receivable (net)	68,000	47,000
Prepaid expenses	42,000	35,000
Inventory	125,000	138,000
Plant and equipment (net)	325,000	424,000
Accounts payable	32,000	84,000
Accrued liabilities	14,000	11,000
Deferred taxes	15,000	9,000
Long-term bonds payable	95,000	77,000

Boyd's net income for the year was $96,000. Boyd's current ratio at the end of the year is

a. 1.55.
b. 1.71.
c. 2.71.
d. 2.97.

16. *CSO: 2A2a* *LOS: 2A2a*
When reviewing a credit application, the credit manager should be **most** concerned with the applicant's

a. profit margin and return on assets.
b. price-earnings ratio and current ratio.
c. working capital and return on equity.
d. working capital and current ratio.

17. *CSO: 2A2a* *LOS: 2A2b*
Both the current ratio and the quick ratio for Spartan Corporation have been slowly decreasing. For the past two years, the current ratio has been 2.3 to 1 and 2.0 to 1. During the same time period, the quick ratio has decreased from 1.2 to 1 to 1.0 to 1. The disparity between the current and quick ratios can be explained by which one of the following?

a. The current portion of long-term debt has been steadily increasing.
b. The cash balance is unusually low.
c. The accounts receivable balance has decreased.
d. The inventory balance is unusually high.

18. *CSO: 2A2a LOS: 2A2a*
The acid test ratio shows the ability of a company to pay its current liabilities without having to

a. reduce its cash balance.
b. borrow additional funds.
c. collect its receivables.
d. liquidate its inventory.

19. *CSO: 2A2a LOS: 2A2a*
All of the following are included when calculating the acid test ratio **except**

a. six-month treasury bills.
b. prepaid insurance.
c. accounts receivable.
d. 60-day certificates of deposit.

20. *CSO: 2A2a LOS: 2A2a*
Dedham Corporation has decided to include certain financial ratios in its year-end annual report to shareholders. Selected information relating to its most recent fiscal year is provided below.

• Cash	$10,000
• Accounts receivable	32,000
• Prepaid expenses	8,000
• Inventory	30,000
• Accounts payable	15,000
• Notes payable (due in 90 days)	25,000
• Bonds payable (due in 10 years)	35,000

Dedham's quick (acid-test) ratio at year end is

a. 2.00 to 1.
b. 1.925 to 1.
c. 1.80 to 1.
d. 1.05 to 1.

21. *CSO: 2A2a LOS: 2A2b*
If a company has a current ratio of 2.1 and pays off a portion of its accounts payable with cash, the current ratio will

a. decrease.
b. increase.
c. remain unchanged.
d. move closer to the quick ratio.

22. *CSO: 2A2b* *LOS: 2A2j*

A banker is reviewing the bank's current portfolio of outstanding loans and collected the following financial data (in thousands) on four companies that the bank has loaned money to.

	Company A	Company B	Company C	Company D
Earnings before interest and income taxes	¥5,000	¥12,500	¥4,300	¥2,450
Interest expense	¥3,950	¥9,000	¥2,675	¥1,250

On the basis of the information provided above, which company has the **highest** relative likelihood of defaulting on an outstanding loan?

a. Company A.
b. Company B.
c. Company C.
d. Company D.

23. *CSO: 2A2b* *LOS: 2A2b*

An accountant has determined that last year a company had earnings before interest and tax of $750,000, interest expense of $125,000, and an income tax rate of 40%. What was the company's degree of financial leverage last year?

a. 0.80.
b. 1.20.
c. 1.67.
d. 2.00.

24. *CSO: 2A2b* *LOS: 2A2e*

The capital structure of four corporations is as follows.

	Corporation			
	Sterling	Cooper	Warwick	Pane
Short-term debt	10%	10%	15%	10%
Long-term debt	40%	35%	30%	30%
Preferred stock	30%	30%	30%	30%
Common equity	20%	25%	25%	30%

Which corporation is the most highly leveraged?

a. Sterling.
b. Cooper.
c. Warwick.
d. Pane.

25. *CSO: 2A2b* *LOS: 2A2f*
A summary of the Income Statement of Sahara Company is shown below.

Sales	$15,000,000
Cost of sales	9,000,000
Operating expenses	3,000,000
Interest expense	800,000
Taxes	880,000
Net income	$ 1,320,000

Based on the above information, Sahara's degree of financial leverage is

a. 0.96.
b. 1.36.
c. 1.61.
d. 2.27.

26. *CSO: 2A2b* *LOS: 2A2f*
A degree of operating leverage of 3 at 5,000 units means that a

a. 3% change in earnings before interest and taxes will cause a 3% change in sales.
b. 3% change in sales will cause a 3% change in earnings before interest and taxes.
c. 1% change in sales will cause a 3% change in earnings before interest and taxes.
d. 1% change in earnings before interest and taxes will cause a 3% change in sales.

27. *CSO: 2A2b* *LOS: 2A2e*
Firms with high degrees of financial leverage would be **best** characterized as having

a. high debt-to-equity ratios.
b. zero coupon bonds in their capital structures.
c. low current ratios.
d. high fixed-charge coverage.

28. *CSO: 2A2b* *LOS: 2A2e*
The use of debt in the capital structure of a firm

a. increases its financial leverage.
b. increases its operating leverage.
c. decreases its financial leverage.
d. decreases its operating leverage.

29. *CSO: 2A2b LOS: 2A2g*
A financial analyst with Mineral Inc. calculated the company's degree of financial leverage as 1.5. If net income before interest increases by 5%, earnings to shareholders will increase by

a. 1.50%.
b. 3.33%.
c. 5.00%.
d. 7.50%.

30. *CSO: 2A2b LOS: 2A2g*
Which one of the following statements concerning the effects of leverage on earnings before interest and taxes (EBIT) and earnings per share (EPS) is correct?

a. For a firm using debt financing, a decrease in EBIT will result in a proportionally larger decrease in EPS.
b. A decrease in the financial leverage of a firm will increase the beta value of the firm.
c. If Firm A has a higher degree of operating leverage than Firm B, and Firm A offsets this by using less financial leverage, then both firms will have the same variability in EBIT.
d. Financial leverage affects both EPS and EBIT, while operating leverage only effects EBIT.

31. *CSO: 2A2b LOS: 2A2i*
Which one of the following is the **best** indicator of long-term debt paying ability?

a. Working capital turnover.
b. Asset turnover.
c. Current ratio.
d. Debt-to-total assets ratio.

32. *CSO: 2A2b* *LOS: 2A2y*
Easton Bank has received loan applications from three companies in the computer service business and will grant a loan to the company with the best prospect of fulfilling the loan obligations. Specific data, shown below, has been selected from these applications for review and comparison with industry averages.

	CompGo	Astor	SysGen	Industry
Total sales (millions)	$4.27	$3.91	$4.86	$4.30
Net profit margin	9.55%	9.85%	10.05%	9.65%
Current ratio	1.82	2.02	1.96	1.95
Return on assets	12.0%	12.6%	11.4%	12.4%
Debt/equity ratio	52.5%	44.6%	49.6%	48.3%
Financial leverage	1.30	1.02	1.56	1.33

Based on the information above, select the strategy that would fulfill Easton's objective.

a. Easton should not grant any loans as none of these companies represents a good credit risk.
b. Grant the loan to CompGo as all the company's data approximate the industry average.
c. Grant the loan to Astor as both the debt/equity ratio and degree of financial leverage are below the industry average.
d. Grant the loan to SysGen as the company has the highest net profit margin and degree of financial leverage.

33. *CSO: 2A2b* *LOS: 2A2i*
The following information has been derived from the financial statements of Boutwell Company.

Current assets	$640,000
Total assets	990,000
Long-term liabilities	130,000
Current ratio	3.2 Times

The company's debt-to-equity ratio is

a. 0.50 to 1.
b. 0.37 to 1.
c. 0.33 to 1.
d. 0.13 to 1.

34. *CSO: 2A2b LOS: 2A2y*

Marge Halifax, chief financial officer of Strickland Construction, has been tracking the activities of the company's nearest competitor for several years. Among other trends, Halifax has noticed that this competitor is able to take advantage of new technology and bring new products to market more quickly than Strickland. In order to determine the reason for this, Halifax has been reviewing the following data regarding the two companies.

	Strickland	Competitor
Accounts receivable turnover	6.85	7.35
Return on assets	15.34	14.74
Times interest earned	15.65	12.45
Current ratio	2.11	1.23
Debt/equity ratio	42.16	55.83
Degree of financial leverage	1.06	1.81
Price/earnings ratio	26.56	26.15

On the basis of this information, which one of the following is the **best** initial strategy for Halifax to follow in attempting to improve the flexibility of Strickland?

a. Seek cost cutting measures that would increase Strickland's profitability.
b. Investigate ways to improve asset efficiency and turnover times to improve liquidity.
c. Seek additional sources of outside financing for new product introductions.
d. Increase Strickland's investment in short-term securities to increase the current ratio.

35. *CSO: 2A2c LOS: 2A2l*

A wholesale supplier has collected the following financial data on three companies that only purchase their products for resale to retail consumers.

	Company A	Company B	Company C
Sales	£1,000,000	£1,250,000	£2,450,000
Gross profit margin	20%	30%	25%
Beginning inventory	£35,000	£80,000	£155,000
Ending inventory	£65,000	£225,000	£175,000

On the basis of the information provided above, the supplier is able to conclude that

a. Company B is turning the product inventory the fastest.
b. Company C is turning the product inventory the fastest.
c. Companies B and C are both turning the product inventory faster than Company A.
d. Companies A and C are both turning the product inventory faster than Company B.

36. *CSO: 2A2c LOS: 2A2m*
A financial analyst is analyzing the accounts receivable period for three companies by comparing their days' sales in receivables. The financial analyst has collected the following information for the companies.

	Company A	Company B	Company C
Net credit sales	$175,000	$145,000	$225,000
Average accounts receivable, net	10,000	20,000	11,500
Average allowance for uncollectible accounts	3,500	6,500	4,500

If each of the companies has credit terms of net 30 days, the financial analyst is **most** likely to conclude which one of the following?

a. Company C is less efficient than Company A in collecting payment.
b. Company B is more efficient than Company C in collecting payment.
c. Company A is the most efficient in collecting payment.
d. Company B is the least efficient in collecting payment.

37. *CSO: 2A2c LOS: 2A2l*
Maydale Inc.'s financial statements show the following information.

Accounts receivable, end of Year 1	$ 320,000
Credit sales for Year 2	3,600,000
Accounts receivable, end of Year 2	400,000

Maydale's accounts receivable turnover ratio is

a. 0.10.
b. 9.00.
c. 10.00.
d. 11.25.

38. *CSO: 2A2c* *LOS: 2A2l*
Lowell Corporation has decided to include certain financial ratios in its year-end annual report to shareholders. Selected information relating to its most recent fiscal year is provided below.

• Cash	$ 10,000
• Accounts receivable (end of year)	20,000
• Accounts receivable (beginning of year)	24,000
• Inventory (end of year)	30,000
• Inventory (beginning of year)	26,000
• Notes payable (due in 90 days)	25,000
• Bonds payable (due in 10 years)	35,000
• Net credit sales for year	220,000
• Cost of goods sold	140,000

Using a 365-day year, compute Lowell's accounts receivable turnover in days.

a. 26.1 days.
b. 33.2 days.
c. 36.5 days.
d. 39.8 days.

39. *CSO: 2A2c* *LOS: 2A2l*
Maydale Inc.'s financial statements show the following information.

Accounts receivable, end of Year 1	$ 320,000
Credit sales for Year 2	3,600,000
Accounts receivable, end of Year 2	400,000

Maydale's accounts receivable turnover ratio is

a. 0.10.
b. 9.00.
c. 10.00.
d. 11.25.

40. *CSO: 2A2c LOS: 2A2l*

Zubin Corporation experiences a decrease in sales and the cost of goods sold, an increase in accounts receivable, and no change in inventory. If all else is held constant, what is the total effect of these changes on the receivables turnover and inventory ratios?

	Inventory Turnover	Receivables Turnover
a.	Increased;	Increased.
b.	Increased;	Decreased.
c.	Decreased;	Increased.
d.	Decreased;	Decreased.

41. *CSO: 2A2c LOS: 2A2l*

Peggy Monahan, controller, has gathered the following information regarding Lampasso Company.

	Beginning of the year	End of the year
Inventory	$6,400	$7,600
Accounts receivable	2,140	3,060
Accounts payable	3,320	3,680

Total sales for the year were $85,900, of which $62,400 were credit sales. The cost of goods sold was $24,500.

Lampasso's inventory turnover ratio for the year was

a. 3.2 times.
b. 3.5 times.
c. 8.2 times.
d. 8.9 times.

42. *CSO: 2A2c* *LOS: 2A2l*

Garland Corporation's Income Statement for the year just ended is shown below.

Net sales		$900,000
Cost of goods sold		
Inventory - beginning	$125,000	
Purchases	540,000	
Goods available for sale	665,000	
Inventory - ending	138,000	
		527,000
Gross profit		373,000
Operating expenses		175,000
Income from operations		$198,000

Garland's average inventory turnover ratio is

a. 6.84.
b. 6.52.
c. 4.01.
d. 3.82.

43. *CSO: 2A2c* *LOS: 2A2l*

Makay Corporation has decided to include certain financial ratios in its year-end annual report to shareholders. Selected information relating to its most recent fiscal year is provided below.

• Cash	$ 10,000
• Accounts receivable (end of year)	20,000
• Accounts receivable (beginning of year)	24,000
• Inventory (end of year)	30,000
• Inventory (beginning of year)	26,000
• Notes payable (due in 90 days)	25,000
• Bonds payable (due in 10 years)	35,000
• Net credit sales for year	220,000
• Cost of goods sold	140,000

Makay's average inventory turnover for the year was

a. 4.7 times.
b. 5.0 times.
c. 5.4 times.
d. 7.9 times.

44. *CSO: 2A2c LOS: 2A2l*
Globetrade is a retailer that buys virtually all of its merchandise from manufacturers in a country experiencing significant inflation. Globetrade is considering changing its method of inventory costing from first-in, first-out (FIFO) to last-in, first-out (LIFO). What effect would the change from FIFO to LIFO have on Globetrade's current ratio and inventory turnover ratio?

a. Both the current ratio and the inventory turnover ratio would increase.
b. The current ratio would increase but the inventory turnover ratio would decrease.
c. The current ratio would decrease but the inventory turnover ratio would increase.
d. Both the current ratio and the inventory turnover ratio would decrease.

45. *CSO: 2A2c LOS: 2A2l*
Lancaster Inc. had net accounts receivable of $168,000 and $147,000 at the beginning and end of the year, respectively. The company's net income for the year was $204,000 on $1,700,000 in total sales. Cash sales were 6% of total sales. Lancaster's average accounts receivable turnover ratio for the year is

a. 9.51.
b. 10.15.
c. 10.79.
d. 10.87.

46. *CSO: 2A2c LOS: 2A2m*
Cornwall Corporation's net accounts receivable were $68,000 and $47,000 at the beginning and end of the year, respectively. Cornwall's condensed Income Statement is shown below.

Sales	$900,000
Cost of goods sold	527,000
Operating expenses	175,000
Operating income	198,000
Income tax	79,000
Net income	$119,000

Cornwall's average number of days' sales in accounts receivable (using a 360-day year) is

a. 8 days.
b. 13 days.
c. 19 days.
d. 23 days.

47. *CSO: 2A2c* *LOS: 2A2m*
The following financial information is given for Anjuli Corporation (in millions of dollars).

	Prior Year	Current Year
Sales	$10	$11
Cost of goods sold	6	7
Current Assets		
Cash	2	3
Accounts receivable	3	4
Inventory	4	5

Between the prior year and the current year, did the days sales in inventory and days sales in receivables for Anjuli increase or decrease? Assume a 365-day year.

	Days Sales in Inventory	Days Sales in Receivables
a.	Increased;	Increased.
b.	Increased;	Decreased.
c.	Decreased;	Increased.
d.	Decreased;	Decreased.

48. *CSO: 2A2c* *LOS: 2A2o*
On its year-end financial statements, Caper Corporation showed sales of $3,000,000, net fixed assets of $1,300,000, and total assets of $2,000,000. The company's fixed asset turnover is

a. 1.5 times.
b. 43.3%.
c. 2.3 times.
d. 65%.

49. *CSO: 2A2d* *LOS: 2A2p*
Douglas Company purchased 10,000 shares of its common stock at the beginning of the year for cash. This transaction will affect all of the following **except** the

a. debt-to-equity ratio.
b. earnings per share.
c. net profit margin.
d. current ratio.

50. *CSO: 2A2d* *LOS: 2A2q*

The assets of Moreland Corporation are presented below.

	January 1	December 31
Cash	$ 48,000	$ 62,000
Marketable securities	42,000	35,000
Accounts receivable	68,000	47,000
Inventory	125,000	138,000
Plant & equipment (net of accumulated depreciation)	325,000	424,000

For the year just ended, Moreland had net income of $96,000 on $900,000 of sales. Moreland's total asset turnover ratio is

a. 1.27.
b. 1.37.
c. 1.48.
d. 1.50.

51. *CSO: 2A2d* *LOS: 2A2q*

Interstate Motors has decided to make an additional investment in its operating assets which are financed by debt. Assuming all other factors remain constant, this increase in investment will have which one of the following effects?

	Operating Income Margin	Return on Operating Asset Turnover	Operating Assets
a.	Increase	No change	Increase.
b.	No change	Decrease	Decrease.
c.	No change	Increase	Decrease.
d.	Decrease	Decrease	Decrease.

52. *CSO: 2A2d* *LOS: 2A2q*

A company had $450,000 in assets, $250,000 in liabilities, and $200,000 in common equity at the beginning of the fiscal year. The company's management is projecting that net income for the current fiscal year will be $55,000 and common equity at the end of the fiscal year will be $210,000. How much will the company's return on equity be at the end of the fiscal year?

a. 12.2%.
b. 22.0%.
c. 26.8%.
d. 27.5%.

53. *CSO: 2A2d* *LOS: 2A2p*
A company has a net profit margin of 5%, an operating profit margin of 10%, and a gross profit margin of 25%. Sales revenue is $5,000,000. Selling, general, and administrative expenses are $750,000. What is the cost of goods sold?

a. $4,750,000.
b. $4,250,000.
c. $3,750,000.
d. $3,250,000.

54. *CSO: 2A2e* *LOS: 2A2u*
A corporation had 250,000 shares of common stock outstanding on January 1. The financial manager of the corporation on September 30 is projecting net income of $750,000 for the current year. If the management of the corporation is planning on declaring a $55,000 preferred stock dividend and a 2-for-1 common stock split on December 31, earnings per common share on December 31 is expected to equal

a. $1.39.
b. $1.50.
c. $2.78.
d. $3.00.

55. *CSO: 2A2e* *LOS: 2A2u*
A company's financial data for the recent fiscal year follows.

Common stock: 5,000,000 shares outstanding
Preferred stock: 1,000,000 shares
Net income: $50,000,000
Common stock dividends: $8,000,000
Preferred stock dividends: $2,000,000

The company would have reported basic and diluted earnings per share of

a. $10.00 and $9.60, respectively.
b. $9.60 and $8.00, respectively.
c. $10.00 and $6.67, respectively.
d. $9.60 and $9.60, respectively.

56. *CSO: 2A2e* *LOS: 2A2s*
At the end of its fiscal year on December 31, 2000, Merit Watches had total shareholders' equity of $24,209,306. Of this total, $3,554,405 was preferred equity. During the 2001 fiscal year, Merit's net income after tax was $2,861,003. During 2001, Merit paid preferred share dividends of $223,551 and common share dividends of $412,917. At December 31, 2001, Merit had 12,195,799 common shares outstanding and the company did not sell any common shares during the year. What was Merit Watch's book value per share on December 31, 2001?

a. $1.88.
b. $2.17.
c. $1.91.
d. $2.20.

57. *CSO: 2A2e* *LOS: 2A2s*
Donovan Corporation recently declared and issued a 50% stock dividend. This transaction will reduce the company's

a. current ratio.
b. book value per common share.
c. debt-to-equity ratio.
d. return on operating assets.

58. *CSO: 2A2e* *LOS: 2A2r*
The following information concerning Arnold Company's common stock was included in the company's financial reports for the last two years.

	Year 2	Year 1
Market price per share on December 31	$60	$50
Par value per share	10	10
Earnings per share	3	3
Dividends per share	1	1
Book value per share on December 31	36	34

Based on the price-earnings information, investors would **most likely** consider Arnold's common stock to

a. be overvalued at the end of Year 2.
b. indicate inferior investment decisions by management in Year 2.
c. show a positive trend in growth opportunities in Year 2 compared to Year 1.
d. show a decline in growth opportunities in Year 2 compared to Year 1.

59. *CSO: 2A2e* *LOS: 2A2v*
Clark Inc. has prepared the following financial information for its initial public offering.

Long-term debt (8% interest rate)	$10,000,000
Common equity:	
Par value ($1 per share)	3,000,000
Additional paid-in-capital	24,000,000
Retained earnings	6,000,000
Total assets	55,000,000
Net income	3,750,000
Dividend (annual)	1,500,000

If public companies in Clark's industry are trading at twelve times earnings, what is the estimated value per share of Clark?

a. $9.00.
b. $12.00.
c. $15.00.
d. $24.00.

60. *CSO: 2A2e* *LOS: 2A2r*
Morton Starley Investment Banking is working with the management of Kell Inc. in order to take the company public in an initial public offering. Selected information for the year just ended for Kell is as follows.

Long-term debt (8% interest rate)	$10,000,000
Common equity:	
Par value ($1 per share)	3,000,000
Additional paid-in-capital	24,000,000
Retained earnings	6,000,000
Total assets	55,000,000
Net income	3,750,000
Dividend (annual)	1,500,000

If public companies in Kell's industry are trading at a market to book ratio of 1.5, what is the estimated value per share of Kell?

a. $13.50.
b. $16.50.
c. $21.50.
d. $27.50.

61. *CSO: 2A2e* *LOS: 2A2u*

At the beginning of the year, Lewis Corporation had 100,000 shares of common stock outstanding. During the year, the following transactions occurred.

Date	Transaction
April 1	Issued 10,000 shares in exchange for land
July 1	Declared and distributed a 10% stock dividend
October 1	Purchased 5,000 shares of treasury stock

The number of shares that Lewis should use when computing earnings per share at the end of the year is

a. 117,000.
b. 116,000.
c. 111,750.
d. 106,250.

62. *CSO: 2A2e* *LOS: 2A2u*

Selected financial data for ABC Company is presented below.

- For the year just ended ABC has net income of $5,300,000.
- $5,500,000 of 7% convertible bonds were issued in the prior year at a face value of $1,000. Each bond is convertible into 50 shares of common stock. No bonds were converted during the current year.
- 50,000 shares of 10% cumulative preferred stock, par value $100, were issued in the prior year. Preferred dividends were not declared in the current year, but were current at the end of the prior year.
- At the beginning of the current year 1,060,000 shares of common stock were outstanding.
- On June 1 of the current year 60,000 shares of common stock were issued and sold.
- ABC's average income tax rate is 40%.

ABC Company's basic earnings per share for the current fiscal year is

a. $3.67.
b. $4.29.
c. $4.38.
d. $4.73.

63. *CSO: 2A2e LOS: 2A2r*
Devlin Inc. has 250,000 shares of $10 par value common stock outstanding. For the current year, Devlin paid a cash dividend of $3.50 per share and had earnings per share of $4.80. The market price of Devlin's stock is $34 per share. Devlin's price/earnings ratio is

a. 2.08.
b. 2.85.
c. 7.08.
d. 9.71.

64. *CSO: 2A2e LOS: 2A2r*
At year-end, Appleseed Company reported net income of $588,000. The company has 10,000 shares of $100 par value, 6% preferred stock and 120,000 shares of $10 par value common stock outstanding, and 5,000 shares of common stock in treasury. There are no dividend payments in arrears, and the market price per common share at the end of the year was $40. Appleseed's price-earnings ratio is

a. 9.47.
b. 9.09.
c. 8.50.
d. 8.16.

65. *CSO: 2A2e LOS: 2A2r*
Archer Inc. has 500,000 shares of $10 par value common stock outstanding. For the current year, Archer paid a cash dividend of $4.00 per share and had earnings per share of $3.20. The market price of Archer's stock is $36 per share. The average price/earnings ratio for Archer's industry is 14.00. When compared to the industry average, Archer's stock appears to be

a. overvalued by approximately 25%.
b. overvalued by approximately 10%.
c. undervalued by approximately 10%.
d. undervalued by approximately 25%.

66. *CSO: 2A2e LOS: 2A2r*
A steady drop in a firm's price/earnings ratio could indicate that

a. earnings per share has been increasing while the market price of the stock has held steady.
b. earnings per share has been steadily decreasing.
c. the market price of the stock has been steadily rising.
d. both earnings per share and the market price of the stock are rising.

67. *CSO: 2A2e LOS: 2A2u*
Collins Company reported net income of $350,000 for the year. The company had 10,000 shares of $100 par value, non-cumulative, 6% preferred stock, and 100,000 shares of $10 par value common stock outstanding. There were also 5,000 shares of common stock in treasury during the year. Collins declared and paid all preferred dividends as well as a $1 per share dividend on common stock. Collins' earnings per share of common stock for the year was

a. $3.50.
b. $3.33.
c. $2.90.
d. $2.76.

68. *CSO: 2A2e LOS: 2A2u*
Ray Company has 530,000 common shares outstanding at year-end. At December 31, for basic earnings per share purposes, Ray computed its weighted average number of shares as 500,000. Prior to issuing its annual financial statements, but after year-end, Ray split its stock 2 for 1. Ray's weighted average number of shares to be used for computing annual basic earnings per share is

a. 500,000.
b. 530,000.
c. 1,000,000.
d. 1,060,000.

69. *CSO: 2A2e LOS: 2A2u*
On January 1, Esther Pharmaceuticals had a balance of 10,000 shares of common stock outstanding. On June 1, the company issued an additional 2,000 shares of common stock for cash. A total of 5,000 shares of 6%, $100 par, nonconvertible preferred stock was outstanding all year. Esther's net income was $120,000 for the year. The earnings per share for the year were

a. $7.50.
b. $8.06.
c. $10.00.
d. $10.75.

70. *CSO: 2A2e LOS: 2A2u*
Roy company had 120,000 common shares and 100,000 preferred shares outstanding at the close of the prior year. During the current year Roy repurchased 12,000 common shares on March 1, sold 30,000 common shares on June 1, and sold an additional 60,000 common shares on November 1. No change in preferred shares outstanding occurred during the year. The number of shares of stock outstanding to be used in the calculation of basic earnings per share at the end of the current year is

a. 100,000.
b. 137,500.
c. 198,000.
d. 298,000.

71. *CSO: 2A2e* *LOS: 2A2v*
Selected information regarding Dyle Corporation's outstanding equity is shown below.

Common stock, $10 par value, 350,000 shares outstanding	$3,500,000
Preferred stock, $100 par value, 10,000 shares outstanding	1,000,000
Preferred stock dividend paid	60,000
Common stock dividend paid	700,000
Earnings per common share	3
Market price per common share	18

Dyle's yield on common stock is

a. 11.11%.
b. 16.66%.
c. 16.88%.
d. 20.00%.

72. *CSO: 2A2e* *LOS: 2A2v*
For the most recent fiscal period, Oakland Inc. paid a regular quarterly dividend of $0.20 per share and had earnings of $3.20 per share. The market price of Oakland stock at the end of the period was $40.00 per share. Oakland's dividend yield was

a. 0.50%.
b. 1.00%.
c. 2.00%.
d. 6.25%.

73. *CSO: 2A2e* *LOS: 2A2v*
The dividend yield ratio is calculated by which one of the following methods?

a. Market price per share divided by dividends per share.
b. Earnings per share divided by dividends per share.
c. Dividends per share divided by market price per share.
d. Dividends per share divided by earnings per share.

74. *CSO: 2A2e LOS: 2A2v*
Mayson Company reported net income of $350,000 for last year. The company had 100,000 shares of $10 par value common stock outstanding and 5,000 shares of common stock in treasury during the year. Mayson declared and paid $1 per share dividends on common stock. The market price per common share at the end of last year was $30. The company's dividend yield for the year was

a. 30.03%.
b. 28.57%.
c. 11.11%.
d. 3.33%.

75. *CSO: 2A2e LOS: 2A2v*
The following information concerning Arnold Company's common stock was included in the company's financial reports for the last two years.

	Year 2	Year 1
Market price per share on December 31	$60	$50
Par value per share	10	10
Earnings per share	3	3
Dividends per share	1	1
Book value per share on December 31	36	34

Arnold's dividend yield in Year 2

a. has increased compared to Year 1.
b. is indicative of the company's failure to provide a positive return to the investors.
c. is the same as Year 1.
d. has declined compared to Year 1.

76. *CSO: 2A3a LOS: 2A3b*
A company is currently reviewing the most recent fiscal year's results of operations and noted an increase in the return on assets ratio when compared to the prior year. Which one of the following could have caused the increase?

a. Sales decreased by the same dollar amount that expenses increased.
b. Sales increased by the same dollar amount as expenses and total assets.
c. Sales remained the same and expenses and total assets decreased.
d. Sales remained the same and ending inventory decreased.

77. *CSO: 2A3a* *LOS: 2A3b*
At the end of Year 1, a company had average total assets of ¥450 million, average total liabilities of ¥150 million, and net income of ¥135 million. The company's management projects average total assets to increase by ¥50 million in Year 2 due to the planned purchase of a new manufacturing plant. The company will issue ¥30 million in new debt at the beginning of Year 2. No debt was paid down during Year 1. If the company's management projects net income to increase by 25% in Year 2, by approximately how much does the company's return on total assets increase between Year 1 and Year 2?

a. 11%.
b. 13%.
c. 17%.
d. 20%.

78. *CSO: 2A3c* *LOS: 2A3g*
A company's finished goods inventory was miscounted, and the correct balance is $130,000 lower. Management is concerned about correcting the error because bonuses are only earned if the minimum gross profit margin is 45%. Selected financial information is shown below.

Revenues	$1,000,000
Cost of goods sold	500,000
Salaries	57,000
Accounts receivable	22,000
Cash	43,000

With the corrected inventory, will the bonus target be met?

a. Yes, the gross profit margin will increase.
b. No, the working capital will decrease.
c. Yes, the gross profit margin will not change.
d. No, the cost of goods sold will increase.

79. *CSO: 2A3d* *LOS: 2A3h*
According to its public financial statements, a company's gross profit margin decreased by 5% while its operating profit margin increased by 3%. Which one of the following factors could cause both of these changes?

a. An increase in the cost per unit of the goods purchased from a supplier.
b. A change to the variable costing income statement format.
c. A lowered selling price to increase quantities sold.
d. Sale of fully-depreciated production machinery at a gain and replacement of the machines with newer models.

80. *CSO: 2A3d* *LOS: 2A3h*
A company's Year 4 gross profit margin remained unchanged from Year 3. However, the company's Year 4 net profit margin increased from Year 3. Which one of the following could explain the change from Year 3 to Year 4?

a. Sales decreased at a faster rate than operating expenses.
b. Corporate income tax rates decreased.
c. Preferred dividends increased.
d. Cost of goods sold decreased relative to sales.

81. *CSO: 2A3e* *LOS: 2A3j*
Selected items from the equity section of a company's balance sheet are shown below.

	Year 2	Year 1
Common stock, 5,000,000 shares	$ 50,000,000	$ 50,000,000
Total equity	200,000,000	182,500,000

The increase in equity was caused by $20,000,000 in net income less a common stock dividend payment of $0.50 per share. The company's sustainable growth rate is

a. 10.46%.
b. 9.59%.
c. 9.15%.
d. 8.75%.

82. *CSO: 2A4a* *LOS: 2A4a2*
A U.S. based publicly traded company has a Swedish subsidiary. For the Swedish subsidiary, the Euro impacts the cost of goods sold and revenue. The primary source of long-term debt financing for the U.S. company is Canadian investors. The functional currency of the Swedish subsidiary is the

a. U.S. dollar.
b. Canadian dollar.
c. Euro.
d. Swedish krona.

83. *CSO: 2A4a* *LOS: 2A4a.2*
A firm's functional currency should be

a. selected on the basis of several economic factors including cash flow, sales price, and financing indicators.
b. the currency of the foreign environment in which the firm primarily generates and expends cash.
c. selected on the basis of cost-benefit analysis and ease of preparing consolidated financial statements.
d. the currency of the parent organization as the firm operates as an extension of the parent's operations.

84. *CSO: 2A4a LOS: 2A4a2*
The functional currency of an entity is defined as the currency

a. of the entity's parent company.
b. of the primary country in which the entity is physically located.
c. in which the books of record are maintained for all entity operations.
d. of the primary economic environment in which the entity operates.

85. *CSO: 2A4b LOS: 2A4b*
During inflationary periods, last-in, first-out inventory accounting will generally have a

a. lower cost of goods sold and lower inventory value.
b. lower cost of goods sold and higher inventory value.
c. higher cost of goods sold and higher inventory value.
d. higher cost of goods sold and lower inventory value.

86. *CSO: 2A4c LOS: 2A4c*
During the current year, an entity changed its method of accounting for depreciation because it believed that the result would provide more reliable and relevant information. In its financial statements for the year, how should the entity report the adjustment resulting from the change in accounting principle?

a. Disclose as a separate type of depreciation expense, directly following depreciation expense in the current year.
b. Report as an adjustment to beginning retained earnings of the earliest period presented in the financial statements.
c. Include in the determination of profit or loss for the current period as a cumulative effect adjustment.
d. Not disclose in the financial statements.

87. *CSO: 2A4d LOS: 2A4d*
The concept of economic profit is **best** defined as total

a. revenue minus all accounting costs.
b. income minus the sum of total fixed and variable costs.
c. revenue minus the sum of total fixed and variable costs.
d. revenue minus all explicit and implicit costs.

88. *CSO: 2A4d LOS: 2A4d*
"Economic costs" often differ from costs shown in a firm's financial statements. For a corporation, a major difference would arise due to

a. interest costs.
b. salary and wage costs.
c. opportunity costs.
d. state and local tax costs.

89. *CSO: 2A4d LOS: 2A4d*
Which of the following costs, when subtracted from total revenue, yields economic profit?

a. Variable costs.
b. Recurring operating costs.
c. Fixed and variable costs.
d. Opportunity and explicit costs.

90. *CSO: 2A4d LOS: 2A4d*
Williams makes $35,000 a year as an accounting clerk. He decides to quit his job to enter an MBA program full-time. Assume Williams doesn't work in the summer or hold any part-time jobs. His tuition, books, living expenses, and fees total $25,000 a year. Given this information, the annual total economic cost of Williams' MBA studies is

a. $10,000.
b. $35,000.
c. $25,000.
d. $60,000.

91. *CSO: 2A4d* *LOS: 2A4d*

The financial statements of Lark Inc. for last year are shown below.

Income Statement ($000)

Revenue	$4,000
Cost of sales	2,900
Gross margin	1,100
General & administrative	500
Interest	100
Taxes	150
Net income	$ 350

Balance Sheet ($000)

Current assets	$ 800	Current liabilities	$ 500
Plant & equipment	3,200	Long-term debt	$1,000
		Common equity	2,500
Totals	$4,000	Totals	$4,000

If Lark's book values approximate market values and if the opportunity costs of debt and equity are 10% and 15%, respectively, what was the economic profit for Lark last year?

a. ($125,000).
b. ($25,000).
c. $0.
d. $350,000.

92. *CSO: 2A4e* *LOS: 2A4e*

A company with a lower quality of earnings is **most** likely to

a. hire lower-skilled workers or purchase lower-quality materials.
b. manage the recognition of revenues, expenses, gains, and losses.
c. present an operating profit margin lower than the industry average.
d. rely on a few large customers to generate a large portion of its sales.

93. *CSO: 2A4e* *LOS: 2A4e*

A company could negatively affect its earnings quality if it frequently

a. constructed plants in countries with unstable currency.
b. invested long-term in an erratic stock or bond market.
c. materially changed accounting estimates.
d. offered significant sales discounts.

94. *CSO: 2A4e* *LOS: 2A4e*
A manufacturing company operates in an environment of significant inflationary pressures. Which one of the following inventory methods should the company choose to produce financial statements considered to be of the highest earnings quality?

a. Specific identification.
b. First-in, first-out.
c. Last-in, first-out.
d. Average cost.

Answer for Section A: Financial Statement Analysis

1. Correct answer a. Gordon's common-size gross profit percentage has decreased as a result of an increasing common-size trend in cost of goods sold as shown below.

	Year 1	Year 2	Year 3	Year 4
Sales	100%	100%	100%	100%
Cost of goods sold (÷ Sales)	60.0%	60.3%	60.7%	60.7%
Gross profit (÷ Sales)	40.0%	39.6%	39.2%	39.2%

2. Correct answer c. 120,000/600,000 = 0.20 or 20%

3. Correct answer d. 14% increase in selling expenses=£40,000/£35,000-1.

4. Correct answer d.

a. Sales revenue	$6,000,000	$6,600,000	increased by 600,000/6,000,000 = 10%
b. Net income	$500,000	$540,000	increased by 40,000/500,000 = 8%
c. Total assets	$10,000,000	$10,500,000	increased by 500,000/10,000,000 = 5%
d. Inventory	$500,000	$600,000	increased by 100,000/500,000 = 20%

5. Correct answer d. Both the current ratio and the quick ratio include cash, accounts receivable, and marketable securities; therefore a, b, and c are incorrect. Choice d is correct because the quick ratio does not include inventory, which is considered less liquid than the other current assets.

6. Correct answer c. ($531,000 + $439,000 + $200,000) / $500,000 = 2.34

7. Correct answer a. Broomall's working capital is $40,000 calculated as follows.

Current assets – Current liabilities	=	Net working capital
$10,000 + $20,000 + $8,000 + $42,000	=	$80,000 current assets
$15,000 + $25,000	=	$40,000 current liabilities
$80,000 - $40,000	=	$40,000 net working capital

8. Correct answer b. When merchandise is purchased on credit, accounts payable increases and inventory increases by the same amount so net working capital remains unchanged.

9. Correct answer c. If $100,000 is used to purchase inventory, the firm's quick ratio will decrease. Since inventory is not included in the calculation of current assets for the quick ratio, current assets will decrease while liabilities remain unchanged.

10. Correct answer d. Grimaldi's quick ratio at the end of the year is 1.52 as shown below.

(Current assets – Inventory) ÷ Current liabilities	=	Quick ratio
(\$62,000 + \$35,000 + \$47,000) ÷ (\$84,000 + \$11,000)	=	1.52

11. Correct answer c. Davis' current ratio will be lower than 2.3 times as shown below.

Before purchase:	\$7,500,000 ÷ X	=	2.3
	X	=	\$3,260,870
After purchase: (\$7,500,000 + \$750,000) ÷ (\$3,260,870 + \$750,000)		=	2.05

12. Correct answer b. Fortune's net working capital is \$45,000 as shown below.
(\$10,000 + \$60,000 + \$25,000 +5,000) – (\$40,000 + \$10,000 + \$5,000) = \$45,000

13. Correct answer b. To increase its acid test ratio, Gratska should sell auto parts on account. This transaction will increase accounts receivable and thus the numerator of the ratio. Inventory is not included in the ratio so the change in inventory will not affect the ratio.

14. Correct answer c. The purchase will adversely affect the quick ratio by reducing the cash balance. Since inventory is not included in the quick ratio, the change in inventory will not offset the reduction in cash.

15. Correct answer d. Boyd's current ratio is 2.97 as calculated below.

Current assets ÷ Current liabilities	=	Current ratio
(\$62,000 + \$47,000 + \$35,000 + \$138,000) ÷ (\$84,000 + \$11,000)	=	2.97

16. Correct answer d. A comparison of current assets with current liabilities gives an indication of the short-term debt-paying ability of a firm. Both working capital and the current ratio compare current assets with current liabilities and, therefore, measure credit worthiness.

17. Correct answer d. The current ratio and the quick ratio both compare current assets with current liabilities, however, the quick ratio eliminates inventory from current assets as it may not be readily converted into cash. Therefore, the disparity between the ratios is caused by the high level of inventory.

18. Correct answer d. The acid test (quick) ratio does not include inventory in the calculation of current assets and, therefore, measures debt-paying ability without liquidating inventory.

19. Correct answer b. The purpose of the acid test ratio is to measure debt-paying ability using highly liquid assets. Items such as prepaid insurance may be excluded as they do not represent current cash flow.

20. Correct answer d. Dedham's acid test ratio is 1.05 as shown below.

(\$10,000 + \$32,000) ÷ (\$15,000 + \$25,000) = 1.05

21. Correct answer b. Because the payment will have a proportionally greater effect on current liabilities than on current assets, the company's current ratio will increase.

22. Correct answer a. The interest coverage ratio is calculated by dividing a company's earnings before income taxes by the company's interest expense. The lower the interest coverage ratio the higher the likelihood that the company will not have the ability to offer assured payment of interest to a lender. In this example, Company A has the lowest interest coverage ratio and the highest likelihood of defaulting on an outstanding loan from the bank.

	Company A	Company B	Company C	Company D
Earnings before income taxes	¥5,000,000	¥12,500,000	¥4,300,000	¥2,450,000
Interest expense	¥3,950,000	¥9,000,000	¥2,675,000	¥1,250,000
Interest coverage ratio	1.27	1.39	1.61	1.96

23. Correct answer b. 1.20 = A$750,000 earnings before interest and tax / (A$750,000 earnings before interest and tax - A$125,000 interest expense).

24. Correct answer a. Sterling is the most highly leveraged corporation because it has the greatest percentage of debt or financing with a fixed charge, e.g., interest.

25. Correct answer b. Sahara's degree of financial leverage is 1.36 as shown below.

Degree of financial leverage	=	EBIT ÷ EBT
	=	($1,320,000 + $880,000 + $800,000) ÷ ($1,320,000 + $880,000)
	=	$3,000,000 ÷ $2,200,000
	=	1.36

26. Correct answer c. The degree of operating leverage measures the percent change in EBIT caused by a percent change in sales. Therefore, a degree of operating leverage of 3 indicates that a 1% change in sales will cause a 3% change in EBIT.

27. Correct answer a. Financial leverage is defined as the use of financing with a fixed charge such as interest. Firms with a high degree of financial leverage make significant use of debt and, therefore, have high debt-to-equity ratios.

28. Correct answer a. Financial leverage is defined as the use of financing with a fixed charge such as interest. Since debt is financing with a fixed charge, the use of debt increases financial leverage.

29. Correct answer d. Earnings to Mineral's shareholders will increase by 7.5% as shown below.

Degree of financial leverage	=	% change in net income ÷ % change in EBIT
1.5	=	X ÷ 5%
X	=	7.5%

30. Correct answer a. Because of the magnification of financial leverage, a decrease in earnings before interest and taxes will result in a proportionally larger decrease in earnings per share.

31. Correct answer d. The debt-to-total assets ratio indicates the percentage of assets financed by creditors and helps to determine how well creditors are protected in case of insolvency. From the perspective of debt-paying ability, the lower this ratio, the better.

32. Correct answer c. Since Easton Bank is seeking the company that is most likely to meet its loan obligations, the bank should select Astor. Both the degree of financial leverage and the debt/equity ratio are measures of debt-paying ability; Astor is below the industry average for both measures, indicating a low level of financial risk.

33. Correct answer a. The company's debt/equity ratio is .5 to 1 as shown below.

Current liabilities	=	$640,000 ÷ 3.2
	=	$200,000
Equity	=	$990,000 – ($200,000 + $130,000)
	=	$660,000
Debt/equity ratio	=	($130,000 + $200,000) ÷ $660,000
	=	.5 to 1

34. Correct answer c. As shown by the data, Strickland's competitor has a greater degree of financial leverage and a higher debt/equity ratio. The two measures indicate that the competitor makes greater use of outside financing than Strickland. Strickland should, therefore, consider increased outside borrowing to increase flexibility and fund research and development.

35. Correct answer d. The inventory turnover ratio is calculated by dividing cost of goods sold by the average inventory. The average inventory is the simply average of the beginning and ending inventory balances. A low inventory turnover ratio would signify that inventory does not sell fast. In this example, both Company A and Company C have higher calculated inventory turnover ratios than Company B and therefore sell the supplier's product inventory faster than Company B.
Company A inventory turnover ratio = 16.0 times per year = ((£1,000,000 x (1-0.20)) / ((£35,000 + £65,000) / 2))
Company B inventory turnover ratio = 5.7 times per year = ((£1,250,000 x (1-0.30)) / ((£80,000 + £225,000) / 2))
Company C inventory turnover ratio = 11.1 times per year = ((£2,450,000 x (1-0.25)) / ((£115,000 + £175,000) / 2))

36. Correct answer d.
Company B has collection problem as its days' sales in receivables exceeds the company's credit terms of net 30 days.

	Company A	Company B	Company C
Net credit sales [A]	$175,000	$145,000	$225,000
Accounts receivable, net [B]	10,000	20,000	11,500
Allowance for uncollectible accounts [C]	3,500	6,500	4,500
Gross receivables [B + C = D]	13,500	26,500	16,000
Avg. daily sales on account [A / 365 days = E]	479.45	397.26	616.44
Days' sales in receivables [D / E]	28.16 days	66.71 days	25.96days

37. Correct answer c. Accounts receivable turnover ratio = Credit sales/Average gross accounts receivable
Average accounts receivable = (320,000 + 400,000)/2 = 360,000
3,600,000/360,000 = 10

38. Correct answer c. Lowell's accounts receivable turnover in days is 36.5 as shown below.

Accts receivable turnover (days)	=	365 ÷ (Credit sales ÷ Average accounts receivable)
	=	365 ÷ [$220,000 ÷ ($20,000 + $24,000) ÷ 2]
	=	365 ÷ ($220,000 ÷ $22,000)
	=	365 ÷ 10
	=	36.5 days

39. Correct answer c. Maydale's accounts receivable turnover ratio is 10.00 as shown below.

Accts receivable turnover ratio	=	Credit sales ÷ Average accounts receivable
	=	$3,600,000 ÷ [($320,000 + $400,000) ÷ 2]
	=	$3,600,000 ÷ $360,000
	=	10.00

40. Correct answer d. Both Zubin's inventory turnover and accounts receivable turnover ratios will decrease under these circumstances. The numerator values of these are cost of goods sold and credit sales, respectively. If these values both decline, the value of both ratios will decline.

41. Correct answer b. Lampasso's inventory turnover ratio is 3.5 times as shown below.

Inventory turnover ratio	=	Cost of goods sold ÷ Average inventory
	=	$24,500 ÷ [($6,400 + $7,600) ÷ 2]
	=	$24,500 ÷ $7,000
	=	3.5 times

42. Correct answer c. Garland's inventory turnover ratio is 4.01 as shown below.

Inventory turnover ratio	=	Cost of goods sold ÷ Average inventory
	=	$527,000 ÷ [($125,000 + $138,000) ÷ 2]
	=	$527,000 ÷ $131,500
	=	4.01

43. Correct answer b. Makay's inventory turnover ratio is 5.0 times as shown below.

Inventory turnover ratio	=	Cost of goods sold ÷ Average inventory
	=	$140,000 ÷ [($30,000 + $26,000) ÷ 2]
	=	$140,000 ÷ $28,000
	=	5.0 times

44. Correct answer c. Globetrade's current ratio would decrease as a result of the change to LIFO because the value of ending inventory would be lower, thus decreasing the firm's current assets. Globetrade's inventory turnover ratio would increase as a result of the change to LIFO because the cost of goods sold would increase.

45. Correct answer b. Lancaster's accounts receivable turnover ratio is 10.15 as shown below.

ccts. receivable turnover	=	Credit sales ÷ Average accounts receivable
	=	[$1,700,000 x (1-.06)] ÷ [($168,000 + $147,000) ÷ 2]
	=	$1,598,000 ÷ $157,500
	=	10.15

46. Correct answer d. Cornwall's days' sales in accounts receivable is 23 as shown below.

Days' sales in Accts. Rec.	=	Average accounts receivable ÷ (Credit sales ÷ 360)
	=	[($68,000 + $47,000) ÷ 2] ÷ ($900,000 ÷ 360)
	=	$57,500 ÷ $2,500
	=	23 days

47. Correct answer a. Both measures have increased because both sales and cost of goods sold have increased while average accounts receivable and average inventory have remained the same.

48. Correct answer c. Caper's fixed asset turnover is 2.3 times calculated as follows.

Fixed asset turnover	=	Sales ÷ Average net property, plant, & equipment
	=	$3,000,000 ÷ $1,300,000
	=	2.3 times

49. Correct answer c. The only measure not affected by the purchase of its own common stock is Douglas' net profit margin. Both the debt/equity ratio and the earnings per share are affected by the number of outstanding shares of common stock, while the current ratio is affected by the amount of cash held.

50. Correct answer b. Moreland's total asset turnover is 1.37 as calculated below.

Total asset turnover	=	Sales ÷ Average total assets
	=	$900,000 ÷ [($48,000 +$42,000 + $68,000 + $125,000 + $325,000 + $62,000 + $35,000 + $47,000 + $138,000 + $424,000) ÷ 2]
	=	$900,000 ÷ $657,000
	=	1.37

51. Correct answer b. Interstate's additional investment in operating assets will increase the total value of the firm's net property, plant, and equipment and will, therefore, decrease the operating asset turnover and the return on operating assets. The firm's operating income margin will be unaffected by this investment.

52. Correct answer c. 26.8% = $55,000 net income / (($200,000 beginning of year common equity + $210,000 end of year common equity) / 2)

53. Correct answer c.
5,000,000 Sales
-3,750,000 CGS must find this so gross profit margin is 25%
=1,250,000 1,250,000/5,000,000 **= 0.25** (1 - .25) x 5,000,000 = 3,750,000
-750,000 OE
=500,000 500,000/5,000,000 = 0.10 operating profit margin
-other expenses … but irrelevant to question
=250,000 net income 250,000/5,000,000 = .05 net profit margin

54. Correct answer a.
$1.39 = ($750,000 net income - $55,000 preferred dividends declared) / (250,000 shares beginning of year x 2 for the 2-for-1 stock split).

55. Correct answer d.
Basic = (50,000,000 – 2,000,000)/5,000,000 = $9.60
Diluted = same $9.60 (no convertible securities to change numerator or denominator)

56. Correct answer a. Merit's book value per share is $1.88 as calculated below.

Book value per share	=	(Total equity – Preferred equity) ÷ Common shares outstanding
	=	($26, 433,841* - $3,554,405) ÷ 12,195,799
	=	$22,879,436 ÷ 12,195,799
	=	$1.88

*$24,209,306 + $2,861,003 - $223,551 - $412,917

57. Correct answer b. Because a stock dividend increases the number of common shares outstanding, Donovan's book value per common share will decrease.

58. Correct answer c. Because the market price per share has increased while earnings per share remained the same, Arnold's price/earnings ratio has increased showing a positive trend in growth opportunities in Year 2.

59. Correct answer c. The estimated per share value of Clark's common stock is $15.00 as calculated below.

Estimated value per share	=	(Net income ÷ Shares outstanding) x Price/earnings ratio
	=	($3,750,000 ÷ 3,000,000) x 12
	=	$15.00

60. Correct answer b. The value per share of Kell's common stock is $16.50 as shown below.

Market to book ratio	=	Current price ÷ Book value per share
1.5	=	X ÷ [($3,000,000 + $24,000,000 + $6,000,000) ÷ 3,000,000]
1.5X	=	$11.00
X	=	$16.50

61. Correct answer a.

Beg. Balance	100,000	x 3/12	x 1.1	27,500
April 1st	110,000	x 3/12	x 1.1	30,250
July 1st	121,000	x 3/12		30,250
October 1st	116,000	x 3/12		29,000
				117,000

62. Correct answer c. ABC's earnings per share is $4.38 as shown below.

Weighted average shares	1,060,000 x 5/12	441,667
	1,120,000 x 7/12	653,333
		1,095,000

Earnings per share = (Net income – Preferred dividends) ÷ Weighted average shares
= [$5,300,000 – (10% x $100 x 50,000)] ÷ 1,095,000
= $4,800,000 ÷ 1,095,000
= $4.38

63. Correct answer c. Devlin's price/earnings ratio is 7.08 as shown below.

Price/earnings ratio = Market price per share ÷ Earnings per share
= $34 ÷ $4.80
= 7.08

64. Correct answer b. Appleseed's price/earnings ratio is 9.09 as shown below.

Earnings per share = (Net income – Preferred dividends) ÷ Common shares outstanding
= [$588,000 – ($6 x 10,000)] ÷ 120,000
= $528,000 ÷ 120,000
= $4.40

Price/earnings ratio = Market price per share ÷ Earnings per share
= $40 ÷ $4.40
= 9.09

65. Correct answer d. Archer's stock is undervalued by approximately 25% as calculated below.

Estimated market value = Industry average P/E ratio x Archer earnings per share
= 14.00 x $3.20
= $44.80

Archer market value difference = $44.80 - $36.00
= $8.80

Percentage difference = $8.80 ÷ $36.00
= 24.4%

66. Correct answer a. The price/earnings (P/E) ratio expresses the relationship between the market price of a stock and the stock's earnings per share. A steady drop in a firm's P/E ratio could, therefore, indicate that earnings per share has been increasing while the market price of the stock has held steady.

67. Correct answer c. Collins earnings per share is $2.90 as shown below.

Earnings per share	=	(Net income – Preferred dividends) ÷ Common shares outstanding
	=	($350,000 - $60,000*) ÷ 100,000
	=	$2.90

*Preferred dividends = ($100 x .06) x 10,000 = $60,000

68. Correct answer c. When the common shares outstanding increase as the result of a stock dividend or a stock split, retroactive recognition must be given to these events for all comparative earnings per share presentations. Therefore, Ray Company would use 1,000,000 shares for computing earnings per share.

69. Correct answer b. Esther's earnings per share was $8.06 as shown below.

Weighted average shares	Shares	Months	Weighted Average
	10,000	5/12	4,170
	12,000	7/12	6,996
			11,166

Preferred dividends	=	($100 x .06) x 5,000
	=	$30,000
Earnings per share	=	(Net income – Preferred dividends) ÷ Common shares outstanding
	=	($120,000 - $30,000) ÷ 11,166
	=	$8.06

70. Correct answer b. Ray Company's weighted average number of shares for calculating earnings per share is 137,500 calculated as follows.

Weighted average shares	Shares	Months	Weighted Average
	120,000	2/12	20,000
	108,000	3/12	27,000
	138,000	5/12	57,500
	198,000	2/12	33,000
			137,500

71. Correct answer a. Dyle's yield on common stock is 11.11% as shown below.

Dividend yield	=	Dividends per common share ÷ Market price per common share
	=	($700,000 ÷ 350,000) ÷ $18
	=	11.11%

72. Correct answer c. Oakland's dividend yield was 2.00% calculated as follows.

Dividend yield	=	Dividends per common share ÷ Market price per common share
	=	(4 x $.20) ÷ $40.00
	=	2.00%

73. Correct answer c. Dividend yield indicates the relationship between the dividends per common share and the market price per common share and is calculated by dividing the dividends by the market price.

74. Correct answer d. Mayson's dividend yield was 3.33% as shown below.

Dividend yield	=	Dividends per common share ÷ Market price per common share
	=	$1 ÷ $30
	=	3.33%

75. Correct answer d. Arnold's dividend yield has declined when compared to Year 1.

Dividend yield	=	Dividends per common share ÷ Market price per common share		
Year 1	=	$1 ÷ $50	=	2.00%
Year 2	=	$1 ÷ $60	=	1.67%

76. Correct answer c. If sales remained the same and expenses increased, the net income increased. Additionally, the decrease in total assets means that the denominator of the ROA (net income divided by total assets) was smaller. Therefore, the overall result is an increase in the ratio.

77. Correct answer b.
13%=(¥135 million*1.25/(¥450 million+¥50 million))/(¥135 million/¥450 million)-1.

78. Correct answer d.
Correcting the inventory error will cause cost of goods sold to increase, leading to a decrease in the gross profit margin. As a result, management will not be able to meet the 45% minimum required level of gross profit margin.

79. Correct answer c. Lowering the selling price would decrease the gross profit margin. If this increased units sold, both sales dollars and gross profit dollars could increase. If selling and administrative costs are primarily fixed, the company's operating income dollars would increase as well, and this could be sufficient to increase the operating profit margin.

80. Correct answer b.
Gross profit margin is net sales minus cost of goods sold. Net profit margin is gross profit margin minus all remaining expenses and losses, one of which is income taxes. If corporate tax rates decreased, net profit margin would increase. Leaving gross profit margin unchanged.

81. Correct answer c.
{1 – [(5,000,000 x .50)/20,000,000]} x {20,000,000/[(200,000,000 + 182,500,000)/2]}

82. Correct answer c. It is the currency in which prices and costs are most influenced.

83. Correct answer a. A firm's functional should be the currency of the primary economic environment in which the firm operates and should be selected on the basis of several economic factors including cash flow, sales price, and financing indicators.

84. Correct answer d. A firm's functional should be the currency of the primary economic environment in which the firm operates and should be selected on the basis of several economic factors including cash flow, sales price, and financing indicators.

85. Correct answer d. With LIFO and inflation, inventory will be reported a lower than replacement cost (on balance sheet) so will underestimate inventory asset value (on balance sheet) and overstate inventory cost (cost of goods sold on income statement).

86. Correct answer b. A voluntary change in accounting principle or policy should be applied retrospectively unless any resulting adjustment that relates to prior periods is not reasonably determinable. Thus, if it is not impracticable to apply the new policy retroactively, the policy should be applied to comparative information as far back as practicable. The entity should determine the cumulative effect on the opening and closing balance sheets for the earliest period for which it is practicable to do so.

87. Correct answer d. Economic profit is defined as revenue minus all explicit and implicit costs. The implicit costs are generally referred to as opportunity costs.

88. Correct answer c. Economic profit is defined as revenue minus all explicit and implicit costs. The implicit costs are generally referred to as opportunity costs.

89. Correct answer d. Economic profit is defined as revenue minus all explicit and implicit costs. The implicit costs are generally referred to as opportunity costs.

90. Correct answer d. The economic cost of Williams' MBA studies is $60,000.

Opportunity cost of quitting job	$35,000
Explicit cost of studies	25,000
Economic cost	$60,000

91. Correct answer b. Lark's economic profit was ($25,000) as shown below.

Economic profit	=	(Net income + interest) – (Debt + Equity Opportunity Cost)
	=	($350,000 + $100,000) – [($1,000,000 x .1) + ($2,500,000 x .15)]
	=	$450,000 - $475,000
	=	($25,000)

92. Correct answer b. Earnings management negatively affects the quality of earnings.

93. Correct answer c. Last-in-first-out, (LIFO), would result in the highest earnings quality via the most conservative use of available accounting policies by the company resulting in the matching of current costs against current revenues during periods of inflationary pressures.

94. Correct answer c. Choice c is correct because earnings quality refers to earnings attributable to higher sales or lower costs, rather than artificial profits created by changes in accounting estimates.

Section B: Corporate Finance

1. *CSO: 2B1a* *LOS: 2B1h*
An investor is evaluating the common stock of a technology company which has a beta of 1.8. The expected return for the securities market as a whole is 8%. The investor could receive a risk-free return of 2% on a U.S. Treasury bill. Based on the capital asset pricing model (CAPM), what is the expected risk adjusted return of the technology company's common stock?

a. 10.8%.
b. 12.8%.
c. 16.4%.
d. 20.0%.

2. *CSO: 2B1a* *LOS: 2B1h*
Frasier Products has been growing at a rate of 10% per year and expects this growth to continue and produce earnings per share of $4.00 next year. The firm has a dividend payout ratio of 35% and a beta value of 1.25. If the risk-free rate is 7% and the return on the market is 15%, what is the expected current market value of Frasier's common stock?

a. $14.00.
b. $16.00.
c. $20.00.
d. $28.00.

3. *CSO: 2B1a* *LOS: 2B1g*
Which one of the following would have the **least** impact on a firm's beta value?

a. Debt-to-equity ratio.
b. Industry characteristics.
c. Operating leverage.
d. Payout ratio.

4. *CSO: 2B1a* *LOS: 2B1g*
If Dexter Industries has a beta value of 1.0, then its

a. return should equal the risk-free rate.
b. price is relatively stable.
c. expected return should approximate the overall market.
d. volatility is low.

5. *CSO: 2B1b LOS: 2B1b*
The systematic risk of an individual security is measured by the

a. standard deviation of the security's rate of return.
b. covariance between the security's returns and the general market.
c. security's contribution to the portfolio risk.
d. standard deviation of the security's returns and other similar securities.

6. *CSO: 2B1b LOS: 2B1c*
Which one of the following provides the **best** measure of interest rate risk for a corporate bond?

a. Duration.
b. Yield to maturity.
c. Bond rating.
d. Maturity.

7. *CSO: 2B1c LOS:2B1g*
The term "beta" can **best** be described as the

a. variability or standard deviation of the investment returns.
b. investment return's sensitivity to changes in the market's returns.
c. investment return's sensitivity to changes in interest rates.
d. weighted-average return of an investment portfolio.

8. *CSO: 2B2a LOS: 2B2a*
The yield curve shows the relationship between bond yields that differ by the

a. credit risk of the issuer of the bonds.
b. dividend yield of the issuer of the bonds.
c. par value of the bonds.
d. years to maturity of the bonds.

9. *CSO: 2B2b LOS: 2B2d*
A public company's shareholders expect to receive a dividend one year from now of $20 per share. Immediately after the dividend payout, analysts are expecting that the stock will trade at $244 per share. If the investors have a required rate of return of 20%, what is the current value of the stock?

a. $220.
b. $224.
c. $244.
d. $264.

10. *CSO: 2B2b LOS: 2B2c*
The call provision in some bond indentures allows

a. the issuer to exercise an option to redeem the bonds.
b. the bondholder to exchange the bond, at no additional cost, for common shares.
c. the bondholder to redeem the bond early by paying a call premium.
d. the issuer to pay a premium in order to prevent bondholders from redeeming bonds.

11. *CSO: 2B2b LOS: 2B2c*
Protective clauses set forth in an indenture are known as

a. provisions.
b. requirements.
c. addenda.
d. covenants.

12. *CSO: 2B2b LOS: 2B2c*
A requirement specified in an indenture agreement which states that a company cannot acquire or sell major assets without prior creditor approval is known as a

a. protective covenant.
b. call provision.
c. warrant.
d. put option.

13. *CSO: 2B2b   LOS: 2b2c*
Dorsy Manufacturing plans to issue mortgage bonds subject to an indenture. Which of the following restrictions or requirements are likely to be contained in the indenture?

I. Receiving the trustee's permission prior to selling the property.
II. Maintain the property in good operating condition.
III. Insuring plant and equipment at certain minimum levels.
IV. Including a negative pledge clause.

a. I and IV only.
b. II and III only.
c. I, III, and IV only.
d. I, II, III and IV.

14. *CSO: 2B2b   LOS: 2B2d*
Which one of the following situations would prompt a firm to issue debt, as opposed to equity, the next time it raises external capital?

a. High breakeven point.
b. Significant percentage of assets under capital lease.
c. Low fixed-charge coverage.
d. High effective tax rate.

15. *CSO: 2B2b   LOS: 2B2c*
Which one of the following is a debt instrument that generally has a maturity of ten years or more?

a. A bond.
b. A note.
c. A chattel mortgage.
d. A financial lease.

16. *CSO: 2B2b   LOS: 2B2b*
James Hemming, the chief financial officer of a mid-western machine parts manufacturer, is considering splitting the company's stock, which is currently selling at $80.00 per share. The stock currently pays a $1.00 per share dividend. If the split is two-for-one, Mr. Hemming may expect the post-split price to be

a. exactly $40.00, regardless of dividend policy.
b. greater than $40.00, if the dividend is changed to $0.45 per new share.
c. greater than $40.00, if the dividend is changed to $0.55 per new share.
d. less than $40.00, regardless of dividend policy.

17. *CSO: 2B2b LOS: 2B2b*
Which one of the following **best** describes the record date as it pertains to common stock?

a. Four business days prior to the payment of a dividend.
b. The 52-week high for a stock published in the Wall Street Journal.
c. The date that is chosen to determine the ownership of shares.
d. The date on which a prospectus is declared effective by the Securities and Exchange Commission.

18. *CSO: 2B2b LOS: 2B2b*
Preferred stock may be retired through the use of any one of the following **except** a

a. conversion.
b. call provision.
c. refunding.
d. sinking fund.

19. *CSO: 2B2b LOS: 2B2b*
All of the following are characteristics of preferred stock **except** that

a. it may be callable at the option of the corporation.
b. it may be converted into common stock.
c. its dividends are tax deductible to the issuer.
d. it usually has no voting rights.

20. *CSO: 2B2b LOS: 2B2b*
Which one of the following describes a **disadvantage** to a firm that issues preferred stock?

a. Preferred stock dividends are legal obligations of the corporation.
b. Preferred stock typically has no maturity date.
c. Preferred stock is usually sold on a higher yield basis than bonds.
d. Most preferred stock is owned by corporate investors.

21. *CSO: 2B2c LOS: 2B2d*
Which one of the following statements concerning debt instruments is **correct**?

a. The coupon rate and yield of an outstanding long-term bond will change over time as economic factors change.
b. A 25-year bond with a coupon rate of 9% and one year to maturity has more interest rate risk than a 10-year bond with a 9% coupon issued by the same firm with one year to maturity.
c. For long-term bonds, price sensitivity to a given change in interest rates is greater the longer the maturity of the bond.
d. A bond with one year to maturity would have more interest rate risk than a bond with 15 years to maturity.

22. *COS: 2B2c* *LOS: 2B2q*
Which of the following, when considered individually, would generally have the effect of increasing a firm's cost of capital?

I.	The firm reduces its operating leverage.
II.	The corporate tax rate is increased.
III.	The firm pays off its only outstanding debt.
IV.	The Treasury Bond yield increases.

a. I and III.
b. II and IV.
c. III and IV.
d. I, III and IV.

23. *CSO: 2B2c* *LOS: 2B2r*
An accountant for Stability Inc. must calculate the weighted average cost of capital of the corporation using the following information.

		Interest Rate
Accounts payable	$35,000,000	-0-
Long-term debt	10,000,000	8%
Common stock	10,000,000	15%
Retained earnings	5,000,000	18%

What is the weighted average cost of capital of Stability?

a. 6.88%.
b. 8.00%.
c. 10.25%.
d. 12.80%.

24. *CSO: 2B2c* *LOS:2B2r*

Kielly Machines Inc. is planning an expansion program estimated to cost $100 million. Kielly is going to raise funds according to its target capital structure shown below.

Debt	.30
Preferred stock	.24
Equity	.46

Kielly had net income available to common shareholders of $184 million last year of which 75% was paid out in dividends. The company has a marginal tax rate of 40%.

Additional data:

- The before-tax cost of debt is estimated to be 11%.
- The market yield of preferred stock is estimated to be 12%.
- The after-tax cost of common stock is estimated to be 16%.

What is Kielly's weighted average cost of capital?

a. 12.22%.
b. 13.00%.
c. 13.54%.
d. 14.00%.

25. *CSO: 2B2c* *LOS: 2B2r*

Following is an excerpt from Albion Corporation's balance sheet.

Long-term debt (9% interest rate)	$30,000,000
Preferred stock (100,000 shares, 12% dividend)	10,000,000
Common stock (5,000,000 shares outstanding)	60,000,000

Albion's bonds are currently trading at $1,083.34, reflecting a yield to maturity of 8%. The preferred stock is trading at $125 per share. Common stock is selling at $16 per share, and Albion's treasurer estimates that the firm's cost of equity is 17%. If Albion's effective income tax rate is 40%, what is the firm's cost of capital?

a. 12.6%.
b. 13.1%.
c. 13.9%.
d. 14.1%.

26. *CSO: 2B2c LOS: 2B2r*
Thomas Company's capital structure consists of 30% long-term debt, 25% preferred stock, and 45% common equity. The cost of capital for each component is shown below.

Long-term debt	8%
Preferred stock	11%
Common equity	15%

If Thomas pays taxes at the rate of 40%, what is the company's after-tax weighted average cost of capital?

a. 7.14%.
b. 9.84%.
c. 10.94%.
d. 11.90%.

27. *CSO: 2B2c LOS: 2B2r*
Joint Products Inc., a corporation with a 40% marginal tax rate, plans to issue $1,000,000 of 8% preferred stock in exchange for $1,000,000 of its 8% bonds currently outstanding. The firm's total liabilities and equity are equal to $10,000,000. The effect of this exchange on the firm's weighted average cost of capital is likely to be

a. no change, since it involves equal amounts of capital in the exchange and both instruments have the same rate.
b. a decrease, since a portion of the debt payments are tax deductible.
c. a decrease, since preferred stock payments do not need to be made each year, whereas debt payments must be made.
d. an increase, since a portion of the debt payments are tax deductible.

28. *COS: 2B2c LOS: 2B2r*
Cox Company has sold 1,000 shares of $100 par, 8% preferred stock at an issue price of $92 per share. Stock issue costs were $5 per share. Cox pays taxes at the rate of 40%. What is Cox's cost of preferred stock capital?

a. 8.00%.
b. 8.25%.
c. 8.70%.
d. 9.20%.

29. *CSO: 2B2c LOS: 2B2r*

In calculating the component costs of long-term funds, the appropriate cost of retained earnings, ignoring flotation costs, is equal to

a. the cost of common stock.
b. the same as the cost of preferred stock.
c. the weighted average cost of capital for the firm.
d. zero, or no cost.

30. *CSO: 2B2c LOS: 2B2r*

The Hatch Sausage Company is projecting an annual growth rate for the foreseeable future of 9%. The most recent dividend paid was $3.00 per share. New common stock can be issued at $36 per share. Using the constant growth model, what is the approximate cost of capital for retained earnings?

a. 9.08%.
b. 17.33%.
c. 18.08%
d. 19.88%.

31. *CSO: 2B2c LOS: 2B2r*

The management of Old Fenske Company (OFC) has been reviewing the company's financing arrangements. The current financing mix is $750,000 of common stock, $200,000 of preferred stock ($50 par) and $300,000 of debt. OFC currently pays a common stock cash dividend of $2. The common stock sells for $38, and dividends have been growing at about 10% per year. Debt currently provides a yield to maturity to the investor of 12%, and preferred stock pays a dividend of 9% to yield 11%. Any new issue of securities will have a flotation cost of approximately 3%. OFC has retained earnings available for the equity requirement. The company's effective income tax rate is 40%. Based on this information, the cost of capital for retained earnings is

a. 9.5%.
b. 14.2%.
c. 15.8%.
d. 16.0%.

32. *CSO: 2B2c LOS: 2B2r*
Angela Company's capital structure consists entirely of long-term debt and common equity. The cost of capital for each component is shown below.

Long-term debt	8%
Common equity	15%

Angela pays taxes at a rate of 40%. If Angela's weighted average cost of capital is 10.41%, what proportion of the company's capital structure is in the form of long-term debt?

a. 34%.
b. 45%.
c. 55%.
d. 66%.

33. *CSO: 2B2c LOS: 2B2r*
The capital structure of an airline company is comprised of 50% common stock, 30% preferred stock, and 20% debt. The company's cost of common stock is 12%, and the cost of preferred stock is 10%. The company's pretax cost of debt is 5%. The company has an effective income tax rate of 30%. What is the company's weighted average cost of capital?

a. 8.8%.
b. 9.7%.
c. 10.0%.
d. 18.9%.

34. *CSO: 2B2d LOS: 2B2d*
Four zero-coupon bonds each will pay $1,000 at maturity. The bonds mature in either 10 years or 20 years, and have a price today of either $300 or $500. The bond with the **largest** yield to maturity is the bond that has the

a. $300 price and matures in 10 years.
b. $500 price and matures in 10 years.
c. $300 price and matures in 20 years.
d. $500 price and matures in 20 years.

35. *CSO: 2B3c LOS: 2B3c*
Which one of the following entities is **most** likely to assist investors in assessing the default risk of a specific corporate bond?

a. Bond dealers.
b. Investment banks.
c. Credit rating agencies.
d. Brokerage firms.

36. *CSO: 2B3e LOS: 2B3i*
The residual theory of dividends argues that dividends

a. are necessary to maintain the market price of the common stock.
b. are irrelevant.
c. can be foregone unless there is an excess demand for cash dividends.
d. can be paid if there is income remaining after funding all attractive investment opportunities.

37. *CSO: 2B3e LOS:2B3j*
Mason Inc. is considering four alternative opportunities. Required investment outlays and expected rates of return for these investments are given below.

Project	Investment Cost	IRR
A	$200,000	12.5
B	$350,000	14.2
C	$570,000	16.5
D	$390,000	10.6

The investments will be financed through 40% debt and 60% common equity. Internally generated funds totaling $1,000,000 are available for reinvestment. If the cost of capital is 11%, and Mason strictly follows the residual dividend policy, how much in dividends would the company likely pay?

a. $120,000.
b. $328,000.
c. $430,000.
d. $650,000.

38. *CSO: 2B3e LOS: 2B3j*
When determining the amount of dividends to be declared, the **most** important factor to consider is the

a. expectations of the shareholders.
b. future planned uses of retained earnings.
c. impact of inflation on replacement costs.
d. future planned uses of cash.

39. *CSO: 2B4a LOS: 2B4b*
Which one of the following combined transactions would cause net working capital to decrease?

a. A $1 million decrease in cash, and a $1 million increase in inventory.
b. A $1 million decrease in cash, and a $1 million decrease in accounts payable.
c. A $1 million decrease in cash, and a $1 million increase in fixed assets.
d. A $1 million increase in cash, and a $1 million increase in long-term debt.

40. *CSO: 2B4a* *LOS: 2B4z*
As a company becomes more conservative about its working capital management policy, it would **most** likely tend to have a(n)

a. decrease in the quick ratio.
b. decrease in the operating cycle.
c. increase in the ratio of current assets to noncurrent assets.
d. increase in the ratio of current liabilities to noncurrent liabilities.

41. *CSO: 2B4b* *LOS: 2B4e*
A firm uses the following model to determine the optimal average cash balance (Q).

$$Q = \sqrt{\frac{2 \text{ x annual cash disbursement x cost per sale of T-Bill}}{\text{interest rate}}}$$

An **increase** in which one of the following would result in a **decrease** in the optimal cash balance?

a. Uncertainty of cash outflows.
b. Cost of a security trade.
c. Return on marketable securities.
d. Cash requirements for the year.

42. *CSO: 2B4b* *LOS: 2B4e*
All of the following are reasons for holding cash **except** for the

a. precautionary motive.
b. transactions motive.
c. motive to make a profit.
d. motive to meet future needs.

43. *CSO: 2B4b* *LOS: 2B4g*
All of the following can be utilized by a firm in managing its cash outflows **except**

a. zero-balance accounts.
b. centralization of payables.
c. controlled disbursement accounts.
d. lock-box system.

44. *CSO: 2B4b LOS: 2B4h*
Powell Industries deals with customers throughout the country and is attempting to more efficiently collect its accounts receivable. A major bank has offered to develop and operate a lock-box system for Powell at a cost of $90,000 per year. Powell averages 300 receipts per day at an average of $2,500 each. Its short-term interest cost is 8% per year. Using a 360-day year, what reduction in average collection time would be needed in order to justify the lock-box system?

a. 0.67 days.
b. 1.20 days.
c. 1.25 days.
d. 1.50 days.

45. *CSO: 2B4b LOS: 2B4h*
Mandel Inc. has a zero-balance account with a commercial bank. The bank sweeps any excess cash into a commercial investment account earning interest at the rate of 4% per year, payable monthly. When Mandel has a cash deficit, a line of credit is used which has an interest rate of 8% per year, payable monthly based on the amount used. Mandel expects to have a $2 million cash balance on January 1 of next year. Net cash flows for the first half of the year, excluding the effects of interest received or paid, are forecasted (in millions of dollars) as follows.

	Jan	Feb	Mar	Apr	May	Jun
Net cash inflows ($)	+2	+1	-5	-3	-2	+6

Assuming all cash-flows occur at the end of each month, approximately how much interest will Mandel incur for this period?

a. $17,000 net interest paid.
b. $53,000 net interest paid.
c. $76,000 net interest paid.
d. $195,000 net interest paid.

46. *CSO: 2B4b LOS: 2B4h*
Dexter Products receives $25,000 worth of merchandise from its major supplier on the 15th and 30th of each month. The goods are sold on terms of 1/15, net 45, and Dexter has been paying on the net due date and foregoing the discount. A local bank offered Dexter a loan at an interest rate of 10%. What will be the net annual savings to Dexter if it borrows from the bank and utilizes the funds to take advantage of the trade discount?

a. $525.
b. $1,050.
c. $1,575.
d. $2,250.

47. *CSO: 2B4b LOS: 2B4g*
The Rolling Stone Corporation, an entertainment ticketing service, is considering the following means of speeding cash flow for the corporation.

- Lock Box System. This would cost $25 per month for each of its 170 banks and would result in interest savings of $5,240 per month.
- Drafts. Drafts would be used to pay for ticket refunds based on 4,000 refunds per month at a cost of $2.00 per draft, which would result in interest savings of $6,500 per month.
- Bank Float. Bank float would be used for the $1,000,000 in checks written each month. The bank would charge a 2% fee for this service, but the corporation will earn $22,000 in interest on the float.
- Electronic Transfer. Items over $25,000 would be electronically transferred; it is estimated that 700 items of this type would be made each month at a cost of $18 each, which would result in increased interest earnings of $14,000 per month.

Which of these methods of speeding cash flow should Rolling Stone Corporation adopt?

a. Lock box and electronic transfer only.
b. Bank float and electronic transfer only.
c. Lock box, drafts, and electronic transfer only.
d. Lock box, bank float, and electronic transfer only.

48. *CSO: 2B4b LOS: 2B4g*
JKL Industries requires its branch offices to transfer cash balances once per week to the central corporate account. A wire transfer costs $12 and assures the cash is available the same day. A depository transfer check (DTC) costs $1.50 and generally results in funds being available in 2 days. JKL's cost of short-term funds averages 9%, and they use a 360-day year in all calculations. What is the minimum transfer amount that would justify the cost of a wire transfer as opposed to a DTC?

a. $21,000.
b. $24,000.
c. $27,000.
d. $42,000.

49. *CSO: 2B4b LOS: 2B4l*
The establishment and maintenance of a zero-balance account (ZBA) typically reduces all of the following **except**

a. the cost of cash management.
b. the disbursement float.
c. excess bank balances.
d. management time.

50. *CSO: 2B4b   LOS:2B4h*
The cash manager for a large kitchen appliance retailer has been approached by a bank representative offering to set up a lock-box collection system. Analysis of the firm's receipts shows that, on average, the system will reduce collection time by two days. The firm receives approximately 2,500 checks per day with an average value of $600 per check. The bank would charge $0.28 per check for operating the system. The firm currently invests short-term funds at an average rate of 7%. How much would the firm gain or lose annually by entering the lock-box agreement?

a. ($150,000).
b. ($45,000).
c. $45,000.
d. $210,000.

51. *CSO: 2B4c   LOS: 2B4o*
Which one of the following instruments would be **least** appropriate for a corporate treasurer to utilize for temporary investment of cash?

a. U.S. Treasury bills.
b. Money market mutual funds.
c. Commercial paper.
d. Municipal bonds.

52. *CSO: 2B4c   LOS: 2B4n*
Which one of the following statements **best** characterizes U.S. Treasury bills?

a. They have no coupon rate, no interest rate risk, and are issued at par.
b. They have an active secondary market, one to twenty-four month maturities, and monthly interest payments.
c. They have an active secondary market, the interest received is exempt from federal income tax, and there is no interest rate risk.
d. They have no coupon rate, no default risk, and interest received is subject to federal income tax.

53. *CSO: 2B4c   LOS: 2B4r*
The Duoplan Company is determining the most appropriate source of short-term funding. Trade credit terms from suppliers are 2/30, net 90. The rate for borrowing at the bank is 12%. The company has also been approached by an investment banker offering to issue Duoplan's commercial paper. The commercial paper would be issued quarterly in increments of $9.1 million with net proceeds of $8.8 million. Which option should the firm select?

a. The trade discount, because it provides the lowest cost of funds.
b. Bank borrowing, because it provides the lowest cost of funds.
c. Commercial paper, because it provides the lowest cost of funds.
d. The costs are so similar that the decision is a matter of convenience.

54. *CSO: 2B4d* *LOS: 2B4r*
A company offers all customers trade credit terms of 2/15, net 60. Currently, 30% of sales receipts are paid with the discount applied. If the company were to change its credit terms, a change to which one of the following terms is **most** likely to cause the company's average collection period to decrease?

a. 1/15, net 90.
b. 1/15, net 60.
c. 2/15, net 30.
d. 1/15, net 30.

55. *CSO: 2B4d* *LOS: 2B4q*
Clauson Inc. grants credit terms of 1/15, net 30 and projects gross sales for the year of $2,000,000. The credit manager estimates that 40% of customers pay on the 15th day, 40% of the 30th day and 20% on the 45th day. Assuming uniform sales and a 360-day year, what is the projected amount of overdue receivables?

a. $50,000.
b. $83,333.
c. $116,676.
d. $400,000.

56. *CSO: 2B4d* *LOS: 2B4t*
Northville Products is changing its credit terms from net 30 to 2/10, net 30. The **least** likely effect of this change would be a(n)

a. increase in sales.
b. shortening of the cash conversion cycle.
c. increase in short-term borrowings.
d. lower number of days sales outstanding.

57. *CSO: 2B4d LOS:2B4r*
A credit manager considering whether to grant trade credit to a new customer is **most** likely to place primary emphasis on

a. profitability ratios.
b. valuation ratios.
c. growth ratios.
d. liquidity ratios.

58. *CSO: 2B4d LOS: 2B4t*
Consider the following factors affecting a company as it is reviewing its trade credit policy.

i. Operating at full capacity.
ii. Low cost of borrowing.
iii. Opportunity for repeat sales.
iv. Low gross margin per unit.

Which of the above factors would indicate that the company should liberalize its credit policy?

a. I and II only.
b. I, II and III only.
c. II and III only.
d. III and IV only.

59. *CSO: 2B4d LOS: 2B4t*
Global Manufacturing Company has a cost of borrowing of 12%. One of the firm's suppliers has just offered new terms for purchases. The old terms were cash on delivery and the new terms are 2/10, net 45. Should Global pay within the first ten days?

a. Yes, the cost of not taking the trade discount exceeds the cost of borrowing.
b. No, the cost of trade credit exceeds the cost of borrowing.
c. No, the use of debt should be avoided if possible.
d. The answer depends on whether the firm borrows money.

60. *CSO: 2B4d LOS: 2B4r*
Locar Corporation had net credit sales last year of $18,600,000 (of which 20% were installment sales). It also had an average accounts receivable balance of $1,380,000. Credit terms are 2/10, net 30. Based on a 360-day year, Locar's average collection period last year was

a. 26.2 days.
b. 26.7 days.
c. 27.3 days.
d. 33.4 days.

61. *CSO: 2B4e LOS:2B4y*
The basic Economic Order Quantity (EOQ) model includes which of the following assumptions?

I. The same fixed quantity is ordered at each reorder point.
II. Purchasing costs are unaffected by the quantity ordered.
III. Purchase order lead-time is known with certainty.
IV. Adequate inventory is always maintained to avoid stockouts.

a. I and IV only.
b. II and III only.
c. I, II, and IV only.
d. I, II, III, and IV.

62. *CSO: 2B4e LOS: 2B4g*
Atlantic Distributors is expanding and wants to increase its level of inventory to support an aggressive sales target. They would like to finance this expansion using debt. Atlantic currently has loan covenants that require the working capital ratio to be at least 1.2. The average cost of the current liabilities is 12% and the cost of the long-term debt is 8%. Below is the current balance sheet for Atlantic.

Current assets	$200,000	Current liabilities	$165,000
Fixed assets	100,000	Long-term debt	100,000
Total assets	$300,000	Equity	35,000
		Total debt & equity	$300,000

Which one of the following alternatives will provide the resources to expand the inventory while lowering the total cost of debt and satisfying the loan covenant?

a. Increase both accounts payable and inventory by $25,000.
b. Sell fixed assets with a book value of $20,000 for $25,000 and use the proceeds to increase inventory.
c. Borrow short-term funds of $25,000, and purchase inventory of $25,000.
d. Collect $25,000 accounts receivable; use $10,000 to purchase inventory and use the balance to reduce short-term debt.

63. *CSO: 2B4e LOS: 2B4v*
All of the following are carrying costs of inventory **except**

a. storage costs.
b. insurance.
c. shipping costs.
d. opportunity costs.

64. *CSO: 2B4e LOS: 2B4v*

Valley Inc. uses 400 lbs. of a rare isotope per year. The isotope costs $500 per lb., but the supplier is offering a quantity discount of 2% for order sizes between 30 and 79 lbs., and a 6% discount for order sizes of 80 lbs. or more. The ordering costs are $200. Carrying costs are $100 per lb. of material and are not affected by the discounts. If the purchasing manager places eight orders of 50 lbs. each, the total cost of ordering and carrying inventory, including discounts lost, will be

a. $1,600.
b. $4,100.
c. $6,600.
d. $12,100.

65. *CSO: 2B4e LOS: 2B4v*

A review of the inventories of Cedar Grove Company shows the following cost data for entertainment centers.

Invoice price	$400.00 per unit
Freight and insurance on shipment	20.00 per unit
Insurance on inventory	15.00 per unit
Unloading	140.00 per order
Cost of placing orders	10.00 per order
Cost of capital	25%

What are the total carrying costs of inventory for an entertainment center?

a. $105.
b. $115.
c. $120.
d. $420.

66. *CSO: 2B4e LOS: 2B4v*

Paint Corporation expects to use 48,000 gallons of paint per year costing $12 per gallon. Inventory carrying cost is equal to 20% of the purchase price. The company uses its inventory at a constant rate. The lead time for placing the order is 3 days, and Paint Corporation holds 2,400 gallons of paint as safety stock. If the company orders 2,000 gallons of paint per order, what is the cost of carrying inventory?

a. $2,400.
b. $5,280.
c. $5,760.
d. $8,160.

67. *CSO: 2B4e* *LOS: 2B4w*
James Smith is the new manager of inventory at American Electronics, a major retailer. He is developing an inventory control system, and knows he should consider establishing a safety stock level. The safety stock can protect against all of the following risks, **except** for the possibility that

a. customers cannot find the merchandise they want, and they will go to the competition.
b. shipments of merchandise from the manufacturers is delayed by as much as one week.
c. the distribution of daily sales will have a large variance, due to holidays, weather, advertising, and weekly shopping habits.
d. new competition may open in the company's market area.

68. *CSO: 2B4e* *LOS: 2B4y*
Carnes Industries uses the Economic Order Quantity (EOQ) model as part of its inventory control program. An **increase** in which one of the following variables would **increase** the EOQ?

a. Carrying cost rate.
b. Purchase price per unit.
c. Ordering costs.
d. Safety stock level.

69. *CSO: 2B4e* *LOS: 2B4y*
Which one of the following is **not** explicitly considered in the standard calculation of Economic Order Quantity (EOQ)?

a. Level of sales.
b. Fixed ordering costs.
c. Carrying costs.
d. Quantity discounts.

70. *CSO: 2B4e* *LOS: 2B4y*
Which one of the following statements concerning the economic order quantity (EOQ) is **correct**?

a. The EOQ results in the minimum ordering cost and minimum carrying cost.
b. Increasing the EOQ is the best way to avoid stockouts.
c. The EOQ model assumes constantly increasing usage over the year.
d. The EOQ model assumes that order delivery times are consistent.

71. *CSO: 2B4e* *LOS: 2B4y*
Moss Products uses the Economic Order Quantity (EOQ) model as part of its inventory management process. A **decrease** in which one of the following variables would **increase** the EOQ?

a. Annual sales.
b. Cost per order.
c. Safety stock level.
d. Carrying costs.

72. *CSO: 2B4f* *LOS: 2B4ff*
Burke Industries has a revolving credit arrangement with its bank which specifies that Burke can borrow up to $5 million at an annual interest rate of 9% payable monthly. In addition, Burke must pay a commitment fee of 0.25% per month on the unused portion of the line, payable monthly. Burke expects to have a $2 million cash balance and no borrowings against this line of credit on April 1, net cash inflows of $2 million in April, net outflows of $7 million in May, and net inflows of $4 million in June. If all cash-flows occur at the end of the month, approximately how much will Burke pay to the bank during the second quarter related to this revolving credit arrangement?

a. $47,700.
b. $52,500.
c. $60,200.
d. $62,500.

73. *CSO: 2B4f* *LOS: 2B4z*
Of the following, the working capital financing policy that would subject a firm to the **greatest** level of risk is the one where the firm finances

a. fluctuating current assets with short-term debt.
b. permanent current assets with long-term debt.
c. fluctuating current assets with long-term debt.
d. permanent current assets with short-term debt.

74. *CSO: 2B4f* *LOS: 2B4bb*
The Texas Corporation is considering the following opportunities to purchase an investment at the following amounts and discounts.

Term	Amount	Discount
90 days	$ 80,000	5%
180 days	75,000	6%
270 days	100,000	5%
360 days	60,000	10%

Which opportunity offers the Texas Corporation the highest annual yield?

a. 90-day investment.
b. 180-day investment.
c. 270-day investment.
d. 360-day investment.

75. *CSO: 2B4f* *LOS: 2B4aa*
A manufacturer with seasonal sales would be **most likely** to obtain which one of the following types of loans from a commercial bank to finance the need for a fixed amount of additional capital during the busy season?

a. Transaction loan.
b. Insurance company term loan.
c. Installment loan.
d. Unsecured short-term loan.

76. *CSO: 2B4f* *LOS: 2B4aa*
Which of the following financing vehicles would a commercial bank be likely to offer to its customers?

I. Discounted notes
II. Term loans
III. Lines of credit
IV. Self-liquidating loans

a. I and II.
b. III and IV.
c. I, III and IV.
d. I, II, III and IV.

77. *CSO: 2B4f LOS: 2B4gg*
Megatech Inc. is a large publicly-held firm. The treasurer is making an analysis of the short-term financing options available for the third quarter, as the company will need an average of $8 million for the month of July, $12 million for August, and $10 million for September. The following options are available.

I. Issue commercial paper on July 1 in an amount sufficient to net Megatech $12 million at an effective rate of 7% per year. Any temporarily excess funds will be deposited in Megatech's investment account at First City Bank and earn interest at an annual rate of 4%.

II. Utilize a line of credit from First City Bank with interest accruing monthly on the amount utilized at the prime rate, which is estimated to be 8% in July and August and 8.5% in September.

Based on this information, which one of the following actions should the treasurer take?

a. Issue commercial paper, since it is approximately $35,000 less expensive than the line of credit.
b. Issue commercial paper, since it is approximately $14,200 less expensive than the line of credit.
c. Use the line of credit, since it is approximately $15,000 less expensive than issuing commercial paper.
d. Use the line of credit, since it is approximately $5,800 less expensive than issuing commercial paper.

78. *CSO: 2B4f LOS: 2B4aa*
Dudley Products is given terms of 2/10, net 45 by its suppliers. If Dudley forgoes the cash discount and instead pays the suppliers 5 days after the net due date, what is the annual interest rate cost (using a 360-day year)?

a. 18.0%.
b. 18.4%.
c. 21.0%.
d. 24.5%.

79. *CSO: 2B4f LOS: 2B4bb*
A firm is given payment terms of 3/10, net 90 and forgoes the discount paying on the net due date. Using a 360-day year and ignoring the effects of compounding, what is the effective annual interest rate cost?

a. 12.0%.
b. 12.4%.
c. 13.5%.
d. 13.9%.

80. *CSO: 2B4f* *LOS: 2B4cc*
Lang National Bank offered a one-year loan to a commercial customer. The instrument is a discounted note with a nominal rate of 12%. What is the effective interest rate to the borrower?

a. 10.71%.
b. 12.00%.
c. 13.20%.
d. 13.64%.

81. *CSO: 2B4f* *LOS: 2B4cc*
Gates Inc. has been offered a one-year loan by its commercial bank. The instrument is a discounted note with a stated interest rate of 9%. If Gates needs $300,000 for use in the business, what should the face value of the note be?

a. $275,229.
b. $327,000.
c. $327,154.
d. $329,670.

82. *CSO: 2B4f* *LOS: 2B4cc*
Approximately what amount of compensating balance would be required for a stated interest rate of 10% to equal an effective interest rate of 10.31% on a $100,000,000 one-year loan?

a. $310,000.
b. $3,000,000.
c. $3,100,000.
d. Not enough information is given.

83. *CSO: 2B4f* *LOS: 2B4cc*
The effective annual interest rate to the borrower of a $100,000 one-year loan with a stated rate of 7% and a 20% compensating balance is

a. 7.0%.
b. 8.4%.
c. 8.75%.
d. 13.0%.

84. *CSO: 2B4f* *LOS: 2B4cc*
Todd Manufacturing Company needs a $100 million loan for one year. Todd's banker has presented two alternatives as follows:

Option #1 - Loan with a stated interest rate of 10.25%. No compensating balance required.

Option #2 - Loan with a stated interest rate of 10.00%. Non-interest-bearing compensating balance required.

Which of the following compensating balances, withheld from the loan proceeds, would result in Option #2 having an effective interest rate equal to the 10.25% rate of Option #1?

a. $250,000.
b. $2,440,000.
c. $2,500,000.
d. $10,250,000.

85. *CSO: 2B4f* *LOS: 2B4cc*
Frame Industries has arranged a revolving line of credit for the upcoming year with a commercial bank. The arrangement is for $20 million, with interest payable monthly on the amount utilized at the bank's prime rate and an annual commitment fee of one-half of 1 percent, computed and payable monthly on the unused portion of the line. Frame estimates that the prime rate for the upcoming year will be 8%, and expects the following average amount to be borrowed by quarter.

Quarter	Amount Borrowed
First	$10,000,000
Second	20,000,000
Third	20,000,000
Fourth	5,000,000

How much will Frame pay to the bank next year in interest and fees?

a. $1,118,750.
b. $1,131,250.
c. $1,168,750.
d. $1,200,000.

86. *CSO: 2B4f* *LOS: 2B4cc*
What is the effective annual interest rate for a one-year $100 million loan with a stated interest rate of 8.00%, if the lending bank requires a non-interest-bearing compensating balance in the amount of $5 million?

a. 7.62%
b. 8.00%
c. 8.42%
d. 13.00%

87. *CSO: 2B4g* *LOS: 2B4cc*
A company has received a one-year commercial bank loan of 7.5% discounted interest with a 12.5% compensating balance. The effective annual cost of the bank loan is closest to

a. 8.11%.
b. 8.57%.
c. 9.27%.
d. 9.38%.

88. *CSO: 2B4g* *LOS: 2B4j*
Topka Inc. needs to borrow $500,000 to meet its working capital requirements for next year. The Merchant Bank has offered the company a 9.5% simple interest loan that has a 16% compensating balance requirement. Determine the effective interest rate for the loan.

a. 11.02%
b. 11.31%
c. 12.75%
d. 19.00%

89. *CSO: 2B4g* *LOS: 2B4ee*
Buying a wheat futures contract to protect against price fluctuation of wheat would be classified as a

a. fair value hedge.
b. cash flow hedge.
c. foreign currency hedge.
d. swap.

90. *CSO: 2B5b* *LOS: 2B5c*
A corporation would receive cash if it enters into a(n)

a. equity carve-out divestiture.
b. reverse stock split program.
c. spin-off divestiture.
d. stock repurchase program.

91. *CSO: 2B6a* *LOS: 2B6b*
Under a floating exchange rate system, which one of the following should result in a depreciation of the Swiss franc?

a. U.S. inflation declines relative to the Swiss inflation.
b. U.S. income levels improve relative to the Swiss.
c. Swiss interest rate rises relative to the U.S. rates.
d. Decrease in outflows of Swiss capital to the U.S.

92. *CSO: 2B6a* *LOS: 2B6b*
If the U.S. dollar appreciated against the British pound, other things being equal, we would expect that

a. the British demand for U.S. products would increase.
b. U.S. demand for British products would decrease.
c. U.S. demand for British products would increase.
d. trade between the U.S. and Britain would decrease.

93. *CSO: 2B6a* *LOS: 2B6b*
Country A's currency would tend to appreciate relative to Country B's currency when

a. Country A has a higher rate of inflation than Country B.
b. Country B has real interest rates that are greater than real interest rates in Country A.
c. Country A has a slower rate of growth in income that causes its imports to lag behind its exports.
d. Country B switches to a more restrictive monetary policy.

94. *CSO: 2B6b* *LOS: 2B6d*
A publicly traded company based in Japan is planning on expanding its operations into Germany. The expansion is estimated to cost ¥500 million, but the company needs euros to implement the expansion. The company is not well known in Germany and therefore hesitant to issue a euro-denominated bond in the German marketplace. If the company were to issue a yen-denominated twenty-year bond in Japan, which one of the following contracts should the company use?

a. Currency forward.
b. Currency swap.
c. Currency futures.
d. Currency options.

Answer for Section B: Corporate Finance

1. Correct answer b.
   a. 1.8 * (8% - 2%) = 10.8%
   b. expected return = risk free return + beta of security (expected market return – risk free return)
   expected return = 2% + 1.8 * (8% - 2%) = 12.8%
   c. 2% + 1.8 * (8%) = 16.4%
   d. 2% + 1.8 * (8% + 2%) = 20.0%

2. Correct answer c. The expected current value of Frasier's common stock in $20 as shown below.

Dividend	=	Payout ratio x Earnings per share
	=	.35 x $4.00
	=	$1.40
Required return	=	Risk-free rate + Beta (Market rate – Risk-free rate)
	=	.07 + 1.25 (.15 - .07)
	=	.17
Value of stock	=	Dividend ÷ (Required return – Dividend growth rate)
	=	$1.40 ÷ (.17 - .10)
	=	$20.00

3. Correct answer d. Beta is an index of systematic risk and measures the sensitivity of a stock's returns to changes in returns on the market portfolio. A firm's beta is determined by the risk characteristics of the firm. Of the options given, the payout ratio has the least impact on the firm's riskiness and therefore its beta value.

4. Correct answer c. If a firm has a beta value of 1.0, the stock has the same systematic risk as the market as a whole and should rise and fall with the market.

5. Correct answer b. Systematic risk is the variability of return on stocks or portfolios associated with changes in return on the market as a whole and is measured by the covariance between the security's return and the general market.

6. Correct answer a. Interest rate risk is the variation in the market price of a bond caused by changes in interest rates. The longer the maturity (duration) of the bond, the greater the price fluctuation associated with the given change in market required return.

7. Correct answer b. Choice b is correct because beta describes an investment's sensitivity to market movements.

8. Correct answer d. The yield curve plots yield versus bond maturity.

9. Correct answer a.
   Current price=(Expected future price + Next dividend)/(1+required rate of return)
   Current Price=($244+20)/(1+0.2)=$264/1.2=$220

10. Correct answer a. A call provision is a feature in an indenture that permits the issuer to repurchase securities at a fixed price before maturity.

11. Correct answer d. Protective clauses or restrictions in bond indentures and loan agreements are known as covenants and can include items such as working capital requirements and capital expenditure limitations.

12. Correct answer a. Protective clauses or restrictions in bond indentures and loan agreements are known as covenants and can include items such as working capital requirements and capital expenditure limitations.

13. Correct answer d. All of the restrictions listed are likely to be included as protective covenants in the indenture.

14. Correct answer d. A firm would be inclined to issue debt rather than equity when the effective tax rate is high as the interest expense associated with debt reduces income and therefore reduces tax expense.

15. Correct answer a. A bond is a long-term debt instrument with a final maturity generally being 10 years or more. If the security has a final maturity shorter than 10 years, it is generally called a note.

16. Correct answer c. The post-split price of the stock should be greater than $40.00 if the dividend changed to $.55 as the dividend yield will have increased.

17. Correct answer c. The record date, set when a dividend is declared, is the date on which an investor must be a shareholder in order to be entitled to receive the upcoming dividend.

18. Correct answer c. Refunding is replacing an old debt issue with a new one, usually to lower interest cost. Therefore, refunding is not a method for retiring preferred stock.

19. Correct answer c. Unlike interest expense, dividends are not tax deductible to the issuer.

20. Correct answer c. A disadvantage of preferred stock to the issuer is that it generally sells on a higher yield basis than bonds.

21. Correct answer c. The longer the maturity (duration) of the bond, the greater the price fluctuation associated with a given change in market required return.

22. Correct answer c. If a firm pays off its only outstanding debt, the cost of capital is likely to increase because the cost of equity is greater than the cost of debt. If the Treasury Bond yield increases, the overall required rate of return will likely increase causing an increase in the cost of capital.

23. Correct answer d. Stability's cost of capital is 12.80% as calculated below.

Long-term debt	$10,000,000	40% x 8%	3.20%
Common stock	10,000,000	40% x 15%	6.00%
Retained earnings	5,000,000	20% x 18%	3.60%
	$25,000,000		12.80%

24. Correct answer a. Kielly's cost of capital is 12.22% as shown below.

Debt	30% x [11% (1 - .4)]	1.98%
Preferred stock	24% x 12%	2.88%
Equity	46% x 16%	7.36%
		12.22%

25. Correct answer b. Albion's cost of capital is 13.1% as calculated below.

Capital	Market Value ('000)	Proportion of Total Financing	Market Return	Weighted Cost
Long-term debt (30,000 bonds x $1,083.34)	$32,500	26%	[.08 x (1 - .4)] = .048	1.25%
Preferred stock (100,000 shares x $125)	12,500	10%	1,200(dividend)/ 12,500 (market value) = .096	0.96%
Common stock (5,000,000 shares x $16)	80,000	64%	.17	10.88%
	125,000	100%		13.09%

26. Correct answer c. Thomas' cost of capital is 10.95% as shown below.

Long-term debt	[.08 x (1 - .4)] x .30	1.44%
Preferred stock	.11 x .25	2.75%
Common stock	.15 x .45	6.75%
		10.94%

27. Correct answer d. If Joint Products exchanges debt for equity, the firm's cost of capital is likely to increase as the cost equity is greater than the cost of debt due to the tax deductibility of interest expense.

28. Correct answer d. Cox's cost of preferred stock capital is 9.20% as shown below.

Cost of preferred stock	=	Stated annual dividend ÷ (Market price – cost of issue)
	=	$8 ÷ ($92 - $5)
	=	9.20%

29. Correct answer a. Since common stock equity is the sum total of common stock at par, additional paid-in capital, and retained earnings, the appropriate cost retained earnings is the cost of common stock.

30. Correct answer c. The cost of capital for Hatch's retained earnings is equal to the required rate of return on the company's common stock or 18.08% as calculated below using the constant growth model.

Required rate of return	=	(Dividend next period ÷ Value) + Growth rate
	=	[($3 x 1.09) ÷ $36] + .09
	=	.0908 + .09
	=	18.08%

31. Correct answer c. The cost of capital for OFC's retained earnings is equal to the required rate of return on the company's common stock or 15.8% as shown below.

Required rate of return	=	(Dividend next period ÷ Value) + Growth rate
	=	[($2 x 1.10) ÷ $38] + .10
	=	15.8%

32. Correct answer b. Angela's long-term debt is 45% of its capital structure as shown below.

Cost of debt	.08 x (1 - .4)	=	.048
WACC	.15X + .048 (1-X)	=	.1041
	.102X	=	.0561
Preferred equity	X	=	.55
Debt	1 – X	=	.45

33. Correct answer b. (0.5*12%)+(0.3*10%)+(0.2*(5%*(1-30%))=9.7%.

34. Correct answer a.
Bond value = $1,000/(1 + YTM)^{maturity}
YTM is larger the smaller is bond value (other things equal) and the smaller the maturity (other things equal), so no calculation is needed to answer this. This implies (a) $300 and 10 years is correct. If one were to back out (solve for YTM) using a little algebra the YTM for each the result is approximately
a .1279
b .0718
c .062
d .0352

35. Correct answer c. Calculation or explanation of options: Market participants gauge the default risk of a bond issue by looking at the credit ratings assigned to the issue by credit rating agencies.

36. Correct answer d. The residual theory of dividends treats dividends as strictly a financing decision with the payment of cash dividends determined solely by the availability of acceptable investment proposals.

37. Correct answer b. Mason should invest in all projects that have an IRR greater than the cost of capital. In this case, that means A + B + C = $200k + $350k + $570k = $1,120,000. This will be financed 40% debt and 60% equity, or $1,120,000 x 60% = $672,000 equity. Since the $1 million is available internally, $1,000,000 – $672,000 = $328,000 will not be need for projects, $328,000 can be paid as dividends under the residual dividend policy.

38. Correct answer d. The liquidity of a company is a prime consideration in dividend decisions because dividends represent a cash outflow. A growing company may be profitable but not liquid or a company may wish a liquidity cushion to provide flexibility.

39. Correct answer c.
NWC = CA - CL
Current assets decrease and current liabilities don't change (fixed assets not a current asset) so NWC decreases.

40. Correct answer c.
Working capital is deemed to be more conservative as an increase in current assets funded by long-term financing. An increase in the ratio of current assets to noncurrent assets would be an indicative of an increasingly conservative working capital policy.

41. Correct answer c. An increase in the return on marketable securities would cause a decrease in the optimal cash balance. The higher the denominator value, the lower the resulting solution.

42. Correct answer c. The reasons for holding cash do not include the motive to make a profit while the other three options are appropriate reasons for holding cash.

43. Correct answer d. A lock-box system is used for managing cash inflows rather than cash outflows.

44. Correct answer d. Powell would need to reduce its average collection time by 1.5 days in order to justify the use of the lockbox as shown below.

Daily collections:	300 x $2,500 = $750,000
Daily interest:	$750,000 x .08 = $60,000
Reduction in days:	$90,000 ÷ $60,000 = 1.5 days

45. Correct answer a.

Opening balance:	$2,000,000			
January	2,000,000	=	$2,000,000 x .04 / 12 =	+ 6,667
February	+2,000,000	=	$4,000,000 x .04 / 12 =	+13,333
March	+1,000,000	=	$5,000,000 x .04 / 12 =	+16,667
April	-5,000,000	=	0	
May	-3,000,000	=	$3,000,000 x .08 / 12 =	- 20,000
June	-2,000,000	=	$5,000,000 x .08 / 12 =	- 33,333
			=	-16,667

46. Correct answer b.
Savings from trade discount = 1% x $25,000 x 24 = $6,000
Interest to bank = 10% x $24,750 / 12 x 24 = $4,950
Net savings = $6,000 – $4,950 = $1,050

47. Correct answer d. Rolling Stone should use of the methods presented except the use of drafts as shown below.

Lockbox cost:	\$25 x 170	=	\$4,250
Savings	\$5,240 - \$4,250	=	\$990
Drafts cost:	4,000 x \$2	=	\$8,000
Loss	\$6,500 - \$8,000	=	\$(1,500)
Bank Float:	\$1,000,000 x .02	=	\$20,000
Savings	\$22,000 - \$20,000	=	\$2,000
Electronic Trans.	700 x \$18	=	\$12,600
Savings	\$14,000 - \$12,600	=	\$1,400

48. Correct answer a. In order to justify the cost of a wire transfer, the transfer amount should be at least \$21,000 as shown below.

Transfer amount	.09A x (2 ÷ 360)	=	\$10.50
	.09A	=	\$1,890
	A	=	\$21,000

49. Correct answer b. The use of a zero-balance account can reduce all of the options presented except the disbursement float. Disbursement float refers to the period between the payment of an invoice and the clearing of the payment through the company's bank. This time period is unaffected by the use of a zero-balance account.

50. Correct answer b. 7% x 2 days x 2,500 checks per day x \$600 per check - \$0.28 per check x 2,500 checks x 365 = \$210,000 - \$255,500 = (\$45,000)

51. Correct answer d. Typically, municipal bonds are tailored for the long-term investor while T-bills, money market funds, and commercial paper are primarily used for short-term investing.

52. Correct answer d. Treasury bills are direct obligations of the U.S. government (no default risk), sold at discount (carry no coupon rate), and are redeemed at full face value at maturity. The interest income on these securities is taxed at the federal level but is exempt from state and local taxes.

53. Correct answer b. At 12%, the bank borrowing represents the lowest cost of funds as shown below.

Trade discount:	(.02 ÷ .98) x (360 ÷ 60)	=	12.24%
Commercial paper:	\$9.1 - \$8.8	=	\$.3
	(\$.3 ÷ \$9.1) x 4	=	13.2%

54. Correct answer c.
Average collection period is currently 0.3 x 15 + 0.7 x 60 = 46.5 days. (.3 pay with discount, so 0.7 no discount)
If net 30 would expect all to pay on day 30 so ACP decreases

55. Correct answer a. \$2,000,000 x 20% = \$400,000 unpaid on day 45
\$400,000/360 days = 1,111.11 unpaid per day
\$1,111.11 x 45 days = \$50,000.

56. Correct answer c. Because Northville's change in credit terms will most likely shorten the cash conversion cycle, it is least likely that the company will need to increase short-term borrowing.

57. Correct answer d. A credit manager would be most interested in liquidity ratios as these measure a firm's ability to convert assets to cash and thereby pay financial obligations.

58. Correct answer c. A company should consider liberalizing its credit policy if it has a low cost of borrowing and the opportunity for repeat sales. Steady customers would be attracted by a liberal credit policy and if the company needs to borrow funds because of slower than expected payments, the cost would not be too high. Factors I and IV have no relationship to credit policy.

59. Correct answer a. The cost of not taking the trade discount (20.98%) is greater than the 12% cost of borrowing so Global should pay within the first 10 days.

    Trade discount = (.02 ÷ .98) x (360 ÷ 35) = 20.98%

60. Correct answer b. Locar's average collection period was 26.7 days as shown below.

Average collection period	=	(Receivables x Annual days) ÷ Credit sales
	=	($1,380,000 x 360) ÷ $18,600,000
	=	26.7 days

61. Correct answer d. Choice d is correct because the Economic Order Quantity (EOC) model assumes that the factors are known and relatively stable.

62. Correct answer d. Atlantic should collect $25,000 of receivables, purchase $10,000 of inventory and reduce current liabilities by $15,000. This is the only option that reduces short-term debt and thus lowers the cost of debt while satisfying the loan covenant.

63. Correct answer c. Storage costs, insurance, and opportunity cost of funds invested in inventory are all costs of carrying inventory while shipping costs are related to sales of inventory.

64. Correct answer d. The total cost that Valley will incur is $12,100 as shown below.

Ordering cost	8 x $200	$ 1,600
Carrying average inventory	(50 ÷ 2) x $100	2,500
Lost discounts	(400 x $500) x .04	8,000
		$12,100

65. Correct answer c. The carrying cost per unit is $120 as shown below.

Carrying cost	=	($400 + $20) x 25% + $15
	=	$120

66. Correct answer d. The carrying cost of inventory is $8,160 as shown below.

Carrying cost	=	[2,400 + (2,000 ÷ 2)] x ($12 x .20)
	=	$8,160

67. Correct answer d. If new competition opens in the company's market area, the company's sales are likely to decline and safety stock cannot protect against this event.

68. Correct answer c. If ordering costs increase, the EOQ model would increase the order quantity. If the carrying cost increased, the EOQ model would decrease the order quantity. Purchase price and safety stock do not affect the EOQ model.

69. Correct answer d. Quantity discounts are not explicitly considered in the EOQ model as purchase price does not affect the model.

70. Correct answer d. The EOQ model assumes that order delivery times are consistent and that lead times do not vary. The other statements about EOQ are false.

71. Correct answer d. A decrease in carrying costs would result in an increase in the EOQ as it would be less costly to store units. A decrease in sales or ordering costs would decrease EOQ while the EOQ is unaffected by safety stock.

72. Correct answer b. Burke will pay the bank $52,500 as shown below.

	4/1	4/30	5/31	6/30
Balance	$2 mil.	$4 mil.	($3 mil.)	$4 mil.

2 mths. unused credit line	2 x ($5,000,000 x .0025)	$25,000
1 mth. $3 mil. borrowed	$3,000,000 x (.09 ÷ 12)	22,500
1 mth. $2 mil. unused	$2,000,000 x .0025	5,000
		$52,500

73. Correct answer d. Ideally, permanent assets are financed with long-term debt of matching maturities. The greater the portion of assets financed by short-term debt, the greater the risk that the firm will not be able to meet these obligations.

74. Correct answer a. Texas Corporation should purchase the 90-day investment as it has the highest annual yield as shown below.

90-day: $80,000 x .95 = $76,000; ($80,000 - $76,000) ÷ $76,000 = .05 x 4	=	20%
180-day: $75,000 x .94 = $70,500; ($75,000 - $70,500) ÷ $70,500 = .06 x 2	=	12%
270-day: $100,000 x .95= $95,000; $5,000 ÷ $95,000 = (.05 ÷ 3) x 4	=	7%
360-day: $60,000 x .90 = $54,000; $6,000 ÷ $54,000 = .11 x 1	=	11%

75. Correct answer d. The firm should seek an unsecured short-term loan to finance additional capital needs during the busy season. A transaction loan is generally for one specific purpose like completing a specific contract while term and installment loans are generally one year or greater.

76. Correct answer d. A commercial bank would likely be able to provide its customers with all of these financing vehicles.

77. Correct answer b.

Cost of commercial paper financing: $12,000,000 x 3/12 x 7% = $210,000 expense
July investment: $4,000,000 x 4% / 12 = $13,333 income.
No investment in August
September: $2,000,000 x 4% / 12 = $6,667 income. Net cost: $210,000 - $13,333 - $6.667 = $190,000

Line of credit financing:	July $8,000,000 x 8% / 12	=	$53,333
	Aug 12,000,000 x 8% / 12	=	80,000
	Sep 10,000,000 x 8.5% / 12	=	78,833
	Total		$204,166

$204,166 - $190,000 = $14,166 advantage to commercial paper

78. Correct answer b. The cost of foregoing the trade discount is 18.4% as shown below.

Trade discount	=	(.02 ÷ .98) x (360 ÷ 40)
	=	18.4%

79. Correct answer d. The effective annual interest rate cost is 13.9% as shown below.

Effective interest rate	=	(.03 ÷ .97) x (360 ÷ 80)
	=	13.9%

80. Correct answer d. The effective interest rate to the borrower is 13.64% as shown below.

Effective interest rate	=	.12 ÷ (1 - .12)
	=	13.64%

81. Correct answer d. The face value of the note should be $329,670 as shown below.

Effective interest rate	=	.09 ÷ .91
	=	.0989
Face value of note	=	$300,000 x 1.0989
	=	$329,670

82. Correct answer b. The compensating balance required is $3,000,000 as shown below.

Effective interest rate	=	($100,000,000 x .10) ÷ X = 10.31
X	=	$97,000,000
Compensating balance	=	$100,000,000 - $97,000,000
	=	$3,000,000

83. Correct answer c. The effective interest rate is 8.75% as shown below.

Effective interest rate	=	($100,000 x .07) ÷ [$100,000 – ($100,000 x .20)]
	=	$7,000 ÷ $80,000
	=	8.75%

84. Correct answer b. The compensating balance required is $2,440,000 as shown below.

Effective interest rate	=	($100,000,000 x .10) ÷ X = 10.25
X	=	$97,560,000
Compensating balance	=	$100,000,000 - $97,560,000
	=	$2,440,000

85. Correct answer b. Frame will pay $1,131,250 as shown below.

Interest	=	($10,000,000 x .02) + ($20,000,000 x .04) + ($5,000,000 x .02)
	=	$1,100,000
Fees	=	[$10,000,000 x (.005 ÷ 12 x 3)] + [$15,000,000 x (.005 ÷ 12 x 3)]
	=	$31,250
Total	=	$1,100,000 + $31,250
	=	$1,131,250

86. Correct answer c. The effective interest rate is 8.42% as shown below.

Effective interest rate	=	($100,000,000 x .08) ÷ ($100,000,000 - $5,000,000)
	=	$8,000 ÷ $95,000,000
	=	8.42%

87. Correct answer d. In determining the effective cost of a bank loan with compensating balance and discounted interest rate, net interest cost and net proceeds should be computed. Net interest cost is the interest cost after any interest gained on compensating balance. Since the problem is silent on the interest income on compensating balance, the interest cost on the loan is only considered. This is 7.5% of the loan. The net proceeds is the net amount that the borrower gets when the loan is entered into. This is the loan amount less any discounted interest and less any compensating balance. This is computed as Loan x (100% less 7.5% discounted interest and less 20% compensating balance). The percentages are applied to the gross amount of the loan.

Option d is correct. Assume that the loan is $100.

Gross Loan	$ 100	
Discounted interest	7.5%	
Compensating balance	12.5%	
Net interest cost	7.50	(100 x 7.5%)
Net proceeds	80.00	(100 – (100x 7.5%) – (100 x 12.5%))
Effective interest rate	9.38%	(7.5/ 80)

88. Correct answer b.
Effective interest rate = interest / (1 – compensating balance rate)
= .095 / (1 - .16) = .1130952
= 11.31%

89. Correct answer b. A futures contract provides for delivery of a commodity at a specified price on a stipulated future date. If the price of wheat is expected to rise, the contract protects future cash flow.

90. Correct answer a. With an equity carve out the divested business unit is sold in a public offering and therefore the corporation receives cash.

91. Correct answer a. If the U.S. inflation rate declines relative to the Swiss inflation rate, the U.S. dollar will purchase a greater number of Swiss francs resulting in the depreciation of the Swiss franc.

92. Correct answer c. If the U.S. dollar appreciates against the British pound, it will take fewer dollars to purchase British goods thus increasing the demand for these products.

93. Correct answer c. If Country A has more exports than imports, its demand for foreign currency will diminish resulting in the appreciation of A's currency.

94. Correct answer b. By entering into a currency swap the company is able manage exchange rate risk via borrowing in a country that it is well known, Japan, and then engaging in a currency swap with most likely a familiar bank and therefore, effectively, borrowing the foreign currency indirectly that is needed for the company's expansion plans in Germany.

Section C: Decision Analysis

1. *CSO: 2C1a LOS: 2C1f*
   Garner Products is considering a new accounts payable and cash disbursement process which is projected to add 3 days to the disbursement schedule without having significant negative effects on supplier relations. Daily cash outflows average $1,500,000. Garner is in a short-term borrowing position for 8 months of the year and in an investment position for 4 months. On an annual basis, bank lending rates are expected to average 7% and marketable securities yields are expected to average 4%. What is the maximum annual expense that Garner could incur for this new process to be break even?

   a. $90,000.
   b. $180,000.
   c. $270,000.
   d. $315,000.

2. *CSO: 2C1a LOS: 2C1f*
   Bolger and Co. manufactures large gaskets for the turbine industry. Bolger's per unit sales price and variable costs for the current year are as follows.

Sales price per unit	$300
Variable costs per unit	210

   Bolger's total fixed costs aggregate $360,000. As Bolger's labor agreement is expiring at the end of the year, management is concerned about the effect a new agreement will have on its unit breakeven point. The controller performed a sensitivity analysis to ascertain the estimated effect of a $10 per unit direct labor increase and a $10,000 reduction in fixed costs. Based on these data, it was determined that the breakeven point would

   a. decrease by 1,000 units.
   b. decrease by 125 units.
   c. increase by 375 units.
   d. increase by 500 units.

3. *CSO: 2C1a LOS: 2C1b*
Phillips & Company produces educational software. Its unit cost structure, based upon an anticipated production volume of 150,000 units, is as follows.

Sales price	$160
Variable costs	60
Fixed costs	55

The marketing department has estimated sales for the coming year at 175,000 units, which is within the relevant range of Phillip's cost structure. Phillip's break-even volume (in units) and anticipated operating income for the coming year would amount to

a. 82,500 units and $7,875,000 of operating income.
b. 82,500 units and $9,250,000 of operating income.
c. 96,250 units and $3,543,750 of operating income.
d. 96,250 units and $7,875,000 of operating income.

4. *CSO: 2C1a LOS: 2C1a*
All of the following are assumptions of cost-volume-profit analysis **except**

a. total fixed costs do not change with a change in volume.
b. revenues change proportionately with volume.
c. variable costs per unit change proportionately with volume.
d. sales mix for multi-product situations do not vary with volume changes.

5. *CSO: 2C1a LOS: 2C1f*
Ace Manufacturing plans to produce two products, Product C and Product F, during the next year, with the following characteristics.

	Product C	Product F
Selling price per unit	$10	$15
Variable cost per unit	$ 8	$10
Expected sales (units)	20,000	5,000

Total projected fixed costs for the company are $30,000. Assume that the product mix would be the same at the breakeven point as at the expected level of sales of both products. What is the projected number of units (rounded) of Product C to be sold at the breakeven point?

a. 2,308 units.
b. 9,231 units.
c. 11,538 units.
d. 15,000 units.

6. *CSO: 2C1a LOS: 2C1f*
Starlight Theater stages a number of summer musicals at its theater in northern Ohio. Preliminary planning has just begun for the upcoming season, and Starlight has developed the following estimated data.

Production	Number of Performances	Average Attendance per Performance	Ticket Price	Variable Costs [1]	Fixed Costs [2]
Mr. Wonderful	12	3,500	$18	$3	$165,000
That's Life20	3,000	15	1	249,000	
All That Jazz	12	4,000	20	0	316,000

[1] Represent payments to production companies and are based on tickets sold.
[2] Costs directly associated with the entire run of each production for costumes, sets, and artist fees.

Starlight will also incur $565,000 of common fixed operating charges (administrative overhead, facility costs, and advertising) for the entire season, and is subject to a 30% income tax rate. These common charges are allocated based on total attendance for each production.

If Starlight's schedule of musicals is held, as planned, how many patrons would have to attend for Starlight to break even during the summer season?

a. 77,918.
b. 79,302.
c. 79,938.
d. 81,344.

7. *CSO: 2C1a LOS: 2C1f*
Carson Inc. manufactures only one product and is preparing its budget for next year based on the following information.

Selling price per unit	$ 100
Variable costs per unit	75
Fixed costs	250,000
Effective tax rate	35%

If Carson wants to achieve a net income of $1.3 million next year, its sales must be

a. 62,000 units.
b. 70,200 units.
c. 80,000 units.
d. 90,000 units.

8. *CSO: 2C1a LOS: 2C1f*

MetalCraft produces three inexpensive socket wrench sets that are popular with do-it-yourselfers. Budgeted information for the upcoming year is as follows.

Model	Selling Price	Variable Cost	Estimated Sales Volume
No. 109	$10.00	$ 5.50	30,000 sets
No. 145	15.00	8.00	75,000 sets
No. 153	20.00	14.00	45,000 sets

Total fixed costs for the socket wrench product line is $961,000. If the company's actual experience remains consistent with the estimated sales volume percentage distribution, and the firm desires to generate total operating income of $161,200, how many Model No. 153 socket sets will MetalCraft have to sell?

a. 26,000.
b. 54,300.
c. 155,000.
d. 181,000.

9. *CSO: 2C1a LOS: 2C1f*

Robin Company wants to earn a 6% return on sales after taxes. The company's effective income tax rate is 40%, and its contribution margin is 30%. If Robin has fixed costs of $240,000, the amount of sales required to earn the desired return is

a. $375,000.
b. $400,000.
c. $1,000,000.
d. $1,200,000.

10. *CSO: 2C1a LOS: 2C1f*
Bargain Press is considering publishing a new textbook. The publisher has developed the following cost data related to a production run of 6,000, the minimum possible production run. Bargain Press will sell the textbook for $45 per copy.

	Estimated cost
Development (reviews, class testing, editing)	$35,000
Set-up costs	18,500
Depreciation on equipment	9,320
General and administrative	7,500
Miscellaneous fixed costs	4,400
Printing and binding (variable cost)	30,000
Sales staff commissions (variable cost)	5,400
Bookstore commissions (variable cost)	67,500
Author's royalties (variable cost)	27,000
Total costs at production of 6,000 copies	$204,620

How many textbooks must Bargain Press sell in order to generate operating earnings of 20% on sales? (Round your answer up to the nearest whole textbook.)

a. 2,076 copies.
b. 5,207 copies.
c. 5,412 copies.
d. 6,199 copies.

11. *CSO: 2C1a LOS: 2C1f*
Zipper Company invested $300,000 in a new machine to produce cones for the textile industry. Zipper's variable costs are 30% of the selling price, and its fixed costs are $600,000. Zipper has an effective income tax rate of 40%. The amount of sales required to earn an 8% after-tax return on its investment would be

a. $891,429.
b. $914,286.
c. $2,080,000.
d. $2,133,333.

12. *CSO: 2C1a LOS: 2C1a*
Breakeven quantity is defined as the volume of output at which revenues are equal to

a. marginal costs.
b. total costs.
c. variable costs.
d. fixed costs.

13. *CSO: 2C1a* *LOS: 2C1b*

Eagle Brand Inc. produces two products. Data regarding these products are presented below.

	Product X	Product Y
Selling price per unit	$100	$130
Variable costs per unit	$80	$100
Raw materials used per unit	4 lbs.	10 lbs.

Eagle Brand has 1,000 lbs. of raw materials which can be used to produce Products X and Y.

Which one of the alternatives below should Eagle Brand accept in order to maximize contribution margin?

a. 100 units of product Y.
b. 250 units of product X.
c. 200 units of product X and 20 units of product Y.
d. 200 units of product X and 50 units of product Y.

14. *CSO: 2C1b* *LOS: 2C1f*

A detergent company sells large containers of industrial cleaner at a selling price of $12 per container. Each container of cleaner requires $4.50 of direct materials, $2.50 direct labor, and $1.00 of variable overhead. The company has total fixed costs of $2,000,000 and an income tax rate of 40%. Management has set a goal to achieve a targeted after-tax net income of $2,400,000. What amount of dollar sales must the company achieve in order to meet its goal?

a. $14,400,000.
b. $18,000,000.
c. $22,000,000.
d. $24,000,000.

15. *CSO: 2C1b* *LOS: 2C1i*

Projected sales for a tent manufacturer are $510,000. Each tent sells for $850 and requires $350 of variable costs to produce. The tent manufacturer's total fixed costs are $145,000. The tent manufacturer's margin of safety is

a. 310 units.
b. 710 units.
c. 730 units.
d. 1,310 units.

16. *CSO: 2C1b LOS: 2C1b*
For the year just ended, Silverstone Company's sales revenue was $450,000. Silverstone's fixed costs were $120,000 and its variable costs amounted to $270,000. For the current year sales are forecasted at $500,000. If the fixed costs do not change, Silverstone's profits this year will be

a. $60,000.
b. $80,000.
c. $110,000.
d. $200,000.

17. *CSO: 2C1b LOS: 2C1e*
Breeze Company has a contribution margin of $4,000 and fixed costs of $1,000. If the total contribution margin increases by $1,000, operating profit would

a. decrease by $1,000.
b. increase by more than $1,000.
c. increase by $1,000.
d. remain unchanged.

18. *CSO: 2C1b LOS: 2C1b*
Wilkinson Company sells its single product for $30 per unit. The contribution margin ratio is 45% and Wilkinson has fixed costs of $10,000 per month. If 3,000 units are sold in the current month, Wilkinson's income would be

a. $30,500.
b. $49,500.
c. $40,500.
d. $90,000.

19. *CSO: 2C1c*   *LOS: 2C1h*

Cervine Corporation makes motors for various products. Operating data and unit cost information for its products are presented below.

	Product A	Product B
Annual unit capacity	10,000	20,000
Annual unit demand	10,000	20,000
Selling price	$100	$80
Variable manufacturing cost	53	45
Fixed manufacturing cost	10	10
Variable selling & administrative	10	11
Fixed selling & administrative	5	4
Fixed other administrative	2	-
Unit operating profit	$ 20	$10
Machine hours per unit	2.0	1.5

Cervine has 40,000 productive machine hours available. What is the maximum total contribution margin that Cervine can generate in the coming year?

a. $665,000.
b. $689,992.
c. $850,000.
d. $980,000.

20. *CSO: 2C1c*   *LOS: 2C1h*

Specialty Cakes Inc. produces two types of cakes, a 2 lbs. round cake and a 3 lbs. heart-shaped cake. Total fixed costs for the firm are $94,000. Variable costs and sales data for the two types of cakes are presented below.

	2 lbs. Round Cake	3 lbs. Heart-shape Cake
Selling price per unit	$12	$20
Variable cost per unit	$8	$15
Current sales (units)	10,000	15,000

If the product sales mix were to change to three heart-shaped cakes for each round cake, the breakeven volume for each of these products would be

a. 8,174 round cakes, 12,261 heart-shaped cakes.
b. 12,261 round cakes, 8,174 heart-shaped cakes.
c. 4,947 round cakes, 14,842 heart-shaped cakes.
d. 15,326 round cakes, 8,109 heart-shaped cakes.

21. *CSO: 2C1c* *LOS: 2C1e*

Lazar Industries produces two products, Crates and Boxes. Per unit selling prices, costs, and resource utilization for these products are as follows.

	Crates	Boxes
Selling price	$20	$30
Direct material costs	$ 5	$ 5
Direct labor costs	8	10
Variable overhead costs	3	5
Variable selling costs	1	2
Machine hours per unit	2	4

Production of Crates and Boxes involves joint processes and use of the same facilities. The total fixed factory overhead cost is $2,000,000 and total fixed selling and administrative costs are $840,000. Production and sales are scheduled for 500,000 units of Crates and 700,000 units of Boxes. Lazar maintains no direct materials, work-in-process, or finished goods inventory.

Lazar can reduce direct material costs for Crates by 50% per unit, with no change in direct labor costs. However, it would increase machine-hour production time by 1-1/2 hours per unit. For Crates, variable overhead costs are allocated based on machine hours. What would be the effect on the total contribution margin if this change was implemented?

a. $125,000 increase.
b. $250,000 decrease.
c. $300,000 increase.
d. $1,250,000 increase.

22. *CSO: 2C1c* *LOS: 2C1g*

Ticker Company sells two products. Product A provides a contribution margin of $3 per unit, and Product B provides a contribution margin of $4 per unit. If Ticker's sales mix shifts toward Product A, which one of the following statements is **correct**?

a. The total number of units necessary to break even will decrease.
b. The overall contribution margin ratio will increase.
c. Operating income will decrease if the total number of units sold remains constant.
d. The contribution margin ratios for Products A and B will change.

23. *CSO: 2C1c LOS: 2C1h*

Lazar Industries produces two products, Crates and Trunks. Per unit selling prices, costs, and resource utilization for these products are as follows.

	Crates	Trunks
Selling price	$20	$30
Direct material costs	$ 5	$ 5
Direct labor costs	8	10
Variable overhead costs	3	5
Variable selling costs	1	2
Machine hours per unit	2	4

Production of Crates and Trunks involves joint processes and use of the same facilities. The total fixed factory overhead cost is $2,000,000 and total fixed selling and administrative costs are $840,000. Production and sales are scheduled for 500,000 Crates and 700,000 Trunks. Lazar has a normal capacity to produce a total of 2,000,000 units in any combination of Crates and Trunks, and maintains no direct materials, work-in-process, or finished goods inventory.

Due to plant renovations Lazar Industries will be limited to 1,000,000 machine hours. What is the maximum amount of contribution margin Lazar can generate during the renovation period?

a. $1,500,000.
b. $2,000,000.
c. $3,000,000.
d. $7,000,000.

24. *CSO: 2C1c LOS: 2C1h*

A company sells two products with the following results for the year just ended.

	Product 1	Product 2
Sales	$12,000,000	$3,000,000
Variable costs	4,800,000	1,500,000
Fixed costs	5,400,000	400,000

Assuming the product mix and the sales mix remain the same, the company's breakeven point in sales dollars is

a. $9,800,000.
b. $10,000,000.
c. $12,100,000.
d. $13,810,000.

25. *CSO: 2C2a LOS: 2C2b*
Sunk costs are not relevant in the decision-making process because they are

a. fixed costs.
b. historical costs.
c. indirect costs.
d. period costs.

26. *CSO: 2C2a LOS: 2C2d*
A company plans to add a new product that would affect its indirect labor costs in two ways. First, the production manager from an existing product would serve as manager of the new product. Her current assistant manager would be promoted and assume her previous position. Second, the existing maintenance staff would provide facility and machine maintenance that would require 30 hours of labor each month, but no increase in their total weekly hours worked. The company's production managers earn $60,000 annually, assistant production managers are paid $50,000 each year, and maintenance employees earn $20 per hour. No additional hiring is planned. The annual relevant indirect labor costs for adding the new product would total

a. $67,200.
b. $60,600.
c. $10,000.
d. $7,200.

27. *CSO: 2C2a LOS: 2C2c*
Johnson waits two hours in line to buy a ticket to an NCAA Final Four Tournament. The opportunity cost of buying the $200 ticket is

a. Johnson's best alternative use of the $200.
b. Johnson's best alternative use of the two hours it took to wait in line.
c. the value of the $200 to the ticket agent.
d. Johnson's best alternative use of both the $200 and the two hours spent in line.

28. *CSO: 2C2a LOS: 2C2a*
In a management decision process, the cost measurement of the benefits sacrificed due to selecting an alternative use of resources is **most** often referred to as a(n)

a. relevant cost.
b. sunk cost.
c. opportunity cost.
d. differential cost.

29. *CSO: 2C2a LOS: 2C2a*
In order to avoid pitfalls in relevant-cost analysis, management should focus on

a. variable cost items that differ for each alternative.
b. long-run fixed costs of each alternative.
c. anticipated fixed costs and variable costs of all alternatives.
d. anticipated revenues and costs that differ for each alternative.

30. *CSO: 2C2a LOS: 2C2a*
In a joint manufacturing process, joint costs incurred prior to a decision as to whether to process the products after the split-off point should be viewed as

a. sunk costs.
b. relevant costs.
c. standard costs.
d. differential costs.

31. *CSO: 2C2a LOS: 2C2a*
Jack Blaze wants to rent store space in a new shopping mall for the three-month holiday shopping season. Blaze believes he has a new product available which has the potential for good sales. The product can be obtained on consignment at the cost of $20 per unit and he expects to sell the item for $100 per unit. Due to other business ventures, Blaze's risk tolerance is low. He recognizes that, as the product is entirely new, there is an element of risk. The mall management has offered Blaze three rental options: (1) a fixed fee of $8,000 per month, (2) a fixed fee of $3,990 per month plus 10% of Blaze's revenue, or (3) 30% of Blaze's revenues. Which one of the following actions would you recommend to Jack Blaze?

a. Choose the first option no matter what Blaze expects the revenues to be.
b. Choose the second option no matter what Blaze expects the revenues to be.
c. Choose the second option only if Blaze expects revenues to exceed $5,700.
d. Choose the third option no matter what Blaze expects the revenues to be.

32. *CSO: 2C2a LOS: 2C2a*
Profits that are lost by moving an input from one use to another are referred to as

a. out-of-pocket costs.
b. cannibalization charges.
c. replacement costs.
d. opportunity costs.

33. *CSO: 2C2a LOS: 2C2d*
Refrigerator Company manufactures ice-makers for installation in refrigerators. The costs per unit, for 20,000 units of ice-makers, are as follows.

Direct materials	$ 7
Direct labor	12
Variable overhead	5
Fixed overhead	10
Total costs	$34

Cool Compartments Inc. has offered to sell 20,000 ice-makers to Refrigerator Company for $28 per unit. If Refrigerator accepts Cool Compartments' offer the plant would be idled and fixed overhead amounting to $6 per unit could be eliminated. The total relevant costs associated with the manufacture of ice-makers amount to

a. $480,000.
b. $560,000.
c. $600,000.
d. $680,000.

34. *CSO: 2C2b LOS: 2C2e*
Edwards Products has just developed a new product with a manufacturing cost of $30. The Marketing Director has identified three marketing approaches for this new product.

Approach X	Set a selling price of $36 and have the firm's sales staff sell the product at a 10% commission with no advertising program. Estimated annual sales would be 10,000 units.
Approach Y	Set a selling price of $38, have the firm's sales staff sell the product at a 10% commission, and back them up with a $30,000 advertising program. Estimated annual sales would be 12,000 units.
Approach Z	Rely on wholesalers to handle the product. Edwards would sell the new product to the wholesalers at $32 per unit and incur no selling expenses. Estimated annual sales would be 14,000 units.

Rank the three alternatives in order of net profit, from highest net profit to lowest.

a. X, Y, Z.
b. Y, Z, X.
c. Z, X, Y.
d. Z, Y, X.

35. *CSO: 2C2b LOS: 2C2f*
Auburn Products Inc. has compiled the following daily cost information for its manufacturing operation.

Output (units)	Fixed Cost	Variable Cost
0	$2,000	$ 0
1	2,000	200
2	2,000	380
3	2,000	550
4	2,000	700
5	2,000	860
6	2,000	1,040
7	2,000	1,250
8	2,000	1,500

Auburn's average total cost at an output level of 3 units is

a. $667.
b. $850.
c. $1,217.
d. $2,550.

36. *CSO: 2C2b LOS: 2C2f*
Daily costs for Kelso Manufacturing include $1,000 of fixed costs and total variable costs are shown below.

Unit Output	10	11	12	13	14	15
Cost	$125	$250	$400	$525	$700	$825

The average total cost at an output level of 11 units is

a. $113.64.
b. $125.00.
c. $215.91.
d. $250.00.

37. *CSO: 2C2b* *LOS: 2C2e*
Harper Products' cost information for the normal range of output in a month is shown below.

Output in units	Total Cost
20,000	$3,000,000
22,500	3,325,000
25,000	3,650,000

What is Harper's short-run marginal cost?

a. $26.
b. $130.
c. $146.
d. $150.

38. *CSO: 2C2b* *LOS: 2C2e*
Auburn Products Inc. has compiled the following daily cost information for its manufacturing operation.

Output (units)	Fixed Cost	Variable Cost
0	$2,000	$ 0
1	2,000	200
2	2,000	380
3	2,000	550
4	2,000	700
5	2,000	860
6	2,000	1,040
7	2,000	1,250
8	2,000	1,500

Auburn's marginal cost for the 7th unit is

a. $179.
b. $210.
c. $286.
d. $464.

39. *CSO: 2C2b LOS: 2C2e*
Daily costs for Kelso Manufacturing include $1,250 in fixed costs and total variable costs are shown below.

Unit Output	10	11	12	13	14	15
Cost	$150	$300	$480	$620	$750	$900

The marginal cost of the 12th unit is

a. $180.00.
b. $140.00.
c. $104.16.
d. $40.00.

40. *CSO: 2C2b LOS: 2C2f*
The total cost of producing 100 units of a good is $800. If a firm's average variable cost is $5 per unit, then the firm's

a. average fixed cost is $3.
b. total variable cost is $300.
c. marginal cost is $3.
d. marginal cost is $8.

41. *CSO: 2C2b LOS: 2C2e*
Daily sales and cost data for Crawford Industries are shown below.

Sales		Total
Units	$	Costs
20	$2,000	$1,200
21	2,090	1,250
22	2,170	1,290
23	2,240	1,330
24	2,300	1,380
25	2,350	1,440

The marginal cost of the 23rd unit is

a. $30.00.
b. $40.00.
c. $50.00.
d. $57.83.

42. *CSO: 2C2b LOS: 2C2e*

Parker Manufacturing is analyzing the market potential for its specialty turbines. Parker developed its pricing and cost structures for their specialty turbines over various relevant ranges. The pricing and cost data for each relevant range are presented below.

Units produced and sold	1 - 5	6 - 10	11 - 15	16 - 20
Total fixed costs	$200,000	$400,000	$600,000	$800,000
Unit variable cost	50,000	50,000	45,000	45,000
Unit selling price	100,000	100,000	100,000	100,000

Which one of the following production/sales levels would produce the highest operating income for Parker?

a. 8 units.
b. 10 units.
c. 14 units.
d. 17 units.

43. *CSO: 2C2b LOS: 2C2e*

A fuel company can sell 8 units of product at a selling price of $450. However, at a selling price of $445 the company can sell 9 units. What is the marginal revenue that is derived from selling the 9th unit?

a. ($5).
b. $405.
c. $445.
d. $4,005.

44. *CSO: 2C2c LOS: 2C2g*

A company's budget indicated the following cost per unit for the company's most popular product.

Variable manufacturing costs	$64
Fixed manufacturing overhead	45
Sales commissions	3
Fixed selling and administrative costs	32

Although this product normally sells for $160 per unit, the company received a special order from a new customer. If the company has idle capacity, its income would increase by accepting the order if the selling price per unit for the order was greater than

a. $64.
b. $67.
c. $109.
d. $144.

45. *CSO: 2C2c LOS: 2C2g*

A company manufactures a product that has the following unit price and costs.

Selling price		$300
Costs		
Direct materials	$40	
Direct labor	30	
Variable manufacturing overhead	24	
Fixed manufacturing overhead	60	
Variable selling	6	
Fixed selling and administrative	20	
Total costs		(180)
Operating margin		$120

The company received a special order for 1,000 units of the product. The company currently has excess capacity but has an alternative use for this capacity that will result in a contribution margin of $20,000. What is the minimum price that the company should charge for this special order?

a. $120, because it covers the costs of manufacturing the product and allows the company to break even.
b. $140, because operating margin will increase by $20,000.
c. $180, because it covers the costs of manufacturing the product and allows the company to break even.
d. $200, because operating margin will increase by $20,000.

46. *CSO: 2C2c LOS: 2C2h*

Johnson Company manufactures a variety of shoes, and has received a special one-time-only order directly from a wholesaler. Johnson has sufficient idle capacity to accept the special order to manufacture 15,000 pairs of sneakers at a price of $7.50 per pair. Johnson's normal selling price is $11.50 per pair of sneakers. Variable manufacturing costs are $5.00 per pair and fixed manufacturing costs are $3.00 a pair. Johnson's variable selling expense for its normal line of sneakers is $1.00 per pair. What would the effect on Johnson's operating income be if the company accepted the special order?

a. Decrease by $60,000.
b. Increase by $22,500.
c. Increase by $37,500.
d. Increase by $52,500.

47. *CSO: 2C2c LOS: 2C2h*
The Robo Division, a decentralized division of GMT Industries, has been approached to submit a bid for a potential project for the RSP Company. Robo Division has been informed by RSP that they will not consider bids over $8,000,000. Robo Division purchases its materials from the Cross Division of GMT Industries. There would be no additional fixed costs for either the Robo or Cross Divisions. Information regarding this project is as follows.

	Cross Division	Robo Division
Variable Costs	$1,500,000	$4,800,000
Transfer Price	3,700,000	-

If Robo Division submits a bid for $8,000,000, the amount of contribution margin recognized by the Robo Division and GMT Industries, respectively, is

a. $(500,000) and $(2,000,000).
b. $3,200,000 and $(500,000).
c. $(500,000) and $1,700,000.
d. $3,200,000 and $1,700.000.

48. *CSO: 2C2c LOS: 2C2g*
Basic Computer Company (BCC) sells its micro-computers using bid pricing. It develops bids on a full cost basis. Full cost includes estimated material, labor, variable overheads, fixed manufacturing overheads, and reasonable incremental computer assembly administrative costs, plus a 10% return on full cost. BCC believes bids in excess of $925 per computer are not likely to be considered.

BCC's current cost structure, based on its normal production levels, is $500 for materials per computer and $20 per labor hour. Assembly and testing of each computer requires 12 labor hours. BCC's variable manufacturing overhead is $2 per labor hour, fixed manufacturing overhead is $3 per labor hour, and incremental administrative costs are $8 per computer assembled.

The company has received a request from the School Board for 500 computers. BCC's management expects heavy competition in bidding for this job. As this is a very large order for BCC, and could lead to other educational institution orders, management is extremely interested in submitting a bid which would win the job, but at a price high enough so that current net income will not be unfavorably impacted. Management believes this order can be absorbed within its current manufacturing facility. Which one of the following bid prices should be recommended to BCC's management?

a. $764.00.
b. $772.00.
c. $849.20.
d. $888.80.

49. *CSO: 2C2c LOS: 2C2g*
The loss of a key customer has temporarily caused Bedford Machining to have some excess manufacturing capacity. Bedford is considering the acceptance of a special order, one that involves Bedford's most popular product. Consider the following types of costs.

I. Variable costs of the product
II. Fixed costs of the product
III. Direct fixed costs associated with the order
IV. Opportunity cost of the temporarily idle capacity

Which one of the following combinations of cost types should be considered in the special order acceptance decision?

a. I and II.
b. I and IV.
c. II and III.
d. I, III, and IV.

50. *CSO: 2C2c LOS: 2C2g*
Raymund Inc. currently sells its only product to Mall-Stores. Raymund has received a one-time-only order for 2,000 units from another buyer. Sale of the special order items will not require any additional selling effort. Raymund has a manufacturing capacity to produce 7,000 units. Raymund has an effective income tax rate of 40%. Raymund's Income Statement, before consideration of the one-time-only order, is as follows.

Sales (5,000 units at $20 per unit)		$100,000
Variable manufacturing costs	$50,000	
Variable selling costs	15,000	65,000
Contribution margin		35,000
Fixed manufacturing costs	16,000	
Fixed selling costs	4,000	20,000
Operating income		15,000
Income taxes		6,000
Net income		$ 9,000

In negotiating a price for the special order, Raymund should set the minimum per unit selling price at

a. $10.
b. $13.
c. $17.
d. $18.

51. *CSO: 2C2c LOS: 2C2d*
Two months ago, Hickory Corporation purchased 4,500 pounds of Kaylene at a cost of $15,300. The market for this product has become very strong, with the price jumping to $4.05 per pound. Because of the demand, Hickory can buy or sell Kaylene at this price. Hickory recently received a special order inquiry that would require the use of 4,200 pounds of Kaylene. In deciding whether to accept the order, management must evaluate a number of decision factors. Without regard to income taxes, which one of the following combination of factors correctly depicts relevant and irrelevant decision factors, respectively?

	Relevant Decision Factor	Irrelevant Decision Factor
a.	Remaining 300 pounds of Kaylene	Market price of $4.05 per lb.
b.	Market price of $4.05 per lb.	Purchase price of $3.40 per lb.
c.	Purchase price of $3.40 per lb.	Market price of $4.05 per lb.
d.	4,500 pounds of Kaylene	Remaining 300 pounds of Kaylene.

52. *CSO: 2C2c LOS: 2C2h*
Gardener Company currently is using its full capacity of 25,000 machine hours to manufacture product XR-2000. LJB Corporation placed an order with Gardener for the manufacture of 1,000 units of KT-6500. LJB would normally manufacture this component. However, due to a fire at its plant, LJB needs to purchase these units to continue manufacturing other products. This is a one-time special order. The following reflects unit cost data, and selling prices.

	KT-6500	XR-2000
Material	$27	$24
Direct labor	12	10
Variable overhead	6	5
Fixed overhead	48	40
Variable selling & administrative	5	4
Fixed selling & administrative	12	10
Normal selling price	$125	$105
Machine hours required	3	4

What is the minimum unit price that Gardener should charge LJB to manufacture 1,000 units of KT-6500?

a. $93.00.
b. $96.50.
c. $110.00.
d. $125.00

53. *CSO: 2C2c LOS: 2C2n*

Green Corporation builds custom-designed machinery. A review of selected data and the company's pricing policies revealed the following.

- A 10% commission is paid on all sales orders.
- Variable and fixed factory overheads total 40% and 20%, respectively, of direct labor.
- Corporate administrative costs amount to 10% of direct labor.
- When bidding on jobs, Green adds a 25% markup to the total of all factory and administrative costs to cover income taxes and produce a profit.
- The firm's income tax rate is 40%.

The company expects to operate at a maximum of 80% of practical capacity.

Green recently received an invitation to bid on the manufacture of some custom machinery for Kennendale, Inc. For this project, Green's production accountants estimate the material and labor costs will be $66,000 and $120,000, respectively. Accordingly, Green submitted a bid to Kennendale in the amount of $375,000. Feeling Green's bid was too high, Kennendale countered with a price of $280,000. Which one of the following options should be recommended to Green's management?

a. Accept the counteroffer because the order will increase operating income.
b. Accept the counteroffer even though the order will decrease operating income.
c. Reject the counteroffer even though the order will increase operating income.
d. Reject the counteroffer because the order will decrease operating income.

54. *CSO: 2C2d* *LOS: 2C2n*

Synergy Inc. produces a component that is popular in many refrigeration systems. Data on three of the five different models of this component are as follows.

	Model		
	A	B	C
Volume needed (units)	5,000	6,000	3,000
Manufacturing costs			
Variable direct costs	$10	$24	$20
Variable overhead	5	10	15
Fixed overhead	11	20	17
Total manufacturing costs	$26	$54	$52
Cost if purchased	$21	$42	$39

Synergy applies variable overhead on the basis of machine hours at the rate of $2.50 per hour. Models A and B are manufactured in the Freezer Department, which has a capacity of 28,000 machine processing hours. Which one of the following options should be recommended to Synergy's management?

a. Purchase all three products in the quantities required.
b. Manufacture all three products in the quantities required.
c. The Freezer Department's manufacturing plan should include 5,000 units of Model A and 4,500 units of Model B.
d. The Freezer Department's manufacturing plan should include 2,000 units of Model A and 6,000 units of Model B.

55. *CSO: 2C2d*   *LOS: 2C2d*

Refrigerator Company manufactures ice-makers for installation in refrigerators. The costs per unit, for 20,000 units of ice-makers, are as follows.

Direct materials	$ 7
Direct labor	12
Variable overhead	5
Fixed overhead	10
Total costs	$34

Cool Compartments Inc. has offered to sell 20,000 ice-makers to Refrigerator Company for $28 per unit. If Refrigerator accepts Cool Compartments' offer, the facilities used to manufacture ice-makers could be used to produce water filtration units. Revenues from the sale of water filtration units are estimated at $80,000, with variable costs amounting to 60% of sales. In addition, $6 per unit of the fixed overhead associated with the manufacture of ice-makers could be eliminated.

For Refrigerator Company to determine the **most** appropriate action to take in this situation, the total relevant costs of make vs. buy, respectively, are

a. $600,000 vs. $560,000.
b. $648,000 vs. $528,000.
c. $600,000 vs. $528,000.
d. $680,000 vs. $440,000.

56. *CSO: 2C2d*   *LOS: 2C2d*

Sunshine Corporation is considering the purchase of a new machine for $800,000. The machine is capable of producing 1.6 million units of product over its useful life. The manufacturer's engineering specifications state that the machine-related cost of producing each unit of product should be $.50. Sunshine's total anticipated demand over the asset's useful life is 1.2 million units. The average cost of materials and labor for each unit is $.40. In considering whether to buy the new machine, would you recommend that Sunshine use the manufacturer's engineering specification of machine-related unit production cost?

a. No, the machine-related cost of producing each unit is $2.00.
b. No, the machine-related cost of producing each unit is $.67.
c. No, the machine-related cost of producing each unit is $.90.
d. Yes, the machine-related cost of producing each unit is $.50.

57. *CSO: 2C2d LOS: 2C2g*
Aril Industries is a multiproduct company that currently manufactures 30,000 units of Part 730 each month for use in production. The facilities now being used to produce Part 730 have fixed monthly overhead costs of $150,000, and a theoretical capacity to produce 60,000 units per month. If Aril were to buy Part 730 from an outside supplier, the facilities would be idle and 40% of fixed costs would continue to be incurred. There are no alternative uses for the facilities. The variable production costs of Part 730 are $11 per unit. Fixed overhead is allocated based on planned production levels.

If Aril Industries continues to use 30,000 units of Part 730 each month, it would realize a net benefit by purchasing Part 730 from an outside supplier only if the supplier's unit price is less than

a. $12.00.
b. $12.50.
c. $13.00.
d. $14.00.

58. *CSO: 2C2d LOS: 2C2a*
Verla Industries is trying to decide which one of the following two options to pursue. Either option will take effect on January 1st of the next year.

<u>Option One</u> - Acquire a New Finishing Machine.
The cost of the machine is $1,000,000 and will have a useful life of five years. Net pre-tax cash flows arising from savings in labor costs will amount to $100,000 per year for five years. Depreciation expense will be calculated using the straight-line method for both financial and tax reporting purposes. As an incentive to purchase, Verla will receive a trade-in allowance of $50,000 on their current fully depreciated finishing machine.

<u>Option Two</u> **-** Outsource the Finishing Work.
Verla can outsource the work to LM Inc. at a cost of $200,000 per year for five years. If they outsource, Verla will scrap their current fully depreciated finishing machine.

Verla's effective income tax rate is 40%. The weighted-average cost of capital is 10%.

When comparing the two options, the $50,000 trade-in allowance would be considered

a. irrelevant because it does not affect taxes.
b. relevant because it is a decrease in cash outflow.
c. irrelevant because it does not affect cash.
d. relevant because it is an increase in cash outflows.

59. *CSO: 2C2d LOS: 2C2j*

A company currently manufactures subcomponent XT9, a part in the company's main product ZL10. Management has found an outside supplier that could sell the company 100,000 XT9 subcomponents next year for $45 each. The company's production of XT9 costs per unit are shown below.

Direct materials	$17.00
Direct labor	16.00
Variable manufacturing overhead	4.50
Fixed manufacturing overhead	6.00
Total cost per unit	$43.50

If the subcomponent is purchased from the outside supplier, all variable production costs would be eliminated and 70% of the fixed production costs would be eliminated. Management has found that the space used for the XT9 subcomponent could be used to produce a new product that would generate $300,000 in net operating income each year. If the company purchases XT9 from the outside supplier, operating income would decrease by

a. $30,000.
b. $270,000.
c. $330,000.
d. $630,000.

60. *CSO: 2C2d LOS: 2C2g*

A manufacturing company is considering a new product for the coming year, which requires the production of an electric motor. The company can purchase the motor from a reliable vendor for $21 per unit, or manufacture it internally. The company has excess capacity to manufacture the 30,000 motors needed in the coming year except for manufacturing space and special machinery. The machinery can be leased for $45,000 annually. The company has finished goods warehouse space that it currently leases for $39,000, which can be converted and used to manufacture the motors. To replace the finished goods warehouse, additional off-site space can be leased at an annual cost of $54,000. The estimated unit costs for manufacturing the motors internally, exclusive of the leasing costs itemized above, are shown below.

Direct material	$ 8.00
Direct labor	4.00
Variable manufacturing overhead	3.00
Allocated fixed manufacturing overhead	5.00

Should the company make or buy the electric motors, and why?

a. Buy, because purchasing from the outside vendor would save $69,000.
b. Make, because manufacturing the motors internally would save $96,000.
c. Buy, because purchasing from the outside vendor would save $54,000.
d. Make, because manufacturing the motors internally would save $81,000.

61. *CSO: 2C2e*   *LOS: 2C2k*

A company currently has a four-stage manufacturing process in the following order: Processing, Smoothing, Shaping, and Painting. There is a market for the output of each stage. A newly-appointed management accountant has been examining the company's operations, and has prepared the following information below.

Manufacturing Stage	Total Selling Price of Output	Incremental Variable Cost Per Stage
Processing	$10	$8
Smoothing	12	1
Shaping	18	5
Painting	20	3

Given the above information, selling the output after which one of the following stages will yield the **greatest** contribution margin?

a. Processing.
b. Smoothing.
c. Shaping.
d. Painting.

62. *CSO: 2C2e*   *LOS: 2C2k*

A circuit board company conducts a joint manufacturing process to produce 10,000 units of Board A and 10,000 units of Board B. The total joint variable manufacturing cost to produce these two products is $2,000,000. The company can sell all 10,000 units of Board B at the split-off point for $300 per unit, or process Board B further and sell all 10,000 units at $375 per unit. The total additional cost to process Board B further would be $500,000, and all additional costs would be variable. If the company decides to process Board B further, what effect would the decision have on operating income?

a. $750,000 decrease in operating income.
b. $250,000 increase in operating income.
c. $2,250,000 increase in operating income.
d. $3,250,000 increase in operating income.

63. *CSO: 2C2e* *LOS: 2C2n*

Jones Enterprises manufactures 3 products, A, B, and C. During the month of May Jones' production, costs, and sales data were as follows.

	Products			
	A	B	C	Totals
Units of production	30,000	20,000	70,000	120,000
Joint production costs to split-off point				$480,000
Further processing costs	$ -	$60,000	$140,000	
Unit sales price				
At split-off	3.75	5.50	10.25	
After further processing	-	8.00	12.50	

Based on the above information, which one of the following alternatives should be recommended to Jones' management?

a. Sell both Product B and Product C at the split-off point.
b. Process Product B further but sell Product C at the split-off point.
c. Process Product C further but sell Product B at the split-off point.
d. Process both Products B and C further.

64. *CSO: 2C2e* *LOS: 2C2k*

Oakes Inc. manufactured 40,000 gallons of Mononate and 60,000 gallons of Beracyl in a joint production process, incurring $250,000 of joint costs. Oakes allocates joint costs based on the physical volume of each product produced. Mononate and Beracyl can each be sold at the split-off point in a semifinished state or, alternatively, processed further. Additional data about the two products are as follows.

	Mononate	Beracyl
Sales price per gallon at split-off	$7	$15
Sales price per gallon if processed further	$10	$18
Variable production costs if processed further	$125,000	$115,000

An assistant in the company's cost accounting department was overheard saying "....that when both joint and separable costs are considered, the firm has no business processing either product beyond the split-off point. The extra revenue is simply not worth the effort." Which of the following strategies should be recommended for Oakes?

	Mononate	Beracyl
a.	Sell at split-off	Sell at split-off.
b.	Sell at split-off	Process further.
c.	Process further	Sell at split-off.
d.	Process further	Process further.

65. *CSO: 2C2f* *LOS: 2C2k*

Current business segment operations for Whitman, a mass retailer, are presented below.

	Merchandise	Automotive	Restaurant	Total
Sales	$500,000	$400,000	$100,000	$1,000,000
Variable costs	300,000	200,000	70,000	570,000
Fixed costs	100,000	100,000	50,000	250,000
Operating income (loss)	$100,000	$100,000	$(20,000)	$ 180,000

Management is contemplating the discontinuance of the Restaurant segment since "it is losing money." If this segment is discontinued, $30,000 of its fixed costs will be eliminated. In addition, Merchandise and Automotive sales will decrease 5% from their current levels. What will Whitman's total contribution margin be if the Restaurant segment is discontinued?

a. $160,000.
b. $220,000.
c. $367,650.
d. $380,000.

66. *CSO: 2C2f* *LOS: 2C2h*

A company manufactures three products, T1, T2 and T3. Their financial information is shown below.

	T1	T2	T3
Sales	$60,000	$90,000	$24,000
Variable costs	36,000	48,000	15,000
Contribution margin	24,000	42,000	9,000
Fixed costs:			
Avoidable	9,000	18,000	6,000
Unavoidable	6,000	9,000	5,400
Operating income	$9,000	$15,000	($2,400)

Management is concerned about the financial performance of T3. If the company drops the T3 product line, the operating income will

a. increase by $2,400.
b. decrease by $3,000.
c. increase by $3,000.
d. decrease by $9,000.

67. *CSO: 2C2f LOS: 2C2g*

A company sells two products that are manufactured in the same production department on two different machines. The contribution margin per unit of the two products is $120 and $80, respectively. When deciding if the second product should be discontinued, which one of the following pieces of information is needed to make the correct decision?

a. Alternative use of the second product's space.
b. Commissions paid on the second product's sales.
c. Depreciation expense of the second product's machinery.
d. Production department manager's salary.

68. *CSO: 2C2f LOS: 2C2g*

A company has the following financial information for its divisions.

	Alcohol	Soft Drink	Juice	Total
Sales	$700,000	$430,000	$270,000	$1,400,000
Variable costs	280,000	150,000	170,000	600,000
Fixed costs	300,000	100,000	120,000	520,000
Operating income (loss)	$120,000	$180,000	$ (20,000)	$ 280,000

Which one of the following options reflects the current contribution margin ratio for each of the company's business segments?

	Alcohol	Soft Drink	Juice
a.	60%	65%	37%.
b.	60%	35%	63%.
c.	40%	65%	37%.
d.	40%	35%	63%.

69. *CSO: 2C2f LOS: 2C2d*
Capital Company has decided to discontinue a product produced on a machine purchased four years ago at a cost of $70,000. The machine has a current book value of $30,000. Due to technologically improved machinery now available in the marketplace the existing machine has no current salvage value. The company is reviewing the various aspects involved in the production of a new product. The engineering staff advised that the existing machine can be used to produce the new product. Other costs involved in the production of the new product will be materials of $20,000 and labor priced at $5,000.

Ignoring income taxes, the costs relevant to the decision to produce or not to produce the new product would be

a. $25,000.
b. $30,000.
c. $55,000.
d. $95,000.

70. *CSO: 2C2f LOS: 2C2d*
Reynolds Inc. manufactures several different products, including a premium lawn fertilizer and weed killer that is popular in hot, dry climates. Reynolds is currently operating at less than full capacity because of market saturation for lawn fertilizer. Sales and cost data for a 40-pound bag of Reynolds lawn fertilizer is as follows.

Selling price		$18.50
Production cost		
Materials and labor	$12.25	
Variable overhead	3.75	
Allocated fixed overhead	4.00	20.00
Income (loss) per bag		$(1.50)

On the basis of this information, which one of the following alternatives should be recommended to Reynolds management?

a. Select a different cost driver to allocate its overhead.
b. Drop this product from its product line.
c. Continue to produce and market this product.
d. Increase output and spread fixed overhead over a larger volume base.

71. *CSO: 2C2f*   *LOS: 2C2k*

Following are the operating results of the two segments of Parklin Corporation.

	Segment A	Segment B	Total
Sales	$10,000	$15,000	$25,000
Variable costs of goods sold	4,000	8,500	12,500
Fixed costs of goods sold	1,500	2,500	4,000
Gross margin	4,500	4,000	8,500
Variable selling and administrative	2,000	3,000	5,000
Fixed selling and administrative	1,500	1,500	3,000
Operating income (loss)	$ 1,000	$ (500)	$ 500

Variable costs of goods sold are directly related to the operating segments. Fixed costs of goods sold are allocated to each segment based on the number of employees. Fixed selling and administrative expenses are allocated equally. If Segment B is eliminated, $1,500 of fixed costs of goods sold would be eliminated. Assuming Segment B is closed, the effect on operating income would be

a. an increase of $500.
b. an increase of $2,000.
c. a decrease of $2,000.
d. a decrease of $2,500.

72. *CSO: 2C2f LOS: 2C2d*

Grapevine Corporation produces two joint products, JP-1 and JP-2, and a single by-product, BP-1, in Department 2 of its manufacturing plant. JP-1 is subsequently transferred to Department 3 where it is refined into a more expensive, higher-priced product, JP-1R, and a by-product known as BP-2. Recently, Santa Fe Company introduced a product that would compete directly with JP-1R and, as a result, Grapevine must reevaluate its decision to process JP-1 further. The market for JP-1 will not be affected by Santa Fe's product, and Grapevine plans to continue production of JP-1, even if further processing is terminated. Should this latter action be necessary, Department 3 will be dismantled.

Which of the following items should Grapevine consider in its decision to continue or terminate Department 3 operations?

1. The selling price per pound of JP-1.
2. The total hourly direct labor cost in Department 3.
3. Unit marketing and packaging costs for BP-2.
4. Supervisory salaries of Department 3 personnel who will be transferred elsewhere in the plant, if processing is terminated.
5. Department 2 joint cost allocated to JP-1 and transferred to Department 3.
6. The cost of existing JP-1R inventory.

a. 2, 3, 4.
b. 1, 2, 3.
c. 2, 3, 5 ,6.
d. 1, 2, 3, 4, 5.

73. *CSO: 2C2f LOS: 2C2k*

The Doll House, a very profitable company, plans to introduce a new type of doll to its product line. The sales price and costs for the new dolls are as follows.

Selling price per doll	$100
Variable cost per doll	$60
Incremental annual fixed costs	$456,000
Income tax rate	30%

If 10,000 new dolls are produced and sold, the effect on Doll House's profit (loss) would be

a. $(176,000).
b. $(56,000).
c. $(39,200).
d. $280,000.

74. *CSO: 2C2f* *LOS: 2C2n*

The Furniture Company currently has three divisions: Maple, Oak, and Cherry. The oak furniture line does not seem to be doing well and the president of the company is considering dropping this line. If it is dropped, the revenues associated with the Oak Division will be lost and the related variable costs saved. Also, 50% of the fixed costs allocated to the oak furniture line would be eliminated. The income statements, by divisions, are as follows.

	Maple	Oak	Cherry
Sales	$55,000	$85,000	$100,000
Variable Costs	40,000	72,000	82,000
Contribution Margin	15,000	13,000	18,000
Fixed costs	10,000	14,000	10,200
Operating profit (loss)	$ 5,000	$(1,000)	$ 7,800

Which one of the following options should be recommended to the president of the company?

a. Continue operating the Oak Division as discontinuance would result in a total operating loss of $1,200.
b. Continue operating the Oak Division as discontinuance would result in a $6,000 decline in operating profits.
c. Discontinue the Oak Division which would result in a $1,000 increase in operating profits.
d. Discontinue the Oak Division which would result in a $7,000 increase in operating profits.

75. *CSO: 2C2g* *LOS: 2C2l*

Milton Manufacturing occasionally has capacity problems in its metal shaping division, where the chief cost driver is machine hours. In evaluating the attractiveness of its individual products for decision-making purposes, which measurement tool should the firm select?

	If machine hours do not constrain the number of units to be produced	If machine hours constrain the number of units to be produced
a.	Contribution margin	Contribution margin per machine hour.
b.	Gross profit	Contribution margin.
c.	Contribution margin	Contribution margin ratio.
d.	Contribution margin per machine hour	Contribution margin.

76. *CSO: 2C2g* *LOS: 2C2l*
Elgers Company produces valves for the plumbing industry. Elgers' per unit sales price and variable costs are as follows.

Sales price	$12
Variable costs	8

Elgers' practical plant capacity is 40,000 units. Elgers' total fixed costs aggregate $48,000 and it has a 40% effective tax rate. The maximum net profit that Elger can earn is

a. $48,000.
b. $67,200.
c. $96,000.
d. $112,000.

77. *CSO: 2C2g* *LOS: 2C2l*
Dayton Corporation manufactures pipe elbows for the plumbing industry. Dayton's per unit sales price and variable costs are as follows.

Sales price	$10
Variable costs	7

Dayton's practical plant capacity is 35,000 units. Dayton's total fixed costs amount to $42,000, and the company has a 50% effective tax rate. If Dayton produced and sold 30,000 units, net income would be

a. $24,000.
b. $45,000.
c. $48,000.
d. $90,000.

78. *CSO: 2C2g* *LOS: 2C2l*

Raymund Inc., a bearings manufacturer, has the capacity to produce 7,000 bearings per month. The company is planning to replace a portion of its labor-intensive production process with a highly automated process, which would increase Raymund's fixed manufacturing costs by $30,000 per month and reduce its variable costs by $5 per unit.

Raymund's Income Statement for an average month is as follows.

Sales (5,000 units at $20 per unit)		$100,000
Variable manufacturing costs	$50,000	
Variable selling costs	15,000	65,000
Contribution margin		35,000
Fixed manufacturing costs	16,000	
Fixed selling costs	4,000	20,000
Operating income		$ 15,000

If Raymund installs the automated process, the company's monthly operating income would be

a. $5,000.
b. $10,000.
c. $30,000.
d. $40,000.

79. *CSO: 2C2g* *LOS: 2C2l*

Phillips and Company produces educational software. Its current unit cost, based upon an anticipated volume of 150,000 units, is as follows.

Selling price	$150
Variable costs	60
Contribution margin	90
Fixed costs	60
Operating income	30

Sales for the coming year are estimated at 175,000 units, which is within the relevant range of Phillip's cost structure. Cost management initiatives are expected to yield a 20% reduction in variable costs and a reduction of $750,000 in fixed costs. Phillip's cost structure for the coming year will include a

a. per unit contribution margin of $72 and fixed costs of $55.
b. total contribution margin of $15,300,000 and fixed costs of $8,250,000.
c. variable cost ratio of 32% and operating income of $9,600,000.
d. contribution margin ratio of 68% and operating income of $7,050,000.

80. *CSO: 2C2g* *LOS: 2C2d*

Cervine Corporation makes two types of motors for use in various products. Operating data and unit cost information for its products are presented below.

	Product A	Product B
Annual unit capacity	10,000	20,000
Annual unit demand	10,000	20,000
Selling price	$100	$80
Variable manufacturing cost	53	45
Fixed manufacturing cost	10	10
Variable selling & administrative	10	11
Fixed selling & administrative	5	4
Fixed other administrative	2	0
Unit operating profit	$ 20	$10
Machine hours per unit	2.0	1.5

Cervine has 40,000 productive machine hours available. The relevant contribution margins, per machine hour for each product, to be utilized in making a decision on product priorities for the coming year, are

	Product A	Product B
a.	$17.00	$14.00.
b.	$18.50	$16.00.
c.	$20.00	$10.00.
d.	$37.00	$24.00.

81. *CSO: 2C2g* *LOS: 2C2n*

Lark Industries accepted a contract to provide 30,000 units of Product A and 20,000 units of Product B. Lark's staff developed the following information with regard to meeting this contract.

	Product A	Product B	Total
Selling Price	$75	$125	
Variable costs	$30	$48	
Fixed overhead			$1,600,000
Machine hours required	3	5	
Machine hours available			160,000
Cost if outsourced	$45	$60	

Lark's operations manager has identified the following alternatives. Which alternative should be recommended to Lark's management?

a. Make 30,000 units of Product A, utilize the remaining capacity to make Product B, and outsource the remainder.
b. Make 25,000 units of Product A, utilize the remaining capacity to make Product B, and outsource the remainder.
c. Make 20,000 units of Product A, utilize the remaining capacity to make Product B, and outsource the remainder.
d. Rent additional capacity of 30,000 machine hours which will increase fixed costs by $150,000.

82. *CSO: 2C3a* *LOS: 2C3d*

Which one of the following would cause the demand curve for bagels to shift to the left?

a. A decrease in the cost of muffins.
b. An increase in the population.
c. A decrease in the price of bagels.
d. An increase in the supply of bagels.

83. *CSO: 2C3a* *LOS: 2C3d*

Which one of the following would cause the demand curve for prepared meals sold in supermarkets to shift to the right?

a. An increase in the price of prepared meals.
b. An increase in consumer income.
c. A decrease in the price of restaurant meals.
d. An increase in the supply of prepared meals.

84. *CSO: 2C3a* *LOS: 2C3n*
If the demand for a product is elastic, a price increase will result in

a. no change in total revenue.
b. an increase in total revenue.
c. a decrease in total revenue.
d. an indeterminate change in revenue.

85. *CSO: 2C3a* *LOS: 2C3b*
The advantages of incorporating full product costs in pricing decisions include all the following **except**

a. ease in identifying unit fixed costs with individual products.
b. full product cost recovery.
c. the promotion of price stability.
d. a pricing formula that meets the cost-benefit test; i.e., simplicity.

86. *CSO: 2C3a* *LOS: 2C3p*
An economist determined the following market data for a commodity.

Price	Quantity Supplied	Quantity Demanded
$25	250	750
50	500	500
75	750	250
100	1,000	0

Based on this information, which one of the following statements is correct?

a. In the short-term, there would be excess supply at a price of $40.
b. In the long-run, if producers' costs per unit decline, then a reasonable market clearing price could be $65.
c. In the short-term, there would be excess demand at a price of $70.
d. In the long-run, if producers' costs per unit increase, then a reasonable market clearing price could be $70.

87. *CSO: 2C3a* *LOS: 2C3m*
If a product's price elasticity of demand is greater than one, then a 1% price increase will cause the quantity demanded to

a. increase by more than 1%.
b. increase by less than 1%.
c. decrease by less than 1%.
d. decrease by more than 1%.

88. *CSO: 2C3a* *LOS: 2C3o*
If the demand for a good is elastic, then a(n)

a. decrease in price will increase total revenue.
b. increase in price will increase total revenue.
c. decrease in price will decrease total revenue.
d. increase in price will have no effect on total revenue.

89. *CSO: 2C3a* *LOS: 2C3c*
Leader Industries is planning to introduce a new product, DMA. It is expected that 10,000 units of DMA will be sold. The full product cost per unit is $300. Invested capital for this product amounts to $20 million. Leader's target rate of return on investment is 20%. The markup percentage for this product, based on operating income as a percentage of full product cost, will be

a. 42.9%.
b. 57.1%.
c. 133.3%.
d. 233.7%.

90. *CSO: 2C3a* *LOS: 2C3b*
Which one of the following situations **best** lends itself to a cost-based pricing approach?

a. A paper manufacturer negotiating the price for supplying copy paper to a new mass merchandiser of office products.
b. An industrial equipment fabricator negotiating pricing for one of its standard models with a major steel manufacturer.
c. A computer component manufacturer debating pricing terms with a customer in a new channel of distribution.
d. A computer component manufacturer debating pricing with a new customer for a made to order, state of the art application.

91. *CSO: 2C3a* *LOS: 2C3b*
Companies that manufacture made-to-order industrial equipment typically use which one of the following?

a. Cost-based pricing.
b. Market-based pricing.
c. Material-based pricing.
d. Price discrimination.

92. *CSO: 2C3a LOS: 2C3b*
Which one of the following is **not** a characteristic of market-based costing?

a. It has a customer-driven external focus.
b. It is used by companies facing stiff competition.
c. It is used by companies facing minimal competition.
d. It starts with a target selling price and target profit.

93. *CSO: 2C3a LOS: 2C3c*
Almelo Manpower Inc. provides contracted bookkeeping services. Almelo has annual fixed costs of $100,000 and variable costs of $6 per hour. This year the company budgeted 50,000 hours of bookkeeping services. Almelo prices its services at full cost and uses a cost-plus pricing approach. The company developed a billing price of $9 per hour. The company’s mark-up level would be

a. 12.5%.
b. 33.3%.
c. 50.0%.
d. 66.6%.

94. *CSO: 2C3a LOS: 2C3a*
Which one of the following pricing methods focuses on setting the price based on recouping the manufacturing cost of the product and achieving a desired profit?

a. Market-based pricing.
b. Cost-based pricing.
c. Target pricing.
d. Life-cycle based pricing.

95. *CSO: 2C3b LOS: 2C3i*
The management of a company is attempting to reduce the cost for Product X by analyzing the trade-offs between different types of product features and total product cost. What type of cost reduction strategy is the company using?

a. Total quality management.
b. Activity-based costing.
c. Kaizen.
d. Value engineering.

96. *CSO: 2C3b LOS: 2C3j*
Fennel Products is using cost-based pricing to determine the selling price for its new product based on the following information.

Annual volume	25,000 units
Fixed costs	$700,000 per year
Variable costs	$200 per unit
Total assets	$4,000,000
Effective tax rate	40%

The target price that Fennell needs to set for the new product to achieve a 15% after-tax return on investment (ROI) would be

a. $228.
b. $238.
c. $258.
d. $268.

97. *CSO: 2C3d LOS: 2C3q*
All of the following statements about product life-cycle pricing are correct **except** that price

a. is set to cover costs incurred from the time when the product is manufactured.
b. may be set low to penetrate the market when the product is first introduced.
c. is maintained by introducing new features to differentiate the product in the later stages.
d. may be set high to skim the market when the product is first introduced.

98. *CSO: 2C3d LOS: 2C3q*
Product X was launched ten years ago as an innovative product. The initial price was relatively high, which yielded a high profit margin. The market for Product X is now becoming very competitive, and demand for the product is slowing. What pricing strategy should the company follow for Product X based on the current market conditions?

a. Because of the increased competition, Product X’s price should be decreased.
b. Pricing for Product X should be at its highest level to recoup its innovation R&D.
c. The company should sell Product X below cost so that it can force competitors out of the market.
d. Prices should be held steady with only inflation adjustments.

99. *CSO: 2C3e LOS: 2C3f*
A monopoly will maximize profits if it produces an output where marginal cost is

a. less than marginal revenue.
b. greater than marginal revenue.
c. equal to marginal revenue.
d. equal to price.

Answer for Section C: Decision Analysis

1. Correct answer c. Garner could incur up to $270,000 of expense and still break even due to savings of $270,000 as shown below.

Interest expense avoided	=	(3 x $1,500,000) x [(.07 ÷ 12) x 8]
	=	$4,500,000 x .046666
	=	$210,000
Additional income earned	=	(3 x $1,500,000) x [(.04 ÷ 12) x 4]
	=	$4,500,000 x .013333
	=	$60,000
Total savings	=	$210,000 + $60,000
	=	$270,000

2. Correct answer c. Bolger's breakeven point would increase by 375 units as shown below.

Current breakeven point:	($300 - $210)X	=	$360,000
	$90 X	=	$360,000
	X	=	4,000 units
Future breakeven point:	($300 - $220)X	=	$350,000
	$80X	=	$350,000
	X	=	4,375 units
Difference	4,375 – 4,000	=	375 units

3. Correct answer b. Phillips breakeven volume is 82,500 units, and the company's anticipated operating income is $9,250,000 as calculated below.

Breakeven point:	($160 - $60) X	=	($55 x 150,000)
	$100X	=	$8,250,000
	X	=	82,500 units

Operating income	=	[($160 - $60) x 175,000] - $8,250,000
	=	$9,250,000

4. Correct answer c. Cost-volume-profit analysis assumes that variable costs do not change with a change in volume; therefore, option C is the correct response. All other assumptions presented are correct.

5. Correct answer b. At the breakeven point, Ace would sell 9,231 units of Product C based on a sales mix of 80% Product C.

Breakeven point: 80% C contribution + 20% F contribution = Fixed costs

[(.8 x $2) + (.2 x $5)] x A	=	$30,000
$2.60A	=	$30,000
A	=	22,538.46

Product C breakeven point: 11,538.46 x 80% = 9,231 units

6. Correct answer c.

12 x 3,500 = 42,000	.28
20 x 3,000 = 60,000	.40
12 x 4,000 = 48,000	.32
150,000	

.28 x (18-3) = 4.2
.40 x (15-1) = 5.6
.32 x (20-0) = 6.4
16.2 weighted CM

Fixed: 165,000 + 249,000 + 316,000 + 565,000 = 1,295,000 / 16.2 = 79,938

7. Correct answer d. In order to achieve a net income of $1.3 million, Carson will need to sell 90,000 units as shown below.

$100x - $75x - $250,000	=	$1,300,000 ÷ (1 - .35)
$25x - $250,000	=	$2,000,000
$25x	=	$2,250,000
x	=	90,000 units

8. Correct answer b. Metal Craft would need to sell 54,300 Model No. 153 socket sets in order to generate $161,200 in operating income based on the following calculation.

Sales mix: Model 109: 20%; Model 145: 50%; Model 153: 30%

Breakeven: (.2 x $10 - $5.50)A + (.5 x $15 - $8)A + (.3 x $20 - $14)A	=	$161,200
$.90A + $3.50A + $1.80A	=	$1,122,200
$6.20A	=	$1,122,200
A	=	181,000 sets

Model 153 breakeven: 181,000 sets x 30% = 54,300 sets

9. Correct answer d. Robin Company's required sales would be $1,200,000 as shown below.

(1 – tax rate) x (Contribution – Fixed costs)	=	Return on sales
(1 - .4) x (.30A - $240,000)	=	.06A
.12A	=	$144,000
A	=	$1,200,000

10. Correct answer b.

    Fixed costs = 35,000 + 18,500 + 9,320 + 7,500 + 4,400 = 74,720
    Variable costs = 30,000 +5,400 + 67,500 + 27,000 = $129,900
    Variable cost per copy = $129,900/6,000 = $ 21.65
    Contribution margin = 45 - 21.65 = 23.35

    23.35X – 74,720 = .2 x 45X
    23.35S = 9x + 74,720
    14.35X = 74,720
    X = 5,207 copies

11. Correct answer b. To earn an 8% after-tax return on the $300,000 investment, Zipper Company would require sales totaling $914,286 as shown below.

Contribution – Fixed costs	=	8% of investment ÷ (1 – tax rate)
.7A - $600,000	=	(.08 x $300,000) ÷ (1 - .4)
.7A - $600,000	=	$24,000 ÷ .6
.7A	=	$600,000 + $40,000
A	=	$914,286

12. Correct answer b. Breakeven quantity can be defined as the point where operating income is equal to zero. Therefore, revenue must equal total costs.

13. Correct answer b. To maximize contribution, Eagle Brand should produce 250 units of Product X at $20 contribution per unit for a total of $5,000. Option D provides a higher contribution but Eagle does not have enough raw material to produce all these units.

14. Correct answer b.
    b. Volume to reach targeted net income =
    [fixed costs + (target after tax income / (1 – tax rate))] / unit contribution margin
    unit contribution margin = price – variable costs
    Volume to reach targeted net income =
    [$2,000,000 + ($2,400,000 / (1 – 0.40))] / ($12 - $4.50 - $2.50 - $1.00) = 1,500,000 containers
    1,500,000 containers * $12 per container = $18,000,000 of dollar sales to reach targeted net income

15. Correct answer a.
    Breakeven unit sales = fixed costs / (selling price – variable costs)
    Margin of safety = projected unit sales – breakeven unit sales
    $145,000 / ($850 - $350) = 290 breakeven unit sales
    $510,000 / $850 = 600 projected unit sales
    600 - 290 = 310

16. Correct answer b. Silverstone's profits this will be $80,000 as shown below.

Contribution margin	=	1 – ($270,000 ÷ $450,000)
	=	40%
Profit	=	(.4 x $500,000) - $120,000
	=	$80,000

17. Correct answer c. Breeze's operating profit would increase by $1,000. Operating profit equals contribution minus fixed costs. If contribution increases while fixed costs remain the same, operating profit will increase by the same amount.

18. Correct answer a. Wilkinson's income would be $30,500 as shown below.

Income	=	(Contribution margin x selling price x units) – Fixed costs
	=	(.45 x $30 x 3,000) - $10,000
	=	$30,500

19. Correct answer b. The maximum contribution margin that Cervine can generate is $689,992 as shown below.

Contribution Product A	=	$100 - $53 - $10	=	$37
Contribution Product B	=	$80 - $45 - $11	=	$24
Hours Product A	=	10,000 units x 2 hours	=	20,000 hours
Units Product B	=	(40,000 hrs. – 20,000 hrs.) ÷ 1.5	=	13,000 units
Contribution	=	($37 x 10,000) + ($24 x 13,333)	=	$689,992

20. Correct answer c. Specialty Cakes will break even by producing 4,947 round cakes and 14,842 heart-shaped cakes as shown below.

Breakeven: (.25 x $4A) + (.75 x $5A)	=	$94,000
$4.75A	=	$94,000
A	=	19,789 units
Round cakes: .25 x 19,789	=	4,947
Heart-shaped cakes: .75 x 19,789	=	14,842

21. Correct answer a. If the change is implemented, Lazar's total contribution margin would increase by $125,000 as shown below.

Decrease in direct material: .5 x $5	=	$2.50
Increase in variable overhead: ($3 ÷ 2 hrs.) x 3.5 hrs. - $3	=	$2.25
Reduction in cost: $2.50 - $2.25	=	$.25
Increase in contribution: $.25 x 500,000 units	=	$125,000

22. Correct answer c. If Ticker's sales mix shifts toward Product A, operating income will decrease of the number of units sold remains constant. Since A's contribution margin is lower than Product B's, there will be less contribution toward covering fixed costs resulting in lower operating income.

23. Correct answer b. The maximum contribution that Lazar can generate is $2,000,000 by producing 250,000 trunks. Since the contribution margin for trunks ($8) is more than twice the contribution margin for crates ($3), the fact that trunks utilize twice the machine hours is negated.

24. Correct answer b.
Note: Product 1 contribution margin ratio = (12,000,000 – 4,800,000)/12,000,000 = 60%; Product 2 contribution margin ratio = (3,000,000 – 1,500,000)/3,000,000 = 50%; Product 1 = 12,000,000/(12,000,000 + 3,000,000) = 80% of sales dollars; Product 2 = 20% of sales dollars (5,400,000 + 400,000)/[(.60 x 80%) + (.50 x 20%)]

25. Correct answer b. Sunk costs are past, or historical costs.

26. Correct answer c.
60,000 – 50,000 = raise given to assistant manager; no new maintenance employees are needed and the current production manager will make the same salary so these payments would not differ between the alternatives

27. Correct answer d. The opportunity cost is Johnson's best alternative use of both the $200 and the two hours. Opportunity cost is the contribution foregone by not using a limited resource in its next best alternative use.

28. Correct answer c. The benefits sacrificed by selecting an alternative use of resources is opportunity cost. Opportunity cost is the contribution foregone by not using a limited resource in its next best alternative use.

29. Correct answer d. Relevant costs and relevant revenues are those costs and revenues expected in the future that differ among alternative courses of action being considered. These are the items that affect decision making.

30. Correct answer a. A sunk cost is a past cost that cannot be changed no matter what action is taken. Therefore, joint costs incurred prior to a decision would be considered sunk.

31. Correct answer d. Since Blaze is uncertain what the sales of the new product will be and his risk tolerance is low, he should choose to pay 30% of his revenue to the mall management. As a consequence, his expenses will match his revenues and the project risk will be low.

32. Correct answer d. Benefits lost by choosing one alternative over another are referred to as opportunity costs.

33. Correct answer c. The relevant unit cost to manufacture the ice-makers is $30 each for a total relevant cost of $600,000. Under either alternative, there would be $4 per unit of fixed cost remaining, therefore, this $4 becomes irrelevant to the decision and can be deducted from the total unit cost of $34 leaving $30 of relevant cost.

34. Correct answer c. Plan Z is the most profitable ($28,000), Plan X is next ($24,000) with Plan Y the least profitable ($20,400).

Plan Z: ($32 - $30) x 14,000	=	$28,000
Plan X: [$36 - $3 – ($36 x .1)] x 10,000	=	$24,000
Plan Y: [$38 - $30 – ($38 x .1)] x 12,000	=	A + $30,000
$50,400	=	A + $30,000
A	=	$20,400

35. Correct answer b. Auburn's average total cost at an output level of three units is $850 as shown below.

Average total cost	=	($2,000 ÷ 3) + ($550 ÷ 3)
	=	$850

36. 33.Correct answer a. Kelso's average total cost at an output level of 11 units is $113.64 as shown below.

Average total cost	=	($1,000 ÷ 11) + ($250 ÷ 11)
	=	$113.64

37. 34.Correct answer b. Harper's short-run marginal cost is $130 per unit as calculated below.

Marginal cost	=	($3,325,000 - $3,000,000) ÷ (22,500 – 20,000)
	=	$130

38. 35.Correct answer b. Auburn's marginal cost for the 7th unit is $210 as shown below.

Marginal cost	=	$1,250 - $1,040
	=	$210

39. Correct answer a. Kelso's marginal cost for the 12th unit is $180 as shown below.

Marginal cost	=	$480 - $300
	=	$180

40. Correct answer a. If the total cost is $800 and average variable cost is $5 per unit, the average fixed cost is $3 per unit.

($5 x 100 units) + (A x 100 units)	=	$800
100A	=	$300
A	=	$3

41. Correct answer b. Crawford's marginal cost of the 23rd unit is $40 as shown below.

Marginal cost	=	$1,330 - $1,290
	=	$40

42. Correct answer c. The level that would produce the highest operating income for Parker is 14 units as shown below.

8 units:	8($100,000 - $50,000) - $400,000	=	0
10 units:	10($100,000 - $50,000) - $400,000	=	$100,000
14 units:	14($100,000 - $45,000) - $600,000	=	$170,000
17 units:	17($100,000 - $45,000) - $800,000	=	$135,000

43. Correct answer b.
Marginal revenue = change in total revenue / change in quantity
8 * $450 = $3,600
9 * $445 = $4,005
($4,005 - $3,600) / (9 – 8) = $405

44. Correct answer b
b. $64 + 3; total variable costs

45. Correct answer a
Incremental or relevant costs include the variable costs of $100 ($40 direct materials + $30 direct labor + $24 variable overhead + $6 variable selling costs). Furthermore, if the company does not have idle capacity, the unit price must cover the opportunity costs as well as the variable costs. Given that the alternative use will generate a $20,000 contribution, the 1,000 special order units will have to generate at least $20 per unit ($20,000/1,000 units) above their variable costs, a total of $120 per unit.

46. Correct answer c. If Johnson accepted the special order, the company's operating income would increase by $37,500 as shown below.

Special order price	$2.50
Less variable cost*	5.00
Contribution margin	$2.50

Contribution to operating income:15,000 x $2.50 = $37,500
*Fixed costs and selling costs are not relevant

47. Correct answer c. If the Robo Division submits a bid for $8,000,000, the division will lose $500,000 but GMT will gain $1,700,000 as the transfer price is nor relevant to GMT.

Robo Division: $8,000,000 - $3,700,000 - $4,800,000	=	($500,000)
GMT Industries: $8,000,000 - $1,500,000 - $4,800,000	=	$1,700,000

48. Correct answer b. BCC should submit a bid of $772 per unit as this price covers all incremental costs.

Material	$500	
Direct labor	240	($20 x 12)
Variable overhead	24	($2 x 12)
Administrative costs	8	
Bid price	$772	

49. Correct answer d. When making a special order decision, Bedford would need to cover incremental costs which include variable costs of the product (I) and direct fixed costs of the order (III). In addition, Bedford should consider if there is a more beneficial use of the idle capacity, the opportunity cost of the decision (IV).

50. Correct answer a. Since Raymund has idle capacity, the company needs to cover only the incremental variable costs of $10 ($50,000 ÷ 5,000) per unit so this should be the bid price to gain a new customer.

51. Correct answer b. The price that Hickory paid for the 4,500 pounds of Kaylene ($3.40/lb.) is irrelevant; it is a sunk cost. The future price of Kaylene ($4.05/lb.) is relevant to future operations.

52. Correct answer b. The minimum price that Gardner should charge for the special order is $96.50 per unit. This price covers the variable cost of KT-6500 plus the forgone contribution from Product XR-2000 as shown below.

Hours required for 1,000 units of KT-6500		3,000 hours
Units of XR-2000 not produced: 3,000 hours ÷ 4		750 units
XR-2000 contribution: $105 - $24 - $10 - $5 - $4		$62 per unit
KT-6500 bid price:	=	[(750 x $62) ÷ 1m000] + $27 +12 +$6 + $5
	=	$46.50 + $27 + $12 + $6 + $5
	=	$96.50

53. Correct answer a. Green should accept the offer of $280,000 as it will cover all incremental costs and increase operating profit.

Selling price $280,000		
Direct material	66,000	
Direct labor 120,000		
Variable overhead	48,000	(.4 x $120,000)
Administrative costs	12,000	(.1 x $120,000)
Contribution	$ 34,000	

54. Correct answer c. The option (a) of purchasing externally is more costly the manufacturing internally, because Fixed OH costs are not avoidable. The option (b) is not possible due to the capacity restrictions. This leaves options (c) and (d), with option (d) being more costly than (c).

55. Correct answer c. The relevant cost to make the ice-makers is $600,000; to buy the units, the relevant cost is $528,000 as shown below.

Make:	20,000 x ($34 - $4*)	=	$600,000
Buy:	($28 x 20,000) – ($80,000 x .4)	=	$528,000

*The $4 of remaining fixed overhead applies to both alternatives and there irrelevant to the decision.

56. Correct answer b. Sunshine should not use the manufacturer's machine cost of $.50 as it is based on 1.6 million units. Since Sunshine plans to produce 1.2 million units, the relevant cost is $.67 ($800,000 ÷ 1.2 million).

57. Correct answer d. For Aril to benefit from purchasing the units rather than making the units, the purchase price must be less than $14 as shown below.

Remaining fixed cost/unit	=	($150,000 x .6) ÷ 30,000
	=	$3
Relevant cost to make unit	=	$3 + $11
	=	$14

58. Correct answer b. The $50,000 trade-in allowance is relevant to Verla's decision as it decreases the cash outflow at time zero when the machine is purchased.

59. Correct answer a.
Solution: For the fixed costs, the 30% that remains is not relevant to the decision. Only the 70% that is avoidable is relevant to the decision.
Relevant cost to make 17 + 16 + 4.50 = 37.50 plus the fixed portion that is relevant (6 x 70%) 4.20 = 41.70 x 100,000 units = 4,170,000
Cost to buy 45 x 100,000 = 4,500,000
Less opportunity cost of profit from alternative use (300,000)
=Net cost to buy 4,200,000
Compare make 4,170,000 to buy 4,200,000. If the company buys from outside supplier, the net income will decrease 30,000

60. Correct answer d. The relevant costs of making the motors are direct materials, direct labor, variable manufacturing overhead, rentals costs of the special machinery and the rental costs of the new warehouse. The fixed manufacturing overhead and the costs of the current warehouse space are not relevant because they will be incurred regardless of whether the motor is made or bought. Buying the motor will cost $630,000 ($21 x 30,000). Making the motor will cost $549,000 {[($8 DM + $4 DL + $3 VOH) x 30,000] + $54,000 + $45,000}. Hence, making the motor saves $81,000 ($630,000 - $549,000).

61. Correct answer c.
Option C is correct. Processing the product up to Shaping stage will yield a marginal income of $4/unit. This is computed as $18.00 (selling price after Shaping) minus the costs up to Shaping ($8.00 + $1.00 + $5.00). Alternatively, Shaping is the last stage where the marginal revenue is higher than the marginal cost. After the painting stage, the incremental revenue is just $2.00, but the incremental cost of painting is $3.00.

62. Correct answer b.
b. $375 - $300 = $75 additional revenue per unit
$75 * 10,000 units = $750,000
$750,000 - $500,000 additional cost = $250,000 increase in operating income

63. Correct answer c. Jones should process Product C further because the incremental revenue exceeds the incremental cost. Product B should be sold at split-off as the incremental revenue is less than the incremental cost.

Product C: [70,000 x ($12.50 - $10.25)] - $140,000	=	$17,500
Product B: [20,000 x ($8.00 - $5.50)] - $60,000	=	($10,000)

64. Correct answer b. Oakes should continue to process Beracyl as the incremental revenue exceeds the incremental cost of processing; Mononate should be sold at split-off as the incremental revenue is less than the incremental cost of further processing.

Beracyl: [60,000 x ($18 - $15)] - $115,000	=	$65,000
Mononate: [40,000 x ($10 - $7)] - $125,000	=	($5,000)

65. Correct answer d. Whitman's contribution margin will be $380,000 if the Restaurant segment is discontinued as shown below.

Contribution:	=	[.95 x ($400,000 + $500,000)] – [.95 x ($300,000 + $200,000)}
	=	$855,000 - $475,000
	=	<u>$380,000</u>

66. Correct answer b.
(Contribution loss)- cost savings= ($3,000)
$9,000-$6,000=$3,000

67. Correct answer a. A different product may generate more profit.

68. Correct answer a. The company's segments have the following contribution margin rations:

Alcohol	$700,000 - $280,000 = $420,000 ÷ $700,000	=	60%
Soft Drink	$430,000 - $150,000 = $280,000 ÷ $430,000	=	65%
Juice	$270,000 - $170,000 = $100,000 ÷ $270,000	=	37%

69. Correct answer a. The costs relevant to this decision are the incremental costs of production of $20,000 material and $5,000 labor. The cost of the machinery is a sunk cost and therefore irrelevant.

70. Correct answer c. Reynolds should continue to produce and sell the fertilizer as it contributes $2.50 ($18.50 - $12.25 - $3.75) per bag toward coverage of fixed costs.

71. Correct answer c. Parklin's operating income will go from $500 to ($1,500) if Segment B is closed, a decrease of $2,000.

Sales	$10,000		
Variable cost of goods sold		4,000	
Fixed cost of goods sold		2,500	(+$1,000 from Segment B)
Gross margin		3,500	
Variable selling & admin.		2,000	
Fixed selling & admin.		3,000	($1,500 from Segment B)
Operating loss		($1,500)	

72. Correct answer b. Grapevine should consider items 1, 2, and 3. Item 1 will affect future revenue. Items 2 and 3 will be eliminated and lower Grapevine's future costs. Item 4 will continue and is irrelevant. Items 5 and 6 are sunk costs and also irrelevant.

73. Correct answer c. The production and sale of the new dolls would decrease the company's profit by $39,200 as shown below.

Contribution	$400,000	[10,000 x ($100 - $60)]
Fixed costs	456,000	
Operating income	-56,000	
Tax savings @30%	16,800	
Net loss	-$39,000	

74. Correct answer b. The company should continue the Oak Division as it is currently covering $13,000 of its $14,000 fixed costs. If the division is eliminated, $7,000 of fixed costs will remain causing a $6,000 decline in the company's operating profit ($7,000 - $1,000).

75. Correct answer a. If the company can produce all the units required (no constraint), the prime consideration should be the product's contribution margin. If production is constrained by the number of machine hours, the company should focus on the contribution margin per machine hour.

76. Correct answer b. The maximum net profit Elgers can earn is $67,200 as shown below.

Contribution	$160,000	[40,000 x ($12 - $8)]
Fixed costs	48,000	
Operating profit		112,000
Tax @ 40%	44,800	
Net profit	$ 67,200	

77. Correct answer a. If Dayton sold 30,000 units, the net income would be $24,000.

Contribution	$90,000	[30,000 x ($10 - $7)]
Fixed costs	42,000	
Gross profit	48,000	
Tax @50%	24,000	
Net income	$24,000	

78. Correct answer b. If Raymund installs the automated process, the monthly operating income would be $10,000 as shown below.

Reduction in variable costs: ($50,000 ÷ 5,000) = $10 - $5 = $5

Sales	$100,000	
Variable manufacturing	25,000	($5 x 5,000)
Variable selling	15,000	
Contribution	60,000	
Fixed manufacturing	46,000	
Fixed selling	4,000	
Operating income	$ 10,000	

79. Correct answer c. The only combination of factors that is correct is a variable cost ratio of 32% and operating income of $9,600,000.

Variable cost ratio: $60 – ($60 x .2) = $48 ÷ $150 = 32%

Contribution margin	$17,850,000	[175,000 x ($150 - $48)]
Fixed costs*	8,250,000	
Operating income	$ 9,600,000	

*Current fixed costs $9,000 ($60 x 150,000) - $750,000 eliminated

80. Correct answer b. The relevant contribution margins per machine hour are Product A $18.50 and Product B $16.00 as shown below.

Product A:	$100 - $53 - $10 = $37 ÷ 2 hours =	$18.50
Product B:	$80 - $45 - $11 = $24 ÷ 1.5 hours =	$16.00

81. Correct answer a. Lark should make 30,000 units of Product A, 14,000 units of Product B (utilizing the remaining machine hours), and outsource 6,000 units of Product B because this alternative makes the greatest contribution as shown below.

Hours: (30,000 A units x 3 hours) = 90,000 hours
160,000 hours – 90,000 hours = 70,000 hours remaining
70,000 ÷ 5 hours for B unit = 14,000 units of Product B

Contribution: = [($75 - $30) x 30,000] + [($125 - $48) x 14,000] + [($125 - $60) x 6,000]
= $1,350,000 + $1,078,000 + $390,000
= $2,818,000

82. Correct answer a. The demand curve would shift to the left (fewer bagels demanded) if the cost of muffins decreased making muffins more desirable.

83. Correct answer b. An increase in consumer income would increase demand and cause a shift to the right. An increase in price is movement along the curve to a higher price.

84. Correct answer c. If the demand for a product is elastic, a percentage change in price results in a larger percentage change in demand. If the product price is increased, the demand will decrease by a larger percentage resulting in a decrease in total revenue.

85. Correct answer a. Full costing does not simplify the identification of unit fixed costs with specific products. No matter what the costing method, fixed costs are generally arbitrarily allocated to products on a basis such as direct labor hours or machine hours.

86. Correct answer d. The market-clearing (equilibrium) price is the price where quantity demanded equals quantity supplied. The current market-clearing price is $50; if prices increase in the long-run, $70 is a reasonable equilibrium price.

87. Correct answer d. If the demand for a product is elastic, a percentage change in price results in a larger percentage change in demand. If the product price is increased by 1%, the demand will decrease by more than 1%.

88. Correct answer a. If the demand for a product is elastic, a percentage change in price results in a larger percentage change in demand. If the product price is decreased, the demand will increase by a larger percentage resulting in an increase in total revenue.

89. Correct answer c. Leader's markup percentage would be 133.3% as shown below.

Per unit return on investment	=	($20,000,000 x .2) ÷ 10,000
	=	$400
Markup percentage	=	$400 ÷ $300
	=	133.3%

90. Correct answer d. Cost-based pricing is particularly suited to suppliers who provide unique services and products. Therefore, the best situation presented is the make-to-order, state-of-the-art application.

91. Correct answer a. Cost-based pricing is particularly suited to suppliers who provide unique products and services.

92. Correct answer c. Market-based costing is particularly suited to companies operating in a competitive environment. Therefore, option c is not characteristic.

93. Correct answer a. Almelo's mark-up level is 12.5% as shown below.

Markup: $9 - $6 cost - $2 Fixed overhead = $1
Markup %: $1 ÷ $8 = 12.5%

94. Correct answer b.
a. market-based approaches focus on customers and the competitive market
c. this is alternative description for market-based approach
d. life cycle costing bases pricing on long term costs of the product, including R&D, customer support, etc. This includes much more than just manufacturing costs.

95. Correct answer d. Calculation or explanation of options: Value engineering is used in target costing to reduce product cost by analyzing the trade-offs between different types of product functionality or different types of product features and total product cost.

96. Correct answer d. Fennell's target price is $268 as shown below.

15% after-tax ROI	=	($4,000,000 x .15)
	=	$600,000
Per unit ROI	=	$600,000 ÷ 25,000
	=	$24
Target price	=	$200 + ($700,000 ÷ 25,000) + [$24 ÷ (1 - .4)]
	=	$200 + $28 + $40
	=	$268

97. Correct answer a.
Option A is incorrect as Price should be able to cover (and earn a margin on) all of the costs in the value chain, not just at the beginning in manufacturing.

98. Correct answer a.
The current market condition where growth is slowing and competition is fierce is associated with the market maturity stage of a product's lifecy-cle. During the market maturity stage product prices drop substantially with volatility due to price wars and economic conditions. Profits also shrink during this period due to an increase in price competition.

99. Correct answer c. A monopolist seeking to maximize total profit will produce up to the output at which marginal revenue equals marginal cost. To sell beyond this point, the price would need to be lowered and marginal cost would exceed marginal revenue.

Section D: Risk Management

1. *CSO: 2D1b LOS: 2D1f*
   A firm is constructing a risk analysis to quantify the exposure of its data center to various types of threats. Which one of the following situations would represent the highest annual loss exposure after adjustment for insurance proceeds?

	Frequency of Occurrence (years)	Loss Amount	Insurance (% coverage)
a.	1	$ 15,000	85.
b.	8	75,000	80.
c.	20	200,000	80.
d.	100	400,000	50.

2. *CSO: 2D1a LOS: 2D1a*
   A company that prides itself on its innovation revised an existing popular brand without conducting sufficient market research. By taking this action, the company exposed itself to what types of risk?

   a. Credit risk and strategic risk.
   b. Hazard risk and credit risk.
   c. Operational risk and hazard risk.
   d. Strategic risk and operational risk.

3. CSO: 2D1a LOS: 2D1a
   A German clothing retailer sells its products mainly online to customers worldwide. Company management believes that its primary risk relates to problems with its online website. A secondary risk is exchange rate volatility. Which one of the following **best** categorizes the company's primary risk and secondary risk?

   a. Strategic risk, financial risk.
   b. Hazard risk, operational risk.
   c. Operational risk, hazard risk.
   d. Operational risk, financial risk.

4. *CSO: 2D1b LOS: 2D1l*
   When implementing a continuous enterprise risk management process, what step should an organization take first?

   a. Control previously identified risks.
   b. Establish a risk management budget.
   c. Establish its strategy and objectives.
   d. Monitor and communicate results.

5. *CSO: 2D1c LOS: 2D1i*
A rice farmer has decided to protect against possible price fluctuations at the time of harvest by purchasing some rice options. What type of risk response strategy has the rice farmer engaged in?

a. Avoidance.
b. Reduction.
c. Sharing.
d. Acceptance.

6. *CSO: 2D1d LOS: 2D1j*
Even though a company implements an enterprise risk management program, it still is likely to have risk. This risk is considered

a. tolerable risks.
b. inherent risks.
c. residual risks.
d. uninsurable risks.

Answer for Section D: Risk Management

1. Correct answer a. The situation that occurs annually with an exposure of \$2,250 (\$15,000 x .15) represents the highest loss exposure. The exposure of the other situations is \$1,875 (\$75,000 x .2 ÷ 8), \$2,000 (\$200,000 x .2 ÷ 20) and \$2,000 (\$400,000 x .5 ÷ 100).

2. Correct answer d. Strategic risk includes brand risk and changing customer needs; operational risk includes customer satisfaction and change integration. Hazard risk deals with insurable events, and financial risk includes items such as credit risk. These last two are not applicable in the situation given.

3. Correct answer d. Classifications based on ERM document—website is operational, exchange rates, financial.

4. Correct answer c. For “c”, ERM is closely intertwined with a company’s strategy and objectives.

5. Correct answer c.
   In a financial transaction the purchasing of options to cover price movement fluctuations is considered a risk transfer or risk sharing strategy.
   Option: a contract which gives the buyer (the owner or holder) the right, but not the obligation, to buy or sell an underlying asset or instrument at a specified strike price on or before a specific date.
   Risk avoidance: elimination of hazards and exposures that can negatively affect an organization’s assets. Withdraw or not involved.
   Risk reduction: optimize or mitigate losses, such as outsourcing
   Risk sharing/transfer: transfer risks to others contractually or through insurance. Or share the burden of loss with other parties
   Risk acceptance: retain the risk as the cost of insuring against the risk is greater than the losses sustained. Any amount of potential loss over the amount insured is retained risk.

6. Correct answer c.
   This is how residual risk is defined/presented in the reference.

Section E: Investment Decisions

1. *CSO: 2E1a LOS: 2E1a*
   Capital investment projects include proposals for all of the following **except**

   a. the acquisition of government mandated pollution control equipment.
   b. the expansion of existing product offerings.
   c. additional research and development facilities.
   d. refinancing existing working capital agreements.

2. *CSO: 2E1a LOS: 2E1a*
   Which one of the following items is **least** likely to directly impact an equipment replacement capital expenditure decision?

   a. The net present value of the equipment that is being replaced.
   b. The depreciation rate that will be used for tax purposes on the new asset.
   c. The amount of additional accounts receivable that will be generated from increased production and sales.
   d. The sales value of the asset that is being replaced.

3. *CSO: 2E1b LOS: 2E1b*
   All of the following need to be considered in determining cash inflows from capital investments **except**

   a. proceeds from financing.
   b. reduction in working capital.
   c. cash savings on regular expenses.
   d. salvage value of old machine.

4. *CSO: 2E1b LOS: 2E1b*
   Wilcox Corporation won a settlement in a law suit and was offered four different payment alternatives by the defendant's insurance company. A review of interest rates indicates that 8% is appropriate for analyzing this situation. Ignoring any tax considerations, which one of the following four alternatives should the controller recommend to Wilcox management?

   a. $135,000 now.
   b. $40,000 per year at the end of each of the next four years.
   c. $5,000 now and $20,000 per year at the end of each of the next ten years.
   d. $5,000 now and $5,000 per year at the end of each of the next nine years, plus a lump-sum payment of $200,000 at the end of the tenth year.

5. *CSO: 2E1b LOS: 2E1b*
Olson Industries needs to add a small plant to accommodate a special contract to supply building materials over a five-year period. The required initial cash outlays at Time 0 are as follows.

Land	$ 500,000
New building	2,000,000
Equipment	3,000,000

Olson uses straight-line depreciation for tax purposes and will depreciate the building over 10 years and the equipment over 5 years. Olson's effective tax rate is 40%.

Revenues from the special contract are estimated at $1.2 million annually, and cash expenses are estimated at $300,000 annually. At the end of the fifth year, the assumed sales values of the land and building are $800,000 and $500,000, respectively. It is further assumed the equipment will be removed at a cost of $50,000 and sold for $300,000.

As Olson utilizes the net present value (NPV) method to analyze investments, the net cash flow for period 3 would be

a. $60,000.
b. $860,000.
c. $880,000.
d. $940,000.

6. *CSO: 2E1b LOS: 2E1b*
Skyline Industries is analyzing a capital investment project. The new equipment is required by the project and will cost $350,000 with $25,000 installation and transportation costs. A five-year MACRS depreciation schedule (20%, 32%, 19.2%, 11.52%, 11.52%, 5.76%) with the half-year convention will be employed. Existing equipment, with a book value of $200,000 and an estimated market value of $100,000, will be sold immediately after installation of the new equipment. Annual incremental pre-tax cash inflows are estimated at $175,000. Skyline's effective income tax rate is 40%. After-tax operating cash flow for the first year of the project would amount to

a. $105,000.
b. $133,000.
c. $135,000.
d. $175,000.

7. *CSO: 2E1b LOS: 2E1b*

Colvern Corporation is considering the acquisition of a new computer-aided machine tool to replace an existing, outdated model. Relevant information includes the following.

Projected annual cash savings	$28,400
Annual depreciation - new machine	16,000
Annual depreciation - old machine	1,600
Income tax rate	40%

Annual after-tax cash flows for the project would amount to

a. $5,600.
b. $7,440.
c. $17,040.
d. $22,800.

8. *CSO: 2E1b LOS: 2E1b*

Bell Inc. has a new project available which is expected to generate annual sales of 200,000 units for the next 8 years and then be discontinued. New equipment will be purchased for $1,600,000 and cost $200,000 to install. The equipment will be depreciated on a double-declining basis over its useful life. At the end of the eighth year, it will cost $50,000 to remove the equipment, which can be sold for $150,000. Additional working capital of $400,000 will be required immediately and needed for the life of the product. Annual indirect costs will increase by $300,000. Bell's effective tax rate is 40%.

In a capital budgeting analysis, what is the cash outflow at time 0 (initial investment) that Bell should use to compute the net present value?

a. $1,600,000.
b. $1,750,000.
c. $1,800,000.
d. $2,200,000.

9. *CSO: 2E1b LOS: 2E1b*
Skytop Industries is analyzing a capital investment project using discounted cash flow (DCF) analysis. The new equipment will cost $250,000. Installation and transportation costs aggregating $25,000 will be capitalized. Existing equipment will be sold immediately after installation of the new equipment. The existing equipment has a tax basis of $100,000 and an estimated market value of $80,000. Skytop estimates that the new equipment's capacity will generate additional receivables and inventory of $30,000, while payables will increase by $15,000. Annual incremental pre-tax cash inflows are estimated at $75,000. Skytop's effective income tax rate is 40%. Total after-tax cash outflows occurring in Year 0 would be

a. $177,000.
b. $182,000.
c. $198,000.
d. $202,000.

10. *CSO: 2E1b LOS: 2E1b*
Mintz Corporation is considering the acquisition of a new technologically efficient packaging machine at a cost of $300,000. The equipment requires an immediate, fully recoverable, investment in working capital of $40,000. Mintz plans to use the machine for five years, is subject to a 40% income tax rate, and uses a 12% hurdle rate when analyzing capital investments. The company employs the net present value method (NPV) to analyze projects.

The overall impact of the working capital investment on Mintz's NPV analysis is

a. $(10,392).
b. $(13,040).
c. $(17,320).
d. $(40,000).

11. *CSO: 2E1b LOS: 2E1b*
In estimating "after-tax incremental cash flows," under discounted cash flow analyses for capital project evaluations, which one of the following options reflects the items that should be included in the analyses?

	Sunk Costs	Project related changes in net working capital	Estimated impacts of inflation
a.	No	No	Yes
b.	No	Yes	Yes
c.	No	Yes	No
d.	Yes	No	No

12. *CSO: 2E1b LOS: 2E1b*
AGC Company is considering an equipment upgrade. AGC uses discounted cash flow (DCF) analysis in evaluating capital investments and has an effective tax rate of 40%. Selected data developed by AGC is as follows.

	Existing Equipment	New Equipment
Original cost	$50,000	$95,000
Accumulated depreciation	45,000	-
Current market value	3,000	95,000
Accounts receivable	6,000	8,000
Accounts payable	2,100	2,500

Based on this information, what is the initial investment for a DCF analysis of this proposed upgrade?

a. $92,400.
b. $92,800.
c. $95,800.
d. $96,200.

13. *CSO: 2E1b LOS: 2E1b*
Calvin Inc. is considering the purchase of a new state-of-art machine to replace its hand-operated machine. Calvin's effective tax rate is 40%, and its cost of capital is 12%. Data regarding the existing and new machines are presented below.

	Existing Machine	New Machine
Original cost	$50,000	$90,000
Installation cost	0	4,000
Freight and insurance	0	6,000
Expected end salvage value	0	0
Depreciation method	straight-line	straight-line
Expected useful life	10 years	5 years

The existing machine has been in service for seven years and could be sold currently for $25,000. If the new machine is purchased Calvin expects to realize a $30,000 before-tax annual reduction in labor costs.

If the new machine is purchased, what is the net amount of the initial cash outflow at Time 0 for net present value calculation purposes?

a. $65,000.
b. $75,000.
c. $79,000.
d. $100,000.

14. *CSO: 2E1b* *LOS: 2E1b*
Albany Industries is building a temporary manufacturing plant which will be completely removed after 5 years. The required initial cash outlays at Time 0 are as follows.

Land	$ 500,000
New building	2,000,000
Equipment	3,000,000

Albany uses straight-line depreciation for tax purposes and will depreciate the building over 10 years and the equipment over 5 years. Albany's effective tax rate is 40%.

Revenues from the new plant are estimated at $1.5 million annually and cash expenses are estimated at $300,000 annually. At the end of the fifth year, the assumed sales values of the land and building are $700,000 and $800,000, respectively. The equipment will be removed at a cost of $80,000 and sold for $200,000.

Albany's net cash flow for period 5 would be

a. $1,040,000.
b. $1,200,000.
c. $2,612,000.
d. $2,660,000.

15. *CSO: 2E1b* *LOS: 2E1b*
In discounted cash flow techniques, which one of the following alternatives **best** reflects the items to be incorporated in the initial net cash investment?

	Capitalized expenditures (e.g., shipping costs)	Changes in net working capital	Net proceeds from sale of old asset in a replacement decision	Impact of spontaneous changes in current liabilities
a.	No	Yes	Yes	Yes.
b.	Yes	No	No	No.
c.	No	Yes	No	No.
d.	Yes	Yes	Yes	Yes.

16. *CSO: 2E1b LOS: 2E1b*

Bison Inc. is considering the purchase of a new automatic machine to replace its current old-fashioned machine. Bison's effective tax rate is 40%, and its cost of capital is 8%. Data regarding the existing and new machines are presented below.

	Existing Machine	New Machine
Original cost	$100,000	$180,000
Installation costs	0	25,000
Freight and insurance	0	9,000
Expected end salvage value	0	14,000
Depreciation method	straight-line	straight-line
Expected useful life	10 years	5 years

The existing machine has been in service for five years and could be sold currently for $30,000. Bison expects to save annual pre-tax labor costs of $50,000 from the new machine.

If the new machine is purchased, the incremental cash flows for the second year would be

a. $18,000.
b. $30,000.
c. $34,000.
d. $38,000.

17. *CSO: 2E1b LOS: 2E1b*

Kell Inc. is analyzing an investment for a new product expected to have annual sales of 100,000 units for the next 5 years and then be discontinued. New equipment will be purchased for $1,200,000 and cost $300,000 to install. The equipment will be depreciated on a straight-line basis over 5 years for financial reporting purposes and 3 years for tax purposes. At the end of the fifth year, it will cost $100,000 to remove the equipment, which can be sold for $300,000. Additional working capital of $400,000 will be required immediately and needed for the life of the product. The product will sell for $80, with direct labor and material costs of $65 per unit. Annual indirect costs will increase by $500,000. Kell’s effective tax rate is 40%.

In a capital budgeting analysis, what is the expected cash flow at time = 3 (3rd year of operation) that Kell should use to compute the net present value?

a. $300,000.
b. $720,000.
c. $760,000.
d. $800,000.

18. *CSO: 2E1b* *LOS: 2E1c*

A capital investment project has the following expected incremental values next year.

Revenue	$1,000,000
Operating costs	200,000
Depreciation	300,000

If the income tax rate is 25%, the incremental after-tax operating cash flow is

a. $125,000.
b. $375,000.
c. $675,000.
d. $900,000.

19. *CSO: 2E1c* *LOS: 2E1c*

All of the following would increase the present value of the incremental tax savings associated with the depreciation of an asset **except** a decrease in the

a. useful life of the asset.
b. marginal income tax rate.
c. discount rate.
d. salvage value of the asset.

20. *CSO: 2E1c LOS: 2E1b*
At the conclusion of a capital budgeting project, a piece of equipment is expected to be sold for $500,000. At the time of sale, the book value of the equipment would be $400,000. If the income tax rate is 35%, what is the after-tax cash flow from the sale of the machine?

a. $325,000.
b. $400,000.
c. $465,000.
d. $535,000.

21. *CSO: 2E1c LOS: 2E1c*
Sarah Birdsong has prepared a net present value (NPV) analysis for a 15-year equipment modernization program. Her initial calculations include a series of depreciation tax savings, which are then discounted. Birdsong is now considering the incorporation of inflation into the NPV analysis. If the depreciation tax savings were based on original equipment cost, which of the following options correctly shows how she should handle the program's cash operating costs and the firm's required rate return, respectively?

	Cash Operating Costs	Required Rate of Return
a.	Adjust for inflation	Adjust for inflation.
b.	Adjust for inflation	Do not adjust for inflation.
c.	Do not adjust for inflation	Adjust for inflation.
d.	Do not adjust for inflation	Do not adjust for inflation.

22. *CSO: 2E1c LOS: 2E1c*
Regis Company, which is subject to an effective income tax rate of 30%, is evaluating a proposed capital project. Relevant information for the proposed project is summarized below.

Initial investment	$500,000
Annual operating cash inflows for the first three years.	
Year 1	185,000
Year 2	175,000
Year 3	152,000

Depreciation will be calculated under the straight-line method using an 8-year estimated service life and a terminal value of $50,000. In determining the estimated total after-tax cash flow in Year 2 of the project, Regis should consider the after-tax operating cash

a. inflow only.
b. inflow plus annual depreciation expense.
c. inflow plus annual depreciation tax shield.
d. inflow plus the net impact of the annual depreciation expense and depreciation tax shield.

23. *CSO: 2E1c LOS: 2E1c*
For each of the next six years Atlantic Motors anticipates net income of $10,000, straight-line tax depreciation of $20,000, a 40% tax rate, a discount rate of 10%, and cash sales of $100,000. The depreciable assets are all being acquired at the beginning of year 1 and will have a salvage value of zero at the end of six years.

The present value of the total depreciation tax savings would be

a. $8,000.
b. $27, 072.
c. $34,840.
d. $87,100.

24. *CSO: 2E1c LOS: 2E1c*

Webster Products is performing a capital budgeting analysis on a new product it is considering. Annual sales are expected to be 50,000 units in the first year, 100,000 units in the second year, and 125,000 units the year thereafter. Selling price will be $80 in the first year and is expected to decrease by 5% per year. Annual costs are forecasted as follows.

Fixed costs	$300,000 each year
Labor cost per unit	$20 in year 1, increasing 5% per year, thereafter
Material cost per unit	$30 in year 1, increasing 10% per year, thereafter

The investment of $2 million will be depreciated on a straight-line basis over 4 years for financial reporting and tax purposes. Webster's effective tax rate is 40%. When calculating net present value (NPV), the net cash flow for year 3 would be

a. $558,750.
b. $858,750.
c. $1,058,750.
d. $1,070,000.

25. *CSO: 2E1c LOS: 2E1c*

Skytop Industries is analyzing a capital investment project using discounted cash flow (DCF) analysis. The new equipment will cost $250,000. Installation and transportation costs aggregating $25,000 will be capitalized. The appropriate five-year depreciation schedule (20%, 32%, 19%, 14.5%, 14.5%) will be employed with no terminal value factored into the computations. Annual incremental pre-tax cash inflows are estimated at $75,000. Skytop's effective income tax rate is 40%. Assuming the machine is sold at the end of Year 5 for $30,000, the after-tax cash flow for Year 5 of the project would amount to

a. $63,950.
b. $72,950.
c. $78,950.
d. $86,925.

26. *CSO: 2E1d LOS: 2E1l*

The management of a utility company is considering making a series of investments over the next five years to construct a new energy plant. Rather than commit to the full five-year investment schedule on day one, management wants to retain the flexibility in the timing and amount of each investment in order to take into consideration future business conditions at each stage of construction. Based on this information, which one of the following real options is the **most** appropriate for this situation?

a. Abandon.
b. Delay.
c. Expand.
d. Scale back.

27. *CSO: 2E1d LOS: 2E1i*
Susan Hines has developed an estimate of the earnings per share for her firm for the next year using the following parameters.

Sales	$20 million
Cost of goods sold	70% of sales
General & administrative expenses	$300,000
Selling expense	$100,000 plus 10% of sales
Debt outstanding	$5 million @ 8% interest rate
Effective tax rate	35%
Common shares outstanding	2 million

She is now interested in the sensitivity of earnings per share to sales forecast changes. A 10% sales increase would increase earnings per share by

a. 7.0 cents per share.
b. 10.4 cents per share.
c. 13.0 cents per share.
d. 20.0 cents per share.

28. *CSO: 2E1d LOS: 2E1i*
The modeling technique that should be used in a complex situation involving uncertainty is a(n)

a. expected value analysis.
b. program evaluation review technique.
c. Monte Carlo simulation.
d. Markov process.

29. *CSO: 2E1d* *LOS: 2E1i*
Janet Jones, an analyst with All Purpose Heater Company, plans to use a Monte Carlo experiment to estimate the simulated daily demand for All Purpose's heaters. The probability distribution for the daily demand for heaters is as follows.

Daily demand for heaters	Probability	Random number intervals
0	.10	00-09
1	.15	10-24
2	.20	25-44
3	.20	45-64
4	.25	
5	.10	

Jones is trying to assign random number intervals for each of the demand levels. She has done so for the first four levels. If a total of 100 two-digit numbers are used in a simulation, what random number intervals should Jones assign to the 4 and 5 heaters demand levels, respectively?

a. 65-69; 70-88.
b. 65-84; 85-99.
c. 65-84; 85-99.
d. 65-89; 90-99.

30. *CSO: 2E1d* *LOS: 2E1i*
All of the following are advantages of a simulation model **except** that it

a. allows what-if type of questions.
b. does not interfere with the real-world systems.
c. generates optimal solutions to problems.
d. allows the study of the interactive effect of variables.

31. *CSO: 2E2a* *LOS: 2E2a*
The net present value of an investment project represents the

a. total actual cash inflows minus the total actual cash outflows.
b. excess of the discounted cash inflows over the discounted cash outflows.
c. total after-tax cash flow including the tax shield from depreciation.
d. cumulative accounting profit over the life of the project.

32. *CSO: 2E2a* *LOS: 2E2b*
Kunkle Products is analyzing whether or not to invest in equipment to manufacture a new product. The equipment will cost $1 million, is expected to last 10 years, and will be depreciated on a straight-line basis for both financial reporting and tax purposes. Kunkle's effective tax rate is 40%, and its hurdle rate is 14%. Other information concerning the project is as follows.

Sales per year = 10,000 units
Selling price = $100 per unit
Variable cost = $70 per unit

A 10% reduction in variable costs would result in the net present value increasing by approximately

a. $156.000.
b. $219,000.
c. $365,000.
d. $367,000.

33. *CSO: 2E2a* *LOS: 2E2b*
Allstar Company invests in a project with expected cash inflows of $9,000 per year for four years. All cash flows occur at year-end. The required return on investment is 9%. If the project generates a net present value (NPV) of $3,000, what is the amount of the initial investment in the project?

a. $11,253.
b. $13,236.
c. $26,160.
d. $29,160.

34. *CSO: 2E2a* *LOS: 2E2b*

Smithco is considering the acquisition of scanning equipment to mechanize its procurement process. The equipment will require extensive testing and debugging, as well as user training prior to its operational use. Projected after-tax cash flows are shown below.

Time Period Year	After-Tax Cash Inflow/(Outflow)
0	$(550,000)
1	$(500,000)
2	$450,000
3	$350,000
4	$350,000
5	$350,000

Management anticipates the equipment will be sold at the beginning of year 6 for $50,000 when its book value is zero. Smithco's internal hurdle and effective tax rates are 14% and 40%, respectively. The project's net present value would be

a. $(1,780).
b. $(6,970).
c. $(17,350).
d. $8,600.

35. *CSO: 2E2a* *LOS: 2E2a*

An investment decision is acceptable if the

a. net present value is greater than or equal to $0.
b. present value of cash inflows is less than the present value of cash outflows.
c. present value of cash outflows is greater than or equal to $0.
d. present value of cash inflows is greater than or equal to $0.

36. *CSO: 2E2a LOS: 2E2b*
Verla Industries is trying to decide which one of the following two options to pursue. Either option will take effect on January 1st of the next year.

Option One - Acquire a New Finishing Machine.
The cost of the machine is $1,000,000 and will have a useful life of five years. Net pre-tax cash flows arising from savings in labor costs will amount to $100,000 per year for five years. Depreciation expense will be calculated using the straight-line method for both financial and tax reporting purposes. As an incentive to purchase, Verla will receive a trade-in allowance of $50,000 on their current fully depreciated finishing machine.

Option Two - Outsource the Finishing Work.
Verla can outsource the work to LM Inc. at a cost of $200,000 per year for five years. If they outsource, Verla will scrap their current fully depreciated finishing machine.
Verla's effective income tax rate is 40%. The weighted-average cost of capital is 10%.

The net present value of outsourcing the finishing work is

a. $303,280 net cash outflow.
b. $404,920 net cash outflow.
c. $454,920 net cash outflow.
d. $758,200 net cash outflow.

37. *CSO: 2E2a LOS: 2E2b*
Long Inc. is analyzing a $1 million investment in new equipment to produce a product with a $5 per unit margin. The equipment will last 5 years, be depreciated on a straight-line basis for tax purposes, and have no value at the end of its life. A study of unit sales produced the following data.

Annual Unit Sales	Probability
80,000	.10
85,000	.20
90,000	.30
95,000	.20
100,000	.10
110,000	.10

If Long utilizes a 12% hurdle rate and is subject to a 40% effective income tax rate, the expected net present value of the project would be

a. $261,750.
b. $283,380.
c. $297,800.
d. $427,580.

38. *CSO: 2E2a LOS: 2E2b*

Fred Kratz just completed a capital investment analysis for the acquisition of new material handling equipment. The equipment is expected to cost $1,000,000 and be used for eight years. Kratz reviewed the net present value (NPV) analysis with Bill Dolan, Vice President of Finance. The analysis shows that the tax shield for this investment has a positive NPV of $200,000, using the firm's hurdle rate of 20%. Dolan noticed that 8-year straight-line depreciation was used for tax purposes but, since this equipment qualifies for 3-year MACRS treatment, the tax shield analysis should be revised. The company has an effective tax rate of 40%. The MACRS rates for 3-year property are as follows.

Year	Rate
1	33.33%
2	44.45%
3	14.81%
4	7.41%

Accordingly, the revised NPV for the tax shield (rounded to the nearest thousand) should be

a. $109,000.
b. $192,000.
c. $283,000.
d. $425,000.

39. *CSO: 2E2a LOS: 2E2c*

Dobson Corp. is analyzing a capital investment requiring a cash outflow at Time 0 of $2.5 million and net cash inflows of $800,000 per year for 5 years. The net present value (NPV) was calculated to be $384,000 at a 12% discount rate. Since several managers felt this was a risky project, three separate scenarios were analyzed, as follows.

- Scenario R - The annual cash inflows were reduced by 10%.
- Scenario S - The discount rate was changed to 18%.
- Scenario T - The cash inflow in year 5 was reduced to zero.

Rank the three individual scenarios in the order of the effect on NPV, from least effect to greatest effect.

a. R, S, T.
b. R, T, S.
c. S, T, R.
d. T, S, R.

40. *CSO: 2E2a LOS: 2E2b*

Foster Manufacturing is analyzing a capital investment project that is forecasted to produce the following cash flows and net income.

Years	After-Tax Cash Flows	Net Income
0	$(20,000)	$ 0
1	6,000	2,000
2	6,000	2,000
3	8,000	2,000
4	8,000	2,000

If Foster's cost of capital is 12%, the net present value for this project is

a. $(1,600).
b. $924.
c. $6,074.
d. $6,998.

41. *CSO: 2E2a LOS: 2E2b*

Lunar Inc. is considering the purchase of a machine for $500,000 which will last 5 years. A financial analysis is being developed using the following information.

	Year 1	Year 2	Year 3	Year 4	Year 5
Unit sales	10,000	10,000	20,000	20,000	20,000
Selling price per unit	$ 100	$ 100	$ 100	$ 100	$ 100
Variable cost per unit	65	65	65	65	65
Fixed costs	300,000	300,000	300,000	300,000	300,000
Pre-tax cash flow	50,000	50,000	400,000	400,000	400,000

The machine will be depreciated over 5 years on a straight-line basis for tax purposes and Lunar is subject to a 40% effective income tax rate. Assuming Lunar will have significant taxable income from other lines of business, and using a 20% discount rate, the net present value of the project would be

a. $(282,470).
b. $(103,070).
c. $(14,010).
d. $16,530.

42. *CSO: 2E2a LOS: 2E2b*
Parker Industries is analyzing a $200,000 equipment investment to produce a new product for the next 5 years. A study of expected annual after-tax cash flows from the project produced the following data.

Annual After-Tax Cash Flow	Probability
$45,000	.10
50,000	.20
55,000	.30
60,000	.20
65,000	.10
70,000	.10

If Parker utilizes a 14% hurdle rate, the probability of achieving a positive net present value is

a. 20%.
b. 30%.
c. 40%.
d. 60%.

43. *CSO: 2E2a LOS: 2E2g*
Staten Corporation is considering two mutually exclusive projects. Both require an initial outlay of $150,000 and will operate for five years. The cash flows associated with these projects are as follows.

Year	Project X	Project Y
1	$ 47,000	$ 0
2	47,000	0
3	47,000	0
4	47,000	0
5	47,000	280,000
Total	$235,000	$280,000

Staten's required rate of return is 10 percent. Using the net present value method, which one of the following actions would you recommend to Staten?

a. Accept Project X, and reject Project Y.
b. Accept Project Y, and reject Project X.
c. Accept Projects X and Y.
d. Reject Projects X and Y.

44. *CSO: 2E2a LOS: 2E2g*
Stennet Company is considering two mutually exclusive projects. The company's cost of capital is 10%. The net present value (NPV) profiles of the two projects are as follows.

Discount Rate (percent)	Net Present Value $(000) Project A	Project B
0	$2,220	$1,240
10	681	507
12	495	411
14	335	327
16	197	252
18	77	186
20	(26)	128
22	(115)	76
24	(193)	30
26	(260)	(11)
28	(318)	(47)

The company president is of the view that Project B should be accepted because it has the higher internal rate of return (IRR). The president requested John Mack, the CFO, to make a recommendation. Which one of the following options should Mack recommend to the president?

a. Agree with the president.
b. Accept Project A because it has an IRR higher than that of Project B.
c. Accept both Projects A and B as the IRR for each project is greater than cost of capital.
d. Accept Project A because at a 10% discount rate it has an NPV that is greater than that of Project B.

45. *CSO: 2E2a LOS: 2E2g*
Winston Corporation is subject to a 30% effective income tax rate and uses the net present value method to evaluate capital budgeting proposals. Harry Ralston, the capital budget manager, desires to improve the appeal of a marginally attractive proposal. To accomplish his goal, which one of the following actions should be recommended to Ralston?

a. Postpone a fully-deductible major overhaul from year 4 to year 5.
b. Decrease the project's estimated terminal salvage value.
c. Immediately pay the proposal's marketing program in its entirety rather than pay in five equal installments.
d. Adjust the project's discount rate to reflect movement of the project from a "low risk" category to an "average risk" category.

46. *CSO: 2E2a LOS: 2E2g*
The management of a company will rent office space if the present value of the lease payment is less than ¥1,500,000. The company uses a discount rate of 10% and all payments are due on December 31 of each year. The facilities manager for the company has found the following potential office spaces to rent.

Location	Annual rent	Rental period
Building X	¥ 450,000	4 years
Building Y	¥ 650,000	2 years
Building Z	¥ 615,000	3 years

Based on the management's selection criteria, which lease(s) should the company accept?

a. Building X only.
b. Building Y only.
c. Building X and Building Z only.
d. Building X and Building Y only.

47. *CSO: 2E2a LOS: 2E2b*
A company is analyzing a capital investment project with a 10-year useful life utilizing the following estimates.

Annual units sold	5,000
Selling price	$1,000
Variable cost	$500
Investment	$10,000,000
Straight-line depreciation	10 years
Income tax rate	25%
Hurdle rate	12%

If estimated sales units sold increase by 10%, the net present value will increase by approximately how much?

a. $1,059,000.
b. $1,278,000.
c. $1,413,000.
d. $2,119,000.

48. *CSO: 2E2b* *LOS: 2E2b*

A company is evaluating a project using net present value and internal rate of return (IRR). Information about the project proposal is shown below.

Initial investment	$250,000
Annual operating cost savings	$70,000
Estimated useful life	6 years

The project is depreciated using the straight-line method with no salvage value. The company's cost of capital is 10% and the effective income tax rate is 30%. If the effective income tax rate increases to 40%, the company should

a. reject the project since IRR decreases.
b. reject the project since the annual after-tax cash flows are reduced.
c. accept the project since the depreciation deduction after taxes increases.
d. accept the project since the after-tax discounted cash inflows exceed the cash outflows.

49. *CSO: 2E2b* *LOS: 2E2c*

An entity is evaluating the following four independent projects as possible investments.

	Internal Rate of Return
Project A	8%
Project B	5%
Project C	6%
Project D	4%

If the entity has a 6% cost of capital and no limitations on investment capital, under the internal rate of return method, which one of the following is the **most** valid conclusion?

a. The entity should pursue Project A only.
b. The entity should pursue Project A and Project C, only.
c. The entity should pursue Project B and Project C, only.
d. The entity should pursue Project D only.

50. *CSO: 2E2b* *LOS: 2E2c*

The management of a company is considering how to invest $15 million. Possible internal investment choices are the following projects with similar risks.

Project	Investment	Internal rate of return
A	$1,000,000	7%
B	$10,000,000	12%
C	$5,000,000	5%
D	$2,000,000	11%

The company can also invest up to $15 million into an external project in equivalent risk to the internal projects and earn 10%. How should the management of the company invest this $15 million in order to maximize value for the company?

a. $1 million in Project A, $5 million in Project C, and $9 million in an external investment.
b. $10 million in Project B and $5 million in Project C.
c. $10 million in Project B, $2 million in Project D, and $3 million in an external investment.
d. $10 million in Project B and $5 million in an external investment.

51. *CSO: 2E2b* *LOS: 2E2d*

Which of the following is **not** a shortcoming of the Internal Rate of Return (IRR) method?

a. IRR assumes that funds generated from a project will be reinvested at an interest rate equal to the project’s IRR.
b. IRR does not take into account the difference in the scale of investment alternatives.
c. IRR is easier to visualize and interpret than net present value (NPV).
d. Sign changes in the cash flow stream can generate more than one IRR.

52. *CSO: 2E2b* *LOS: 2E2a*

A company is in the process of evaluating a major product line expansion. Using a 14% discount rate, the firm has calculated the present value of both the project’s cash inflows and cash outflows to be $15.8 million. The company will likely evaluate this project further by

a. taking a closer look at the expansion’s contribution margin.
b. comparing the internal rate of return versus the accounting rate of return.
c. comparing the internal rate of return versus the company’s cost of capital.
d. comparing the internal rate of return versus the company’s cost of capital and hurdle rate.

53. *CSO: 2E2b LOS: 2E2g*

Hobart Corporation evaluates capital projects using a variety of performance screens; including a hurdle rate of 16%, payback period of 3 years or less, and an accounting rate of return of 20% or more. Management is completing review of a project on the basis of the following projections.

• Capital investment	$200,000
• Annual cash flows	$74,000
• Straight-line depreciation	5 years
• Terminal value	$20,000

The projected internal rate of return is 20%. Which one of the following alternatives reflects the appropriate conclusions for the indicated evaluative measures?

	Internal Rate of Return	Payback
a.	Accept	Reject.
b.	Reject	Reject.
c.	Accept	Accept.
d.	Reject	Accept.

54. *CSO: 2E2b LOS: 2E2g*
Diane Harper, Vice President of Finance for BGN Industries, is reviewing material prepared by her staff prior to the board of directors meeting at which she must recommend one of four mutually exclusive options for a new product line. The summary information below indicates the initial investment required, the present value of cash inflows (excluding the initial investment) at BGN's hurdle rate of 16%, and the internal rate of return (IRR) for each of the four options.

Option	Investment	Present Value of Cash Inflows at 16%	IRR
X	$3,950,000	$3,800,000	15.5%
Y	3,000,000	3,750,000	19.0%
Z	2,000,000	2,825,000	17.5%
W	800,000	1,100,000	18.0%

If there are no capital rationing constraints, which option should Harper recommend?

a. Option X.
b. Option Y.
c. Option Z.
d. Option W.

55. *CSO: 2E2b LOS: 2E2a*
If the present value of expected cash inflows from a project equals the present value of expected cash outflows, the discount rate is the

a. payback rate.
b. internal rate of return.
c. accounting rate of return.
d. net present value rate.

56. *CSO: 2E2b* *LOS: 2E2b*

The net present value profiles of projects A and B are as follows.

Discount Rate	Net Present Value $(000)	
(percent)	Project A	Project B
0	$2,220	$1,240
10	681	507
12	495	411
14	335	327
16	197	252
18	77	186
20	(26)	128
22	(115)	76
24	(193)	30
26	(260)	(11)
28	(318)	(47)

The approximate internal rates of return for Projects A and B, respectively, are

a. 0% and 0%.
b. 19.0% and 21.5%.
c. 19.5% and 25.5%.
d. 20.5% and 26.5%.

57. *CSO: 2E2b* *LOS: 2E2b*

Two mutually exclusive capital expenditure projects have the following characteristics.

		Project A	Project B
Investment		$100,000	$150,000
Net cash inflow -	Year 1	40,000	80,000
	Year 2	50,000	70,000
	Year 3	60,000	60,000

All cash flows are received at the end of the year. Based on this information, which one of the following statements is **not** correct?

a. The net present value of Project A at a cost of capital of 10% is $22,720.
b. The net present value of Project B at a cost of capital of 12% is $19,950.
c. The internal rate of return of Project B is greater than the internal rate of return of Project A.
d. The payback years for Project A is greater than the payback years for Project B.

58. *CSO: 2E2b* *LOS: 2E2b*

Jenson Copying Company is planning to buy a coping machine costing $25,310. The net present values (NPV) of this investment, at various discount rates, are as follows.

Discount Rate	NPV
4%	$2,440
6%	$1,420
8%	$ 460
10%	($ 440)

Jenson's approximate internal rate of return on this investment is

a. 6%.
b. 8%.
c. 9%.
d. 10%.

59. *CSO: 2E2b LOS: 2E2b*

Ben Manufacturing is analyzing a capital investment project that is forecasted to produce the following cash flows and net income.

Year	After Tax Cash-Flows	Net Income
0	$(20,000)	$ 0
1	6,000	2,000
2	6,000	2,000
3	8,000	2,000
4	8,000	2,000

The internal rate of return (rounded to the nearest whole percentage) is

a. 5%.
b. 12%.
c. 14%.
d. 40%.

60. *CSO: 2E2c LOS: 2E2j*

A company is considering the purchase of five construction cranes for its recently awarded construction project. The cranes cost $20,000 each. These cranes are projected to provide a total cash saving of $190,000 over the next eight years. The projected cash savings by year is shown below.

Year	CashSavings	Year	CashSavings
0	-	5	$24,000
1	$35,000	6	20,000
2	32,000	7	15,000
3	28,000	8	10,000
4	26,000		

The payback period is closest to

a. 4.0 years.
b. 3.2 years.
c. 3.4 years.
d. 3.0 years.

61. *CSO: 2E2c* *LOS: 2E2g*
A company requires that capital budgeting proposals meet the acceptability criteria of both the payback method and the net present value (NPV) method. The company uses a cutoff payback period of four years. Which one of the following projects would produce conflicting results when applying the payback method and the NPV method?

Project	Payback	Net Present Value
A	5 years	$800,000
B	3 years	100,000
C	5 years	(300,000)
D	3 years	50,000

a. Project A.
b. Project B.
c. Project C.
d. Project D.

62. *CSO: 2E2c* *LOS: 2E2j*
A company with a 10% required rate of return is evaluating a $35,000 capital budgeting proposal. The anticipated cash inflows from this project are shown below.

Year 1	$10,000
Year 2	20,000
Year 3	30,000

The discounted payback period for this project is

a. 2.42 years.
b. 2.31 years.
c. 2.28 years.
d. 2.17 years.

63. *CSO:2E2d* *LOS: 2E2a*

The following methods are used to evaluate capital investment projects.

- Internal rate of return
- Average rate of return
- Payback
- Net present value

Which one of the following correctly identifies the methods that utilize discounted cash-flow (DCF) techniques?

	Internal Rate of Return	Average Rate of Return	Payback	Net Present Value
a.	Yes	Yes	No	No.
b.	No	No	Yes	Yes.
c.	Yes	No	Yes	No.
d.	Yes	No	No	Yes.

64. *CSO: 2E2d* *LOS: 2E2c*

Molar Inc. is evaluating three independent projects for the expansion of different product lines. The Finance Department has performed an extensive analysis of each project and the chief financial officer has indicated that there is no capital rationing in effect. Which of the following statements are correct?

I. Reject any project with a payback period which is shorter than the company standard.
II. The project with the highest internal rate of return (IRR) exceeding the hurdle rate should be selected and the others rejected.
III. All projects with positive net present values should be selected.
IV. Molar should reject any projects with negative IRRs.

a. I, II and IV only.
b. I, II, III and IV.
c. II and III only.
d. III and IV only.

65. *CSO: 2E2d LOS: 2E2c*

Jones & Company is considering the acquisition of scanning equipment to mechanize its procurement process. The equipment will require extensive testing and debugging as well as user training prior to its operational use. Projected after-tax cash flows are as follows.

Time Period Year	After-Tax Cash Inflow/(Outflow)
0	$(600,000)
1	(500,000)
2	450,000
3	450,000
4	350,000
5	250,000

Management anticipates the equipment will be sold at the beginning of Year 6 for $50,000 and its book value will be zero. Jones' internal hurdle and effective income tax rates are 14% and 40%, respectively. Based on this information, a negative net present value was computed for the project. Accordingly, it can be concluded that

a. the project has an internal rate of return (IRR) less than 14% since IRR is the interest rate at which net present value is equal to zero.
b. Jones should examine the determinants of its hurdle rate further before analyzing any other potential projects.
c. Jones should calculate the project payback to determine if it is consistent with the net present value calculation.
d. the project has an IRR greater than 14% since IRR is the interest rate at which net present value is equal to zero.

66. *CSO: 2E2c LOS: 2E2h*

Foggy Products is evaluating two mutually exclusive projects, one requiring a $4 million initial outlay and the other a $6 million outlay. The Finance Department has performed an extensive analysis of each project. The chief financial officer has indicated that there is no capital rationing in effect. Which of the following statements are correct?

I. Both projects should be rejected if their payback periods are longer than the company standard.
II. The project with the highest Internal Rate of Return (IRR) should be selected (assuming both IRRs exceed the hurdle rate).
III. The project with the highest positive net present value should be selected.
IV. Select the project with the smaller initial investment, regardless of which evaluation method is used.

a. I, II, and IV only.
b. I, II and III only.
c. I and III only.
d. II and III only.

67. *CSO: 2E2c* *LOS: 2E2h*
Despite its shortcomings, the traditional payback period continues to be a popular method to evaluate investments because, in part, it

a. provides some insight into the risk associated with a project.
b. ignores the time value of money.
c. focuses on income rather than cash flow.
d. furnishes information about an investment's lifetime performance.

68. *CSO: 2E2c* *LOS: 2E2i*
Which one of the following is **not** a shortcoming of the payback method?

a. It offers no consideration of cash flows beyond the expiration of the payback period.
b. It ignores the time value of money.
c. It offers no indication of a project's liquidity.
d. It encourages establishing a short payback period.

69. *CSO: 2E2c* *LOS: 2E2j*
Quint Company uses the payback method as part of its analysis of capital investments. One of its projects requires a $140,000 investment and has the following projected before-tax cash flows.

Year 1	$60,000
Year 2	60,000
Year 3	60,000
Year 4	80,000
Year 5	80,000

Quint has an effective 40% tax rate. Based on these data, the after-tax payback period is

a. 1.5.
b. 2.3.
c. 3.4.
d. 3.7.

70. *CSO: 2E2c* *LOS: 2E2j*

A company is analyzing a capital investment project that is forecasted to produce the following cash flows and net income.

Year	After-Tax Cash flow
0	($50,000)
1	15,000
2	18,000
3	25,000
4	36,000

The payback period of this project will be

a. 2.56 years.
b. 2.88 years.
c. 3.02 years.
d. 3.35 years.

71. *CSO: 2E2c* *LOS: 2E2j*

Smithco is considering the acquisition of scanning equipment to mechanize its procurement process. The equipment will require extensive testing and debugging, as well as user training prior to its operational use. Projected after-tax cash flows are shown below.

Time Period Year	After-Tax Cash Inflow/(Outflow)
0	$(550,000)
1	$(500,000)
2	$450,000
3	$350,000
4	$250,000
5	$150,000

Management anticipates the equipment will be sold at the beginning of year 6 for $50,000 when its book value is zero. Smithco's internal hurdle and effective tax rates are 14% and 40%, respectively. The project's payback period will be

a. 2.3 years.
b. 3.0 years.
c. 3.5 years.
d. 4.0 years.

Answer for Section E: Investment Decisions

1. Correct answer d. Capital investments generally provide benefits into the future and, therefore, the expenditure is allocated over a period of time (depreciation). Refinancing existing working capital agreements supports current operations and is not generally treated as capital investment project.

2. Correct answer a. The net present value of the equipment being replaced is least likely to impact the investment decision. This is a sunk cost and does not affect future decisions.

3. Correct answer a. The financing aspect of the project is considered in setting the appropriate discount factor. However, the financing cash flows are not included anymore in the determination of the relevant cash flows. An example of a financing cash flow is proceeds from financing.

4. Correct answer c. The controller should recommend option c as the present value of this option is the highest as shown below.

Option c:	($20,000 x 6.710) + $5,000	=	$139,200
Option a:			$135,000
Option b:	$40,000 x 3.312	=	$132,480
Option d:	($5,000 x 6.247) + ($200,000 x .463) + $5,000	=	$128,835

5. Correct answer b. Olson's net cash flow for period 3 is $860,000 calculated as follows.

Cash inflow after tax:	($1,200,000 - $300,000) x .6	=	$540,000
Tax shield Building:	($2,000,000 ÷ 10) x .4	=	80,000
Tax shield Equipment	($3,000,000 ÷ 5) x .4	=	240,000
			$860,000

6. Correct answer c. The first-year operating cash flow for Skyline's project is $67,000 as shown below.

Incremental cash inflows	$175,000 x .6	=	$105,000
Depreciation tax shield	($375,000 x .2) x .4	=	30,000
		=	$135,000

7. Correct answer d. Colvern's cash flow is $22,800 as shown below.

After-tax cash savings:	$28,400 x .6	=	$17,040
Depreciation tax shield:	$16,000 x .4	=	6,400
Loss of depreciation tax shield:	$1,600 x .4	=	640
			$22,800

8. Correct answer d. Bell's initial investment is $2,200,000 as shown below.

Equipment	$1,600,000
Installation	200,000
Working capital	400,000
Initial investment	$2,200,000

9. Correct answer d. Year 0 cash outflows for Skytop total $202,000 as shown below.

Sale of old equipment	$ 80,000	
New equipment and installation	-275,000	
Additional A/R and inventory	- 30,000	
Additional accounts payable	+ 15,000	
Tax shield/loss on old equipment	+ 8,000	($100K - $80K) x .4
Cash outflow	$202,000	

10. Correct answer c. The overall impact of Mintz's working capital investment is a net outflow of $17,040 as shown below.

Working capital outflow at Time 0	$40,000	
Working capital inflow at Time 5	22,680	($40,000 x .567)
Net outflow	$17,040	

11. Correct answer b. A discounted cash flow analysis should not include sunk costs as they will not change and are not relevant. Changes in working capital and inflation affect future costs and should be included.

12. Correct answer b. AGC's initial investment is $92,800 as shown below.

Sale of old equipment	$ 3,000	
New equipment	-95,000	
Increase in accounts receivable	- 2,000	
Increase in accounts payable	+ 400	
Tax shield/Loss on sale	+ 800	($50,000 - $45,000 - $3,000) x .4
Cash outflow	$92,800	

13. Correct answer c. Calvin's initial cash outflow is $79,000 as shown below.

Sale of old equipment	$ 25,000	
Purchase new equipment	-100,000	
Tax on gain from sale	- 4,000	($25,000 - $15,000*) x .4
Cash outflow	$ 79,000	

*Accumulated depreciation ($50,000 ÷ 10) x 7 = $35,000
Book value $50,000 - $35,000 = $15,000

14. Correct answer c.

Revenue	$ 1,500,000
Cash exp.	-300,000
Depreciation	- 800,000
Pretax Income	$ 400,000
Tax at 40%	-160,000
Add back depreciation	800,000
	1,040,000
Sell land	700,000
Tax on gain /land	-80,000
Sell building	800,000
Tax on loss/building	80,000
Sell equipment	120,000
Tax on on gain /equipment	-48,000
	2,612,000

15. Correct answer d. All of these items should be included in the initial investment as they all impact the cash flow of the project.

16. Correct answer b. Bison's second year incremental cash flow is $34,000 as shown below.

After-tax cash savings	$50,000 x .6	=	$30,000
Tax shield/new equipment	($180,000+25,000+9,000-14,000) ÷ 5 x .4	=	8,000
- Loss of old tax shield	- ($100,000 ÷ 10) x .4	=	- 4,000
Incremental Cash flow			$34,000

17. Correct answer d. Kell's 3rd year cash flows are $800,000 as shown below.

After tax cash inflows	($8,000,000 - $6,500,000 - $500,000) x .6	$600,000
Depreciation tax shield	($1,500,000 ÷ 3) x .4	200,000
	Cash inflow	$800,000

18. Correct answer c.
1,000,000 – 200,000 – 300,000 = 500,000 taxable
500,000 – 125,000 (taxes @ .25) = 375,000 + 300,000 = **675,000** (add back depreciation)

19. Correct answer b.
Option b is correct. A decrease in the marginal tax rate will lead to a decrease in the present value of the tax-deductible amount due to depreciation. Recall that the tax shield amount is calculated as depreciation x tax rate.

20. Correct answer c.
500,000 – (500,000 – 400,000) x .35 = 465,000

21. Correct answer a. Both the operating costs and the required rate of return should be adjusted for inflation as inflation will as inflation will affect both in the future.

22. Correct answer c. Regis would include the operating cash inflows plus the tax shield provided by the depreciation expense. The depreciation expense does not represent a cash transaction and, therefore, is not included.

23. Correct answer c. Atlantic would include the present value of the depreciation tax shield totaling $34,840 as shown below.

Annual tax shield	$20,000 x .4	$8,000	
Present value @10%	$8,000 x 4.355		$34,840

24. Correct answer c. Webster's net cash flow for Year 3 totals $1,058,750 as shown below.

Unit price: $80 x .95 = $76 x .95 = $72.20	
Labor cost: $20 x 1.05 = $21 x 1.05 = $22.05	
Material cost: $30 x 1.1 = $33 x 1.1 = $36.30	
Cash inflow: [125,000 x ($72.20 - $22.05 - $36.30) - $300,000] x .6	$ 858,750
Depreciation tax shield: ($2,000,000 ÷ 4) x .4	200,000
Net cash flow for Year 3	$1,058,750

25. Correct answer c. Skytop's after-tax cash flow for Year 5 is $78,950 as shown below.

Cash inflow after tax	$75,000 x .6	$45,000
Depreciation tax shield	($275,000 x .145) x .4	15,950
Sale of equipment		30,000
Less tax on $30,000 gain @ 40%		12,000
	Net cash flow	$78,950

26. Correct answer b. A delay would be the most appropriate in this situation as it is the option to wait and learn before investing (some refer to this as an investment-timing option). A delay option allows the staging of investments as a series of outlays (i.e. the construction stages of the new energy plant) creating the option to abandon the project in midstream if new information is unfavorable. Each investment stage (for instance, for the energy plant the stages might be demolition, excavation, construction and fit-out) can be viewed as an option on the value of subsequent stages and valued as a compound option.

27. Correct answer c. Earnings per share would increase $.13 per share as shown below.

Sales	$20,000,000	$22,000,000	(increase 10%)
Contribution (30%)	6,000,000	6,600,000	
Less administrative	300,000	300,000	
Less commission (10%)	2,000,000	2,200,000	
Operating profit	3,600,000	4,000,000	
Interest expense	400,000	400,000	
Profit before tax	3,200,000	3,600,000	
Tax @35%	1,120,000	1,260,000	
Net income	$ 2,080,000	$ 2,340,000	
Earnings per share	$1.04	$1.17	(NI ÷ 2,000,000)

28. Correct answer c. Monte Carlo simulation is a quantitative technique that accounts for risk in decision making by generating a range of outcomes and associated probabilities.

29. Correct answer d. Start with the next available #; 25 multiples for demand of 4 and 10 multiples for demand of 5.

30. Correct answer c. The purpose of the simulation is not to generate an optimal solution. Rather it allows the analyst to model the behavior of a system and generates a range of different outcomes.

31. Correct answer b. The net present value method calculates the expected monetary gain or loss from a project by discounting all expected future cash inflows and outflows to the present point in time.

32. Correct answer b. The net present value of Kunkle's project will increase approximately $219,000 as shown below.

Present value of current cash flow	=	10,000 x ($100 - $70) x .6
	=	$180,000 x 5.216
	=	$938,880
Present value of reduced cash flow	=	10,000 x ($100 - $63) x .6
	=	$222,000 x 5.216
	=	$1,157,952
Increase in net present value	=	$1,157,952 - $938,880
	=	$219,072

33. Correct answer c. Allstar's initial investment is $26,160 as shown below.

Present value of cash inflows	$9,000 x 3.24	=	$29,160
Initial investment	$29,160 - $3,000	=	$26,160

34. Correct answer a. Smithco's project has a net present value of $(1,780) as shown below.

Year 0		$(550,000)
Year 1	$(500,000) x .877	(438,500)
Year 2	$450,000 x .769	346,050
Year 3	$350,000 x .675	236,250
Year 4	$350,000 x .592	207,200
Year 5	$380,000* x .519	197,220
	Net present value	$ (1,780)

*Includes $30,000 from sale of old equipment
$50,000 – ($50,000 x .4) = $30,000

35. Correct answer a. An investment decision is acceptable if the net present value is equal to or greater than zero because the return from the decision is equal to or exceeds the cost of capital.

36. Correct answer c. If Verla outsources the work, the net present value of the cash outflows is $454,920 [($200,000 x .6) x 3.791 = $454,920].

37. Correct answer b. The net present value of Long's project is $283,380 as shown below.

Expected annual sales: (80,000 x .1) + (85,000 x .2) + (90,000 x .3) + (95,000 x .2) + (100,000 x .1) + (110,000 x .1) = 92,000
Annual after-tax cash flow: (92,000 x $5) x .6 = $276,000
Annual depreciation tax shield: ($1,000,000 ÷ 5) x .4 = $80,000
Net present value: = [($276,000 + $80,000) x 3.605] - $1,000,000
= $1,283,380 - $1,000,000
= $283,380

38. Correct answer c. The revised net present value for the tax shield is $283,000 as shown below.

Year 1: [($1,000,000 x .3333) x .4] x .833	$111,056
Year 2: [($1,000,000 x .4445) x .4] x .694	123,379
Year 3: [($1,000,000 x .1481) x .4] x .579	34,300
Year 4: [($1,000,000 x .0741) x .4] x .482	14,286
Net present value (to nearest thousand)	$283,000

39. Correct answer a. The ranking of the scenarios from least effect on the net present value to the greatest effect is R, S, and T as shown below.

R: [($800,000 x .9) x 3.605] - $2,500,000	$95,000
S: ($800,000 x 3.127) - $2,500,000	$1,600
T: ($800,000 x 3.037) - $2,500,000	$(70,400)

40. Correct answer b. The net present value of Foster's project is $924 as shown below.

Discounted cash flow	=	($6,000 x .893) + ($6,000 x .797) + ($8,000 x .712) + ($8,000 x .636)
	=	$20,924
Less investment		20,000
		$ 924

41. Correct answer d. The net present value of Lunar's project is $16,600 as shown below.

After-tax cash flow (x .6)	$30,000	$30,000	$240,000	$240,000	$240,000
Tax shield ($500,000 ÷ 5) x .4	40,000	40,000	40,000	40,000	40,000
	$70,000	$70,000	$280,000	$280,000	$280,000

Net present value	=	($70,000 x 1.528) + [$280,000 x (2.991 – 1.528)] - $500,000
	=	$106,960 + $409,640 - $500,000
	=	$16,600 ≈ $16,530

42. Correct answer c. Using a 14% hurdle rate, Parker's project will not have a positive net present value until the annual cash flows are $60,000 or higher ($60,000 x 3.433 = $205,980 - $200,000 = $5,980). As shown, the probability of the cash flows reaching $60,000 or higher is 40%.

43. Correct answer a. Since the projects are mutually exclusive, Staten should accept Project X (higher net present value) and reject Project Y.

Net present value Project X	=	($47,000 x 3.791) - $150,000
	=	$28,177
Net present value Project Y	=	($280,000 x .621) - $150,000
	=	$23,880

44. Correct answer d. Since Stennet's cost of capital is 10% and Project A has a higher net present value at a discount rate of 10%, Mack should recommend Project A. Since the projects are mutually exclusive, only one can be accepted.

45. Correct answer a. Delaying the cash outflow for a major overhaul from Year 4 to Year 5 will decrease its present value and result in an increase in the net present value of the project. All of the other options would result in a decrease the net present value.

46. Correct answer d.

Building X

Year	Annual rent	Discount factor	Present value
1	¥450,000	0.909	409,050
2	450,000	0.826	371,700
3	450,000	0.751	337,950
4	450,000	0.683	307,350
Total PV of annual rent Building X			1,426,050

Building Y

Year	Annual rent	Discount factor	Present value
1	650,000	0.909	590,850
2	650,000	0.826	536,900
Total PV of annual rent Building Y			1,127,750

Building Z

Year	Annual rent	Discount factor	Present value
1	615,000	0.909	559,035
2	615,000	0.826	507,990
3	615,000	0.751	461,865
Total PV of annual rent Building Z			1,528,890

47. Correct answer a.

The sensitivity of NPV to a 10% increase in sales volume is computed as follows

Incremental Units	500
Selling Price	1,000
Variable Cost	500
Margin / unit	500
Additional. Margin	250,000
Margin after tax	187,500
PV Factor	5.6502
Increase in NPV	**1,059,413**

48. Correct answer d.
At 30%, after tax cash inflow 70,000 x 70% = 49,000
Depreciation deduction 250,000/6 = 41,667 x 30% = 12,500
Total after tax cash inflow 61,500
61,500 x 4.355* = 267,832.50 discounted cash inflows
(250,000) cash outflow
NPV = 17,832.50 project is acceptable
At 40% tax rate, after tax cash inflow 70,000 x 60% = 42,000
Depreciation deduction 250,000/6 = 41,667 x 40% = 16,667
Total after tax cash inflow 58,667
58,667 x 4.355* = 255,494
(250,000) cash outflow
NPV = 5494 project is acceptable
*PV annuity table, 10% 6 years

49. Correct answer b. The internal rate of return method generally indicates that a project whose internal rate of return is greater than or equal to the firm's cost of capital should be accepted, whereas a project whose internal rate of return is less than the firm's cost of capital should be rejected. Accordingly, as the entity has not limit on its investment capital and it's cost of capital is 6% both Project A with an internal rate of return of 8% and Project C with an internal rate of return of 6% should be accepted.

50. Correct answer c. The internal rate of return method evaluates investments by comparing the internal rate of return to the criterion rate of return from the best alternative investment. For this company the best alternative investment is a 10% external investment. The company should accept all projects over the 10% threshold, Project B for $10 million and Project D for $2 million, and invest the cash balance of $3 million, which equals $15 million less $10 million for Project B and less $2 million for Project D, in the external investment as no other internal project can earn higher than 10%.

51. Correct answer c. The internal rate of return method is easier to understand (interpret) than the net present value method. All of the other options are disadvantages of the internal rate of return method.

52. Correct answer d. Since the company has already evaluated the cash flows (net present value) of the project using a hurdle rate of 14%, the next logical step would be to compare the internal rate of return to the hurdle and the cost of capital.

53. Correct answer c. Hobart would accept the project under both the internal rate of return of 20% which exceeds the hurdle rate of 15% and the payback period of 2.7 years ($200,000 ÷ $74,000) which is less than the company's 3-year benchmark.

54. Correct answer c. BGN Industries should select Option Z as it has the highest net present value ($2,825,000 - $2,000,000) and the internal rate of return is greater than the hurdle rate.

55. Correct answer b. The internal rate of return is the discount rate that equates the present value of future net cash flows from an investment project with project's initial cash outflow.

56. Correct answer c. The approximate internal rates of return are 19.5% and 25.5% as shown.

Project A: 77 + 26 = 103; 77 ÷ 103 = .75%; .75% x 2 = 1.5%; 18% + 1.5% = 19.5%
Project B: 30 + 11 = 41; 30 ÷ 41 - .73%: .73% x 2 = 1.5%; 24% + 1.5% = 25.5%

57. Correct answer c. Options a, b, and d are correct as shown below.

NPV Project A: $100,000 – ($40,000 x .909) + ($50,000 x .826) + ($60,000 x .751) = $22,720
NPV Project B: $150,000 – ($80,000 x .893) + ($70,000 x .797) + ($40,000 x .712) = $19,950
Payback Project A: $100,000 - $40,000 - $50,000 = $10,000 ÷ $65,000 - .167
.167 years + 2 years ≈ 2.2 years
Payback Project B: $150,000 - $80,000 - $70,000 = 0
Payback = 2 years

58. Correct answer c. The approximate internal rate of return is 9%. A net present value of zero is approximately half way between $460 and ($440) and 9% is half way between 8% and 10%.

59. Correct answer c. An internal rate of return equates Ben's cash flows to the initial investment as shown below.

($6,000 x .877) + ($6,000 x .769) + ($8,000 x .675) + ($8,000 x .592) = $20,012
Initial cash outflow of $20,000 ≈ $20,012

60. Correct answer b.

	Cash savings	**Cumulative Savings**	**Initial Investment Recovered at end of year**
Year 0	-	-	$100,000
Year 1	$35,000	$ 35,000	65,000
Year 2	32,000	67,000	33,000
Year 3	28,000	95,000	5,000
Year 4	26,000	121,000	-
Year 5	24,000	145,000	-
Year 6	20,000	165,000	-
Year 7	15,000	180,000	-
Year 8	10,000	190,000	-

Straight- line interpolation after 3 years reveals that the final $ 5,000 needed to recover the $ 100,000 (5 numbers @ $20,000) investment will be achieved halfway through year 4.

Payback period = 3 years + $\frac{\$5,000.}{\$26,000.}$

= 3.192 Rounded to 3.2 years.

61. Correct answer a.
Accept projects with payback less than 4, reject if greater than 4.
Accept projects with NPV greater than 0 and reject if less than 0.
A is reject/accept, B is accept/accept, C is reject/reject, D is accept/accept, so A.

62. Correct answer a.
a. 10,000 x .9091 = $9,091; 20,000 x .8264 = $16,528; 30,000 x .7513 = $22,539; 35,000 – 9,091 (one year) – 16,528 (two years) = 9,381; 9,381/22,539 = .42

63. Correct answer d. Both the internal rate of return method and the net present value method utilize discounted flow techniques taking into consideration the time value of money. Payback and average rate of return do not consider the time value of money.

64. Correct answer d. Statements III and IV are correct. Since the company has no capital rationing, all projects with positive net present values will enhance the value of Molar. Projects with negative internal rates of return will cost more than they will return to the company and should be rejected.

65. Correct answer a. Since the net present value of the project is negative using a discount rate of 14%, it can be concluded that the internal rate of return is something less than 14%.

66. Correct answer c. Since the projects are mutually exclusive, Foggy Products can select only one, and the one selected should have the highest net present value. If both projects exceed the company's benchmark for payback period, they should both be rejected.

67. Correct answer a. The payback period does provide some insight into the risk of a project – the longer the payback period, the riskier the project. The other options are either incorrect or disadvantages of the payback method.

68. Correct answer c. Because the payback method calculates the time to return the project's initial investment, it does evaluate the project's liquidity. The other options are all drawbacks of the payback method.

69. Correct answer d. Quant's payback period is 3.7 years as shown below.

	After-tax cash flow	Investment less cash flow
Year 1	$60,000 x .6 = $36,000	$104,000
Year 2	$60,000 x .6 = $36,000	68,000
Year 3	$60,000 x .6 = $36,000	32,000
Year 4	$80,000 x .6 = $48,000	$32,000 ÷ $48,000 = .667
	Payback period = 3.7 years	

70. Correct answer c. The payback period for Foster's project is 3.0 years ($20,000 - $6,000 - $6,000 - $8,000 = 0).

71. Correct answer d. Smithco's payback period is 4.0 years ($550,000 + $500,000 - $450,000 - $350,000 - $250,000 = 0).

Section F: Professional Ethics

1. *CSO: 2F1b LOS: 2F1e*
   After a competitive bidding process, a company's purchasing director awarded a contract to the lowest bidder, an organization in which she had a personal interest. Since the winning bidder had the lowest price, she did not disclose her relationship with the entity. In fact, she frequently highlighted the fact that the winning bidder had the **most** experience servicing contracts of this nature. Which one of the values of ethical decision making did the purchasing director violate?

   a. None, because a competitive bidding process was utilized.
   b. Fairness, because she did not tell the truth about her relationship with the vendor.
   c. Integrity, because her relationship with the bidder could have impaired her judgment.
   d. Honesty, because she was not being truthful about the experience of the bidder.

2. *CSO: 2F2a LOS: 2F2c*
   Recently Fan Club Inc. submitted a budget for the coming year to management. Included in the budget were the plans for a new product, a rechargeable fan. The new fan will not only last longer than the competitor's product but is also quieter. While not yet approved, the budget called for aggressive advertising to support its sales targets, as the business community was not yet aware that Fan Club was close to production of a new fan. A member of the management accounting staff "shared" the budget with a distributor. In accordance with IMA's "Statement of Ethical Professional Practice," which one of the following would **best** represent an ethical conflict in this situation?

   a. The budget has not been approved and therefore is not for publication.
   b. The price has not been established, so expectations must be managed.
   c. The staff member exposed the company to a potential lawsuit.
   d. The employee should refrain from disclosing confidential information.

3. *CSO: 2F2a LOS: 2F2c*
   An accountant has discovered unethical conduct in his organization and fails to act because of fear of retaliation. He will be in violation of all of the following IMA ethical standards **except**

   a. refrain from engaging in any conduct that would prejudice carrying out of duties correctly.
   b. refrain from using confidential information for unethical or illegal advantage.
   c. communicate information fairly and objectively.
   d. disclose all relevant information that could reasonably be expected to influence an intended user.

4. *CSO: 2F2c LOS: 2F2d*
An IMA member discovers a problem that could mislead users of the firm's financial data and has informed his immediate superior. He should report the circumstances to the audit committee and/or the board of directors only if the immediate superior

a. is the firm's chief executive officer, and knows about the situation but refuses to correct it.
b. reports to the chief executive officer, and knows about the situation but refuses to correct it.
c. assures the member that the problem will be resolved.
d. reports the situation to her superior.

5. *CSO: 2F2c LOS: 2F2d*
Andrew Babbitt is a management accountant at Ace Mining Corporation (AMC), a processor of ores and minerals. He learned that AMC had been disposing hazardous waste materials in a nearby residential landfill. Babbitt knew that the waste materials could pose a danger to the residents in the area and that there could be legal ramifications for disposing hazardous waste in a residential landfill. When Babbitt discussed the issue with his supervisor the next morning, he was told to ignore it. Due to the significance of the matter, Babbitt decided to discuss the matter with his attorney and then notified the appropriate authorities. In accordance with IMA's Statement of Ethical Professional Practice, which one of the following is the correct evaluation of Babbitt's decision to notify the authorities?

a. Babbitt's actions were appropriate as an immediate action.
b. Babbitt's actions were inappropriate because they violated the confidentiality standard.
c. Babbitt's actions were appropriate only if his attorney indicated that there was a clear violation of the law.
d. Babbitt's actions were inappropriate because they involved insubordination.

6. *CSO: 2F3d LOS: 2F3p*
A public corporation that must meet the provisions of the Foreign Corrupt Practices Act of 1977 should have a compliance program that includes all of the following steps **except**

a. an authorized and properly signed agreement that it will abide by the Act.
b. documentation of the corporation's existing internal accounting control systems.
c. a cost/benefit analysis of the controls and the risks that are being minimized.
d. a system of quality checks to evaluate the internal accounting control system.

7. *CSO: 2F3d LOS: 2F3p*
The principal impetus for the enactment of the Foreign Corrupt Act by the U.S. Congress was to

a. discourage unethical behavior by foreigners employed by U.S. firms.
b. promote the mandates issued by the United Nations with regard to global trade between its member nations.
c. prevent the bribery of foreign officials by U.S. firms seeking to do business overseas.
d. require mandatory documentation of the evaluation of internal controls by the independent auditors.

8. *CSO: 2F3d. LOS: 2F3p*
Which one of the following statements concerning the U.S. Foreign Corrupt Practices Act is **not** true?

a. It applies to individuals as well as businesses.
b. It requires companies to maintain an adequate system of internal controls.
c. It prohibits payments above a materiality threshold to foreign officials to obtain business.
d. It requires companies to keep books and records that accurately reflect the transactions.

9. *CSO: 2F3d LOS: 2F3p*
All of the following are allowed under the anti-bribery provisions of the U.S. Foreign Corrupt Practices Act **except**

a. giving facilitating payments to expedite the processing of a routine governmental action such as business permits.
b. authorizing employees to pay government officials to obtain government contract bidding, but no actual payment was made.
c. providing snacks, beverages, and promotional items at a trade show attended by government officials.
d. providing reasonable lodging expenses to a foreign official.

10. *CSO: 2F3f LOS: 2F3s*
A U.S. publicly traded company issued its corporate social responsibility report. The report included the amount of renewable resources it uses in its products. Which one of the following is **not** a reason for making the disclosure?

a. The company was required by law to file a report with this disclosure.
b. The company may be able to charge a premium and gain customer loyalty.
c. The report can be used as a marketing tool for the company’s products.
d. The report can be used to differentiate the company from its competitors.

Answer for Section F: Professional Ethics

1. Correct answer c. Integrity refers to being whole, sound and in an unimpaired condition. It relates to open communication, transparency and relationships. The Director of Purchasing's relationship with the winning bidder could have impaired her judgment and her lack of transparency implies that she knew such behavior was inappropriate.

2. Correct answer d. In accordance with IMA's "Statement of Ethical Professional Practice", a member's failure to comply with the standards of competence, confidentiality, integrity and credibility may result in disciplinary action. Disclosing company's internal budget to an outside party is a breach of the ethical standard of confidentiality.

3. Correct answer b. The fact that Jean is afraid to act due to fear of retaliation indicates that his reluctance to disclose the unethical conduct is not because he is using it for some unethical or illegal advantage.

4. Correct answer a. An IMA member should "discuss the issue with your immediate supervisor except when it appears that the supervisor is involved. In that case, present the issue to the next level. If you cannot achieve a satisfactory resolution, submit the issue to the next management level. If your immediate supervisor is the chief executive officer or equivalent, the acceptable reviewing authority may be a group such as the audit committee, executive committee, board of directors, board of trustees, or owners."

5. Correct answer c. Communication of such problems to authorities or individuals not employed or engaged by the organization is not considered appropriate, unless one believes that there is a clear violation of the law. In this case, Andrew has discussed the matter with his attorney and if his attorney indicated that there was a violation of the law that should be reported, Andrew is allowed to do so and remain in compliance with the standards of the IMA.

6. Correct answer a. Foreign Corrupt Practices Act of 1977 does not require a public company to sign an agreement that it will abide by the Act, however if the company does not abide by the Act, the company may be assessed fines up to $2,000,000 and imprisonment for up to 5 years.

7. Correct answer c. The principal purpose of Foreign Corrupt Practices Act of 1977 was to prevent the bribery of foreign officials, foreign political parties or candidates for political office in the foreign country by U.S. firms seeking to do business overseas.

8. Correct answer c. There is no materiality provision in the FCPA

9. Correct answer b.
   Option b is correct. The FCPA considers this as an example of a corrupt payment. The FCPA considers the corrupt intent. If the intent is corrupt, a violation is committed even if no bribe is ultimately offered or paid. This is as per page 24 of the Resource Guide.

10. Correct answer a. A corporate social responsibility report is required of public companies in the European Union but is optional for public companies in the U.S.
    There are four reasons social responsibility has become such an issue for organizations:

    i. Socially responsible activities such as sustainable business practices can create competitive advantages.
    ii. Both positive and negative information about products and organizations became more available over time.
    iii. Organizations can use their products and brand identity to create social value, quality and consumer loyalty.
    iv. Companies use their sustainable and socially responsible decisions to differentiate their firms and promote their products.

CMA®

IMA's Certification for Accountants and Financial Professionals in Business

CMA EXAM

Essay Questions

For Practice

Parts 1 and 2

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Introduction

The Institute of Certified Management Accountants (ICMA) is publishing this book of practice questions with answers to help you prepare for the CMA examination. These questions are actual "retired" questions from the CMA exams and are intended to supplement other study materials.

These practice questions will help you test your understanding of the concepts and rules included in your CMA study materials by requiring you to apply those concepts and rules to unique and varying situations. You will encounter different scenarios and applications on your actual examination so it is essential that you understand the underlying concepts. In general, it will not be helpful to you to memorize particular questions.

Essay questions appear in both Part 1 and Part 2 of the CMA exam and combine topics from the part in which they appear. No inference should be made from the lack of practice questions in any topic areas.

The CMA Program is a rigorous test of your skills and capabilities and requires dedication to be successful. We hope that these practice questions will be a valuable resource as you pursue your goal of certification. Good luck!

CMA Part 1 Essay Practice Questions

<u>Question 1.1 – Coe Company</u>

Coe Company is a manufacturer of semi-custom motorcycles. The company used 500 labor hours to produce a prototype of a new motorcycle for one of its key customers. The customer then ordered three additional motorcycles to be produced over the next six months. Coe estimates that the manufacturing process for these additional motorcycles is subject to a 90% learning curve. Although the production manager was aware of the learning curve projections, he decided to ignore the learning curve when compiling his budget in order to provide a cushion to prevent exceeding the budgeted amount for labor.

REQUIRED:

1. By using the cumulative average-time learning curve, estimate the total number of labor hours that are required to manufacture the first four units of product. Show your calculations.

2. Assume the 90% learning curve is realized. Calculate Coe's cost savings in producing the three additional units if the cost of direct labor is $25 per hour. Show your calculations.

3. Define budgetary slack. Identify and explain two negative effects that budgetary slack can have on the budgeting process.

4. Assume that Coe actually used 1,740 labor hours to produce the four units at a total cost of $44,805. If the company ignored the learning curve when creating the budget, for the four units produced, compute Coe's direct labor rate (price) variance and direct labor efficiency variance. How would the above two variances differ if the learning curve had been considered when creating the budget? Show your calculations.

5. Assume that the price variance is unfavorable and the efficiency variance is favorable. Identify and discuss one reason that explains both of these variances.

6. Explain the effect on the direct labor efficiency variance if the manufacturing process were subject to an 80% learning curve.

7. Identify and explain one limitation of learning curve analysis.

Question 1.2 – Law Services Inc.

Law Services Inc. provides a variety of legal services to its clients. The firm's attorneys each have the authority to negotiate billing rates with their clients. Law Services wants to manage its operations more effectively, and established a budget at the beginning of last year. The budget included total hours billed, amount billed per hour, and variable expense per hour. Unfortunately, the firm failed to meet its budgeted goals for last year. The results are shown below.

	Actual	Budget
Total hours billed	5,700	6,000
Amount billed/hour	$275	$325

The budgeted variable expense per hour is $50, and the actual total variable expense was $285,000. There is disagreement among the attorneys over the reasons that the firm failed to meet its budgeted goals.

REQUIRED:

1. What is the advantage of using a flexible budget to evaluate Law Services' results for last year as opposed to a static budget? Explain your answer.
2. Explain the process of creating a flexible budget for Law Services.
3. Calculate the total static budget revenue variance, the flexible budget revenue variance, and the sales-volume revenue variance. Show your calculations.
4. Calculate the variable expense variance. Show your calculations.
5. Was the variable expense variance a flexible budget variance or a sales volume variance? Explain your answer.

Question 1.3 – Inman Inc.

Inman Inc. is a manufacturer of a single product and is starting to develop a budget for the coming year. Because cost of goods manufactured is the biggest item, Inman's senior management is reviewing how costs are calculated. In addition, senior management wants to develop a budgeting system that motivates managers and other workers to work toward the corporate goals. Inman has incurred the following costs to make 100,000 units during the month of September.

Materials	$400,000
Direct labor	100,000
Variable manufacturing overhead	20,000
Variable selling and administrative costs	80,000
Fixed manufacturing overhead	200,000
Fixed selling and administrative costs	300,000

Inman Inc.'s September 1 inventory consisted of 10,000 units valued at $72,000 using absorption costing. Total fixed costs and variable costs per unit have not changed during the past few months. In September, Inman sold 106,000 units at $12 per unit.

REQUIRED:

1. Using absorption costing, calculate Inman's September manufacturing cost per unit, Inman's September 30 inventory value, and Inman's September net income.

2. Using variable costing, calculate Inman's September manufacturing cost per unit, Inman's September 30 inventory value, and Inman's September net income

3. Identify and explain one reason why the income calculated in the previous two questions might differ.

4. Identify and discuss one advantage of using absorption costing and variable costing.

5. Identify one strength and one weakness each of authoritative budgeting and participative Budgeting. Identify and explain Which of these budgeting methods will work best for Inman Inc.

6. Identify and explain one method the top managers can take to restrict the Production Manager from taking advantage of budgetary slack.

Question 1.4 – Smart Electronics:

Smart Electronics manufactures two types of gaming consoles, Models M-11 and R-24. Currently, the company allocates overhead costs based on direct labor hours; the total overhead cost for the past year was €80,000. Additional cost information for the past year is presented below.

Product Name	Total Direct Labor Hours Used	Units Sold	Direct Costs per Unit	Selling Price per Unit
M-11	650	1,300	€10	€90
R-24	150	1,500	€30	€60

Recently, the company lost bids on a contract to sell Model M-11 to a local wholesaler and was informed that a competitor offered a much lower price. Smart's controller believes that the cost reports do not accurately reflect the actual manufacturing costs and product profitability for these gaming consoles. He also believes that there is enough variation in the production process for Models M-11 and R-24 to warrant a better cost allocation system. Given the nature of the electronic gaming market, setting competitive prices is extremely crucial. The controller has decided to try activity-based costing and has gathered the following information.

	Number of Setups	Number of Components	Number of Material Movements
M-11	3	17	15
R-24	7	33	35
Total activity cost	€20,000	€50,000	€10,000

The number of setups, number of components, and number of material movements have been identified as activity-cost drivers for overhead.

REQUIRED:

1. Using Smart's current costing system, calculate the gross margin per unit for Model M-11 and for Model R-24. Assume no beginning or ending inventory. Show your calculations.

2. Using activity-based costing, calculate the gross margin for Model M-11 and for Model R-24. Assume no beginning or ending inventory. Show your calculations.

3. Describe how Smart Electronics can use the activity-based costing information to formulate a more competitive pricing strategy. Be sure to include specific examples to justify the recommended strategy.

4. Identify and explain two advantages and two limitations of activity-based costing.

Question 1.5 - SmallParts

SmallParts is a manufacturer of metal washers, screws, and other parts required in the manufacture of various handmade craft and novelty items. The firm has the ability to custom make virtually any small part, provided the client is able to provide SmallParts with the dimensions and tolerance required of the product. Because of its niche in the market, SmallParts has over 1,000 clients. Unfortunately, many of its small business clients eventually merge or cease operations. One of the company's biggest challenges is the return of shipped product. Usually, this is because the small business client has ceased operations. While most of the product is custom made, SmallParts has found that much of it can be sold to other clients for adapted use. The company's accountant is reviewing the company's internal controls and financial accounting procedures, in particular, with respect to inventory.

Currently, SmallParts has one salesperson responsible for marketing returned product. This salesperson has exclusive and total control over the returned product including arranging of sales terms, billing, and collection. The salesperson receives the returned product and attempts to find a client who may be able to adapt the product for the client's use. The inventory of returned product is not entered in the accounting records, under the logic that the cost is sunk. Revenue generated from its sale is classified as other revenue on the SmallParts income statement.

REQUIRED:

1. Identify and describe the three objectives of a system of internal control.

2. Identify and explain three ways that the procedure for handling returned product violates the internal control system of segregation of duties.

3. Identify four functional responsibilities within an organization that should be separated. Explain why these responsibilities should be separated.

4. Identify and describe three ways that SmallParts can provide for better internal control over its inventory of returned product.

<u>Question: 1.6 – Michael Hanson</u>

Michael Hanson is an internal auditor who has been asked to evaluate the internal controls and risks of his company, Consolidated Enterprises Inc. He has been asked to present recommendations to senior management with respect to Consolidated's general operations with particular attention to the company's database procedures. With regard to database procedures, he was specifically directed to focus attention on (1) transaction processing, (2) virus protection, (3) backup controls, and (4) disaster recovery controls.

REQUIRED:

1. For each of the areas shown below, identify two controls that Hanson should review and explain why.
   a. Transaction processing.
   b. Virus protection.
   c. Backup controls.

2. Identify four components of a sound disaster recovery plan.

3. During his evaluation of general operations, Hanson found the following conditions.

   a. Daily bank deposits do not always correspond with cash receipts.
   b. Physical inventory counts sometimes differ from perpetual inventory records, and there have been alterations to physical counts and perpetual records.
   c. An unexplained and unexpected decrease in gross profit percentage has occurred.

   For each of these conditions, describe a possible cause of the condition and recommend actions to be taken and/or controls to be implemented that would correct the condition.

Question 1.7 - Thompson

Klein, Thompson’s CFO, has determined that the Motor Division has purchased switches for its motors from an outside supplier during the current year rather than buying them from the Switch Division. The Switch Division is operating at full capacity and demanded that the Motor division pay the price charged to outside customers rather than the actual full manufacturing costs as it has done in the past. The Motor Division refused to meet the price demanded by the Switch Division. The Switch Division contracted with an outside customer to sell its remaining switches and the Motor division was forced to purchase the switches from an outside supplier at an even higher price.

Klein is reviewing Thompson’s transfer pricing policy because she believes that sub-optimization has occurred. While Klein believes the Switch Division made the correct decision to maximize its divisional profit by not transferring the switches at actual full manufacturing cost, this decision was not necessarily in the best interest of Thompson.

Klein has requested that the corporate Accounting Department study alternative transfer pricing methods that would promote overall goal congruence, motivate divisional management performance, and optimize overall company performance. The three transfer pricing methods being considered are listed below. One of these methods will be selected, and will be applied uniformly across all divisions.

- Standard full manufacturing costs plus markup.
- Market selling price of the products being transferred.
- Outlay (out-of-pocket) costs incurred to the point of transfer plus opportunity cost per unit.

REQUIRED:

1. Identify and explain two positive and two negative behavioral implications that can arise from employing a negotiated transfer price system for goods that are exchanged between divisions.

2. Identify and explain two behavioral problems that can arise from using actual full (absorption) manufacturing costs as a transfer price.

3. Identify and explain two behavioral problems most likely to arise if Thompson Corporation changes from its current transfer pricing policy to a revised transfer pricing policy that it applies uniformly to all divisions.

4. Discuss the likely behavior of both “buying” and “selling” divisional managers if Thompson Corporation uses standard full manufacturing costs plus markup.

5. Discuss the likely behavior of both “buying” and “selling” divisional managers if Thompson Corporation uses market selling price of the products being transferred

6. Discuss the likely behavior of both “buying” and “selling” divisional managers if Thompson Corporation uses outlay (out-of-pocket) costs incurred to the point of transfer plus opportunity cost per unit.

Question 1.8 – Biscayne Industries

Biscayne Industries manufactures tents in a variety of sizes by using a variety of materials. Last year's income statement data is shown below.

Sales (100,000 units sold)	$50,000,000
Cost of goods sold (2/3 fixed)	30,000,000
Gross profit	20,000,000
Selling and administrative costs (all fixed)	12,000,000
Operating income	$ 8,000,000

Biscayne did not foresee any changes for this year, so it created a master budget that was the same as last year's actual results. At the end of this year, however, Biscayne's sales totaled $55,000,000. There were no variable cost variances, and the company's operating income was $7,500,000.

REQUIRED:

1. Identify and explain three benefits of using a flexible budget.

2. Prepare Biscayne's flexible budget through operating income, at the $55,000,000 sales level.

3. Identify and explain three possible reasons Biscayne's sales increased, but the company's operating income decreased.

4. Define zero-based budgeting.

Question 1.9 – Brown Printing

Brown Printing, a small family-owned business, began operations on March 1, manufacturing premium quality books. The owners have expertise in printing but no accounting knowledge or experience. The company's independent accountant compiled the following data for the month of March. They have also requested an income statement.

Sales price	$90 per book
Number of units produced	15,000 books
Number of units sold	10,000 books
Direct materials cost	$15 per book
Direct labor cost	$6 per book
Variable manufacturing overhead	$4 per book
Fixed manufacturing overhead	$240,000 per month
Selling cost	3 per book
Administrative expenses	$160,000 per month

The owners want to understand these numbers and how they can use the information to run the business.

REQUIRED:

1. Define and explain absorption costing and variable costing.

2. Calculate the unit cost of goods sold and prepare the income statement for March using variable costing.

3. Calculate the unit cost of goods sold and prepare the income statement for March using absorption costing.

4. Identify and describe two advantages of using variable costing and two limitations of using absorption costing.

5. Explain why there is a difference in net income between variable costing and absorption costing. Show your calculations.

6. Define and explain throughput costing.

Question 1.10 – Lawton Industries

For many years, Lawton Industries has manufactured prefabricated houses where the houses are constructed in sections to be assembled on customers' lots. The company expanded into the pre-cut housing market in 2006 when it acquired Presser Company, one of its suppliers. In this market, various types of lumber are pre-cut into the appropriate lengths, banded into packages, and shipped to customers' lots for assembly. Lawton decided to maintain Presser's separate identity and, thus, established the Presser Division as an investment center of Lawton.

Lawton uses return on average investment (ROI) as a performance measure the investment defined as operating assets employed. Management bonuses are based in part on ROI. All investments in operating assets are expected to earn a minimum return of 15% before income taxes. Presser's ROI has ranged from 19.3% to 22.1% since it was acquired in 2006. The division had an investment opportunity in the year just ended that had an estimated ROI of 18% but Presser's management decided against the investment because it believed the investment would decrease the division's overall ROI.

Presser's operating statement for the year just ended is presented below. The division's operating assets employed were $12,600,000 at the end of the year, a 5% increase over the balance at the end of the previous year.

Presser Division Operating Statement
For the Year Ended December 31
($000 omitted)

Sales revenue		$24,000
Cost of goods sold		15,800
Gross profit		$ 8,200
Operating expenses		
Administrative	$2,140	
Selling	3,600	5,740
Income from operations before income taxes		$ 2,460

REQUIRED:

1. Calculate ROI for the year just ended for the Presser Division of Lawton Industries.

2. Calculate Residual income for the year just ended for the Presser Division of Lawton Industries.

3. Would the management of Presser Division have been more likely to accept the investment opportunity it had during the year if residual income were used as a performance measure instead of ROI? Explain you answer.

4. The Presser Division is a separate investment center with Lawton Industries. Identify and describe the items Presser must control if it is to be evaluated fairly by either the ROI or residual income performance measures.

Question 1.11 – SieCo

SieCo is a sheet metal manufacturer whose customers are mainly in the automobile industry. The company's chief engineer, Steve Simpson, has recently presented a proposal for automating the Drilling Department. The proposal recommended that SieCo purchase from Service Corp. two robots that would have the capability of replacing the eight direct labor workers in the department. The cost savings in the proposal included the elimination of the direct labor costs plus the elimination of manufacturing overhead cost in the Drilling Department as SieCo charges manufacturing overhead on the basis of direct labor costs using a plant-wide rate.

SieCo's controller, Keith Hunter, gathered the information shown below in Exhibit 1 to discuss the issue of overhead application at the management meeting at which the proposal was approved.

EXHIBIT 1

Date	Average Annual Direct Labor Cost	Average Annual Manufacturing Overhead Cost	Average Manufacturing Overhead Rate
Current Year	$4,000,000	$20,000,000	500%

Category	Cutting Department	Grinding Department	Drilling Department
Average Annual Direct Labor	$ 2,000,000	$1,750,000	$ 250,000
Average Annual Overhead Cost	11,000,000	7,000,000	2,000,000

REQUIRED:

1. Using the information from Exhibit 1, describe the shortcomings of the system for applying overhead that is currently used by SieCo.

2. Recommend two ways to improve SieCo's method for applying overhead in the Cutting and Grinding Departments.

3. Recommend two ways to improve SieCo's method for applying overhead to accommodate the automation of the Drilling Department.

4. Explain the misconceptions underlying the statement that the manufacturing overhead cost in the Drilling Department would be reduced to zero if the automation proposal were implemented.

Question 1.12 – Bellaton

Bellaton Industries is a manufacturing company located in Europe that has just completed the first month of a new fiscal year. The Finance Department is reviewing the variances of actual results to the master budget. The expenditures within the Marketing and Facilities departments make up the majority of the fixed costs. The Sales Operations Department is responsible for revenue. The actual results and master budget are shown below.

	Actual	Master Budget
Units sold	18,000	16,000
Revenues	€1,512,000	€1,360,000
Variable costs		
Direct materials	(792,000)	(672,000)
Direct labor	(252,000)	(240,000)
Variable overhead	(144,000)	(128,000)
Contribution margin	324,000	320,000
Fixed costs	(210,000)	(215,000)
Operating income	€ 114,000	€ 105,000

REQUIRED:

1. Prepare a flexible budget based on the actual sales volume.

2. Calculate the flexible-budget variance by comparing actual results to the flexible budget. Explain the significance of these variances.

3. Identify and describe three benefits and one limitation of measuring performance by comparing actual results to the master budget.

4. Identify and describe different types of responsibility centers. Identify the responsibility centers in the scenario.

5. Explain the difference between the sales-volume variance for operating income and the sales-price variance.

<u>Question 1.13 – Ecoclock</u>

Ecoclock manufactures four environmentally friendly consumer products, and the firm is organized as four operating centers, each responsible for a single product. The main mechanism of each product is the same and requires an identical initial processing step, although subsequent processing for each product is very different. Ecoclock's management has decided to centralize the initial processing function and purchase new equipment that has a 40,000 unit annual practical capacity. For budgeting and costing purposes, the initial processing function will be assigned to a new center, Center E. Shown below is the budgeted production for the product centers.

	Annual Production
Center A	5,000
Center B	7,500
Center C	4,000
Center D	6,000

A large part of the managers' compensation is derived from bonuses that they receive for meeting or exceeding cost targets. The mangers of centers A through D each agree that they should be charged with the variable costs per unit that are delivered by Center E. However, they disagree about the allocation of the fixed costs of Center E, primarily because they believe that the new equipment has a much larger capacity than is necessary and they do not want to be charged with the cost of the unused capacity. The fixed costs for Center E total $150,000, while the variable cost per unit is $6.

REQUIRED:

1. Assume fixed costs are allocated based on the proportion of units produced by each center. What is Center D's per unit cost?

2. What would be Center A's per unit cost if Center E's fixed costs are allocated based on practical capacity?

3. Although allocating Center E's fixed costs on a per-unit produced basis seems equitable, the manager of Center C is worried about Center B reducing the number of units produced. Calculate Center C's per unit cost with no change in production.

4. If Center B reduces the number of units produced to 5,000, will Center C's cost increase or decrease and by how much?

5. The center managers are concerned that being charged for unused capacity will impact their bonus. Explain how company management could alleviate the concerns.

6. Identify three additional measures that could be used to evaluate manager performance.

Question 1.14 - Edge

Edge Products is a global supplier of medical products. They have one primary product which is manufactured in the United States, and two overseas subsidiaries which produce two key supplies for the primary product. Both subsidiaries also sell these supplies to other companies. The U.S. operation purchases the two supplies internally using transfer pricing. The supplies are of the same quality as any available from other suppliers and there would be no benefit to purchasing the supplies outside of the company. The market for the supplies is very competitive and prices are stable. For performance purposes, the U.S. operation is evaluated by department, such as marketing, IT, and sales, while the overseas operations are smaller and evaluated as a whole.

REQUIRED:

1. Define transfer pricing and identify the objectives of transfer pricing.

2. Identify the methods for determining transfer prices.

3. Explain the advantages and disadvantages of each transfer pricing method.

4. Based on the scenario, which transfer pricing method should this company select? Explain your answer.

5. How could tariffs, customs duties, or taxes affect transfer pricing and related performance evaluation in this multinational company?

6. Identify and explain the four different types of responsibility centers.

Question 1.15 - Zavod

Zavod Inc. produces a single product and utilizes a standard cost system. Zavod has budgeted production costs for its first year of operations based on normal capacity of 11,000 units per year. The production budget includes the following costs.

Direct materials	$4.00 per finished unit
Direct labor	$3.25 per finished unit
Variable manufacturing overhead	$1.15 per finished unit
Fixed manufacturing overhead	$2.85 per finished unit

In addition, Zavod has variable selling and administrative costs of $5.00 per unit and fixed selling and administrative costs of $81,000.

During the year, Zavod produced 11,000 units and sold 10,000 units at $32 each. All variable costs were exactly as expected on a per unit basis, and all fixed costs were exactly as expected in total. Zavod's president has asked the controller to prepare an income statement under absorption costing and an income statement under variable costing.

REQUIRED:

1. Explain how absorption costing and variable costing methods treat the following costs:
    a. Direct materials.
    b. Direct labor.
    c. Variable overhead.
    d. Fixed overhead.
    e. Variable selling and administrative.
    f. Fixed selling and administrative.

2. Calculate the unit cost to be used in valuation of the ending inventory under absorption costing. Show your calculations.

3. Calculate the unit cost to be used in valuation of the ending inventory under variable costing. Show your calculations.

4. Calculate operating income using absorption costing and variable costing, respectively. Show your calculations.

5. Explain why operating income calculated under absorption costing differs from operating income calculated under variable costing.

6. Explain why absorption costing is required under U.S. GAAP.

7. Explain why variable costing is more appropriate for management decision-making.

Question 1.16 – Blue Mountain

Blue Mountain operates retail stores throughout the United States. Blue Mountain has three divisions, where each operates their own independent retail stores: Apparel, Shoes and Sports Equipment. The manager of each division is responsible for the revenues and costs of the division. All investment decisions are made by the corporate headquarters. Blue Mountain had a history of financial success until last year when it incurred a net loss of $250,000. President Bob Johnson does not understand why the company incurred a loss and has assigned accountant Hillary Ryan with the job of analyzing the results.

Last Year's Operating Results	
Sales	$7,500,000
Variable expenses	4,000,000
Fixed expenses	3,750,000
Net loss	($250,000)

A breakout of operating data by division is shown below.

	Apparel	Shoes	Sports Equipment
Revenues	$3,750,000	$1,500,000	$2,250,000
Variable expenses	1,500,000	500,000	2,000,000

Ryan analyzed fixed expenses and found that $1,000,000 is traceable to Apparel, $750,000 is traceable to Shoes, and $1,500,000 is traceable to Sports Equipment. The remaining fixed expenses relate to the corporate headquarters.

Required:

1. Identify and describe the four types of responsibility centers.

2. What type of center do the three retail divisions of Blue Mountain represent?

3. How should Blue Mountain allocate the fixed expenses when evaluating the performance of the three retail divisions? Explain.

4. Calculate the contribution margin for each division. Show your calculations.

5. Which division of Blue Mountain is the most unprofitable one and how can Blue Mountain improve this division's profitability? Explain you answer. No calculations necessary.

6. Discuss how contribution margin can be used as a performance evaluation tool.

<u>Question 1.17 – Stark</u>

The executives at Stark Inc., a plumbing supply manufacturer, recently reviewed production capacity for the upcoming year and set production budgets. Based on the number of units that they expected to produce, they budgeted sales and set sales targets for each of their retail locations. They did not ask for the input of the individual store managers as they believed that they had sufficient information and they wanted to ensure that the store targets were not easily attainable. When the actual sales numbers started to come in, they were much lower than the budget. In investigating the variance, the company found that one location had a new competitor that had opened just down the street, and another had significant road construction that impeded the traffic flow and cut down on customers. There were also some new products on the market that were cutting into the company's market share. Because of the missed sales budget, the company had over-produced resulting in excess inventory.

Required:

1. Explain the role of a sales budget in the development of the annual profit plan.

2. Identify four factors that should be considered when preparing a sales forecast.

3. Which two factors did management fail to consider in this scenario and what was the impact?

4. Discuss authoritative and participative budgets and identify which type is described in the scenario.

5. Identify and describe two best practice guidelines for the budget process.

6. Identify and describe four characteristics that define a successful budgeting process.

7. Discuss the financial impact of excess inventory.

Question 1.18 – Rosewood Designs

Rosewood Designs produces customized textiles, such as dresses, formal attire, and uniforms. Rosewood is a small sole proprietorship owned and managed by Samuel Wood. Rosewood uses a job order costing system. During July, Rosewood completed Job 431, an order for 2,000 school uniforms. Based on the success of this large order, Wood is contemplating a drastic change in business strategy. Wood is considering mass producing school uniforms and gradually phasing out custom orders. Relevant financial information is shown below.

- Job 431 had a beginning work-in-process inventory balance of $33,000 on July 1.
- During July, $3,000 of direct material was added to the job. Job 431 required a total of 3,500 direct labor hours, with 1,000 of those hours taking place in July.
- The average labor rate for production workers is $7 per hour.
- Rosewood completed Job 431 on July 25.
- Rosewood's predetermined manufacturing overhead rate is $3 per direct labor hour.
- After completing Job 431, management analyzed the direct labor hours. Rosewood normally experiences an 80% learning curve, and management expects that the learning curve will level off after producing 8,000 uniforms.

Required:

1. Define and explain the job costing system Rosewood currently uses.

2. Identify what costing system would be most suitable if Rosewood begins mass producing school uniforms. Explain your answer.

3. For Job 431, calculate the cost per unit by using full absorption costing. Show your calculations.

4. Identify and explain the major difference between full absorption costing and direct costing.

5. Define and explain the concept of the learning curve.

6. After completing 8,000 uniforms, what is the estimated direct labor cost per uniform? Show your calculations.

Question 1.19 – Maxwell Mechanical

Maxwell Mechanical Inc. specializes in servicing central air conditioning units. Maxwell Mechanical employs licensed HVAC technicians and apprentices. Each service call requires a combination of both types of labor.

Maxwell's standard time and cost for each service call are as follows.

	Time	Wage
HVAC technician	1.0 hour	\$30/hour
Apprentice	3.0 hours	\$14/hour

During the month of May, Maxwell serviced 1,500 air conditioning units. HVAC technicians worked a total of 1,900 hours with a total labor cost of \$60,800.

Apprentices worked a total of 4,000 hours with a total labor cost of \$52,000. The service calls require a certain amount of direct materials. For the month of May, Maxwell experienced a favorable direct materials price variance of \$5,000 and an unfavorable direct materials usage variance of \$8,000.

Required:

1. Explain how Maxwell could use management by exception.
2. Calculate Maxwell's total direct labor rate variance for the month of May. Show your calculations.
3. Calculate Maxwell's total direct labor efficiency variance for the month of May. Show your calculations.
4. Without performing any calculations, explain how Maxwell could further analyze the labor efficiency variance.
5. Identify one possible cause and one corrective action for the combination of a favorable direct materials price variance and an unfavorable direct materials usage variance experienced by Maxwell in May.

<u>Question 1.20 – Holt Manufacturing</u>

Holt Manufacturing just completed its first year of operations. Holt produces a new type of computer accessory for storing and charging laptop computers. Planning the production levels from month to month in this new business has been a challenge. Managers and sales associates are making new business contacts and securing orders, but the sales level each month can vary. The company is located in the state of Indiana in the U.S, and currently only sells to small retailers in the Midwestern part of the U.S. The company's sales force is working to identify new sales opportunities in areas outside of the Midwest. Sydnee Wright is the sales manager for Holt Manufacturing. Wright believes that projections for sales to increase over the next two to four years are accurate based on the planned expansion of the company's sales market. Olivia Radner is the production manager for the business. Radner is struggling to prepare production forecasts based on the volatile sales levels in the new business. Production levels are determined using forecasted sales data.

Following is a summary of the results for Holt's first year of operations.

Sales	$1,500,000
Unadjusted cost of goods sold	970,000
Selling and administrative expenses	528,000

Ending balances in the inventory accounts are shown below.

Raw materials	$40,000
Work-in-process	22,000
Finished goods	14,500

Holt estimated overhead at the beginning of the year to be $300,000. Overhead is assigned based on machine hours, which were estimated to be 48,000 for the year. Actual machine hours this year were 41,000. Actual overhead incurred this year was $260,000.

Required:

1. Calculate the amount of Holt's underapplied or overapplied overhead. Show your calculations.

2. Identify and describe two different methods Holt could use to allocate this underapplied or overapplied overhead at the end of the year.

3. Identify and explain the **most** appropriate method to allocate this underapplied or overapplied overhead in this situation.

4. Identify and explain the impact that the underapplied or overapplied overhead has on Holt's profitability for this year.

5. Explain how activity-based costing might help Holt in future years.

6. What type of budgeting could Holt use to monitor performance?

Question 1.21 – TOR Industries

TOR Industries sells raw materials to its customers in the appliance manufacturing business. Rochelle Smith, a recently hired financial analyst, has been asked to evaluate the profitability of TOR's three biggest customers, A, B, and C, respectively. Smith has been provided with the following information.

	A	B	C
Units sold	40,000	30,000	25,000
Revenue at list price ($18 per unit)	$720,000	$540,000	$450,000
Discounts	45,000	32,000	25,000
Revenue, net of discounts	675,000	508,000	425,000
Cost of goods sold ($8.50 per unit)	340,000	255,000	212,500
Gross profit margin	335,000	253,000	212,500
Customer operating costs:			
Product handling ($0.06 per unit)	2,400	1,800	1,500
Order taking ($2.00 per order)	208	160	104
Delivery ($365 per delivery)	37,960	29,200	18,980
Rush orders ($200 per rush order)	1,600	0	3,800
Selling costs	500	400	300
Total customer operating costs	42,668	31,560	24,684
Customer operating income	$292,332	$221,440	$187,816
Other statistics:			
Number of orders	104	80	52
Average order size (units)	365	375	481

Required:

1. Identify which customer has the highest operating profit margin percentage based on net revenue. Show your calculations.

2. Identify three factors that are contributing to this higher profit margin percentage.

3. The sales department has been given the goal of increasing the gross profit margin from customer C by $25,000 next year. If the gross profit margin percentage remains at its current level, how much more in revenue, net of discounts, is required to meet this gross profit goal? Show your calculations.

4. Recommend and explain three improvements in operations that would decrease customer operating costs and increase customer profitability.

5. Assume that each shipment is sent to the customer directly and each truck can hold up to 500 units. To minimize shipping costs, how many times per year should customer C be ordering?

Show your calculations.

6. From the customer’s perspective, discuss the potential costs and benefits of reducing the number of shipments per year.

<u>Question 1.22 – Arlington Industries</u>

Five years ago, Arlington Industries expanded vertically by acquiring one of its suppliers, Raddix Plastics. Arlington monitors its divisions based on both product contribution and return on investment (ROI), with investment defined as average operating assets employed. All investments in operating assets are expected to earn a minimum return of 11% before income taxes. Management bonuses are also determined based on ROI. The cost of goods sold at Raddix is fully variable while administrative expenses are not dependent on sales volume. Selling expenses are a mixed cost with 40% attributed to sales volume. Since Arlington acquired Raddix, the ROI at Raddix has ranged from 11.8% to 14.7%. During the fiscal year just ended, Raddix considered a capital acquisition with an estimated ROI of 11.5%; however, division management decided against the capital acquisition because it believed that the capital acquisition would decrease the division's ROI. The abbreviated most recent income statement for Raddix is presented below. The division's operating assets employed were $15,750,000 at year end, a 5% increase over the previous year-end balance.

Raddix Plastics Division
Income Statement
For the Year Ended December 31
($000 omitted)

Sales revenue		$25,000
Expenses		
Cost of goods sold	$16,500	
Administrative expenses	3,955	
Selling expenses	2,700	23,155
Income from operations		$ 1,845

Required:

1. Calculate the unit contribution margin for Raddix Plastics if 1,484,000 units were produced and sold during the fiscal year ended December 31.

2. Based on the average operating assets employed, calculate return on investment (ROI) and residual income (RI) for the Raddix Plastics division.

3. Explain why the management of Raddix Plastics would have been more likely to accept the proposed capital acquisition if RI rather than ROI was used as a performance measure.

4. Identify one disadvantage for the organization to focus only on ROI and RI, respectively.

5. Raddix Plastics is a separate investment center within Arlington Industries. Identify three other types of responsibility centers.

6. Identify the items that Raddix should control if it is to be evaluated fairly by using the ROI or RI performance measures.

Question 1.23 – AccuBrake

AccuBrake Inc., a manufacturer of lifts for auto service shops, purchases their supplies both domestically and internationally. Robert Hwang, the chief audit executive, was preparing for year-end meetings with the Board of Directors and senior management. He had recently become aware of a conflict of interest between the purchasing manager of the company and the company's largest domestic supplier where it appeared that the company had materially overpaid for some of its supplies. He planned to report this conflict to the Board. He found no issues in the review of the international suppliers, but he did identify an issue with the warehouse. He found that the finished inventory in the warehouse was not appropriately safeguarded. As part of the year end meeting, Hwang planned to request that the chairman of the board sign off on the appropriateness of the financial statements to be compliant with the Sarbanes-Oxley Act.

Required:

1. Identify and describe two types of internal control failures and related risks that internal auditors should report to management or to the Board of Directors.

2. Should the chief audit executive report the conflict of interest to the Board of Directors? Explain your answer.

3. Identify and explain four responsibilities of the Board of Directors' with respect to ensuring that the company is operated in the best interest of shareholders.

4. Describe three activities relating to auditors prohibited under Section 201 of the Sarbanes-Oxley Act Section 201 relating to auditors' activities.

5. Will the company be compliant with the Sarbanes-Oxley Act Section 302, if the chairman signs off on the appropriateness of the financial statements? Explain your answer.

6. Identify and describe the major internal control provisions of the Foreign Corrupt Practices Act (FCPA).

7. Identify one change that the management of AccuBrake should implement to be compliant with the FCPA.

<u>Question 1.24 – Great Rivers International</u>

Great Rivers International is a global company operating mainly in North America, Europe, and Asia. Two years ago, the company decided to enter the Africa market through its subsidiary in Africa, Nile River Company. Nile River Company has just completed building its pharmaceutical plant in Africa. The total project cost was $26.1 million, as shown below.

Building	$10.0 million
Machinery and equipment	15.0 million
Furniture and fixtures	0.5 million
Vehicles	0.2 million
Working capital	0.4 million
Total	$26.1 million

Next year will be the first year of operation for Nile River Company after almost two years being in a development stage. The company has formulated its strategic plan and an operational plan for next year. Management intends to translate the operational plan into a master budget. The finance manager at Nile River Company is responsible for all planning and budgeting activities in the company. Next year's master budget will be the first master budget to be prepared for Nile River Company.

Required:

1. Define the master budget and outline the process that should be followed in order to prepare the budget at Nile River Company.

2. Identify the components of the sales budget. Explain the interrelationships of the sales budget with the other components of the master budget.

3. Assume that the company is expecting to sell 10,000 units of product during its first year of operation and that the expected annual sales growth is 5% during the second year of operation. Assume further that the first year's desired ending inventory is 30% of the following year's sales. What will be the budgeted production quantity during the first year of operation? Show your calculations.

4. Other than sales, identify two other budgets that should be prepared in order to prepare budgeted net operating income.

5. Identify and explain three characteristics of a successful budgeting process.

Question 1.25 – Sara Hall

Sara Hall is the production manager of a specialty toy manufacturer. The business has grown significantly over the past several years. As the company grows, Sara has found it more difficult to manage all the various activities of purchasing, production and quality control. In addition, the accounting department requires more and more feedback each month as costs rise in the growing business. Hall attended a manufacturing conference where she heard about budgeting. The toy manufacturer does not have a formal budgeting process and Sara thinks it might help the growing business. Hall is not an accountant but is putting together a report to discuss the topic of budgeting with accounting.

Hall has done some studies on the current production processes. She has found that the company can produce a maximum number of toys each month, but never actually reaches that level of production. One of the areas that has become a significant issue in the growing business is stock-outs. Although Hall has been increasing the number of units produced each month, the toy manufacturer's sales department complains that they run out of toys at the beginning of each month. The sales department has provided the following projections for sales over the next quarter.

	Anticipated toy sales in units
October	10,000
November	12,000
December	15,000

Hall has determined that the production should reach a level so that there will be an ending inventory equal to 30% of the next month's sales.

Required:

1. Identify and explain four characteristics that could make this company's budgeting process successful.

2. Describe how this business should differentiate between ideal standards and currently attainable standards.

3. Identify and explain two possible reasons why the production process in this scenario regularly fails to meet its maximum quantity.

4. Identify and explain two benefits of reducing the incidence of stock-outs.

5. Define budgetary slack. Identify and explain two ways this business can reduce the incidence and effect of budgetary slack.

6. Based on information provided, prepare the toy company's production budget for the month of November. Show your calculations.

<u>Question 1.26 – Arklan Production</u>

Arklan Production is upgrading its manufacturing process from a manual process to a highly automated system. Management believes that the new system will result in greater efficiencies and a better finished product. Arklan is also working on a plan to downsize staff after the implementation of the new system. Arklan has used a traditional absorption costing system to calculate unit product costs for external financial reporting. In the past, Arklan has allocated its manufacturing overhead costs using a predetermined plant-wide overhead rate based on direct labor hours. The controller realizes that the new system may require changing the overhead allocation process. Management plans to take the opportunity to reconsider other improvements to the costing system.

Required:

1. Identify and explain three disadvantages of using a predetermined plant-wide overhead rate to allocate overhead costs.

2. Identify and explain three benefits of using departmental overhead rates to allocate overhead costs.

3. Explain why direct labor hours may not be a good basis for allocation of overhead costs after Arklan implements the new system.

4. Recommend two bases of overhead allocation other than direct labor costs that might work better in the new manufacturing process. Explain your recommendation.

5. Identify and explain two differences between a traditional cost allocation system and an activity-based costing (ABC) system.

6. Explain the difference between absorption costing and variable costing. Identify which is more suitable for internal decision making and explain.

7. Identify and explain two limitations of an ABC system.

<u>Question 1.27 – Greeting Card Stores</u>

The headquarters of Greeting Card Stores Inc. is located near a large river that flooded after an extremely heavy rainfall. The disaster recovery leader had recently left the company, and a new person had not yet been named, nor had the plan been tested for some time. The company has a backup location for all systems, but it is in the same area and was subject to the same flood. The backup files were in the basement and first floor of the backup location. Some files were salvaged but do not have clear descriptions, and management is not sure if they are the correct files. After two days of being unable to process the store sales, management has implemented a backup system. This system allows them to process sales, but it does not have all of the current data, so some large sales that were in process were lost.

Required:

1. Explain the objective of a disaster recovery plan.

2. Explain the importance of backing up all program and data files regularly and storing them at a secure remote site.

3. Explain the difference between a hot backup site and a cold backup site.

4. Recommend four changes to improve the disaster recovery and storage control procedures at Greeting Card Stores Inc.

5. Besides disaster recovery, system security is also an important control to the business. Identify three means by which management can protect programs and databases from unauthorized use.

Question 1.28 - Acme

Acme has retail clothing stores in the United States and Europe that transmit daily sales data to the corporate office to be posted in the general ledger. Each day, the store sales team enter the sales transactions as well as customer credit card payments into the sales system. The system will alert the user if a negative cost or an invalid stock number has been entered. At the end of the day, a batch total is created. The system summarizes the information to send and the batch total is checked again to ensure that it is still the same. The files are then encrypted and transmitted to the corporate office via the internet. The receiver of the information checks the batch total before uploading the information to the general ledger and then sends the store a summary report of the activity received. The servers that house the general ledger system are kept in the basement of the corporate office in a locked room. They limit access to the information to authorized users and maintain records of all usage. The desktops used for receiving the transmissions are password protected.

Required:

1. Explain input controls, processing controls, and output controls and identify one each in this scenario.

2. Define data encryption and describe why there is a much greater need for data encryption methods when using the internet.

3. Identify two procedures that Acme could implement to better limit access to its physical hardware.

4. Identify two ways that Acme could limit access to its data and computer programs to authorized users.

5. How can separation of duties enhance systems security?

6. Identify two accounting system duties that should be kept separate to improve internal controls.

Question 1.29 – Logan Associates

Soba Kelly oversees the payroll process at Logan Associates which has 20 hourly employees. The company is small, and Kelly is the only employee allowed to use the payroll system. Each pay period, Kelly must add or change employee information and then she runs the pay-cycle. Kelly enters the hours for each employee, and the computer system checks that she has entered a reasonable number of hours for each person (e.g., no negative hours, no hours over a certain threshold).

After Kelly has entered all the data, a control total is generated; this control total shows the total number of hours, which she can confirm by checking to the total from the time clock. After the payroll checks are printed, she obtains a summary report showing the total payroll dollars and total number of employees paid. Kelly confirms that the number of checks printed, and the overall amount paid are reasonable. She also confirms that the pre-numbered checks agree to the check numbers that the computer has assigned to each of the transactions.

Required:

1. Describe the purposes of input controls, processing controls, and output controls.
2. Provide one example of an input control, a processing control, and an output control at Logan Associates, respectively.
3. Identify and explain three ways by which Logan's management can protect programs such as the payroll system from unauthorized use.
4. Identify three ways that Logan Associates can ensure that limited access to physical hardware can be achieved.
5. How can Logan Associates ensure that access to the blank checks has been safeguarded?
6. Describe two ways that additional segregation of duties at Logan Associates could enhance the security of the payroll process.

Question 1.30 – Lasertech

Lasertech is a start-up company that was founded by three college friends Mark, Mike and Stella, right after they graduated from medical school. They had a vision of utilizing laser technology and selling it to hospitals and physicians to enable less-invasive surgeries. The company has been struggling in recent years. Sales have fluctuated and the company is often left with unsold inventory of products. Mark prepares monthly production schedules based on sales of the previous two months. The production schedule triggers the purchase of inventory. Stella monitors sales and inventory levels and plans promotions to sell slow-moving inventory. Mike monitors the cash flow and borrows against a line of credit when cash is low. The company founders brought in a consultant to assist the company in increasing sales, lowering costs, and controlling inventory. The consultant recommended implementing a formal budgeting process as the first step in the process of improving performance.

Required:

1. Describe the role budgeting plays in strategic planning.
2. Describe the role budgeting plays in defining short-term objectives.
3. Identify and explain three characteristics of a successful budgeting process.
4. Explain how the budgeting process might be able to facilitate communication among the manufacturing, marketing, and finance units of the company.
5. Define flexible budgeting and explain how it is used.
6. Identify two other types of that companies use other than flexible budgeting.

Question: 2.1 – Foyle Inc.

Foyle Inc. has prepared the comparative income statements for the three most recent fiscal years that are shown below. While profitable, Foyle has been losing market share and is concerned about future performance. Also presented are data about Foyle's largest competitor and the industry average.

	Year 1	Year 2	Year 3	Competitor	Ind. Avg.
Revenue	$20,000	$24,000	$30,000	$45,000	$28,000
Cost of goods sold	12,000	12,000	18,000	21,600	14,000
Gross profit	8,000	12,000	12,000	23,400	14,000
Sales and marketing	2,000	2,000	2,000	5,000	3,000
General and administrative	1,500	2,000	3,000	3,150	2,500
Research and development	1,500	2,000	1,000	4,000	1,500
Operating income	$ 3,000	$ 6,000	$ 6,000	$11,250	$ 7,000

REQUIRED:

1. Using the three Foyle Inc. statements, prepare a comparative common-size statement using revenue as the base measure.

2. Prepare a common base-year income statement using Year 1 as the base year. Show your calculations.

3. Calculate Foyle's growth rate of both revenue and operating income for Year 2 and Year 3. Show your calculations.

4. By evaluating Foyle's performance against the performance of Foyle's largest competitor and the industry average, identify and discuss three areas that Foyle should target for further investigation and performance improvement. Support your discussion with data.

Question: 2.2 – OneCo, Inc.

OneCo Inc. produces a single product. Cost per unit, based on the manufacture and sale of 10,000 units per month at full capacity, is shown below.

Direct materials	$4.00
Direct labor	1.30
Variable overhead	2.50
Fixed overhead	3.40
Sales commission	.90
	$12.10

The $0.90 sales commission is paid for every unit sold through regular channels. Market demand is such that OneCo is operating at full capacity, and the firm has found it can sell all it can produce at the market price of $16.50.

Currently, OneCo is considering two separate proposals:

- Gatsby, Inc. has offered to buy 1,000 units at $14.35 each. Sales commission would be $0.35 on this special order.

- Zelda Productions, Inc. has offered to produce 1,000 units at a delivered cost to OneCo of $14.50 each.

REQUIRED:

1. What would be the effect on OneCo's operating income if it accepts of the proposal from Gatsby, but rejects the proposal from Zelda?

2. What would be the effect on OneCo's operating income if it accepts of the proposal from Zelda, but rejects the proposal from Gatsby?

3. What would be the effect on OneCo's operating income if it accepts both proposals?

4. Assume Gatsby has offered a second proposal to purchase 2,000 units at the market price of $16.50, but has requested product modifications that would increase direct materials cost by $.30 per unit and increase direct labor and variable overhead by 15%. The sales commission would be $.35 per unit. Should OneCo accept this order? Explain your recommendation.

5. Under the situation described above, would your recommendation be different if the company had excess capacity? Explain your answer.

6. Identify and describe at least two factors other than the effect on income that OneCo should consider before making a decision on the proposals.

Question: 2.3 – Grandeur Industries

Grandeur Industries is currently in the process of reviewing capital budget submissions from its various divisions. Grandeur uses the Capital Asset Pricing Model (CAPM) for a variety of purposes, including the determination of benchmark investment returns. The company's overall cost of capital is 16% and its beta value is 1.2. The risk-free rate is 4% and the expected return on the market is 14%. The following projects from different divisions are under consideration and there is no capital rationing in effect.

Project	Internal Rate of Return	Project Beta
A	16%	1.4
B	18%	1.6
C	12%	0.7
D	17%	1.1

REQUIRED:

1. Calculate the required return for all four projects. Show your calculations.

2. Identify which of the four projects under consideration should Grandeur accept. Support your decision.

3. Define and explain beta.

4. Describe four factors that would impact the beta value that is chosen for use in evaluating a project.

5. Identify alternative approaches to dealing with risk in capital budgeting.

Question: 2.4 – Orion Corp.

Orion Corp. is a logistics and transportation company. The finance director, John Kochar, is in the process of evaluating a number of proposed capital investment projects. The following information relates to the firm's finances.

- Some years ago the firm issued 10,000 bonds, each with a face value of $1,000 and paying an annual coupon rate of 9.2%. These bonds are now trading at $1,040 per bond. A coupon payment on these bonds was made yesterday and the bonds mature next year.
- The firm has no other debt or preferred stock outstanding.
- The firm has 2,000,000 shares of common stock outstanding. The stock is currently selling for $14.80 per share and the firm is expected to pay a dividend of $1.48 per share next year. The dividend is expected to grow at a constant rate of 4% per year in the foreseeable future.
- The firm's corporate tax rate is 30%.

Kochar is reviewing the capital investment projects shown below. All projects are in Orion's usual line of business and are being considered independently of each other. The following information is available. (Note that the net present values of the projects are estimated using the weighted average cost of capital.)

Project	Initial Outlay	IRR	NPV
A	$450,000	17.0%	$18,800
B	$128,000	19.5%	$2,300
C	$262,000	16.2%	$9,800
D	$180,000	10.5%	-$7,000
E	$240,000	16.5%	$22,500
F	$160,000	11.1%	-$900

The firm is also evaluating another proposed capital investment, project X, that is in a completely different line of business from Orion's usual operations. The project is expected to be financed from the existing capital structure and does not fall within any capital rationing restrictions. The following forecasted net after-tax cash flows relate to project X.

Year 0	Year 1	Year 2	Year 3	Year 4
-$200,000	$60,000	$80,000	$80,000	$80,000

REQUIRED:

1. Based on the information provided, calculate Orion's weighted average cost of capital. Show your calculations.

2. Referring to projects A through F, identify which projects should be accepted by Orion. Provide a brief defense of the decision criteria that you have used in arriving at your recommendations.

3. Referring to project X, state whether the firm should use its weighted average cost of capital to evaluate this project. Explain your answer.

4. Based on an analysis of two firms with operations similar to project X, Kochar has determined that the project's beta is 2.0. The risk-free rate is 10% and the market risk premium is 15%. Calculate the net present value of project X and provide a recommendation on whether the project should be accepted. Show your calculations.

5. In the past the firm has typically used the payback period method for evaluating risky projects and accepted projects with a payback period less than 3 years. Calculate the payback period for project X. Based on the firm's payback period threshold, what decision should the firm make regarding project X?

6. Provide one reason why using the payback period can result in the firm making a sub-optimal decision.

Question 2.5 – Ultra Comp

Ultra Comp is a large information technology firm with several facilities. The firm's Audit Committee has determined that management must implement more effective security measures at its facilities. A Security Improvement Team has been formed to formulate a solution. Janet Lynch is the financial analyst assigned to the team. She has determined that a six-year time horizon is appropriate for the analysis and that a 14% cost of capital is applicable. The team is investigating the following three vendors.

- Vendor A is a new entrant to the security industry and is in the process of introducing its security system which utilizes new technology. The system would require an initial investment of $4 million and have a life of six years. A net cash outflow of $500,000 per year for salaries, operation, maintenance, and all costs related to the system would also be required.

- Vendor B is an established firm in the security industry and has a security system that has been on the market for several years. The system requires an initial investment of $1 million and will have a useful life of three years. At the end of the three-year period, Ultra Comp would have to replace the hardware at an estimated cost of $1,250,000, based on current technology. A net cash outflow of $750,000 per year for salaries, operation, maintenance, and all other related costs would also be required.

- Vendor C is a nationally recognized firm in the security industry and has proposed to Ultra Comp that it provide a total security solution. Vendor C would provide all hardware and personnel to operate and maintain a security system as called for by the specifications of Ultra Comp for all its locations. Ultra Comp would be required to sign a six-year contract at a cost of $1,400,000 per year.

REQUIRED:

1. Ultra Comp utilizes the Net Present Value (NPV) method to quantify the financial aspects of corporate decisions. Calculate the NPV of each of the three alternatives.

2. Based on financial considerations, which of the three alternatives should the team recommend? Explain why.

3. Define sensitivity analysis and discuss how Ultra Comp could use this technique in analyzing the three vendor alternatives.

4. Identify and briefly discuss three non-financial considerations that the Ultra Comp team should consider prior to making a recommendation to senior management.

<u>Question 2.6 – Right-Way</u>

Right-Way Stores is a chain of home improvement stores with 150 locations. Right-Way has identified an attractive site for a new store and Jim Smith, Director of Financial Planning, has been asked to prepare an analysis and make a recommendation for or against opening this proposed new store.

In preparing his analysis, Smith has determined that the land at the proposed site will cost $500,000 and the new store will cost $3.5 million to build. The building contractor requires full payment at the start of construction, and it will take one year to build the store. Right-Way will finance the purchase of the land and construction of the new building with a 40-year mortgage. The mortgage payment will be $118,000 payable annually at year end. Fixtures for the store are estimated to cost $100,000 and will be expensed. Inventory to stock the store is estimated to cost $100,000. Concerned about the possibility of rising prices, the company expects to purchase the fixtures and inventory at the start of construction. Advertising for the grand opening will be $50,000, paid to the advertising agency on retainer at the start of construction. The new store will begin operations one year after the start of construction.

Right-Way will depreciate the building over 20 years on a straight-line basis, and is subject to a 35% tax rate. Right-Way uses a 12% hurdle rate to evaluate projects. The company expects to earn after-tax operating income from the new store of $1,200,000 per year.

REQUIRED:

1. What is Right-Way's total initial cash outflow? Show your calculations.

2. Calculate the annual expected cash flow from the proposed new store. Show your calculations.

3. Right-Way management evaluates new stores over a five-year horizon as management believes there is too much uncertainty after 5 years of operation. Calculate the Net Present Value (NPV) for the store for the first 5 years of operation. Show your calculations.

4. Based solely on your answer to C, would you recommend that Right-Way build this store? Explain your answer.

5. How would you use sensitivity analysis to test your confidence in the recommendation? No calculations are required.

Question 2.7 – Romco

Alex Conrad, financial analyst for RomCo, is presenting two mutually exclusive capital budgeting project proposals to the management team. The preliminary results for the net present value (NPV) and internal rate of return (IRR) analyses of the two projects being discussed are as follows.

	Initial Investment	NPV	IRR
Project 1	$822,800	$0	12.00%
Project 2	$300,000	$49,469	17.65%

Project 1 is expected to have a positive after-tax cash flow of $200,000 per year for six years after the initial investment, and Project 2 is expected to have a positive after-tax cash flow of $85,000 for six years after the initial investment. During the meeting, Conrad was asked to explain several issues related to his analysis of the projects.

REQUIRED:

1. Because of volatility in the financial markets, the company's cost of equity may be higher than assumed in this analysis. This is important as RomCo is entirely equity financed. What cost of equity was used in this analysis? Explain your answer.

2. Would an increase in the cost of equity affect the NPV and IRR of the projects, and thus the desirability of undertaking the projects? Explain your answer.

3. There is a possibility that the corporate income tax rate may be lowered in the near future. If this were to occur, how would this affect the NPV and IRR of the projects, and the desirability of investing in the projects?

4. What is the payback period for each project? Show your calculations.

5. Identify and explain three weaknesses of using the payback period to decide on doing these projects.

Question 2.8 – Kolobok

Kolobok, Inc. produces premium ice cream in a variety of flavors. Over the past several years, the company has experienced rapid and continuous growth and is planning to increase manufacturing capacity by opening production facilities in new geographic areas. These initiatives have put pressure on management to better understand both their potential markets and associated costs. Kolobok's management identified three aspects of their current operation that could affect the new market expansion decision: (1) a highly competitive ice cream market, (2) the company's current marketing strategy, and (3) the company's current cost structure.

Since the company began operations in 1990, Kolobok has used the mark-up approach for establishing prices for six-gallon containers of ice cream. The product prices include the cost of materials and labor, a markup for profit and overhead cost (a standard $20), and a market adjustment. The market adjustment is used to appropriately position a variety of products in the market. The goal is to price the products in the middle of comparable ice creams offered by competitors while maintaining high quality and high differentiation. Sales for 2007 based on Kolobok's mark-up pricing are presented below by product.

Product	Material & Labor	Markup	Market adjustment	Unit Price	Boxes sold	al Materials & Labor	Total Sales
Vanilla	$29.00	$20.00	$1.00	$50.00	10,200	$295,800	$510,000
Chocolate	28.00	20.00	7.00	55.00	12,500	350,000	687,500
Caramel	26.00	20.00	2.00	48.00	12,900	335,400	619,200
Raspberry	27.00	20.00	2.00	49.00	13,600	367,200	666,400
Total					49,200	$1,348,400	$2,483,100

For the year 2007, Kolobok's before-tax return on sales was 7%. The company's overhead expenses were $500,000, selling expenses $250,000, administrative expenses $180,000, and interest expenses were $30,000. Kolobok's marginal tax rate is 30%.

Kolobok is considering replacing mark-up pricing with target costing and has prepared the table below to better compare the methods. Kolobok tries to appeal to the top 30% of the retail sales customers, including restaurants and cafes. In positioning Kolobok's products, three dimensions are considered: price, quality, and product differentiation. Accordingly, there are three main competitors in the market as follows.

Competitor A – Low cost, low quality, high standardization
Competitor B – Average cost, moderate quality, average differentiation
Competitor C – High cost, high quality, high differentiation

Product	*Competitor A Pricing*	*Competitor B Pricing*	*Competitor C Pricing*	*Kolobok Target Prices*
Vanilla	$49	$55	$55	$53
Chocolate	50	53	56	53
Caramel			51	50
Raspberry		51	52	50

Kolobok has also been reviewing its purchasing, manufacturing, and distribution processes. Assuming that sales volumes will not be affected by the new target prices, the company believes that improvements will yield a $125,000 decrease in labor expense and a 25% reduction in overhead expense.

REQUIRED:

1. Describe target costing.

2. Analyze and compare the two alternative pricing methods: mark-up pricing and target costing.

3. Assuming that the sales volumes will not be affected by the new product pricing based on target costing and that the process improvements will be implemented, calculate Kolobok's before-tax return on sales using the proposed target prices.

4. Recommend which pricing method (mark-up or target) Kolobok should use in the future and explain why.

<u>Question 2.9 - Edmonds</u>

Edmonds Manufacturing is located in the northwest region of the U.S. The company is experiencing tremendous growth in demand for its products. Management has discussed the distribution channel as an impediment to the company's ability to keep up with growing demand. Manufacturing facilities have excess capacity to meet increasing orders, but the company will have difficulty getting the products to the customers. The supply chain distribution manager has suggested the company purchase a new building to expand the storage area near the distribution center. After some collaborative research by the accounting and finance departments, the company found that a new building will cost $25,000,000. The new building will have an estimated useful life of ten years with no salvage value. Operating the new building will cost approximately $1,000,000 per year but the new building will allow the company to increase sales significantly. Distribution managers believe the new building will increase productivity to allow for additional sales of 500,000 units each year. Marketing managers estimate the demand for the company's product will increase 750,000 units each year. The average contribution margin for the company's products is $55. The company's effective income tax rate is 40%.

REQUIRED:

1. Define capital budgeting. What two steps should Edmonds take in evaluating and implementing this project?

2. What are two qualitative factors Edmonds should consider before implementing this project?

3. Identify the relevant cash flows for the project on both a pretax and an after-tax basis. Show your calculations.

4. Define Net Present Value (NPV) and Internal Rate of Return (IRR).

5. Identify one assumption of NPV and one assumption of IRR and discuss the decision criteria used in NPV and IRR to determine acceptable projects.

6. Explain one advantage and one disadvantage of IRR.

7. Define the payback method. Identify and explain two disadvantages of the payback method.

<u>Question 2.10 – Super Sonic</u>

Super Sonic Company manufactures audio speakers. The average costs for the production of speakers are summarized below.

	Per unit	Per year
Direct materials	$10.00	
Direct labor	20.50	
Variable manufacturing overhead	1.50	
Variable selling and administrative expenses	1.80	
Fixed manufacturing overhead		$429,000
Fixed selling and administrative expenses		495,000

The pricing calculations are based on budgeted production and sales of 33,000 units per year. The company has invested $1,000,000 in this product and expects a return on investment of 12%. The markup rate on total cost is 48%. A recent marketing research study reveals that due to increased competition the company must reduce the selling price to $45 in order to maintain the same level of sales volume.

Required:

1. Calculate the original target selling price of the product. Show your calculations.

2. Using the market-based pricing approach, calculate the target cost per unit given the competitive target price of $45. Show your calculations.

3. Identify and explain one advantage and one disadvantage of cost-based pricing and market-based pricing, respectively.

4. Define value engineering and explain how value engineering can help Super Sonic.

5. Identify and explain one reason why Super Sonic may want to set its selling price below $45.

Question 2.11 – Macro Solutions

Macro Solutions Inc., a hardware manufacturer, has experienced rapid growth. Macro is considering two new capital expenditure projects and has a weighted average cost of capital of 10%. Project A requires an investment of $155,000 and Project B requires an investment of $240,000. Wendy Alexander, CFO of Macro, has been asked to analyze both projects and provide a recommendation. She has compiled the following data.

	Project A Cash flows	Project B Cash flows
Year 1	$43,000	$60,000
Year 2	43,000	60,000
Year 3	43,000	60,000
Year 4	43,000	60,000
Year 5	43,000	60,000

Required:

1. Calculate the internal rate of return (IRR) for each project. Show your calculations.

2. Based on the IRR of each project, and a capital rationing constraint of $275,000, what recommendations should Alexander make regarding the projects? Explain your answer.

3. If Macro has no capital rationing constraints, what recommendation should Alexander make regarding the projects? Explain your answer.

4. Calculate the payback period for both projects. Show your calculations.
   Assuming a four-year maximum payback requirement and no other constraint, what recommendation should Alexander make? Explain your answer.

5. Identify and explain two advantages of using net present value (NPV) over IRR and one advantage of using IRR over NPV

6. Identify and explain three weaknesses of the payback method.

7. Define and explain sensitivity analysis. Explain two ways Alexander can use sensitivity analysis to further evaluate proposed projects.

Question 2.12 – Globex Corporation

Globex Corporation is a multinational construction company based in Istanbul, Turkey. The company operates primarily in Turkey, Eurasia and the Middle East regions. The management team is considering two new mutually exclusive projects.

- The first project involves a giant construction project of a bridge that crosses the Bosphorus strait in Istanbul. The firm would be a subcontractor and would build only part of the motorway that will connect the bridge to a main motorway system in the Asian side of Istanbul.
- The second investment option is a construction project of a sports center in Qatar that will be used for the FIFA World Cup. The project is a high profile project and the firm can gain a significant reputation if the project is successful.

Both projects require an $80 million initial investment for the investors of the firm and their IRR and payback figures are shown below.

	IRR	Payback
Bridge Project	18.2%	5 years
Sports Center Project	25.5%	3 years

The planned completion date for the bridge project is May, Year 1 and for the sports center, the completion date is December Year 3. The sports center project also requires $1 million of additional working capital in the short term. The hurdle rate for the company is 10%.

Required:

1. Define working capital and discuss the effects of both projects on the firm's working capital.

2. Define political risk and discuss the political risk for both projects and how a firm would mitigate this risk.

3. Define mutually exclusive projects. Identify and explain which project would you recommend based on the information presented, assuming both projects have the same level of political risk.

4. What other additional information would be helpful to evaluate those projects? Explain your answer.

5. Define hurdle rate and explain how does a firm develop its hurdle rate.

<u>Question 2.13 – Focused Solution</u>

Focused Solution Inc. is a management consulting company. As part of its annual planning process, the company is reviewing proposed capital projects. Staff generated investment project proposals consistent with the company's strategic objectives and the executive team has narrowed the proposals down to two proposed projects as described below.

- <u>Proposal I.</u> The first project relates to opening a new office in either New York or Chicago. The company had purchased a building in Chicago several years ago for this purpose and have already partially rehabilitated the building. The company is also working with a client with some projects in New York that they may not be able to take if they do not build the New York office.
- <u>Proposal II.</u> The other project includes a technology upgrade of the latest mini-tablet computers for all consultants and an expansion of the headquarters in San Francisco.

The president selected Proposal II as he believes that the consultants need to project a professional image and could continue to travel to both New York and Chicago. The CFO requested that additional criteria be reviewed before the project selection was finalized. The CFO noted that there were several projects undertaken in the past that did not generate the expected cash flows or anticipated return on investment. He also wanted to ensure that the selected projects met the company's hurdle rate. The president agreed to post-audits on the projects from the prior year and for additional capital budgeting analysis on each of the proposed projects.

Required:

1. Identify and describe three steps in the capital budgeting process.

2. Identify and explain the role of the post-audit in the capital budgeting process.

3. Define hurdle rate, sunk cost, and opportunity cost. Explain how each is relevant to capital budgeting.

4. Should the company use cash flows or accounting profits in its capital budgeting analysis? Explain.

5. Should the company consider total amounts or incremental amounts in its capital budgeting process? Explain.

6. Describe how the company should be considering the impact of income taxes and inflation on their cash flows.

7. Explain the decision criteria used to determine acceptable projects when using NPV and IRR, respectively.

Question 2.14 – Suzhou Tool

Danny Chen was recently hired as the manager of capital planning for Suzhou Tool Company, a precision tool company located in Fuzhou, China. Chen's first assignment in this new position is to draft a company-wide policy for the development, approval, acquisition, installation, and retirement of capital assets. In preparation for drafting the new policy, Chen has collected the following information.

- The company uses Weighted Average Cost of Capital (WACC) as its hurdle rate for approving capital acquisition.
- The company's targeted capital funding structure is 60% equity and 40% debt.
- The before-tax, average cost of debt financing is 10%.
- The risk-free rate is 7%.
- The historical beta for Suzhou Tool Company is 1.0.
- The expected return on all common stocks is 13%.
- The company's effective income tax rate is 40%.

Required:

1. Define hurdle rate and explain why the WACC is often appropriate to use as a hurdle rate.

2. Calculate the WACC.

3. Explain the importance of beta in the capital assets pricing model (CAPM) and explain the importance of beta in Suzhou's WACC.

4. Explain the importance of changes in net working capital in capital budgeting and identify which project time period(s) may be affected by changes in net working capital.

5. Explain how depreciation and income taxes affect cash flows in the capital budget for a project.

6. Identify and explain one method Chen can use to account for uncertainty in the cash flow forecasts.

7. Define a capital budget post completion audit. Explain the role of the post-audit in the capital budgeting process.

Question 2.15 – HotSpot Systems

HotSpot Systems is considering a proposal to develop a new line of electronic games based on books and movies targeting the teenage market. The Oceanport office complex, one of the company's five facilities, has been idle for the past 15 months. The project, which is expected to last seven years, would utilize the entire capacity of the Oceanport office. HotSpot Systems uses the internal rate of return method (IRR) for evaluating capital expenditure proposals. The established hurdle rate is 11%, and the company's marginal income tax rate is 30%. HotSpot's management team is reviewing the following items to determine whether they should be included in the project's annual cash flows to be used in calculating the IRR.

- If the project is not approved, HotSpot will sell the Oceanport office complex for $2,000,000. HotSpot currently carries the Oceanport office complex at a book value of $1,500,000.
- HotSpot expects to pay licensing costs to the owners of the books and movies.
- Research and development totaling $350,000 has already been expended on the design of the new games.
- Additional computer equipment incorporating the latest technology will be purchased for $125,000 and installed for the project. For tax purposes, the life of the equipment would be five years, and HotSpot uses straight-line depreciation for tax purposes.
- A one-time increase in working capital of $75,000 is required to begin the project.
- A major introductory advertising program to promote the new games is planned to begin immediately upon project approval.
- At the end of the project's life, the Oceanport office complex will be sold in excess of the value recorded for financial reporting purposes.

Required:

1. Calculate the net cash flow impact if HotSpot sells the Oceanport office complex. Show your calculations.

2. Explain how the potential net cash flow from the sale of Oceanport should be considered in the decision to pursue the project.

3. Identify and explain one advantage and one disadvantage of a licensing agreement based on a percentage of game sales, as compared to a licensing agreement based on a flat fee.

4. For the following items which are being reviewed by HotSpot's management, indicate how the item would be included in the project's cash flow and the year in which the cash flows will be affected.

   a. Research and development.
   b. Additional computer equipment.
   c. Working capital increase.
   d. Introductory advertising program.
   e. Sale of the Oceanport office at the end of the project.

5. Explain how IRR is determined and what IRR measures.

6. Explain how IRR is used in project appraisal and approval.

7. Compare and contrast IRR to the net present value (NPV) method of evaluating capital expenditure.

<u>Question 2.16 – Buckeye Grain</u>

Buckeye Grain, a corn and wheat processing company, has decided to introduce a new product that can be manufactured by either a capital-intensive method or a labor-intensive method. The method chosen will have no effect on the quality of the finished product. Estimated costs for the two methods are as follows.

	Capital-intensive	Labor-intensive
Direct raw materials per unit	$10.00	$11.20
Direct labor ($24/hour) per unit	12.00	14.40
Variable overhead ($12/hour) per unit	6.00	9.60
Total fixed costs	$4,880,000	$2,640,000

Buckeye Grain sells the new product at $60 per unit during its initial stage of product life cycle. The incremental selling expenses are estimated to be $1,000,000 annually plus $4 for each unit sold, regardless of the manufacturing method. Fixed costs are all directly traceable incremental costs. When deciding which manufacturing method to use, the company's management team take into account the operating leverage.

Required:

1. Calculate the estimated breakeven point in annual unit sales of the new product if the company uses the capital-intensive manufacturing method and labor-intensive manufacturing method, respectively. Show your calculations.

2. Calculate the annual unit sales volume at which the company would be indifferent between the two manufacturing methods. Show your calculations.

3. Explain how the level of sales can affect the company's choice of manufacturing method.

4. Identify the four stages of the product life cycle.

5. Identify the pricing strategy that the company might use when the new product is in its second stage of the product life cycle. Explain your answer.

6. Explain operating leverage and its relationship with business risk.

Question 2.17 - NuCo

NuCo Inc., a medical supplies manufacturing company, is developing a new product, which will compete with similar products introduced within the last year. NuCo's strategy has traditionally been to compete on price, because of its ability to keep costs under control. For the new product, NuCo is planning a selling price lower than the existing products, possibly appealing to a broader customer base. A financial analyst is determining the selling price for the new product launch. The company requires a 15% after-tax return on investment (ROI) and their effective income tax rate is 35%. Forecasted data for the new product are shown below.

Plant investment	$ 2,500,000
Annual fixed costs	350,000
Annual working capital	750,000
Direct labor per hour	$25
Direct materials per pound	3
Variable overhead per direct labor hour	10
Annual unit sales	10,000
Direct labor hours per unit	2
Materials quantity per unit	25

Required:

1. Using cost plus-based pricing, what selling price should be set for the new product? Show your calculations.

2. Assume that the marketplace will accept a price of $200. Using market-based pricing, what target cost would allow NuCo to reach their required 15% after-tax ROI? Show your calculations.

3. Identify and describe one way to reduce fixed costs, working capital, and direct labor hours per unit, respectively.

4. Explain the difference between cost-based pricing and market-based pricing.

5. Define target pricing and identify the main steps in developing target prices and target costs.

6. Define and explain the role of price elasticity of demand in pricing decisions. Explain how the level of elasticity affects the way changing prices can change total revenue.

Question 2.18 – Encino

Encino Company, a diversified manufacturer, is considering three potential projects. To evaluate capital projects, the finance department uses the net present value method and the payback period method. The company has a hurdle rate of 13%. Capital projects are acceptable under the payback period if the initial investment is recouped in 3 years. For the upcoming fiscal year, the Board of Directors has approved a capital projects budget of up to $8,000,000. Data on the various projects under consideration are shown below.

	Project 1	Project 2	Project 3
Initial Outlay	($4,840,000)	($4,200,000)	($4,550,000)
Annual Net Cash Inflows			
Year 1	1,600,000	1,400,000	1,900,000
Year 2	1,500,000	1,500,000	1,500,000
Year 3	1,800,000	1,900,000	1,550,000
Year 4	1,200,000	1,850,000	1,420,000
Net Present Value	(265,880)	665,090	251,200
Payback Period	3.00	2.68	2.74

Required:

1. Identify and explain two advantages and two disadvantages of using payback period method and net present value method, respectively.

2. Which project(s) should Encino select based on the payback period method? Explain your answer.

3. Which project(s) should Encino select based on the net present value method? Explain your answer.

4. Assume the Board of Directors revises the capital budget upward to $10,000,000. Which project(s) should the company select based on the payback period method and which project(s) should the company select based on the net present value method? Explain your answer.

5. Define sensitivity analysis and explain how management could use sensitivity analysis in its capital budgeting process.

6. Discuss two qualitative factors that Encino should consider when making capital budgeting decisions.

Question 2.19 – Mednovation

Mednovation Inc. has developed a medical device to be marketed to medical facilities. The Board of Directors recently approved the proposal to upgrade existing production equipment and facilities for the new product. The project calls for extra financing either through debt or equity. In order to make a proper financing decision, management is interested in measuring the overall cost of capital through the following possible instruments.

- Issue common stock: Common stock is currently trading at $21 per share. The firm is expected to pay cash dividends of $3.60 per share next year and will continue to remain at the same payout level. The flotation costs are expected to be $3 per share. The stock price is expected to rise to $22 per share.
- Issue preferred stock: Mednovation has $150 par value preferred stock with a current market price of $120 a share. The company currently pays an annual dividend of $20 per share.
- Issue bonds: Newly issued 20-year bonds can be sold at a par value of $1,000 with a 15% coupon rate.

The firm has a 40% marginal income tax rate.

Required:

1. Define and explain the concept of cost of capital.

2. Calculate the cost of capital for Mednovation raised through common stock, preferred stock, and debt. Show your calculations for each instrument.

3. Identify and describe one advantage and one disadvantage to Mednovation of raising capital through common stock, preferred stock and debt, respectively.

4. Calculate Mednovation's weighted average cost of capital, assuming the company decided to raise capital using the following weights: 25% common stock, 30% preferred stock and 45% bonds. Show your calculations.

5. Define and explain the two types of public offering. Which type of offering can Mednovation use to raise capital through common stock?

Question 2.20 – APEX

APEX Corp. is a midsize retail company selling home appliances. APEX faces competition from large national chains as well as local retailers and needs to raise money to finance its expansion into new markets. The company is currently operating at breakeven but believes that the expansion will help it become more profitable. Based on the company's analysis, it plans to open up to ten new retail locations without adding costs to its human resources, accounting, information technology and legal departments. Since the company cannot fund the expansion through operations, it is considering financing options such as issuing more common stock, creating a class of preferred stock, or issuing bonds, convertible securities, or warrants.

Required:

1. Define operating leverage and describe how the operating leverage created by the expansion will affect the company's return and business risk.

2. Define financial leverage

3. Define and identify two characteristics of common stock and preferred stock.

4. Describe the maturity, par value, and coupon rate for a bond.

5. Identify and explain one advantage and one disadvantage of raising capital through common stock, preferred stock, and bond.

Answer to Part 1 Practice Questions

Answer: Question 1.1 – Coe Company

1.

Cumulative Number of Units	Cumulative Average Time/Unit	Cumulative Total Time
1	500	500
2	500 x .9 = 450	450 x 2 = 900
4	450 x .9 = 405	405 x 4 = 1620

2. $25 x 500 hours x 4 units = $50,000 with no learning curve
   $25 x 405 x 4 units = $40,500 with 90% learning curve
   $50,000 - $40,500 = $9,500 savings

3. Budgetary slack is the practice of underestimating budgeted revenues, or overestimating budgeted costs, to make budgeted targets more easily achievable.
   Budgetary slack misleads top management about the true profit potential of the company, which leads to inefficient resource planning and allocation as well as poor coordination of activities across different parts of the company.

4. 1,740 x (25.00 – [44,805/1,740]) = 1,305U
   25.00 x (1,740 – [4 x 500]) = 6,500F
   Direct labor rate variance remains the same, but direct labor efficiency variance will become $3000 negative, because actual hours 1740 is more than expected from 90% learning curve 1620.

5. A factor that could cause an unfavorable price variance and a favorable efficiency variance is using a higher-skilled labor force that would be paid more per hour but would work more quickly.

6. Direct labor efficiency variance would be even more unfavorable if an 80% learning curve was used. The lower number implies more benefit from learning.

7. For a new product, the company may have no way of forecasting the amount of improvement (if any) from savings. The company may set up a production method that is more efficient than prototype, but will not gain further efficiencies.

Answer 1.2 – Law Services Inc.

1. A flexible budget allows the attorneys to tell how much of their unfavorable variance is due to lower than planned billing hours and how much is due to performance issues such as the negotiated billed amount or variable expenses. A master budget is static and any variance must be analyzed further to determine its cause.

2. The flexible budget revenues are calculated by multiplying the actual billed hours by the budgeted amount per billed hour. Then the budgeted variable expense per billed hour is multiplied by the actual billed hours. The flexible budget variable expense is subtracted from the flexible budget revenue. The results are compared to the actual results from last year.

3. 6,000 * 325 = 1,950,000 static budget revenue
   5,700 * 275 = 1,567,500 actual revenue
   1,950,000 - 1,567,500 = $382,500 unfavorable static budget revenue variance
   5,700 * 325 = 1,852,500 flexible budget revenue
   1,852,500 - 1,567,500 = $285,000 flexible budget variance
   6,000 - 5,700 = 300 hours unfavorable sales volume
   300 * 325 = $97,500 unfavorable sales volume variance

4. 6,000 * 50 = 300,000 static budget variable expense
   300,000 - 285,000 = $15,000 favorable variable expense variance

5. 5,700 * 50 = 285,000 flexible budget variable expense
   285,000 - 285,000 = $0, so the variance is a sales volume variance

Answer: Question 1.3 – Inman Inc.

1.

Materials	$400,000	
Direct labor	100,000	
Variable manufacturing overhead	20,000	
Fixed manufacturing overhead	200,000	
	$720,000/100,000 = $7.20	

10,000 beginning inventory + 100,000 manufactured – 106,000 sold = 4,000 units in ending inventory; 4,000 x $7.20 = $28,800.

Sales (106,000 x $12)		$1,272,000
Cost of Goods Sold:		
Beginning inventory	$ 72,000	
Cost of goods manufactured (100,000 x $7.20)	720,000	
- Ending inventory	(28,800)	763,200
Gross profit		508,800
Less selling & administrative		
Variable costs	80,000	
Fixed costs	300,000	380,000
Income		$ 128,800

2.

Materials	$400,000	
Direct labor	100,000	
Variable manufacturing overhead	20,000	
	$520,000/100,000 = $5.20	

4,000 units x $5.20 = $20,800

Sales		$1,272,000
Less variable costs:		
Manufacturing = $5.20 x 106,000	$551,200	
Selling and administrative	80,000	631,200
Contribution margin		640,800
Less fixed costs:		
Manufacturing	200,000	
Selling and administrative	300,000	500,000
Income		$ 140,800

3. The difference in incomes is caused by the treatment of fixed manufacturing overhead. Absorption costing treats this cost as a product cost that is held in inventory until the goods are sold; variable costing treats fixed manufacturing overhead as a period cost, showing it as an expense immediately. Because inventory decreased, absorption costing would expense all of the current month's fixed manufacturing overhead as well as some of the costs that were previously deferred in the prior period's inventory; variable costing would only expense the current month's amount, resulting in a higher income.

4. The advantages of using absorption costing are:

- It is required for external reporting.
- It matches all manufacturing costs with revenues.

The advantages of using variable costing are:

- Data required for cost-volume-profit analysis can be taken directly from the statement.
- The profit for a period is not affected by changes in inventories.
- Unit product costs do not contain fixed costs that are often unitized, a practice that could
- result in poor decision-making.
- The impact of fixed costs on profits is emphasized.
- It is easier to estimate a product's profitability.
- It ties in with cost control measures such as flexible budgets.

5. Top-down advantage: speed, control top-down disadvantage: little buy-in, top has less info
   Bottom-up advantage: more likely to commit, disadvantage: may set easier targets

   Best: top-down, cost of products most important, want to focus on control

6. Benchmark with outside examples, mutual learning about problems, balance scorecard methods of evaluation.

Answer: Question 1.4 – Smart Electronics

1. Model M-11:
   Overhead cost allocated (per unit): [€80,000 / (650 + 150)] x 650 = €65,000 65000/1300=50
   Gross margin per unit: €90-€10-€50=€30

   Model R-24:
   Overhead cost allocated (per unit): [€80,000 / (650 + 150)] x 150 = €15,000
   15,000/1500=10
   Gross margin per unit: €60-€30-€10=€20

2. Setups: €20,000 / (3 + 7) = €2,000
   Components: €50,000 / (17 + 33) = €1,000
   Material Movements: €10,000/(15+35)= €200

   Model M-11:
   (€2,000 x 3) + (€1,000 x 170) + (€200*15)= €26,000
   Overhead cost allocated by ABC (per unit): €26,600/1300= €20.00
   Gross margin per unit: €90-€10-€20.00=€60.00

   Model R-24:
   (€2,000 x 7) + (€1000 x 33) + (€200x35)= €54,000
   Overhead cost allocated by ABC (per unit): €54,000/1,500=€36.00
   Gross margin per unit: €60-€30-€36= -€6.00

3. Because the products do not all require the same proportionate shares of the overhead resources of setup hours and components, the ABC system provides different results than the traditional system. The traditional method uses volume base allocation base which allocates overhead costs on the basis of direct labor hours. The ABC system considers important differences in overhead resource requirements by using multiple cost drivers and thus provides a better picture of the costs of each product model, provided that the activity measures are fairly estimated.

   In the case of Smart Electronics, model R-24 uses more setups, components and material movements which might not be reflected in the labor hours. The following table shows the overhead allocated per unit and profit margin per unit under the current conventional costing system and ABC. As indicated, model R-24 was previously under-costed and model M-11 was over-costed.

   Overhead Allocated per unit under the current costing system and ABC:

	Current costing system	ABC
Model M-11	€50	€20.00
Model R-24	€10	€36.00

Gross Margin per unit under the current costing system and ABC

	Current costing system	ABC
Model M-11	€30	€60.00
Model R-24	€20	-€6.00

Smart Electronics' management can use the information from the ABC system to make better pricing decisions. After allocating overhead by ABC, it gives a clear cost picture that model R-24 costs more to manufacture because it uses more setups, components and material movements. The current price of $60 is inadequate in covering the total cost and results in negative gross margin. Therefore, the company might decide to increase the price of the model R-24. For model M-11, the previous overhead was overestimated given that it was allocated by labor hours. Under ABC, only €60.00 of the overhead was allocated to every unit of Model M-11. The management might reduce the price of model M-11 to make it more competitive.

4. Advantages: The ABC system better captures the resources needed for model M-11 and model R-24. It identifies all of the various activities undertaken when producing the products and recognizes that different products consume different amounts of activities. Hence, the ABC system generates more accurate product costs.

Limitations:
ABC requires continuously estimating cost drivers, updating and maintaining the system, which make the system relatively costly.

A complicated system is sometimes confusing to the top management

Estimation of cost of activities and selection of cost drivers sometime may cause estimation errors which could results in misleading cost information.

Answers: Question 1.5 – Small Parts

1. A good system of internal control is designed to provide reasonable assurance regarding achievement of an entity's objectives involving effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations.

2. Segregation of duties requires that no one person have control over the physical custody of an asset and the accounting for it. There is no evidence to suggest Smallparts makes any effort to account for the value of returned product, which may indeed be significant. The one salesperson seems to be in charge of all aspects related to returned product, including authorizing the returns, crediting the customers, receiving the returns, handling the physical custody, finding new customers, concluding sales, shipping, billing, and collecting. Most of these rules should be separated.

3. A good system of internal control suggests that four functional responsibilities be separated, and handled by different individuals: (i) authority to execute transactions, (ii) recording transactions, (iii) custody of assets involved in the transactions, and (iv) periodic reconciliations of the existing assets to recorded amounts. Smallparts might improve its control over the inventory of returned product by separating these responsibilities among four different individuals.

4. Separate responsibilities and duties. While the salesman may be assigned to work with customers who return products, and find other customers for these products, other staff should post credits to customer accounts following written policy. The products should be received, inventoried, booked and shipped just like regular products.

Answer: Question 1.6 – Michael Hanson

1. a. Transaction processing controls include: passwords to limit access to input or change data, segregation of duties to safeguard assets, and control totals to ensure data accuracy.
   b. Virus protection controls include: ensuring that latest edition of anti-virus software is installed and updated, firewalls set up to deter incoming risks, and limit internet access to business-related purposes to reduce chances of viruses.
   c. Backup controls include identification of vital systems to be backup regularly, development of disaster recovery plan, testing of backup communications and resources

2. A sound disaster recovery plan contains the following components:
   - Establish priorities for recovery process
   - Identification of software and hardware needed for critical processes
   - Identify all data files and program files required for recovery
   - Store files in off-site storage
   - Identify who has responsibility for various activities, which activities are needed first
   - Set up and check arrangements for backup facilities
   - Test and review recovery plan

3. a. Bank deposits not always correspond with cash receipts. Cause: cash received after bank deposits. Action: have a separate individual reconcile incoming cash receipts to bank deposits.
   b. Physical inventory counts sometimes differ from perpetual inventory record, and sometimes there have been alterations to physical counts and perpetual records. Cause: timing differences. Actions: limit access to physical inventory, require and document specific approvals for adjustments to records,
   c. Unexpected and unexplained decrease in gross profit percentage. Causes: unauthorized discounts or credits provided to customers. Actions: establish policies for discounts credits, document approvals.

Answer: Question 1.7 – Thompson

1. The positive and negative behavioral implications arising from employing a negotiated transfer price system for goods exchanged between divisions include the following:

   Positive
   - Both the buying and selling divisions have participated in the negotiations and are likely to believe they have agreed on the best deal possible
   - Negotiating and determining transfer prices will enhance the autonomy/ independence of both divisions.

   Negative
   - The result of a negotiated transfer price between divisions may not be optimal for the firm as a whole and therefore will not be goal congruent.
   - The negotiating process may cause harsh feelings and conflicts between divisions.

2. The behavioral problems which can arise from using actual full (absorption) manufacturing costs as a transfer price include the following:

   a. Full-cost transfer pricing is not suitable for a decentralized structure when the autonomous divisions are measured on profitability as the selling unit is unable to realize a profit.
   b. This method can lead to decisions that are not goal congruent if the buying unit decides to buy outside at a price less than the full cost of the selling unit. If the selling unit is not operating at full capacity, it should reduce the transfer price to the market price if this would allow the recovery of variable costs plus a portion of the fixed costs. This price reduction would optimize overall company performance.

3. The behavioral problems that could arise, if Thompson Corporation decides to change its transfer pricing policy to one that would apply uniformly to all divisions, including the following:
   - A change in policy may be interpreted by the divisional managers as an attempt to decrease their freedom to make decisions and reduce their autonomy. This perception could lead to reduced motivation.
   - If managers lose control of transfer prices and, thus, some control over profitability they will be unwilling to accept the change to uniform prices.
   - Selling divisions will be motivated to sell outside if the transfer price is lower than market as this behavior is likely to increase profitability and bonuses.

4. The likely behavior of both "buying" and "selling" divisional managers, for each of the following transfer pricing methods being considered by Thompson Corporation include the following:

   Standard full manufacturing costs plus a markup

   The selling division will be motivated to control costs because any costs over standard cannot be passed on to the buying division and will reduce the profit of the selling division.

The buying division may be pleased with this transfer price if the market price is higher. However, if the market price is lower and the buying divisions are forced to take the transfer price, the managers of the buying division will be unhappy.

5. Market selling price of the product being transferred

This creates a fair and equal chance for the buying and selling divisions to make the most profit they can. It should promote cost control, motivate divisional management, and optimize overall company performance. Since both parties are aware of the market price, there will be no distrust between the parties, and both should be willing to enter into the transaction.

6. Outlay (out-of-pocket) costs incurred to the point of transfer, plus opportunity costs per unit.

This method is the same as market price when there is an established market price and the seller is at full capacity. At any level below full capacity, the transfer price is the outlay cost only (as there is no opportunity cost), which would approximate the variable costs of the goods being transferred.

Both buyers and sellers should be willing to transfer under this method because the price is the best either party should be able to realize for the product under the circumstances. This method should promote overall goal congruence, motivate managers, and optimize overall company profits.

Answer: Question 1.8 - Biscayne Industries

1. Benefits of using a flexible budget are:
    a. As a planning tool, the flexible budget allows management to estimate income at more than one level of output. This aids in allocating resources and allowing management to plan for sufficient resources to meet its needs.

    b. As an evaluation tool, actual results are compared with standard costs for actual output. This provides for a fairer comparison and allows for variance computations to better assess performance.

    c. Make better use of historical budget information to improve future planning.

    d. As an evaluation tool, comparing actual results to the flexible budget will not hide poor performance. If output is less than budgeted, comparing actual costs for a lower number of units with master-budgeted costs for a greater number of units will most likely yield favorable variances even though cost inefficiencies may have existed.

2.

Sales	$55,000,000
Cost of goods sold:	
Variable costs (55,000,000/50,000,000 = 10% increase; 30,000,000 – 20,000,000 = 10,000,000 original VC; 10,000,000 * (1+10%)	11,000,000
Fixed costs	20,000,000
Gross profit	$24,000,000
Selling and administrative costs	12,000,000
Operating income	$12,000,000

3. Three reasons sales increased but income decreased are:
    a. Fixed costs increased. Increased output could have moved the company outside of its relevant range, causing fixed costs to be higher than budgeted. Increased sales could have been the result of more advertising dollars spent than originally planned.
    b. The sales price was lowered, resulting in higher total sales but a lower contribution margin per unit. Income decreased because the total increase in sales was not of sufficient volume to be greater than the total increase in variable costs.
    c. The income statement was prepared using absorption costing. Inventory could have decreased throughout the year, causing fixed manufacturing overhead held in beginning inventory to be expensed during the current year.
    d. The product mix changed. More units of the low contribution margin products and fewer units of the high contribution margin products were sold than planned.

4. Zero based budgeting: Preparing a budget from the ground up, as though the budget were being prepared for the first time. Alternative means of conducting activities and alternative budget amounts are evaluated. Also, all expenses are justified and fully explained. Every line of item must be approved.

Answer: Question 1.9 – Brown Printing

1. Absorption costing (also called full costing) includes fixed manufacturing overhead cost in the cost of inventory. This method is required by GAAP and has been prepared using the traditional external reporting format (gross margin format). Under this method, the fixed manufacturing overhead was treated as a product cost. Only the portion of fixed manufacturing overhead assigned to the sold units was expensed in the current period.

   Variable costing includes only variable costs (direct labor, direct material, variable manufacturing cost) in the cost of inventory. Fixed manufacturing overhead is included in the income statement as a period cost.

2. Direct materials \$15 + Direct labor \$6 + Variable manufacturing overhead \$4 = Unit Cost of Goods sold \$25.

Sales	\$900,000
Variable cost of goods sold	
(\$25 x 10,000 units)	250,000
Variable selling	30,000
Contribution margin	620,000
Fixed manufacturing overhead	240,000
Administrative expenses	160,000
Net income	\$220,000

3. The unit cost of goods sold is calculated as follows:
   Direct materials + Direct labor + Variable manufacturing overhead + Fixed manufacturing overhead = \$15 + 6 + 4 + (\$240,000/15,000 books) = \$15 + 6 + 4 + \$16 = \$41.

Sales revenue	\$900,000
Cost of goods sold	410,000
Gross margin	490,000
Selling expenses	30,000
Administrative expenses	160,000
Net income	\$300,000

4. Advantages of variable costing
   - It makes better sense to expense fixed manufacturing overhead since it will be incurred each period regardless of the number of units sold or produced.
   - No incentive to overproduce inventory because profit is strictly a function of sales volume (not production volume).
   - Better for internal decision making since this method breaks costs out into variable and fixed components.
   - Contribution format supports cost-volume-profit analysis and other short-run decision making.

Limitations of absorption costing

- The fixed manufacturing overhead assigned to the unsold units has been absorbed on the balance sheet as part of the inventory cost.
- Any difference between the number of units produced and the number of units sold will change the results.
- This method can lead to managers overproducing inventory to obtain better financial results.
- This method is not useful for internal decision making since it does not break out variable and fixed costs to support cost-volume-profit analysis.

5. The $80,000 difference in net income under the two methods represents the value of the fixed manufacturing overhead included ending inventory. 5,000 more books were produced than sold. The fixed manufacturing overhead at $16 per unit means $16 * 5,000 = $80,000 more is included in ending inventory under absorption. Under variable, this $80,000 is expensed, reducing net income.

6. Throughput costing is known as an extreme version of variable costing. It is also known as super-variable costing. Under throughput costing, direct material is the only inventoriable cost. Direct labor and variable manufacturing overhead are treated as period costs. Fixed manufacturing overhead is treated as a period cost, the same as under variable costing.

Answer: Question 1.10 - Lawton Industries

1. Average investment in operating assets employed:

Balance end of current year	$12,600,000
Balance end of previous year*	12,000,000
Total	$24,600,000
Average operating assets employed**	$12,300,000

*$12,600,000 ÷ 1.05
**$24,600,000 ÷ 2

ROI	=	Income from operations ÷ Average operating assets employed
	=	$2,460,000 ÷ $12,300,000
	=	.20 or 20%

2. Residual Income:

Income from operations	$2,460,000
Minimum return on assets employed*	1,845,000
Residual income	$ 615,000

*$12,300,000 x .15

3. Yes, Presser's management probably would have accepted the investment if residual income were used. The investment opportunity would have lowered Presser's ROI because the expected return (18%) was lower than the division's historical returns as well as its actual ROI (20%) for the year just ended. Management rejected the investment because bonuses are based in part on the performance measure of ROI. If residual income were used as a performance measure (and as a basis for bonuses), management would accept any and all investments that would increase residual including the investment opportunity rejected in the year just ended.

4. Presser must control all items related to profit (revenues and expenses) and investment if it is to be evaluated fairly as an investment center by either the ROI or residual income performance measures. Presser must control all elements of the business except the cost of invested capital, that being controlled by Lawton Industries.

Answer: Question 1.11 – SieCo

1. SieCo is currently using a plant-wide overhead rate that is applied on the basis of direct labor costs. In general, a plant-wide manufacturing overhead rate is acceptable only if a similar relationship between overhead and direct labor exists in all department, or the company manufactures products which receive proportional services from each department.

   In most cases, departmental overhead rates are preferable to plant-wide overhead rates because plant-wide overhead rates do not provide

   - a framework for reviewing overhead costs on a departmental basis, identifying departmental cost overruns, or taking corrective action to improve departmental cost control.

   - sufficient information about product profitability, thus, increasing the difficulties associated with management decision-making.

2. In order to improve the allocation of overhead costs in the Cutting and Grinding Departments, SieCo should

   - establish separate overhead accounts and rates for each of these departments.

   - select an application basis for each of these departments that best reflects the relationship of the departmental activity to the overhead costs incurred, i.e., machine hours, direct labor hours, etc.

   - identify, if possible, fixed and variable overhead costs and establish fixed and variable overhead rates for each department.

3. In order to accommodate the automation of the Drilling Department in its overhead accounting system, SieCo should

   - establish separate overhead accounts and rates for the Drilling Department.

   - identify, if possible, fixed and variable overhead costs and establish fixed and variable overhead rates.

   - apply overhead costs to the Drilling Department on the basis of robot or machine hours.

4. Because SieCo uses a plant-wide overhead rate applied on the basis of direct labor costs, the elimination of direct labor in the Drilling Department through the introduction of robots may appear to reduce the overhead cost of the Drilling Department to zero. However, this change will not reduce fixed manufacturing expenses such as depreciation, plant supervision, etc. In reality, the use of robots is likely to increase fixed expenses because of increased depreciation expense. Under SieCo's current method of allocating overhead costs, these costs will merely be absorbed by the remaining departments.

Answer: Question 1.12- Bellaton

1.

	Flexible Budget	
Units Sold	€ 18,000	
Revenues	1,530,000	=18,000×(1,360,000/16,000)=18,000×85
Variable Costs		
Direct Material	(756,000)	=18,000×(672,000/16,000)=18,000×42
Direct Labor	(270,000)	=18,000×(240,000/16,000)=18,000×15
Var. Overhead	(144,000)	=18,000×(128,000/16,000)=18,000×8
Cont. margin	360,000	
Fixed costs	(215,000)	
Operating Income	€ 145,000	

2.

	Actual Results	Flexible Budget	Variances
Units Sold	€ 18,000	€ 18,000	0
Revenues	1,512,000	1,530,000	(18,000)
Variable Costs			
Direct Material	(792,000)	(756,000)	(36,000)
Direct Labor	(252,000)	(270,000)	18,000
Var. Overhead	(144,000)	(144,000)	0
Cont. margin	324,000	360,000	(36,000)
Fixed costs	(210,000)	(215,000)	5,000
Operating Income	€ 114,000	€ 145,000	(31,000)

Revenues: unit price < €85
Direct Material: unit purchase price > €42
Direct Labor: labor rate < €15
Fixed costs: actual fixed costs lower than expected

3. Budgets promote coordination and communication among subunits within the company.
They provide a framework for judging performance and they motivate managers and other employees.
Budgets can be time consuming, require everyone’s participation, and require adaptability to changing circumstances.

4. A responsibility center is a part, segment, or subunit of an organization whose manager is accountable for a specified set of activities. The types of responsibilities centers include:
   - Cost center – manager responsible for costs only
   - Revenue center – manager is accountable for revenues only
   - Profit center – manager is accountable for revenues and costs
   - Investment center – manager is accountable for investments, revenues, and costs

   The types of responsibility centers in the example include marketing and facilities departments which are cost centers and the sales operations team which is a revenue center.

5. Sales-volume variance is the difference between flexible budget units and the static budget units multiplied by the budgeted unit contribution margin.

   Sales-price variance is the difference between actual price and budgeted price multiplied by the actual quantity of input.

Answer: Question 1.13- Ecoclock

1. Center D would be charged for the variable cost of the units, plus a portion of the fixed costs equal to the total costs divided by the number of units produced:

   $6 + $150,000 / 22,500 =$12.67

2. Using a "practical capacity" method, Center A's fixed costs would be allocated based not on the number of units produced, but rather on the number of units that it is capable of producing (40,000).

   $6 + $150,000 / 40,000 = $9.75

3. 2,500 unit reduction in the number of units produced by Center B, would increase the per-unit allocation of fixed costs.

   Per unit cost based on production of 22,500 units:
   $6 + $150,000 / 22,500 =$12.67

4. Per unit cost based on production of 20,000 units:
   $6 + $150,000 / 20,000 =$13.50

   Thus, C's units costs would increase by $0.83

5. Unused central capacity could be not allocated to operating centers, but to some centralized expense. Management could be evaluated by other measures, diluting the over capacity.

6. Other evaluation measures could include quality, measured by customer satisfaction, or reductions in returns, warranty claims; financial, measured by reductions in variable costs, increases in sales; innovations; measured by new product features, or manufacturing improvements.

Answer: Question 1.14 - Edge

1. Transfer pricing is the price one subunit department or division charges for a product or service supplied to another subunit of the same organization.

   The objectives of transfer pricing are to focus managers' attention on their own subunits and to plan and coordinate actions across different subunits to maximize operating income for the company as a whole. Transfer prices should help achieve a company's strategies and goals and fit its organizational structure. They should promote goal congruence and a sustained high level of management effort. The transfer price should also help top management evaluate the performance of individual subunits and their managers.

2. The three main ways to determine transfer prices are as follows:
   - Market based transfer prices – top management may choose to use the price of a similar product or service publicly listed, for example in a trade association web site. Also, top management may select, for the internal price, the external price that a subunit charges to outside customers.
   - Cost based transfer prices – top management may choose a transfer price based on the cost of producing the product in question. Examples include variable production cost, variable and fixed production costs, and full cost of the product. Full cost of the product includes all production costs plus costs from other business functions (R&D, design, marketing, distribution, and customer service). The cost used in cost-based transfer prices can be actual cost or budgeted cost. Sometimes, the cost-based transfer price includes a markup or profit margin that represents a return on subunit investment.
   - Negotiated transfer prices. In some cases, the subunits of a company are free to negotiate the transfer price between themselves and then to decide whether to buy and sell internally or deal with external parties. Subunits may use information about costs and market prices in these negotiations, but there is no requirement that the chosen transfer price bear any specific relationship to either cost or market price data. Negotiated transfer prices are often employed when market prices are volatile and change constantly. The negotiated transfer price is the outcome of a bargaining process between selling and buying subunits.

3. The advantages and disadvantages to each method are as follows.

   Market based transfer prices generally lead to optimal decisions when three conditions are satisfied. The market for intermediate product is perfectly competitive, interdependencies of subunits are minimal and there are no additional costs or benefits to the company as a whole from buying or selling in the external market instead of transaction internally.

   - Achieves goal congruence when markets are competitive
   - Is useful for evaluation subunit performance when markets are competitive.
   - Motivates management effort
   - preserves subunit autonomy when markets are competitive.
   - However, market may or may not exist, or markets may be imperfect or in distress.

   Cost based transfer prices are helpful when market prices are unavailable, inappropriate, or too costly to obtain – for example, when the product is specialized or when the internal product is different from the products available externally in terms of quality and customer service.

- It often but not always achieves goal congruence.
- It is difficult unless transfer prices exceeds full cost and even then is somewhat arbitrary for evaluating subunit performance.
- It motivates management effort when based on budgeted costs, less incentive to control costs if transfers are based on actual costs.
- Does not preserve subunit autonomy because it is rule based
- It is useful for determining full cost of products and services and it is easy to implement

Negotiated transfer prices result from a bargaining process and preserves division autonomy because the transfer price is the outcome of negotiations. Each division manager is motivated to put forth effort to increase division operating income but has a disadvantage of the time and energy spent on the negotiation.

- Achieves goal congruence
- It is useful for evaluating subunit performance but transfer prices are affected by bargaining strengths of the buying and selling divisions.
- It motivates management effort
- It preserves subunit autonomy because it is based on negotiations between subunits
- Bargains and negotiations take time and may need to be reviewed repeatedly as conditions change.

4. This company should use market-based transfer prices as market for the products is competitive, interdependencies of subunits are minimal and there are no benefits to the company as a whole from buying or selling in the external market instead of transaction internally.

5. Since management is often evaluated on the basis of subunit profits, they often care deeply about how transfer prices are set. Transfer prices can reduce income tax payments by reporting more income in low tax rate countries and less income in high tax rate countries. However, the tax regulations of different countries restrict the transfer prices that companies can use. Tariffs and customs duties levied on imports can create similar issues. Companies have incentives to lower transfer prices for products imported in to a country to reduce tariffs and customs duties.

6. The four types of responsibilities centers are
   Cost center – the manager is accountable for costs only
   Revenue center – the manager is accountable for revenues only
   Profit center – the manager is accountable for revenues and costs
   Investment center – the manager is accountable for investments, revenues and costs

Answer: Question 1.15 - Zavod

1. The only cost treated differently between the two methods is fixed overhead. Under both methods, direct materials, direct labor, and variable overhead are considered product costs, and are assigned to the units produced. Those costs remain as an asset as the cost of ending inventory on the balance sheet for unsold units. Those costs attached to units that have been sold appear as expenses in the income statement. Under both methods, both variable and fixed selling and administrative costs are expensed as incurred. The only cost treated differently between the two methods is fixed overhead. Under absorption costing, fixed overhead is considered a product cost. Each finished unit absorbs a portion of the fixed overhead cost. Under variable costing, fixed overhead is treated as period cost, and is expensed as incurred.

2. Under absorption costing, each unit will be carried in finished goods inventory at $11.25:

Direct materials	$4.00 per finished unit
Direct labor	$3.25 per finished unit
Variable Overhead	$1.15 per finished unit
Fixed Overhead	$2.85 per finished unit
Total	$11.25

3. Under variable costing, each unit will be carried in finished goods inventory at the variable production cost of $8.40:

Direct materials	$4.00 per finished unit
Direct labor	$3.25 per finished unit
Variable Overhead	$1.15 per finished unit
Total	$8.40

4. Absorption costing income statement:

Sales (10,000 x $32)		$320,000
Cost of goods sold (10,000 x $11.25)		112,500
Gross Profit		$207,500
Selling and administrative		
Variable (10,000 x $5.00)	$50,000	
Fixed	81,000	131,000
Operating income		$ 76,500

Variable costing income statement:

Sales (10,000 x $32)		$320,000
Variable cost of goods sold (10,000 x $8.40)		84,000
Manufacturing contribution margin		$236,000
Variable selling and administrative (10,000 x 5.00)		50,000
Contribution margin		$186,000
Fixed costs:		
Overhead (11,000 x $2.85)	$31,350	
Selling and administrative	81,000	112,350
Operating income		$ 73,650

5. In years when the number of units produced is greater than the number of units sold, such as in this first year, absorption costing net income will be higher than variable costing net income because under absorption costing, some of the fixed overhead will be associated with finished goods, an asset on the balance sheet. Under variable costing, all of the fixed overhead is expensed.

6. Absorption costing is required under GAAP because in theory, all costs of production should be treated as product costs, associated with finished goods inventory and carried as an asset until the units are sold. Fixed overhead is a necessary cost of production and is thus treated as an inventoriable cost.

7. Variable costing is more appropriate for internal decision making, because it is not affected by the level of production, as is absorption costing. Under absorption, net income will increase as more units are produced due to the inventorying of fixed overhead. Such is not the case under variable costing, where fixed overhead is expensed as incurred.

Answer: Question 1.16 – Blue Mountain

1. Cost center: manager is responsible for controlling only the costs of the segment.
Revenue center: manager is responsible for controlling only the revenues of the segment
Profit center: manager is responsible for controlling both the revenues and the costs of the segment.
Investment center: manager is responsible for controlling the revenues, costs and the investment of assets of the segment.

2. The three retail divisions at Blue Mountain represent profit centers.

3. When evaluating the performance of profit centers, use a segmented income statement approach which calculates segment margin. Under this approach, costs that are controllable by the manager are separated from the costs that are not controllable. For Blue Mountain, only the variable expenses and traceable fixed costs are the responsibility (or controllable) by the division manager. Common fixed costs, such as the corporate headquarters, should not be allocated to the division when evaluating performance.

4. Contribution Margin by Division

	Apparel	Shoes	Sports Equip.	Total
Sales	$3,750,000	1,500,000	2,250,000	7,500,000
Less variable expenses	1,500,000	500,000	2,000,000	4,000,000
Contribution margin	2,250,000	1,000,000	250,000	3,500,000

5. Sports Equipment is the unprofitable division. This division's contribution margin is not high enough to cover its traceable fixed expenses.

	Apparel	Shoes	Sports Equip.	Total
Sales	$3,750,000	1,500,000	2,250,000	7,500,000
Less variable expenses	1,500,000	500,000	2,000,000	4,000,000
Contribution margin	2,250,000	1,000,000	250,000	3,500,000
Less traceable fixed expenses	1,000,000	750,000	1,500,000	3,250,000
Segment margin	1,250,000	250,000	(1,250,000)	250,000
Less common fixed expenses				500,000
Net loss				(250,000)

To improve this division's performance, Blue Mountain needs to either increase the division's contribution margin or decrease the traceable fixed expenses. To increase the contribution margin, either the sales price needs to increase, or the variable expenses need to decrease. To decrease traceable fixed expenses, management should analyze all the fixed expenses traced to the division to see if they could be reduced or eliminated.

6. Contribution margin is the difference between total revenues and operations costs. It explains why operating income changes as the number of units sold changes. It helps to evaluate if sales volume is sufficient to insure profitability. Contribution margin contributes to covering fixed costs and it is a critical component in breakeven (cost/volume/profit analysis) to determine if sales are sufficient.

Answer: Question 1.17 – Stark

1. The sales budget is often regarded as the cornerstone of the entire budget. A firm attains its desired goals through sales. Almost all activities of a firm emanate from efforts to attain sales goals and sales growth. An inaccurate sales forecast can render the entire budget a futile exercise and imposes costly expenses to the company as well as its suppliers.

2. The sales budget should consider:
   - Current sales levels and sales trends of the past few years
   - General economic and industry conditions
   - Competitors actions and operating plans
   - Pricing policies
   - Credit policies
   - Advertising and promotional activities
   - Unfilled back orders.

3. The company failed to consider competitors actions as well as the general conditions of the company's retail locations. The impact was missed sales, over-production and excess inventory.

   The company did not prepare the budgets in the right order. Sales budget should be set first based on sales forecast then the production budget will be set based on budgeted sales, beginning inventory and desired ending inventory. The company sets sales targets based on the number of units they expected to produce which is reverse from the correct order and failed to consider beginning and desired ending inventory.

4. Authoritative budgeting is a top-down budgeting process where top management prepares the budget for the entire organization, including lower level operations. It provides better decision-making control than participative budgets. Top management sets overall goals and prepares a budget for operations to attain the goals. However, this type of budget often lacks the commitment of lower level managers and employees responsible for implementing. Also, it doesn't communicate, is dictates and people are more likely to resent orders and are more willing to work to attain goals they perceive as their own.

   Participative budgeting is a bottom up approach that involves the people affected by the budget, including lower level employees in the budgeting process. It is a good communications device. The process of preparing a budget often gives top management a better grasp of the problems their employees face and provides the employees a better understanding of the dilemmas that the top management deals with. A participative budget is more likely to gain employee commitment to fulfill the budgetary goal unless controlled, though; it can lead to easy budget targets or targets not in compliance with the organization's strategy or budget. Effective budgeting processes often combine both approaches.

   This company used authoritative budgeting, as they did not talk to lower level managers, which may have helped them identify the new competitors and construction issues.

5. The budgeting processes should include the formation of a budget committee, determination of the budget period, specification of budget guidelines, preparation of the initial budget proposal, budget negotiation, review, and approval, and budget revisions.

   A budget committee oversees all budget matters and usually consists of at least one senior manager. The committee issues budget guidelines based on plans emanating from the reviews of the firm's strategy, external and internal factors goals and objectives of the budget period, and experience gained from implementing the current budget. Based on the budget guidelines, managers prepare initial budgets and discuss and negotiate their budget proposal with superiors. The budget committee or the chief executive officer gives the final approval of the budget.

6. Common factors of successful budgets share many factors. Most important is acceptance and support of the budget by all managers and employees. A successful budget often becomes a personalized budget of the people who have the responsibility for carrying it out because they feel it is their budget, not a detached, impersonal institutional budget. They own the budget and are the ones who bring the budgeted goal to fruition. A budget is more likely to be successful if employees perceive it as a planning and coordinating tool to help them to do their jobs, not as a pressure device to squeeze the last drop of their energy out of them. Nor is a budget likely to be an asset if it is viewed as a tool for management to place blame. A successful budget is a motivating device that helps people work toward the goals of the organization and a better operating result. It is never used as an excuse for not doing things strategically important to the organization. The expression "not in the budget" never crops up at an organization with a successful budget. A successful budget always has technically correct and reasonably accurate numbers. A technically incorrect budget is likely to be ignored. A budget with inaccurate numbers will fail to gain confidence and be rendered useless.

7. Excess inventory impacts financials in the following ways:

- Consuming large warehouse space.
- Costing additional fees until use or sale of the inventory, e.g. warehousing fees.
- Increasing the risk of inventory obsolesces.
- Using company's funds.

Answer: Question 1.18 – Rosewood Designs

1. Rosewood's current job order costing system is used for custom, unique production where the co sts of each job can be traced directly to the unique order.

2. A job order system would not be adequate for costing in a mass production environment. When producing large quantities of mass-produced homogenous products, the appropriate costing system is process costing. This change in Rosewood's business would completely change its costing system.

3. Work in process beginning balance $33,000

Work in process beginning balance	$33,000	
Direct materials	3,000	
Direct labor	7,000	($7 x 1,000 hours)
Manufacturing overhead	3,000	($3 x 1,000 hours)
Total job cost	$46,000	

$46,000/2,000 units = $23 per unit

4. Variable costing in which the cost assigned to a product includes only the cost of inputs that vary directly with the number of units produced. Only the directly variable product costs are charged to inventory, such as direct materials, direct labor, and variable manufacturing overhead costs.

5. Learning Curve is a mathematical expression of the phenomenon that incremental unit costs to produce decrease as managers and labor gain experience from practice and as better methods are developed.

6. 80% learning curve:

Units	Cumulative Avg per unit	Cumulative total hrs	Time on most recent
2,000	1.75*	3,500 hrs	3,500 hrs
4,000	1.40**	5,600	2,100
8,000	1.12***	8,960	3,360^

*3,500 hours/2000 units = 1.75 hrs per unit
**1.75 x 80% = 1.4
***1.4 x 80% = 1.12
^8,960 – 5,600 = 3,360 hours spent on last 4,000 units
3,360 hours / 4,000 units = .84 hours per unit x $7 per hour = $5.88 direct labor budget per unit

Answer: Question 1.19 – Maxwell Mechanical

1. Management by exception means management focuses attention on areas that are not performing or meeting expectations. Management spends less time on areas that are operating effectively. Maxwell can use management by exception by focusing on the unfavorable direct materials usage variance. It could also look at units serviced or total labor costs if they varied significantly from budget or planned results.

2. Total direct labor rate variance $200F

	AQxAP	AQxSP	Variance
HVAC technicians	1900x$32=$60,800	1900x$30 = $57,000	$3,800U
Apprentice	4000x$13=$52,000	4000x$14=$56,000	$4,000F
			$200F

3. Total direct labor efficiency variance $5000U

	AQxSP	SQxSP	Variance
HVAC technicians	1900x$30=$57,000	*1500x$30 = $45,000	$12,000U
Apprentice	4000x$14=$56,000	**4500x$14=$63,000	$7,000F
			$5,000U

*SQ = 1500 x 1 hour
**SQ=1500 x 3 hours

4. Maxwell has two substitutable labor inputs. The labor efficiency variance could be further analyzed by breaking down the variance into the mix variance and yield variance. The mix variance analyzes the difference between actual and standard input proportions. The yield variance analyzes the difference between actual and standard inputs used.

5. Favorable direct materials variance combined with unfavorable direct materials variance: Maxwell purchased cheaper, lower quality materials. These lower quality materials caused increased waste. Since the unfavorable usage variance was greater than the favorable direct materials variance, Maxwell should correct purchasing policies to ensure quality materials are purchased.

Answer: Question 1.20 – Holt Manufacturing

1. Predetermined overhead rate = estimated total overhead / estimated total allocation base
   =$300,000/48,000 hours = $6.25 per hour

Applied overhead = predetermined overhead rate x actual number of hours
=$6.25 x 41,000 = $256,250

Actual overhead $260,000 – $256,250 = $3,750 under-applied

2. The two methods for allocating the balance of manufacturing overhead are pro-rata (also known as proration) and writing off directly to cost of goods sold. Under proration, the under or over allocated overhead is allocated between the ending balances of work-in-process inventory, finished goods inventory and cost of goods sold on a pro-rata basis using ending balances. The final balance of manufacturing overhead is zero after the entire amount is transferred proportionately to these accounts. Note you do NOT include raw materials in the allocation since no overhead is assigned to raw materials inventory. Under the write off to cost of goods sold method, the total of the under or over applied overhead is all transferred to cost of goods sold.

3. Selection of the method to use should be based on management's knowledge of what caused the under or over allocation during the period. Materiality should also be considered. In Holt's case, the under applied overhead is $3,750, a relatively small amount compared to the size of the operations ($1,500,000 sales). The company maintains relatively small levels of inventory compared to the cost of goods sold (Work in process of $22,000; Finished goods $14,500 compared to unadjusted cost of goods sold $970,000). Holt should allocate the under applied overhead directly to cost of goods sold.

4. Preliminary results prior to adjusting for the under/over applied overhead show the company as profitable for the first year. Sales $1,500,000 – unadjusted cost of goods sold $970,000 – selling and administrative $528,000 = net income $2,000. In closing out the under applied overhead directly to cost of goods sold, it will increase (debit) cost of goods sold. The closing entry will credit manufacturing overhead. By increasing cost of goods sold, the net income (profitability) of the company decreases. In this case, while the adjustment is small, it is enough to move the company from a net income to net loss. After adjustment, the company's results will be:

Sales	$1,500,000
− cost of goods sold	(973,750)
− selling & administrative expenses	(528,000)
= net loss	($1,750)

5. Activity based costing (ABC) refines a costing system by identifying individual activities as the fundamental cost objects (Horngren 146). Holt would be able to identify cost objects and various cost pools for overhead. Using ABC, Holt could refine and improve their cost analysis by using different cost pools and different cost drivers for various overhead activities. ABC cost drivers have a better cause and effect relationship with costs in the cost pool (Horngren 154). ABC provides a more accurate costing that will provide better information for decision making. The cost-benefit of ABC should be considered as the cost of implementing such a system can be

significant. If machine hours truly drive most of the overhead costs or Holt produces only one product, ABC might not be beneficial.

6. The key to monitoring the business's performance with budgets will be to use flexible budgeting. As activity levels could change and vary from the original master budget plans, Holt should use flexible budgeting to compare actual results to a budget based on actual production levels. "Managers can use the flexible budget as part of the planning process to predict how the budget will change under various scenarios, such as a "worst case" or "best case" scenario. They can also use the flexible budget as a benchmark for evaluating performance after the fact, or as part of the control process."

Answer: Question 1.21 – TOR Industries

1. Operating profit margin percentage = Operating Income/ Net Revenue
   Customer A operating profit margin percentage = $292,332/$675,000 = 43.31%
   Customer B operating profit margin percentage = $221,440/$508,000 = 43.59%
   Customer C operating profit margin percentage = $187,816/$425,000 = 44.19%

   Customer C has the highest customer operating income margin percentage.

2. The higher percentage is due to having the lowest level of discounts per unit, having larger order sizes (therefore lower shipping costs per unit and fewer order taking charges) and lower selling costs per unit sold.

3. For the Sales Department to deliver $25,000 more of gross profit at a 50% gross profit margin they would need to increase net revenue by $25,000/50% = $50,000.

4. Product handling - costs can be reduced by working with customer to order in full pallet quantities (reducing pallet breakdowns and re-palletizing costs, and the number of pallets used in shipping). Also, fewer orders reduces the paperwork in the warehouse.

   Order taking – fewer purchase orders reduces the amount of administrative work to support the picking and shipping of products, as well as administrative overhead related to order-entry, accounts receivable and credit and collection work. There may be savings opportunities from automating the ordering process (EDI, linked systems).

   Delivery – by filling trucks and minimizing the number of trips, shipping labor, fuel, fleet maintenance, and delivery wait-times and unloading costs can be reduced.

   Rush orders – by working with customers on better managing inventory levels, rush orders can be reduced or eliminated, resulting in lower costs and higher sales (from reduced stock-outs).

   Visits to customers – by working more closely with customers there is opportunity to increase profitability for both the customer and supplier. Spending more could make sense here if it leads to deepening the relationship with customer to identify shared savings opportunities. With mature customer relationships, visits to customers add value if they are fact based and seek to deepen relationship by more closely tying the supplier to the customers processes and aim to reduce costs for both sides and expand margins.

5. Customer C should be ordering 50 times per year (25,000 units per year / 500 units per shipment).

6. From the customer's point of view, more frequent ordering helps to minimize the amount of stock needed to be kept on hand, reducing carrying costs. However, this needs be weighed against the costs of re-order and potential lost sales and/or production down-time from out-of-stock events.

Answer: Question 1.22 – Alington Industries

1. Unit contribution = {$25,000,000 – [$16,500,000 + ($2,700,000 x .40)]} ÷ 1,484,000
   = $7,420,000 ÷ 1,484,000
   = $5.00 per unit

2. Average assets = [$15,750,000 + ($15,750,000 ÷ 1.05)] ÷ 2
   = ($15,750,000 + $15,000,000) ÷ 2
   = $15,375,000

   ROI = Operating income ÷ average assets
   = $1,845,000 ÷ $15,375,000
   = 12%

   Residual income = Operating income – min. required return on average assets
   = $1,845,000 – ($15,375,000 x .11)
   = $153,750

3. Raddix management would be more likely to accept the proposed capital acquisition as residual income was used as a performance measure because the acquisition would have increased both the division's residual income and the management bonuses. Using residual income, management would accept any investment with a return higher than 11% as all would increase the dollar value of residual income. With ROI as a measurement, Raddix would reject any investment with a return lower than 12% as this would lower overall return and lower bonuses.

4. RI is a flat dollar amount which makes comparing business units of different sizes difficult. ROI may lead managers to reject investment opportunities with a lower ROI which is lower than current or targeted RLI but is strategically beneficial to the organization as a whole.

   Manager will tend to minimize the investment base which includes discretionary costs such as research and development, quality control, maintenance, human resource development, and advertising and promotion. Cutting these costs will increase short-term ROI and RI but may create long-term problems for the department or organization.

5. Three other types of responsibility centers are cost center, revenue center, and profit center.

6. To be evaluated fairly as an investment center, Raddix must control all items related to profit and investment. The division should control all elements of the business except the cost of invested capital which would be controlled by Arlington.

Answer: Question 1.23 – AccuBrake

1. Reporting should include significant risk exposures and control issues, corporate governance issues, and other matters needed or requested by the Board and senior management. The report should highlight significant engagement observations and recommendations. Significant engagement observations are those conditions that in the judgment of the chief audit executive, could adversely affect the organization. Significant engagement observations may include conditions dealing with irregularities, illegal acts, error, inefficiency, waste, ineffectiveness, conflicts of interest, and control weaknesses. After reviewing such conditions with senior management, the chief audit executive should communicate significant engagement observations and recommendations to the board.

2. Yes, the audit executive should report the conflict of interest since it is a conflict of interest and resulting in material overpayments.

3. The Board of Directors' responsibilities include the following:

    - to be a review organ – without such an organ, top management has no way to control itself.
    - To remove top management when it fails to perform. A board capable of removing nonperforming top management has real power.
    - To be a public relations and community relations organ. The board needs easy and direct access to the various publics and constituents.
    - To develop policy and implement procedures necessary to limit conflicts of interest and to ensure compliance with both the law and ethical principles at all levels of the enterprise.
    - To ensure that the corporate compliance programs are in place.

    The board is obligated to exercise a good faith judgment that the corporation's information and reporting system is, in concept and design, adequate to assure that appropriate information will come to its attention in a timely manner as a matter of ordinary operations. There is a presumption that in making a business decision that the directors of a corporation will act on an informed basis, in good faith, and in the honest belief that the action taken was in the best interest of the company.

4. Section 201

    Services Outside the Scope of Practice of Auditors – Prohibited Activities

    An accounting firm providing audit services to a client can't perform any of the following:

    - Bookkeeping or other services related to the accounting records of financial statements.
    - Financial information systems design and implementation
    - Appraisal or valuation services, fairness opinions, or contribution-in-kind reports
    - Actuarial services
    - Internal audit outsourcing services
    - Management functions or human resources
    - Broker or dealer, investment advisor, or investment banking services
    - Legal services and expert services unrelated to the audit

- Any other service determined by the Public Company Accounting Oversight board as unallowable

5. Section 302: Corporate Responsibility for Financial Reports
   The CEO and CFO of each public company issuing financial reports must prepare a statement that accompanies the audit report to certify the appropriateness of the financial statements and disclosures contained in the periodic report and that those financial statements and disclosures fairly present, in all material respects the operations and financial condition of the issuer. The CEO and CFO must knowingly and intentionally violate this requirement in order to be liable.

   The company will not be complaint if the Chairman of the board signs off on the financial statements since Sarbanes-Oxley requires the CEO and CFO to make this certification, not the Chairman of the Board.

6. The act in general says that internal accounting controls shall be examined and if material weaknesses are found, controls must be strengthened, or additional ones installed. Bribes or questionable conduct shall cease, and funds for such bribes and conduct must not be made available. The controls part requires that companies shall

   a) make and keep books, records and accounts, which, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the issuer and

   b) devise and maintain a system of internal accounting controls sufficient to provide reasonable assurances that

      i. transactions are executed in accordance with management's general or specific authorization and
      ii. transactions are recorded as necessary to 1) permit preparation of financial statements in conformity with generally accepted accounting principles or any other criteria applicable to such statement and 2) to maintain accountability for assets
      iii. Access to assets is permitted only in accordance with managements general or specific authorization and
      iv. The recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any difference.

   The act gives management and internal auditors a wider concern: devising and maintaining a system of internal accounting controls to provide reasonable assurance that transactions are authorized and accounted for and that assets are safeguarded.

7. In this scenario, the chief audit executive found that the inventory was not properly safeguarded, and they need to add additional procedures to ensure that their assets are properly safeguarded. In addition, they should add some additional authorizations or other procedures to prevent the overpayment and conflict of interest for the supplies.

Answer: Question 1.24 – Great Rivers International

1. Master budget is an organization's operating and financing plan for the upcoming period; it translates short-term objectives into action steps.

   The budgeting process usually includes the formation of a budget committee; determination of the budget period; specification of budget guidelines; preparation of the initial budget proposal; budget negotiation, review, and approval; and budget revision.

2. The sales budget has three components: forecasted sales volume, forecasted sales mix, and budgeted selling prices.

   The role of Sales budget is often regarded as the cornerstone of master budget at any company, and Nile River Company is not an exception. In budgeting and planning process, sales budget should be completed first. After preparation of sales budget, the production budget and all the other budgets for the company are derived from the sales budget. If sales are expected to be low, there will be no need for much inventory, many sales manpower, and so on. On the other hand, if sales are expected to be high, there will be more need for these items.

3. The budgeted production quantity can be calculated according to the following formula:
   Budgeted production (in units) = Budgeted sales (in units) + Desired ending inventory (in units) – Beginning inventory (in units)

   Budgeted sales (in units) = 10,000
   Desired ending inventory (in units) = next year sales (10,000*1.05) multiplied by 30%
   Beginning inventory (in units) will be zero since it's the first year of operation
   Budgeted production (in units) = 10,000+ 10,000*1.05*30% – 0 = 13,150

4. Other than sales, the other two budgets that should be prepared in order to prepare budgeted net operating income before interest expense and income tax are:

   - Cost of goods sold budget
   - Selling and general administrative expenses budget

5. The success of a budget program may be determined by how the budget is developed.

   - In most successful budget programs, department managers participate with upper management in preparing their own budgets. Department managers are more likely to have close knowledge of their areas of responsibility and, therefore, budget estimates may be more reliable. When managers are involved in preparing their budgets, they are more likely to believe their judgments are valued by top management and are more likely to be committed to meeting the budget.
   - The success of a budget program also depends on whether top management believes the budget program is a vital part of the company's activities and how top management uses budget information.

- Rather than using the budget as something to be achieved at all costs, management should use the budget as a means of establishing goals, measuring results and determining areas that need attention. Budgets should establish achievable but challenging targets.
- Sufficient lead time is critical because the preparation of a budget usually takes several months.

Answer: Question 1.25 – Sara Hall

1. Characteristics that define successful budgeting processes include:

   - top management involvement
   - participative or bottom-up approach which allows employees throughout the organization to have input on the budget-setting process
   - promoting coordination between functional areas of the organization
   - providing communication and feedback throughout the process
   - using different budgets for planning than for performance evaluations to help alleviate some of the behavioral issues with the budgeting process
   - using budgeting to motivate employees
   - setting clear goals and expectations at the beginning of a process

2. Ideal standards, also known as theoretical standards, can only be achieved under perfect conditions. Currently attainable standards, also known as practical standards, can be achieved under normal conditions. Normal conditions allow for reasonable downtime such as shift changes, machinery maintenance, and employee training.

3. Machines need downtime for maintenance. Workers need downtime for rest. Set-ups for new production runs may take time. Materials, machines may break; operator error may occur.

4. Stock-outs means disappointed customers, sales lost to competitors. Stock-outs may lead to rush production, incurring overtime, more errors, rush shipments of materials.

5. Budgetary slack occurs when employees attempt to cushion budgets by either understating projected sales or overstating projected costs. Employees do this in order to make sure they will meet the budget later at the end of the period. Employees may also do this in order to appear that they have exceeded expectations. Budgetary slack will hurt the organization because it misleads management about the true position of the organization. Budgetary slack can lead to inefficient resource planning and poor coordination of activities within the organization.

   Business can reduce the incidence and effect of budgetary slack by:

   - Use budgets for planning, but not evaluation.
   - Give rewards for accurate, as well as high budgets.
   - Use additional measures for evaluation in additional to budget success.
   - Have managers learn more about subordinates' day-to-day work.
   - Use external benchmark performance measures.

6. Production Budget for November

Anticipated sales (in units)	12,000
Add: desired ending inventory	
(30% x Dec sales 15,000)	4,500
Less: beginning inventory	
(30% x Nov sales 12,000)	3,600
Units to produce	12,900

Answer: Question 1.26 – Arklan Production

1. A plantwide allocation system may work well for some companies but may end up distorting product costs if different departments incur different amounts of manufacturing overhead or if different products use departments to a different extent. When either or both of these conditions exist, the plantwide overhead rate will likely distort product costs, allocating higher than actual costs to departments that do not incur certain costs and higher than actual costs to products that do not use all departments as part of production. It usually does not provide valuable information to the cost control and improvement of internal controls. It can hardly motivate department managers to achieve goals of top management, then fairly determine the rewards earned by the managers.

2. A departmental overhead rate does a better job of matching each department's overhead costs to the products that use the department's resources. It provides more valuable information to the cost control and improvement of internal controls. It also provides the right incentive for managers to make decisions that are consistent with the top management and evaluate their performance fairly.

3. The old manufacturing system was highly manual and direct labor hours were directly related to the actual work that put into each product. Since the new system is automated, there will be significantly less direct labor hours and the hours may not reflect the true costs of the product.

4. Two potential bases for overhead allocation are machine hours and production units through each department. If all products through a department require machine hours, this may be a good base for allocation. If throughput units use departmental resources equally, this may be a good base.

5. Activity-based costing systems focus on activities rather than on departments. Costs are allocated to products based on the activities that are required to complete each product. In ABC, nonmanufacturing as well as manufacturing costs may be assigned to products and some manufacturing costs may not be included in product costs. For example, costs related to sales, distribution and servicing products may be included in product costs while costs that are not affected by which products are made will not be allocated. Traditional cost allocation usually picks one or two predetermined plant-wide overhead rates to allocate overhead costs.

6. Absorption costing includes both variable and fixed manufacturing expenses while variable costing only includes variable manufacturing costs. Variable costing treats fixed manufacturing costs as period costs.

   Variable costing is more suitable for internal decision making since in the short run, fixed manufacturing costs are out of the control of management. Focusing on variable costs can help them decrease wastes, improve efficiency and increase profit. Also using variable costing for internal decision making can prevent management from manipulating income by simply increasing inventory levels.

7. Beginning an ABC system requires significant resources and must be routinely maintained to keep the data driving the system current. Additionally, the ABC system will not agree with financial numbers produced by the traditional costing system and, thus may be questioned by

department managers, sales personnel and management who are used to the old system. If a company's products do not differ significantly in the resources used, the additional costs of ABC may not be worth the additional costs.

Answer: Question 1.27 – Greeting Card Stores

1. The objective of a disaster recovery plan is to ensure that a company will be able to operate despite any interruptions such as power failures, system crashes, natural disasters, etc. It is a process and set of procedures that organizations follow to resume business after a disruptive event. Important components include:

   - Disaster recovery team, including a primary leader and an alternate leader.
   - Designation of a specific backup site to use for alternate computer processing – i.e. hot site or cold site.
   - Test, document and update the plan as required. Review the plan continuously.
   - Also include backups for hardware.

2. The regular backup and proper storage of program and data files will reduce financial risk and business risk. Misstatements might arise if data is lost due to inadequate backing up. Loss of data can also cause severe interruptions of business operations and loss of income.

3. A hot site is fully operational and can come online more or less immediately. A flying-start hot site has the latest data and software, so it can switch on in only a few seconds after the main site goes down.

   A cold site is basically a bare facility, where hardware can be installed relatively quickly (days not minutes). A warm site is somewhere in between, with some communications and networking capabilities, but requiring some hardware / software installation.

   The choice of the level of backup site preparedness is based on the company's weighing the cost of being off-line (lost sales, etc.) versus the cost of buying / maintaining the level of backup.

4. Greeting Cards can improve the disaster recovery and storage control procedures by:

   - ensure a disaster recovery leader is named
   - test backup plan regularly to ensure that it is working.
   - keep backups in a location that might not be subject to the same natural disasters.
   - keep several sets of backups in case the most recent one can't be used.
   - use better file labeling storage controls. External file labels or internal file labels.

5. Means that management can use to protect programs and databases from unauthorized use include:

   Facility and hardware controls: Control access to the building, locate data center away from public areas, give access to only authorized personnel, use key codes or biometrics for entrance, etc.

   Network controls: Use private network or use virtual private networks to secure connection to Internet, add password protection and require periodic password change, encrypt data before data transmission, ensure correct destination address by routing verification, verify message delivery via message acknowledgement, detect and defend attacks through virus protection software and firewall, alert intrusion by intrusion detection system, etc.

Answer: Question 1.28 - Acme

1. These controls are all application controls and they are necessary to prevent, detect, and correct errors and irregularities in processing transactions.

   Input controls are application controls over data input. Input controls help ensure the validity, accuracy, and completeness of the data entered into an accounting information system. It is usually cost effective to test input data for the attributes of validity, accuracy, and completeness as early as possible. Data that is rejected at time of input can be corrected more easily, and it is not cost effective to screen data throughout the process. Input controls help assure that what is received by the machine is complete. Each entry can be checked to make sure that the fields are filled out properly and for reasonableness or logic. Input controls help with inaccurate recording of input and preventing missing information.

   Processing controls are application controls that are intended to protect the processing of data. The purpose is to prevent, detect and correct errors and irregularities in processing transactions. Processing controls have been designed to prevent or discourage the improper manipulation of data and to ensure the continued satisfactory operating of the hardware and software. Processing controls prevent duplicate data and the loss of files during processing, processing performed too late, or incomplete processing. Processing controls focus on the manipulation of accounting data after they are input. An important objective of processing controls is to contribute to a good audit trail.

   Output controls cover the accuracy and reasonableness of the information processed. They also cover the retention of output reports. The total records processed can agree with the records input. Pre-numbered forms can help control output since these can be accounted for. Output controls ensure the outputs' validity, accuracy and completeness. Two main types of output controls are validating processing results and regulating the distribution and use of printed output.

   In the scenario, there are input controls when the store sales team enters the individual sales into the sales system. The system will alert the user if a negative cost or if an invalid stock number has been entered. There is a processing control with the batch totals that are created and checked. There is an output control with the final batch check and the sending of the activity report.

2. Data encryption is scrambling the data in a message in a systematic way in order to prevent competitors from electronically monitoring confidential data transmissions. Through an encryption technique, data is converted into a scrambled format prior to its transmission and converted by into a meaning form once data transmission is finished. The encrypted data can be read only by a person with a matching decryption key.

   Data encryption is particularly important when using the internet as the routine use of systems includes potential unauthorized access to computer systems and its data through electronic eavesdropping, which allows computer users to observe transmissions intended for someone else, or cause errors in data transmission. Managers use data encryption to protect information.

3. Access to the physical hardware must be protected and could be in a safer location than the company's basement. Data processing centers should be located in safe places away from

scrutiny and guarded by personnel. The location should consider natural disasters and should limit employee access. Few people have reason to be inside and access should be limited to company personnel who wear badges with pictures. Employees entries and exists should be logged and interior room should be protected with mechanism that requires people to be buzzed in to enter. Also, issue keys to authorized personnel only and change locks periodically. For individual computers, the passwords are good, but they should ensure they are using strong passwords. Consider the use of biometric identification.

4. To better protect its programs and databases from unauthorized use, the company should consider logical security controls. These controls include e-IDs and passwords, system authentication requirements, biometrics, logs of log-on attempts, application level firewalls, antivirus and antispyware software, intrusion detection systems, encryption for data in transits, or smart cards.

5. Highly integrated accounting information systems often combine procedures that used to be performed by separate individuals. Consequently, an individual who has unlimited access to the computer, its programs, and live data also has the opportunity to execute and subsequently conceal a fraud. To reduce this risk, a company should design and implement effective separation of duties control procedures. It is essential to divide the authority and responsibility for these two functions. The design and implementation of effective separation of duties control procedures make it difficult for any one employee to commit a successful fraudulent activity.

6. Accounting system duties that should be kept separate include:

- The data control group should review records for evidence of unauthorized computer access.
- Computer operators should not have access to program documentation or logic.
- Two operators should be in the computer room during processing of data,
- Maintain a processing log and review periodically for evidence of irregularities.
- Rotate computer operators among jobs to avoid any singles operator always overseeing the same application.
- Require formal authorizations for program changes, submit written description of changes to a supervising manager for approval.
- Test changes to programs prior to implementation.
- A data control group should maintain registers of computer access codes, help acquire new accounting software, coordinate security controls with specific computer personal, reconcile input and output and distribute output to authorized user. This person should be independent of computer operation which inhibits unauthorized access to computer facility and contributes to more efficient data processing authorizations.

Answer: Question 1.29 – Logan Associates

1. Input controls help ensure the validity, accuracy, and completeness of the data entered into an accounting information system.

   Processing controls focus on the manipulation of accounting data after they are input to the computer system. They contribute to a good audit trail.

   Output controls ensure the outputs' validity, accuracy and completeness. They validate processing results and regulate the distribution and use of printed output.

2. Input - the computer system checks that the has entered a reasonable number of hours for each person (i.e. no negative hours, no hours over a certain threshold).

   Processing - After she has entered everything, she gets a control total that shows her the total number of hours, which she can confirm by checking to the total from the time clock.

   Output - After the payroll checks are printed, she gets a summary report showing the total payroll dollars and total associates paid. She can confirm that the number of checks printed and that the overall amount is reasonable, and she also confirms that the pre-numbered checks agree to the check numbers that the computer has assigned to each of the transactions.

3. Management can protect programs such as the payroll system described above from unauthorized use by the following:

   - Facility monitoring (surveillance systems, cameras, guards, exterior lighting
   - Access controls to facilities/datacenter or computer (biometrics, access cards)
   - Alarm systems (fire, burglar, water, humidly, power fluctuations)
   - Shred sensitive documents
   - Proper storage and disposal of hard drive and other electronic storage media
   - Secure storage of backup copies of data and master copies of critical software.

4. Management should also ensure that access to physical hardware is limited, using the following:

   - e-ids and passwords
   - system authentication
   - biometrics
   - logs of log on attempts
   - application level firewalls
   - anti-virus and anti-spyware software
   - intrusion detection systems
   - encryption for data in transit
   - smart cards

5. Checks should keep the blank checks in a locked, fireproof safe.

6. Kelly currently authorize record transactions (authority), cut the checks (custody), and records the payroll entries (records). The scenario does not mention who does the reconciliation. Kelly could add a fake employee and pay herself or give herself a raise. It would be better if there was a separate approval process for additions or changes to the payroll data and if there were someone else in charge of the checks. A separate person should oversee related reconciliations, if possible.

Answer: Question 1.30 – Lasertech

1. Strategic planning involving setting long-term goals extending 3 to 5 years into the future and preparing long-term budgets that reflect these goals. Planning involves developing objectives for each function of the company and preparing budgets to meet those objectives. Control involves monitoring the various functions to assure that objectives are attained.

2. Once the long-term goals and strategies are developed, management can focus on short-term goals to assist in planning and controlling the production, marketing and financial functions of the company.

3. The success of a budget program may be determined by how the budget is developed.

   - In most successful budget programs, department managers participate with upper management in preparing their own budgets. Department managers are more likely to have close knowledge of their areas of responsibility and, therefore, budget estimates may be more reliable. When managers are involved in preparing their budgets, they are more likely to believe their judgments are valued by top management and are more likely to be committed to meeting the budget.
   - The success of a budget program also depends on whether top management believes the budget program is a vital part of the company's activities and how top management uses budget information.
   - Rather than using the budget as something to be achieved at all costs, management should use the budget as a means of establishing goals, measuring results and determining areas that need attention. Budgets should establish achievable but challenging targets.
   - Sufficient lead time is critical because the preparation of a budget usually takes several months.

4. The budget can coordinate the company's activities by forcing department managers to consider how the functions of their various departments are interrelated. Planned changes to products or to product focus will affect how the product is manufactured and how it is marketed and will affect the financing needed to fund operations. A failure to achieve goals by one function of the company may cause another function to have to adjust its goals.

5. Flexible budgeting is a type of budgeting in which the budgeted amounts may be adjusted to any activity level. Flexible budgeting allows to analyze variances better, because it shows the difference between actual amounts and the flexible budget amounts for the actual level of activity; rather than static budget.

6. The other budget types include but are not limited to the following: Project budgeting, Activity-based budgeting, Zero-based budgeting, Continuous (Rolling) budgeting.

Answer to Part 2 Practice Questions

Answer: Question 2.1 – Foyle Inc.

1.

	Year 1	Year 2	Year 3
Revenue	100%	100%	100%
Cost of goods sold	60%	50%	60%
Gross profit	40%	50%	40%
Sales & marketing	10%	8.3%	6.7%
General & admin	7.5%	8.3%	10%
Research & development	7.5%	8.3%	3.3%
Operating income	15%	25%	20%

2.

	Year 1	Year 2	Year 3
Revenue	100%	120%	150%
Cost of goods sold	100%	100%	150%
Gross profit	100%	150%	150%
Sales & marketing	100%	100%	100%
General & admin	100%	133%	200%
Research & development	100%	133%	66.7%
Operating income	100%	200%	200%

3.

Revenue
Year 2: ($24,000 - $20,000)/$20,000 = 20%
Year 3: ($30,000 – $24,000)/$24,000 = 25%

Operating income
Year 2: ($6,000 - $3,000)/$3,000 = 100%
Year 3: ($6,000 – $6,000)/$6,000 = 0%

4. Foyle's gross profit margin 50% was comparable in Year 2 to competitor 52% and industry average 50%, but Foyle has fallen to 40% in Year 3. Foyle's operating income percentage 25% was the same in Year 2 to competitor and industry average at 25%, but Foyle has fallen to 20% in Year 3.
   Foyle in Year 3 has lower Sales and marketing than Competitor and Industry Average (6.7% vs. 11.1% and 10.7%), but higher in General and admin (10% vs. 7% and 8.9%). Foyle's Research and development is substantially below both Competitor and Industry Average (3.3% vs. 8.9% and 5.4%)

Answer: Question 2.2 – OnceCo Inc.

1. The cost to produce the units is irrelevant, because OneCo can sell all that it produces at a market price of $16.50. The net realizable value per unit is $15.60 ($16.50 - .90).

   The first option would decrease net income by $1,600. The net realizable value per unit sold to Gatsby is $14.00 ($14.35 - .35). In order to supply Gatsby, OneCo would be displacing sales in the regular market having an NRV of $15.60. That reduction of $1.60 per unit X 1,000 units would decrease net income by $1,600.

   Alternate solution: Normal profit per unit is $4.40 ($16.50 – $12.10). The profit per unit sold to Gatsby is $2.80 ($14.35 - $11.55). Gatsby cost is $11.55 ($4.00 + $1.30 + $2.50 + $3.40 + .35). The difference of $1.60 per unit ($4.40 – $2.80) X 1,000 units would decrease net income by $1,600.

2. The second option would increase net income by $1,100. The extra units could be sold in the regular market at an NRV of $15.60. The cost is $14.50. Thus, profits would increase by $1.10 per unit, or $1,100 in total.

   Alternate solution: Selling Price $16.50 – Cost to purchase from Zelda $14.50 – Sales commission $.90 = profit per unit $1.10. Increase in net income $1.10 @ 1,000 units = $1,100.

3. The third option would decrease income by $500. Regular business is unaffected. As explained above, the 1,000 units bought cost $14.50 each, and the NRV of the new units sold is $14.00. The net difference is .50 per unit.

   Alternate solution: Action 1 Decrease in Net Income of $1,600 + Action 2 Increase in Net income of $1,100 = Net Decrease in Net Income of $500.

4. Direct Material $4.00 + $.30 = $4.30. Direct Labor $1.30 @ 1.15 = $1.495. Variable Overhead $2.50 @ 1.15 = $2.875. Cost $12.42 ($4.30 + $1.495 + $2.875 + $3.40 + .35). Profit per unit $4.08 ($16.5+12.42). Market profit $4.40 ($16.50 - $12.10). Decrease in net income ($4.08 - $4.40) = -.32 @ 2,000 = decrease $640. Do not accept proposal.

5. If there is excess capacity, accept the proposal, revenue would contribute to fixed costs.

6. Other factors to consider are: the effect on market price/competition, effect on sales force/commissions, quality of Zelda products, and follow-on Gatsby business. There may be other considerations. Some other considerations are: impact on employees; reaction of customers.

Answer: Question 2.3 – Grandeur Industries

1. The Capital Asset Pricing Model (CAPM) when used in an investment analysis context postulates that the return on an investment should be at least equal to the Risk-Free Rate plus a Risk Premium. The Risk Premium is based on the risk (volatility) of the investment relative to the overall market (as measured by Beta) times the incremental return on the market above the risk-free rate. The model can be expressed as follows;

$$Required\ Return = r_f + (r_m - r_f) \times \beta$$

Where: r_f = the Risk-Free rate
r_m = return on the market
β= the Beta value for the investment, a measure of risk

For the various projects:

Project A: Required Return = 4% + (14% - 4%) x 1.4 = 18%
Since the Internal Rate of Return (IRR) of 16% is less than the required 18%, the project should be REJECTED.

Project B: Required Return = 4% + (14% - 4%) x 1.6 = 20%
Since the Internal IRR of 18% is less than the required 20%, it should be REJECTED.

Project C: Required Return = 4% + (14% - 4%) x 0.7 = 11%
Since the IRR of 12%, is greater than the required 11%, it should be ACCEPTED.

Project D: Required Return = 4% + (14% - 4%) x 1.1 = 15%
Since the IRR of 17%, is greater than the required 15%, it should be ACCEPTED.

The capital asset pricing model allows firms (users) to assess the size of risk premium necessary to compensate for bearing risk. It is a way to estimate the required rate of return on a security or investment. Once the required return has been determined is lets the user know of the expected return from the investment is sufficient to warrant acceptance of the investment.

2. Grandeur should accept project C and D since the both the IRRs of the projects are greater than their required rate of return.

3. Beta = Measure of a stock's volatility in relation to market.
Market beta = 1
A stock that moves > market, beta > 1; if < market, < 1.
High beta stocks are riskier but potential for higher returns and vice versa.

4. Factors that have an influence on the Beta value for a project include:
   - The industry that the Division undertaking the project is in and its risk characteristics.
   - Experience the division has with similar projects, if any.

- Ability of the Division to realize estimated returns on projects in the past.
- Strength of the management team of the division.
- Level of competition expected.
- The geographical location of the project. Certain countries are riskier to operate in than others.
- The degree to which the project involves new technology or unproven operating conditions.

5. a. Informal method. NPVs are calculated at the firms' desired rate of return, and the possible projects are individually reviewed.

   b. Risk-adjusted discount rates. Adjusting the rate of return upward as the investment becomes riskier

   c. Certainty equivalent adjustments. Decision maker needs to specify the indifferent point to choice between a certain sum of money and the expected value of a risky sum.

   d. Simulation analysis. Based on different assumptions, computer is employed to generate many examples of results.

   e. Sensitivity analysis. Forecasts of NPVs under different scenarios are compared to each other to evaluate how assumption changes about a certain variable may alter the NPV.

Answer: Question 2.4 – Orion Corp.

1. The weighted average cost of capital for the firm can be computed as follows.

	Market Value	Proportion	Cost
Bonds	$10,400,000[1]	0.26	5.0[3]
Common Stock	$29,600,000[2]	0.74	14.0[4]
Totals	$40,000,000	1.00	

(1). 10,000 × 1040.00 = $10,400,000.
(2). 2,000,000 × $14.80 = 29,600,000.
(3). Price = $1040.00 = $\frac{92.00+1000.00}{(1+k_d)}$.

So, $k_d = \frac{1092}{1040} - 1 = 5\%$.

(4). $k_e = \frac{D_1}{P_0} + g = \frac{1.48}{14.80} + 0.04 = 14.0\%$.

WACC = 0.26 × 0.05(1 - 0.3) + 0.74 × 0.14 = 11.27%.

2. The ranking of projects based on the net present value, which is the preferred criterion, is as follows.

Project	Initial Outlay	IRR	NPV
E	$240,000	16.50%	$22,500
A	$450,000	17.00%	$18,800
C	$262,000	16.20%	$9,800
B	$128,000	19.50%	$2,300
F	$160,000	11.10%	-$900
D	$180,000	10.50%	-$7,000

So, the firm should accept projects E, A, C and B. The reason for using the *NPV* is that this criterion maximizes the value of the firm while using the *IRR* can give misleading results.

3. The weighted average cost of capital cannot be used to evaluate the project because it is not in the same line of business as the firm's current operations. It is likely that the project would alter the firm's business risk in which case using the weighted average cost of capital would be inappropriate. The firm should use a project-specific hurdle rate that reflects the project's systematic risk.

4. Based on the CAPM, the project's hurdle rate = 0.10 + 2.0*(0.15 - 0.10) = 20%.
   The project's net present value is:

   NPV = (($60,000 * .833) + ($80,000 * .694) + ($80,000 * .579) + ($80,000 * .482)) - $200,000 = -$9620.00
   Since the *NPV* is negative the project should be rejected.

5. The project's payback period = 2 + 60/80 = 2.75 years.
   Based on the threshold payback period that the firm uses it would accept the project because the firm recovers its initial investment in less than 3 years.

6. The project should be rejected because it has a negative NPV. The payback period leads to a sub-optimal decision because it ignores the time value of money. The payback period also ignores the cash flows in later years but in this case even with year 4's net cash flows the project's NPV remains negative.

Answer: Question 2.5 - Ultra Comp

1. Net present value of each of the alternatives

	Time	Amount	14% PV Factor	Present Value
Vendor A				
Initial investment	0	$4,000,000	1.000	$4,000,000
Annual cash outflow	1-6	500,000	3.889	1,944,500
NPV				$5,944,500
Vendor B				
Initial investment	0	$1,000,000	1.000	$1,000,000
Replacement	3	1,250,000	0.675	843,750
Annual cash outflow	1-6	750,000	3.889	2,916.750
NPV				$4,760,500
Vendor C				
Annual cash outflow	1-6	$1,400,000	3.889	5,444,600
NPV				$5,444,600

2. Ultra Comp should select Vendor B. It is the optimal choice from a financial point of view as it meets the requirements at the lowest cost. Since the decision has already been made to implement a new security system, the issue is to decide on a system that meets the requirements at the lowest cost.

3. Sensitivity analysis is a tool to test the impact of changing investment assumptions on the resulting net present values. The method helps determine the "sensitivity" of outcomes to changes in the parameters. It shows how the output of the model depends on the input of the model.

4. Non-financial factors that Ultra Comp should consider prior to making a recommendation include the following.

   - Vendor A technology may be more effective in the long term even though it is the highest cost solution. However, there is a risk involved in the fact that this is new technology and may not prove effective.
   - Vendor B technology is known to be effective and should be satisfactory for the near term. However, there is uncertainty in the long term.
   - Since Vendor C is a nationally recognized leader, it may be in a better position to manage the security of Ultra Comp, especially as new developments arise.
   - Ultra Comp should review the management capability and the financial stability of each of the vendors.
   - Ultra Comp should contact previous clients of each of the vendors to determine their level of satisfaction with the quality and customer service of each vendor.

Answer: Question 2.6 – Right-Way

1. 500,000 + 3,500,000 +100,000 + 100,000 + (50,000 * (1-.35) = $4,232,500 million.

2. The scenario tells us that the after-tax operating income is $1,200,000. We find the depreciation expense by dividing the building cost into the depreciation period, $3,500,000 /   20 = $175,000 annual depreciation expense.

   Assuming the interest on the mortgage is not considered when we discount a cash flow, or it is included in (taken out to arrive at) the $1.2 million, and no change in working capital, we can calculate the Cash Flow three ways:

   a. Simply add the $1,200,000 and the $175,000 to get $1,375,000.

   b. Find total net income: $1,200,000 after tax operating income / 1-.35 = $1,846,150 taxable income. The tax on this is 646,154, getting us back to 1,200,000 net income. Add back the 175,000 depreciation to get $1,375,000.

   c. Use depreciation tax shield: Start with the $1,846,154 taxable income. Adding the 175,000 depreciation, we get before tax cash flow of $2,021,154. The tax on this is 707,404, but the depreciation tax shield is 61,250, resulting in 1,375,000 cash flow.

3. The factor for a five-year annuity, at 12% from our table is 3.605. So the value of 5 years' of cash flow is $4,956,875. But the store will open, and cash flows will start 1 year after spending the zero period costs, so this value needs to be discounted one more year, to $4,425,781.

   The NPV is $4,425,781 – 4,232,500 = $193,281.

4. Yes, Right-Way should build the store. The positive NPV (even ignoring values past 5 years) will add to the value of the company. The benefit of the future cash flows is greater than the costs to open to the store.

5. Sensitivity analysis shows how much small changes in the inputs affect the decision. Especially if we had a computer, we could try other assumptions about the store's forecast after tax operating income, the input with the most uncertainty. The costs of construction may also be underestimated, even the tax rate and the hurdle rate may possibly change of the next five years. How much will these have to change to turn a successful, positive NPV store, into an unsuccessful negative NPV store?

Answer: Question 2.7-RomCo

1. The cost of equity and the weighted average cost of capital will be one and the same with an all-equity financed corporation. Because the NPV happens to be $0 for Project 1 we know that the IRR is equal to the cost of capital (cost of equity in this case) so 12%. We can also calculate the cost of capital (equity) as 12% by using the second project.

2. Increasing the cost of equity would lower the present value of the future cash flows for both projects. This would lower the NPV of both of them. The $0 NPV project would become negative (so rejected). The positive NPV project would become lower. If still positive it would be accepted, if it becomes negative, rejected. Changing the cost of equity would have no impact on the IRR (since the cash flows are not affected). The increasing cost of equity, however, would similarly make project 1 undesirable because the IRR < cost of equity, and for project 2 the result is ambiguous because we would need to know how much higher the cost of equity is to know what it is relative to the IRR of 17.65%.

3. A lowering of the corporate tax rate increases the future after-tax cash flows. This would increase the NPV and IRR of both projects. Project 1 would now have a positive NPV and an IRR > cost of capital. Project 2 would still have a positive (though larger) NPV and still have an IRR > cost of capital. This assumes that the lowering in income tax rate does not change the cost of equity.

4. The payback periods (undiscounted) can be found by dividing the annual cash flow into the initial investment for each project. Thus:
   Project 1: 822,800/200,000 = 4.1 years
   Project 2: 300,000/85,000 = 3.5 years

5. The three weaknesses of payback period are
   (1) PP ignores cash flow after the calculated payback period.
   (2) PP does not discount future flows
   (3) Choice of cut-off (e.g. do project only if PP < 3 years) is arbitrary

Answer: Question 2.8 - Kolobok

1. Target costing is focused on market pricing or the prices of a firm's most direct competitors. The process for determining product pricing involves the following five steps: (1) determine the market price, (2) determine the desired profit, (3) calculate the target cost at market price less the desired profit, (4) use value engineering to identify ways to reduce product cost, and (5) use continuous improvement and operational controls to further reduce costs and increase profits.

2. The main difference between the two methods of pricing is a different starting point for determining product price. Mark-up pricing is based on existing costs and a desired return. The price is then determined by adding the product cost and the desired mark-up. This method provides little incentive to reduce costs as long as sales are profitable.

   Using target costing, product prices are determined by reviewing competitive pricing and setting prices according to market strategies and positioning. Target costing moves from the existing market prices to the process of managing the product costs in order to earn a desired return. Target costing motivates process improvements. The process is intended to increase or maintain sales while increasing product profitability by reducing product costs through the elimination of non-value-added activities.

3. Calculate earnings before taxes:

Sales*	$2,528,100	
Less material & labor	1,223,400	(1,348,400 – 125,000)
Less overhead	375,000	(500,000 x .75)
Contribution	929,700	
Selling expense	250,000	
Admin expense	180,000	
Interest expense	30,000	
Earnings before taxes	$ 469,700	

* Vanilla	$53 x 10,200	540,600
Chocolate	$53 x 12,500	662,500
Caramel	$50 x 12,900	645,000
Raspberry	$50 x 13,600	680,000

4. The preferable pricing method for Kolobok is target costing as it is projected to significantly increase the return on sales from 7% to 18.5% ($469,700 ÷ $2,528,100) while maintaining the existing sales level. Target costing will also motivate management to improve internal processes to reduce costs to further improve profitability, particularly for any product where the proposed target price is lower than the previous price. This method will also force Kolobok to be continually aware of the actions of its competitors and trends in the marketplace in order to make adjustments when needed.

Answer: Question 2.9 - Edmonds

1. Capital budgeting is the process of making long-run planning decisions for investments in projects. Edmonds has already identified the project, obtained information and prepared predictions. Edmonds should consider alternative projects for improving the distribution of products. With more than one project, Edmonds could compare the alternatives.

   To evaluate the current project, Edmonds should identify all the relevant cash inflows and outflows. Cash flows should be after-tax cash flows. Since the timing of cash flows varies over the ten-year life of this project, discounted cash flow analysis should be used. Discounted cash flow methods measure all expected future cash inflows and outflows of a project discounted back to the present point in time.

   Edmonds should continually monitor the performance of the project by performing post-audits. This long-term project includes many estimates (such as customer demand, estimated operating costs, etc.) Actual cash flows should be compared to estimates to check the accuracy of the forecasts. A post audit will identify problems that need fixing and serve as a control for improving the capital budgeting process for future projects.

2. Qualitative factors in capital budgeting can include:
   - Identifying the project's impact on customers. In this project, Edmonds should consider if the new facility will maintain customer satisfaction in regards to the shipping and delivery time.

   - Identifying the project's impact on employees. Does Edmonds have adequate access to human capital in this geographical area to staff the new distribution area? What training will be necessary for employees?

   - Managing employees under project evaluation. This project proposal is based on significant estimates from several different areas of the company (supply chain, marketing, accounting and finance). How will Edmonds handle the post-audits and manage employees who contributed to the project's initial research?

3. Initial cash outflow is $25,000,000 (same for pretax and after-tax)
   Annual cash flows (years 1-10)

Increase in contribution margin $55 x 500,000 =	$27,500,000
Increase in annual costs	1,000,000
Net increase in annual operating cash flows (pretax)	$26,500,000
Net increase in annual cash flows after tax (x 60%)	$15,900,000

   Depreciation tax shield: The depreciation on the new building will generate a tax savings (cash inflow) in years 1-10.
   $25,000,000/10 years = $2,500,000 tax deduction each year x 40% tax rate = $1,000,000 annual tax savings

4. Define Net Present Value (NPV) - The difference between the present value of all cash inflows from a project or investment and the present value of all cash outflows required to obtain the investment, or to undertake the project at a given discount rate.

Define Internal Rate of Return (IRR) - The discount rate that equates the net present value of a stream of cash outflows and inflows to zero.

5. Identify one assumption of NPV and one assumption of IRR – IRR method assumes that cash flows can be reinvested at the IRR rate. NPV depends solely on the forecasted cash flows from the project and the opportunity cost of capital; the use of the weighted average cost of capital assumes that the risk of the new project is the same as the riskiness of the rest of the company; another assumption of the NPV is that a dollar today is better than a dollar tomorrow.

   Discuss the decision criteria used in NPV and IRR to determine acceptable projects. If NPV is greater than zero; then the decision is to accept the project; and if IRR is greater than the hurdle rate (cost of capital) then the decision is to accept the project. Both of these will add value to the company.

6. The biggest advantage of IRR is its simplicity. IRR uses one single discount rate to evaluate every investment, making calculation and comparisons easy. The use of cash flows instead of earnings is a major advantage of IRR. This makes the calculation simple, does away with the complexities involved in determining the earnings, ensures that all the transactions remain recorded and no earnings are omitted inadvertently or otherwise, and removes scope for distortions.

   With the IRR method, the disadvantage is that it can give conflicting answers when compared to NPV for mutually exclusive projects. The multiple IRR problem can also be an issue - it occurs when cash flows during the project lifetime is negative (i.e. the project operates at a loss or the company needs to contribute more capital).

7. Define the Payback method - The period of time necessary to recover the cash cost of an investment from the cash inflows attributable to the investment.

   Identify and explain two disadvantages of the payback method -The payback method ignores the time value of money. The cash inflows from a project may be irregular, with most of the return not occurring until well into the future. A project could have an acceptable rate of return but still not meet the company's required minimum payback period. The payback model does not consider cash inflows from a project that may occur after the initial investment has been recovered. Most major capital expenditures have a long life span and continue to provide income long after the payback period. Since the payback method focuses on short-term profitability, an attractive project could be overlooked if the payback period is the only consideration.

Answer: Question 2.10 – Super Sonic

1.

Direct materials..	$10.00
Direct labor...	20.50
Variable manufacturing overhead............	1.50
Fixed manufacturing overhead.................	13.00
Unit product cost......................................	$45.00

Target selling price = $45.00 + (48 % × $45.00) = $66.60

Fixed Manufacturing OH $429,000/33,000units = $13.00

2. Target revenue...45*33,000 = 1,485,000
   Less Target Return..12%*1,000,000 =120,000
   Target full (absorption) cost..1,365,000
   Target absorption cost per unit = 1,365,000/33,000=$41.36

3. Both cost-plus and market-based pricing are long term pricing approaches.
   Under cost-plus approach, a company determines the full absorption cost of the product and applies a markup percentage to cover other operating cost plus a desired profit. The advantage is that the price is set at the level that will cover the cost fully and generate the desired markup rate. The disadvantage of these pricing approaches is that the price may be too high and not competitive. The company often faces the trade-off between costs, markup and customer reductions.

   Market-based pricing starts with a target price. A target price is determined based on market factors such as how much customers are willing to pay and their competitors' prices for similar products.
   Advantage- the estimated price will meet the market competition price expectation.
   Disadvantage- To meet the target price, companies may face tremendous pressure to reduce cost. Companies may sacrifice the quality of the product to meet the short-term goal of cost reduction. Determining a target price can be difficult in a market where products are differentiated from one another.

4. Value Engineering is a systematic evaluation of all aspects of the product features and business process, with the objective of reducing costs while satisfying customer needs. An important step in value engineering is to identify value-added activities versus non-value-added activities. One of goals of value engineering is to eliminate non-value-added costs and to increase the efficiency of value-added activities.

   To manage and reduce cost, the company must place emphasis of cost management efforts on the locked-in costs of the product in the design stage - the costs that have not been incurred but, based on decisions of design already been made, will be incurred in the future (locked-in cost).

   Value engineering also involves functional analysis. The company analyzes and gains understanding of the technical and business aspects of the entire value chain to manage cost and look for room for continuous improvement in efficiency and cost reduction.

5. Depending on the elasticity, a lower selling price may bring greater revenues. As unit sales increase, the fixed costs can be covered by more contribution margin.

Answer: Question 2.11 – Macro Solutions

1. $155,000 / $43,000 = 3.605
   PV of an annuity, 5 years with a factor of 3.605 = 12% Project A IRR

   $240,000 / $60,000 = 4
   PV of an annuity, 5 years with a factor of 4 = 8% Project B IRR

2. Based on IRR,
   Project A would be recommended because the IRR of Project A exceeds the WACC
   Project A IRR =12% would be recommended because 12% > 10%
   Project B would be rejected because the IRR of Project B is below the WACC
   Project B IRR = 8% would be rejected because 8% < 10%

   Project A is the only project that would be recommended based on IRR and it is also within the capital rationing constraint of $275,000. Project A would be recommended and Project B would not be recommended.

3. Alexander would have no change in her recommendations.
   Project A would be recommended and Project B would be rejected.
   Although there is no longer a $275,000 capital rationing constraint, it is irrelevant because Project B has an IRR of 8% which is below the company's cost of capital of 10%.

4. Project A investment = $155,000
   Year 1 cash flow $43,000 + Year 2 cash flow $43,000 + Year 3 cash flow $43,000 = $129,000 = 3 years
   $155,000 - $129,000 = $26,000
   $26,000 / $43,000 = 0.6 years
   3 years + 0.6 years = 3.6 years payback Project A

   Project B investment = $240,000
   Year 1 cash flow $60,000 + Year 2 cash flow $60,000 + Year 3 cash flow $60,000 + Year 4 cash flow $60,000 = $240,000
   4 years payback Project B

   Both Project A and Project B would be recommended because they meet the sole criteria of a four-year payback requirement.

5. Advantages of NPV over IRR include:
   - Result is in dollar amount that is more straight-forward.
   - Supports different discount rates over the life of the project.
   - Supports conventional and unconventional cash flow pattern.

   Advantages of IRR over NPV include:
   - Easier to compare projects of different sizes.
   - Avoids estimation of discount rate

6. Weaknesses of payback method include:

- Ignores time value of money.
- Not all cash flows are covered.
- Ignores project profitability.

7. Sensitivity analysis is a tool used to determine the effect of a change in one of the variables of a model to the output of that model. By conducting sensitivity analysis, one can determine the effects of variances from projections and identify risk by finding specific assumptions that can produce large changes in profitability. IRR and payback calculations can be determined with differing projections for cash flows or investment (amount and timing), thus giving a range of possible outcomes to utilize to further analyze projects. Sensitivity analysis provides insight to how volatile the outcome of a financial model is to a change in a specific variable or input. Sensitivity analysis can identify breakeven points. Sensitivity analysis can help to define the maximum outflow and minimum inflow necessary to make and keep a capital investment project successful and therefore provide for effective decision making.

Answer: Question 2.12 – Globex Corporation

1. Working capital is operating liquidity available to a firm. Net working capital is calculated as operating current assets less operating current liabilities. Current assets include accounts receivables and inventory. Current liabilities often include mainly accounts payable which represents debts payable in 12 months.

   The sports center project will require $1,000,000 cash expense in short term and this will affect the working capital of the firm negatively.
   The bridge project does not require significant cash expense in short term and won't affect the working capital negatively.

2. Political risk is the possibility of changes in the returns of investments because of governmental and legislative issues. Government change, military coups, new legislations, riots, etc. can cause significant political risk for investor firms. The risk is higher as the period of a project gets longer.

   Political risk is lower in the bridge construction project as the project is in the same country where the company is based. Sports center project may face a higher political risk as it relates to a large investment in a foreign country and a higher risk due to the FIFA World Cup. To mitigate political risk, a firm can purchase political risk insurance, conduct research on the riskiness of a country, and outsourcing the project to a domestic firm, etc.

3. When the acceptance of a project precludes the acceptance of another alternative project it can be said that these projects are mutually exclusive.

   The sports center because the project has a higher IRR.

4. It would be helpful to have the NPV of both projects. Each of the bridge construction and sports center projects has roughly the same initial investment outlay but different useful lives. Modern financial theory specifies that we should choose the project with the higher NPV. The IRR method will generate multiple results if future cash flows are a mix of positive and negative cash flows. Also IRR assumes that positive cash inflows will be reinvested at IRR for the remaining time period of the project. This assumption may not be true in the real world. Management should choose the project that increases the stakeholders value and this can be achieved by choosing the project with a higher NPV.

5. Hurdle rate is the minimum acceptable rate of return on an investment and is also referred to as the required rate of return. In order to accept a given capital project, the economic return on the project must exceed the "hurdle rate".

   The firms develop hurdle rate by using Weighted Average Cost of Capital and may adjust the hurdle rate for riskier projects by raising the discount rate.

Answer: Question 2.13 – Focused Solution

1. The remaining steps in capital budgeting that the executives should undertake include:

   - Estimating after tax incremental operating cash flows for investment projects
   - Evaluating project incremental cash flows
   - Selecting projects based on a value-maximizing acceptance criterion
   - Secure project financing either internally or externally
   - Revaluating implemented investment projects continually and performing post-audits for completed projects.

2. A post completion audit is a formal comparison of the actual costs and benefits of a project with original estimates. A key element of the audit is feedback, meaning that results of the audit are given to relevant personnel so that future decision making can be improved.

   Post completion audits allow management to determine how close the actual results of an implemented project have come to its original estimate. When used properly, progress reviews and post completion audits can help identify forecasting weakness and any important factors that were omitted. With a good feedback system, any lesson learned can be used to improve the quality of future capital budgeting decision making.

   Post audit also exerts discipline in the investment planning and control process. If managers are aware that post-completion audits are to be undertaken, they may take more care when developing initial assumptions and estimates and when making investment decisions. They may also take more care when managing an investment project through to completion.

3. Hurdle rate is the minimum required rate of return on an investment in a discounted cash flow analysis, the rate at which a project is acceptable.

   Sunk costs are unrecoverable past outlays that as they cannot be recovered, should not affect present actions or future decisions. The building cost in Chicago is a sunk cost

   Opportunity costs are what is lost by not taking the next best investment alternative. The loss of the New York work could be an opportunity cost of going with a different option.

4. Cash, not accounting income, is central to all decisions of the firm. Benefits expected from a project should be expressed in terms of cash flows rather than income flows. The firm invests cash now in hope of receiving even greater cash returns in the future. Only cash can be reinvested in the firm or paid to shareholders in the form of dividends.

5. Incremental costs should be used so that only the differences between the cash flows of the firm with and without the project are analyzed. For example, if a firm contemplates a new project that is likely to compete with existing projects, it is not appropriate to express cash flows in terms of estimate total sales of the new project. If cash flows will erode if they do not invest, they must factor this into our analysis. The key is to analyze the situation with and without the new investment and make sure all relevant costs and benefits are brought into play. Only incremental cash flows matter.

6. The initial investment outlay, as well as the appropriate discount rate will be expressed in after-tax terms. Thus, all forecast flows need to be stated on an equivalent, after tax basis.
   The method of depreciation is an important consideration of the impact of income taxes because depreciation lowers taxable income. Everything else being equal, the greater the depreciation charges, the lower the taxes paid. Although depreciation itself is a non-cash expense, it does affect the firms cash flow by directly influencing the cash outflow of taxes paid.

   Anticipated inflation must also be considered. Often there is a tendency to assume erroneously that price levels will remain unchanged throughout the life of a project. If the required rate of return for a project to be accepted embodies a premium for inflation as it usually does, then estimate cash flows must also reflect inflation. Such cash flows are affected in several ways if cash inflows ultimate arise from the sale of a product, expected future prices affect these inflows. As for cash outflows, inflation affects both expected future wages and material costs.

7. When NPV is used to determine acceptable project, the company must estimate a "hurdle rate," often the weighted average cost of capital (WACC). This hurdle rate may be adjusted based on the riskiness of the proposed project. Each year's cash flow of the proposed project is estimated and then discount back to present using the hurdle rate. NPV is calculated by add discounted future cash flows together and subtract initial cash outlay in the present. If NPV is positive, the decision rule says go ahead; if the NPV is negative, the decision rule says don't go ahead.

Using the IRR decision rule starts the same way: find a hurdle rate and estimate the cash flows of the project. Instead of discounting future cashflows using the hurdle rate, an internal rate of return (IRR) is calculated for the proposed project. This IRR is the rate at which the discounted future flows equal the (undiscounted) initial investment. IRR is compared to the hurdle rate. If IRR > hurdle rate, go ahead; if IRR<hurdle rate, don't go ahead. In nearly all real-life examples, the NPV decision rule leads to the same go / no go answer as the IRR decision rule. In the rare case when the two decision rules lead to different decisions, the analyst should examine if the cash flow pattern shifted more than once. If so, the analyst can explain why the IRR rule is not appropriate.

Answer: Question 2.14 – Suzhou Tool

1. The hurdle rate is the minimum acceptable rate of return that companies will consider from a prospective project or investment. (Also called Required Rate of Return).

   The market, in setting prices for the debt and equity issued by the company, is implicitly suggesting the relative risk/reward trade-off for this company, compared to others. If the proposed project is similar in risk/reward to the rest of the company's project, the market rates implied by the market prices suggest an appropriate rate for the proposed project.

2. The after-tax cost of debt is determined by multiplying the cost of debt of 10% by one minus the tax rate of 40%: 10%(1-.40) = 6%.
   The cost of equity using the CAPM is the risk-free rate of 7% plus the Company's beta times the difference between the expected return on common stock and the risk free rate: 7% + 1.0(13% - 7%) = 13%
   The weighted average cost of capital is then: 60%(13%) + 40%(6%) = 10.2%

3. Beta is a measure of the movement of the price of a particular stock compared with the movement of the market as a whole during the same period. Beta is important to the CAPM because it adjusts the expected return for the systematic risk of a particular stock.
   Beta incorporates the equity risk portion of Suzhou's proposed new project.

4. As capital investments are made which result in changes to the business there will likely be a change in amount of working capital required to support these changes. The marginal increase or decrease in working capital (inventory, accounts receivable, accounts payable, etc.) should be included in the cash flows for the capital budget when evaluating the project.
   b. Typically, these changes tend to be most significant at the initiation (period 0) and termination of the projects. Sometimes, if the cash flow forecasts include increasing revenues year by year, the change in net working capital could be a use of cash in all years.

5. While depreciation is a non-cash item when evaluating the marginal cash flow for a capital budget, it does affect the firm's cash flow by directly influencing the cash outflow for taxes paid. There can be significant differences between book depreciation and tax depreciation. Cash taxes should be included in the capital budget for a project. The taxable earning should be computed by making necessary adjustments to depreciation to reflect a tax basis. Then, the taxable earnings should be multiplied by the marginal tax rate to determine the estimate for the cash taxes.

6. Chen could assign probabilities to specific scenarios, and the cash flows resulting from those scenarios. The cash flows are weighted by the probability, and the weighted average CF is discounted at the risk-free rate. A certainty equivalent approach could be used. This means determining the CF with certainty required for the investor to be indifferent with the proposed (uncertain) CF. A simpler approach is to increase the discount rate if the project is thought to be riskier than normal, or reduce the discount rate if the project is thought to be safer than normal.

7. The post audit is a set of procedures for evaluating the results of a capital budgeting project. Post completion audit helps management in determining how closely the actual results of a project have come to its original estimates. Post audit can help identify forecasting weaknesses and any

important factors that were omitted. Post audit also exerts discipline in the investment planning and control process. If managers are aware that post-completion audits are to be undertaken, they may take more care when developing initial assumptions and estimates and when making investment decisions. They may also take more care when managing an investment project through to completion.

Answer: Question 2.15 – HotSpot Systems

1. Cash in $2 million, less taxes payable on gain ($500,000 x 30% = $150,000) for net cash inflow of $1,850,000

2. This $1.85 million is an opportunity cost; i.e. it will be lost, or pushed later, if the company decides to use Oceanport to make the games. Thus the $18.5 million should be included as a zero-period cost.

3. The flat fee is riskier. If the license owners accept a percentage of sales, they share the risk of poorer than expected sales. Flat fee will benefit the company if sales are lower, percentage of sales will hurt the company if sales are very strong.

4.
   a. Research and development. These are sunk costs which have already been incurred and will not change whether the project is accepted or rejected. Since these costs are not relevant to the decision, they should not be included in the cash flow analysis for the project.

   b. Additional computer equipment. The purchase price of the computers and the cost of installation represent an investment of capital and should be included as a cash outflow at time zero. The computers are to be depreciated over five years so the tax savings will result in a cash inflow during Years 1 through 5. If the equipment has any value at the end of the project and is sold, this may result in a cash inflow in Year 7.

   c. Working capital increase. The one-time increase in working capital would be treated as a cash outflow at the beginning of the project (time zero). The release of the working capital would be treated as a cash inflow at the end of the project (Year 7).

   d. Introductory advertising program. This is a one-time operating expense which would be tax deductible and would, therefore, be included as a net cash outflow. It appears that the advertising would take place before the product is ready for sale, the net advertising expense should be factored into the cash flows at the beginning of the project (time zero).

   e. Sale of the Oceanport office at the end of the project. The net proceeds from the sale of the office building would be included as a cash inflow at the end of the project (Year 7). These proceeds would be adjusted for any taxes paid resulting from a tax gain on the sale.

5. The internal rate of return is the discount rate at which the present value of the cash inflows equals the present value of the cash outflows. The IRR is determined by developing the annual cash flows for a project and determining the interest rate which, when applied to the cash flows, would result in a zero net present value. A project's IRR is often calculated through an iterative, trial and error process.

6. The IRR is a measure of the interest rate (yield) returned on the capital invested in the project over the life of the project. This discounted cash flow method takes into account both the magnitude and time of the expected cash flows over the life of the project.

The IRR is used in project appraisal and approval by comparing the project's IRR to the firm's hurdle rate to determine whether or not the project is a productive use of capital. Projects with an IRR lower than the hurdle rate are rejected, and projects with an IRR equal to or higher than the hurdle rate are accepted.

7. NPV discounts each future flow at the hurdle rate and compares to the initial cost. NPV has an advantage in that it shows the dollar amount of additional value the project is expected to produce for the company's owners. IRR gives a percentage result which can be readily compared to other uses, such as investing in securities.

Answer: Question 2.16 – Buckeye Grain

1. Unit contribution margin:

	Capital-intensive	Labor-intensive
Selling price	\$60.00	\$60.00
Raw materials	10.00	11.20
Direct labor	12.00	14.40
Variable overhead	6.00	9.60
Variable selling	4.00	4.00
Contribution margin	\$28.00	\$20.80

Capital-intensive Breakeven = (\$4,880,000 + \$1,000,000) ÷ \$28.00 = 210,000 units

Labor-intensive Breakeven = (\$2,640,000 + \$1,000,000) ÷ \$20.80 = 175,000 units

2. Indifference point occurs where total costs are equal

$$(\$60 - \$28)X + \$5{,}880{,}000 = (\$60.00 - \$20.80)X + \$3{,}640{,}000$$
$$\$7.20\,X = \$2{,}240{,}000$$
$$X = 311{,}111 \text{ units}$$

3. If sales are expected to be greater than 311,111 units, the capital-intensive method should be chosen as each unit has a greater contribution margin and fixed costs have been covered. If sales are expected to be less than 311,111 units, Buckeye Grain should select the labor-intensive method as there is less business risk.

4. The time span between the initial concept of a product or service and the time when the entity no longer produces the product. Stages are Introduction, Growth, Maturity, and Decline.

5. When selling a product in its growth stage, competitors might release the same product at a lower price, or they might work on making the product better. The company might need to work on getting more customers. This could require more marketing and lowering the prices. The company might adopt a competitive pricing strategy.

6. Operating leverage is the extent to which a firm's operations employ fixed operating expenses. The greater the proportion of fixed expenses used to produce a product, the greater the degree of operating leverage. Thus, Buckeye Grain's capital-intensive method utilizes a greater degree of operating leverage. The greater the degree of operating leverage, the greater the change in operating income relative to a small fluctuation in sales volume. The greater the operating leverage and the resultant variability in operating income, the greater the degree of business risk.

Answer: Question 2.17 - NuCo

1. (2,500,000 + 750,000) * 0.15 = $487,500 =15% after-tax ROI
   487,500 / 10,000 = $48.75 ROI per unit
   48.75 / (1-0.35) = $75 before-tax ROI per unit

   350,000 / 10,000 = $35 fixed cost per unit

   $25 * 2 hours = $50 labor per unit
   $3 * 25 pounds = $75 material per unit
   $10 * 2 direct labor hours = $20 variable overhead per unit
   $50 + $75 + $20 = $145 variable cost per unit

   ($75 before-tax ROI per unit + $35 fixed cost per unit + $145 variable cost per unit) = $255 selling price

2. Market based selling price – desired profit = target cost
   $200 - $75 before-tax ROI per unit = $125 target cost

3. To reduce fixed costs: Reduce space, reduce S&A staff
   To reduce working capital: Reduce inventory, receivables, increase terms from vendors
   To reduce direct labor hours per unit: use cheaper workers, improve worker efficiency

4. Cost-based pricing starts with calculating the cost of producing a product or service and then adding a profit factor to determine the selling price (cost base + markup = selling price). Market-based pricing starts with determining a price that a product or service can be sold in the marketplace and then subtracting the desired profit factor from that selling price to determine a target cost (market price – desired profit = target cost). It is then the responsibility of engineers and designers to use value engineering, continuous improvement and controls to produce the product at or below this maximum cost.

   The fundamental difference is the starting point. With a cost-based pricing approach, cost is a given and it is the starting point. This differs from market-based pricing in which the market determines the price and this price is the starting point. Ultimately with cost-based pricing the product is put on the market with the hope that the price will be accepted. With market-based pricing, cost is to be managed to allow for desired profit and a selling price that the market has determined. Market based pricing can foster an environment of efficiency, cost control and the elimination of non-value-added activities. Cost-based pricing generally does not provide this kind of motivation for management to be continuously improving operations and reducing cost.

5. Target pricing is setting a selling price for a product or service based on the value of the product or service to the customer, constrained by competitor's prices or similar items.

Main steps in developing target prices and target costs:

- Establish a target price in the context of market needs and competition.
- Establish the target profit margin.
- Determine the allowable cost that must be achieved.
- Calculate the probable cost of current products and processes.
- Establish the target cost.
- Implement cost reductions, e.g. life-cycle costing once production is under way.

6. Price elasticity of demand indicates how the demand for a given product will change based on a change in price for that product.
   Price elasticity of demand = percentage change in quantity demanded / percentage change in price

   A product is considered elastic if it has a price elasticity of demand that is greater than one. This means the demand for the product is very sensitive to price movements.
   A product is considered inelastic if it has a price elasticity of demand that is less than one. This means the demand for the product is not sensitive to price movements. A product is considered to have unitary elasticity if it has a price elasticity of demand that is one.

   Elasticity is important to management in making pricing decisions because it identifies how pricing changes can affect a firm’s total revenue. When demand is elastic, a change in price will cause total revenue to move in the opposite direction. When demand is inelastic, a change in price will cause total revenue to move in the same direction. When demand is unit elastic, total revenue will be unchanged by a price change. If this company hopes to increase revenues by decreasing profits, it is assuming the product is elastic.

Answer: Question 2.18 – Encino

1. Advantages of Payback period

   -Simple to use as it does not involve any accrual accounting conventions
   -Quickly identifies projects which will recoup the company's investment quickly
   -Useful in case of uncertainty

   Disadvantages of Payback period

   -Does not consider the time value of money
   -Does not consider cash flows after the payback period
   -Does not consider a project's return on investment
   -Ignores project profitability and risk

   Advantages of NPV

   -Considers the time-value of money
   -Considers the impact of all cash flows associated with the project
   -NPV tells whether a project will create value for the company or investors, and by how much in term of dollars

   Disadvantages of NPV

   -Does not fully account for opportunity costs
   -NPV is very sensitive to discount rate which is subject to estimation
   -NPV is not useful for comparing two projects of different size

2. With a budget of $8 million, the company should select Project 2 under the payback method because it has the fastest payback period and is below the 3-year maximum identified by management. Project 3 could not be accepted due to capital budget limitations, even though the payback period is below the 3 years stipulated by management.

3. With a budget of $8 million, the company should select Project 2 under the NPV method because its NPV is positive and higher than Project 3.

4. With a budget of $10 million, the company should select both Project 2 and Project 3 under the payback method because they have the fastest payback period and are below the 3-year maximum identified by management.

   With a budget of $10 million, the company should select both Project 2 and Project 3 under the NPV method because its NPV is positive for both.

5. Sensitivity analysis is a "what-if" technique to examine how results will change if the predicted financial outcomes are not achieved or if the underlying assumptions change.

   Management could use sensitivity in the estimate of the initial investment by assuming the project is delayed and incurs more costs or by adjusting the expectations of the amount of cash inflows. The discount rate could also be adjusted, as well.

6. Non-financial considerations include:

- The impact on the environment. An option may not have the highest return but might benefit the environment.
- Additional job opportunities that may be created in the community
- The overall growth strategy for the company might be enhanced by accepting a project that will initially generate a loss or a lower gain than the alternatives

<u>Answer: Question 2.19 – Mednovation</u>

1. Cost of capital refers to the opportunity cost of using capital. A company's cost of capital is a composite of the costs of various sources of funds comprising a company's capital structure. It is the minimum rate of return that must be earned on new investments that will not dilute the interests of the shareholders.

2. Common stock: $3.6/ (21-3) = 20%
   Preferred stock: $20/120=16.7%
   Debt: 15% (1-40%) = 9%

3. The benefit of raising cash in the form of equity and stock offerings is that it provides a wider range of potential cash inflow. By offering the public the ability to invest in the company, Mednovation has more potential opportunities for cash inflow than from banks offering loans. The ease of raising the capital also comes with the disadvantage of additional regulation and requirements necessary to make the initial public offering. It is also more costly to raise capital through equity than through debt, and additionally there is not tax benefit for equity offerings as there are for taking on debt. Another disadvantage is the dilution affect. Common stockholders having voting rights in the company and new stockholders will dilute the current stockholders' voting power.

   Preferred stock is similar to debt in that it has a dividend, like the coupon payment for bonds, that is paid out before common stock dividends. Preferred stockholders also have rights to assets if the company liquidates before common stockholders but after bond holders. Preferred stock is more expensive than debt but cheaper than common stock. The downside to both preferred stock and common stock is that if dividends are paid, they are not tax deductible like coupon payments for bonds.

   The form of raising capital involving debt has the benefit of taking the interest accrued on the debt as a tax deduction. By incurring debt and using the interest to reduce taxable income, Mednovation will be able to shield itself from extra taxes and be able to save cash in the form of reduced tax payments. One potential disadvantage is that taking on too much debt may be a negative signal to lenders and investors who may be concerned with Mednovation's ability to pay off this debt. It may show an unfavorable debt to equity ratio which may be used as to deny additional loans in the future if it is too heavily weighted regarding debt.

4. 20%*25% + 16.7%*30% + 9%*45% = 5% + 5% + 4% = 14%

5. There're two types of public offerings: Initial public offering and secondary public offering.
   Initial public offering refers to a company's first public issue of common stock.
   Secondary public offering refers to the issuance f new stock for public sale from a company that has already made its initial public offering.
   Mednovation can use secondary public offering to raise capital since it already has common stocks trading.

Answer: Question 2.20 – APEX

1. Operating leverage is the use of fixed operating costs by the firm to increase profitability. Operating leverage affects the level and variability of the firms' after-tax earnings, and hence the overall risk and return of the firm. Operating leverage is present any time a firm has fixed operating costs that don't change as volume changes. A change in the volume of sales results in a more than proportional change in operating profit.

   In this scenario, if the company opens up more locations, they will have an increase in sales without an increase in the fixed costs of the HR, IT, Accounting and legal department, so these fixed costs are leveraged across more locations and should create a higher return, which lowers the firm's risk.

2. Financial leverage is similar to operating leverage in that it uses fixed costs to increase profitability. By borrowing or undertaking long-term leases, the company is committed to paying these fixed financing costs. But if operating profits (e.g. EBIT) are high enough to permit debt service or lease payments, remaining operating profits flow to shareholders. The shareholders have less of their money at stake, as some of the investment is paid for with borrowed money or leased. Thus, the ROE is high. But if operating income is not enough to cover debt service or lease payments, the lenders can take control, wiping out the shareholders.

3. Common stocks are securities that represent the ultimate ownership and risk position in a corporation. Their liability is restricted to the amount of their investment. In the event of liquation, these stockholders have a residual claim on the assets of the company after the claims of all creditors and preferred stockholders are settled in full. It has no maturity date, and shareholders can liquidate their investments by selling their stocks in the secondary market. Common stock dividend is not fixed or guaranteed, it is discretionary of the company depends on various factors such as profitability, cash sufficiency, and future operating strategy. Common stock dividend is not tax deductible as interest or lease payments.

   Preferred stock is a hybrid form of financing, combining features of debt and common stock. In the event of liquidation, preferred stockholders claim on assets comes after that of creditors but before that of common stockholders. Preferred stock carries a stipulated dividend; the actual payment of a dividend is a discretionary rather than a fixed obligation of the company. The maximum return to preferred stockholders is usually limited to the specified dividend and these stockholders do not share in the residual earnings of the company. Most preferred stock is held by corporate investors.

4. A bond is a long-term debt instrument with a final maturity generally being 10 years or more.

   The maturity is the time when the company is obligated to pay the bondholder the par value of the bond.

   The par value is the amount to be paid to the lender at the bond's maturity. Par value is also called face value or principal. Most bonds pay interest that is calculated based on the bonds' par value.

The coupon rate is the stated rate of interest on a bond. The indenture is the legal agreement, also called the deed of trust, between the corporation issuing bonds and the bondholders, establishing the terms of the bond issue and naming the trustee.

5. Common stock does not have a maturity date or require a regular interest payment. However, the cost of capital of common stock is generally higher than that of a bond, and the current stockholders' voting power will be diluted. If the company is not publicly traded, an initial public offering is expensive, complex and time-consuming, and it will be subject to more regulations.

   Preferred stock does not have a maturity date and will not dilute the current shareholders' voting power. However, the cost of capital of preferred stock is generally higher than that of a bond and is not as attractive to investors.

   Bonds generally have a lower cost of capital and have tax benefits on interest payments. However, making regular interest payments can be a burden to the company and there might be a bond covenant which prohibits the issuer from undertaking certain activities or requires the issuer to meet specified requirements.

CMA®

IMA's Certification for Accountants and Financial Professionals in Business

CMA Part 1- Financial Reporting, Planning, Performance and Control

Additional Examination Practice Questions

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Part 1 – Financial Planning, Performance and Control
Examination Practice Questions

1. An advantage of an enterprise resource planning system is that

   a. it can usually be installed by organizations of all sizes.
   b. the system can be easily customized to suit the unique needs of the organization.
   c. the comprehensiveness of the system reduces resistance to change.
   d. its implementation improves business processes.

2. Hayden Ross has four booth rental options at the county fair where he plans to sell his new product for $37.50 per unit with a cost of $12.50. The booth rental options are shown below.

   Option 1: $1,000 fixed fee
   Option 2: $750 fixed fee + 5% of all revenues generated at the fair
   Option 3: $20% of all revenues generated at the fair
   Option 4: $200 fixed fee + 16% of all revenues generated at the fair

   Assuming there is a 40% probability that 70 units will be sold and a 60% probability that 40 units will be sold, which option maximizes income?

   a. Option 1.
   b. Option 2.
   c. Option 3.
   d. Option 4.

3. A company produces two products that incur $50,000 of joint costs. At the split-off point, 5,000 units of Product 1 and 15,000 units of Product 2 can be sold for $5 and $3 per unit, respectively. These products are processed further. Product 1 incurs $25,000 of separable costs and is then sold for $12 per unit, and Product 2's separable costs total $30,000 with a final selling price of $6 per unit. If the company uses the constant gross profit method to allocate joint costs, the dollar amount of joint costs allocated to Product 1 would be

   a. $17,000.
   b. $17,857.
   c. $18,421.
   d. $20,000.

4. A publicly-traded company has 100,000 outstanding shares of common stock, with a par value of $5. The company uses U.S. GAAP to prepare its financial statements. The company recently declared a 5% stock dividend. On the date the stock dividend was declared, the company's stock was trading at $25 per share. On the date of declaration, the company's

   a. additional paid-in capital will increase.
   b. retained earnings will increase.
   c. total shareholders' equity will decrease.
   d. outstanding shares will decrease.

5. A manufacturing company has two departments, Machining and Assembly, at its Shanghai plant. This year's budget for the plant contained the following information.

	Machining	Assembly
Manufacturing overhead	$4,000,000	$2,000,000
Direct labor hours	100,000	200,000
Machine hours	40,000	40,000

   If the Shanghai plant uses departmental allocation based on machine hours for the Machining Department and direct labor hours for the Assembly Department, what would the rates be when allocating overhead to the individual products?

	Machining	Assembly
a.	$40/hr.	$10/hr.
b.	$75/hr.	$30/hr.
c.	$100/hr.	$10/hr.
d.	$100/hr.	$50/hr.

6. A company's net income totaled $12,000,000. The company had an extraordinary after-tax loss of $250,000, an unrealized after-tax gain of $25,000 on available-for-sale securities, and a $900,000 distribution of cash dividends. The company's comprehensive income was

   a. $12,025,000.
   b. $11,775,000.
   c. $11,750,000.
   d. $10,875,000.

7. A company uses a normal costing system and a predetermined overhead rate to allocate its overhead costs. The manufacturing process requires the use of machining equipment, which is a primary driver of overhead. The actual factory overhead amount is $450 for Department A, Job 120 as of the end of the year. Production costs are shown below.

Estimated annual overhead for all departments	$220,000
Expected annual machine hours for all departments	20,000
Actual machine hours for Department A, Job 120	32
Actual labor hours for Department A, Job 120	21

The overhead cost for Department A, Job 120 is

a. $98 overapplied.
b. $98 underapplied.
c. $219 overapplied.
d. $219 underapplied.

8. A continuous budget is one that

a. is adjusted throughout the period for changing environmental factors.
b. is available for a specified future period by adding a period to the period that just ended.
c. is created after the organization has been operating for at least one period.
d. uses the prior period’s actual results as the current period’s budget.

9. Which one of following budgets is regarded as the foundation of the master budget?

a. Production.
b. Sales.
c. Operating.
d. Cash.

10. A multinational company maintains its financial records under both IFRS and U.S. GAAP. Last year, the company determined its inventory was impaired because demand for its product collapsed when a competitor launched a new product with innovative features. As a result, the company wrote down its inventory to $0 with a carrying amount of $500,000. This year, however, government authorities unexpectedly announced that the competitor's product was defective and the product was removed from the market. As a result, the company's products were again in demand and the company estimated their net realizable value to be $750,000 at the end of the current quarter. How should the company record this new development in the current quarter?

    a. Under IFRS, $0 write-up of the inventory; under U.S. GAAP, $0 write-up of the inventory.
    b. Under IFRS, $500,000 write-up of the inventory; under U.S. GAAP, $0 write-up of the inventory.
    c. Under IFRS, 750,000 write-up of the inventory; under U.S. GAAP, $0 write-up of the inventory.
    d. Under IFRS, $750,000 write-up of the inventory; under U.S. GAAP, $750,000 write-up of the inventory.

11. A company began the month with 10,000 units in work-in-process inventory that were 60% complete. During the month, the company transferred 120,000 units to finished goods. At the end of the month, 20,000 units were in work-in-process inventory that were 20% complete. Using the first-in, first out (FIFO) method, the equivalent units of production during the month equal

    a. 130,000.
    b. 128,000.
    c. 122,000.
    d. 118,000.

12. A company has developed and implemented a wireless charging feature into one of their flashlights. No other competitor in the marketplace currently offers this feature. In a marketing research study, the vast majority of consumers indicated that they would pay a premium for this feature. Which one of the following is the **best** strategy to bring this product to the market?

    a. Porter's cost strategy.
    b. Porter's focus strategy.
    c. Porter's differentiation strategy.
    d. Porter's segmentation strategy.

13. A company is setting up a new division to sell its products in Africa. An accountant has determined that the new African division will have to sell 250,000 units in order to cover the division's fixed costs of $365,000. The company is estimating total sales of $475,000 for the new African division. What is the contribution margin per unit for the new African division?

    a. $0.44.
    b. $0.68.
    c. $1.46.
    d. $1.90.

14. Within the relevant range, fixed cost per unit will

    a. increase as the activity level increases.
    b. decrease as the activity level decreases.
    c. remain the same as the activity level decreases.
    d. decrease as the activity level increases.

15. Which one of the following would cause a company's production budget to decrease?

    a. An increase in direct labor costs per unit.
    b. A decrease in units produced per direct labor hour.
    c. A decrease in required ending inventory.
    d. An increase in beginning direct labor inventory.

16. A company is the leading company in the premium bottled water industry. Its growth is mainly driven by the negative health publicity on carbonated soft drinks and other sweetened beverages. Extensive inventory and distribution infrastructure are needed to compete in this industry. Its main packaging materials can be sourced either locally or easily imported from overseas. With its 60% market share, the company is able to influence prices and competitive activity. The second biggest competitor holds 20% market share, while the remaining 20% is shared by many small companies. Supermarkets and other grocery retailers are the largest customer segment, accounting for approximately 45% of sales. The supermarkets and grocery retailers are driving volume growth and are undergoing consolidation into larger supermarket conglomerates. Using Porter's 5 Forces, which one of the following statements **best** reflects the industry environment?

    a. Low profitability but can increase due to increasing power of buyers.
    b. Low profitability due to low threat of substitutes and new entrants.
    c. High profitability but can decrease due to increasing power of buyers.
    d. High profitability due to high power of buyers and sellers.

17. Which one of the following actions would **most** effectively address the issue of internal control risk related to the custody of cash receipts?

    a. Establishing a lockbox deposit system at a regional bank.
    b. Assigning a single employee to be responsible for the receipt and posting of cash receipts to customer accounts.
    c. Preparing a control total of cash receipts immediately upon opening incoming payments.
    d. Installing a surveillance system to monitor the processing of cash receipts and custody of cash.

18. Devin's Custom Construction designs and builds custom houses for consumers. Customers have several base plans to choose from and modifications can be made from those plans. The modifications can range from being very minor to significant. The houses generally take from 3 months to one year to design and build depending upon the amount of customization. What is the **best** type of budgeting for this business situation?

    a. Project budgeting.
    b. Activity-based budgeting.
    c. Flexible budgeting.
    d. Rolling/continuous budgeting.

19. Business unit A has a return on investment of 10%, with a net profit for the year of $40,000. The opportunity cost for the business unit investments has been calculated at 8%. The company plans to purchase a new machine worth $100,000 and expects the net profit to rise by an additional $15,000. The new purchase decision will increase the return on investment

    a. by 1% and increase the residual income by $8,000.
    b. by 1% and increase the residual income by $15,000.
    c. to 11% and increase the residual income by $7,000.
    d. to 11% and increase the residual income by $15,000.

20. A company operates on a calendar year but maintains four continuous quarterly budgets for up-to-date budget information. After completing its five-year long-term plan, the company's management decided to make a capital investment in new equipment. The equipment is expected to have a useful life of nine years. Which one of the following is the most appropriate time period for the capital budget for the evaluation of the capital investment?

    a. One year.
    b. Four continuous quarters.
    c. Five years.
    d. Nine years.

21. A company is planning to implement a just-in-time (JIT) inventory management system. All of the following are benefits expected from implementing JIT **except**

    a. lower investment in inventory.
    b. lower obsolescence and other carrying costs.
    c. higher inventory turnover.
    d. fewer defects and less rework.

22. A company uses participative budgeting. In order to more easily meet budgetary goals, the controller underestimates the amount of revenue and overestimates fixed selling and administrative expenses. This is an example of

    a. flexible budgeting.
    b. budgetary slack.
    c. zero-based budgeting.
    d. budgetary variance.

23. Bell Retail Company sells antique replica trunks to customers all over the world. Bell's inventory records show the following.

	Quantity (units)	Cost (each)
Beginning inventory	200	$1,055
Purchases:		
June 3	170	1,062
September 18	190	1,070
December 10	160	1,076

Bell sells 470 units this year. Management is researching whether the company should use last in, first out (LIFO) or first in, first out (FIFO). If Bell's management wants to lower the company's income taxes, which inventory cost flow assumption should Bell select?

a. FIFO, because the cost of goods sold will be $9,870 higher than LIFO.
b. FIFO, because the operating income will be $840 lower than LIFO.
c. LIFO, because the operating income will be $4,360 lower than FIFO.
d. LIFO, because the cost of goods sold will be $5,250 higher than FIFO.

24. BusyBee Cleaning Co. is evaluating their costs to clean a standard office. The Controller has done a linear regression of the hours spent cleaning various offices and the total costs (labor, supplies, transportation) for each office cleaned. The regression analysis yielded the following information.

$y = \$25x + \$75$
y = the total cost to clean an office
x = the hours spent cleaning an office

What is the **best** description of the costs of cleaning an office based on this regression analysis?

a. The cost is $100 per hour to clean an office.
b. There is $25 of fixed costs and $75 of variable costs per hour to clean an office.
c. There is $25 of variable costs per hour and $75 of fixed costs to clean an office.
d. The cost is $25 per hour to clean an office.

25. Analyzing a company's technological capabilities, employee skills, and sales team performance will provide

a. external factors that identify the company's strengths and threats.
b. internal factors that identify the company's strengths and opportunities.
c. external factors that identify the company's strengths and weaknesses.
d. internal factors that identify the company's strengths and weaknesses.

26. According to U.S. GAAP, where on the income statement should a multinational company report the loss from the disposal sale of a major operating unit?

    a. Report the loss, pretax, in a separate section between income from continuing operations and net income.
    b. Report the loss, net of tax, in a separate section between income from continuing operations and net income.
    c. Report the loss, pretax, in a separate section between income from operations and income before income tax.
    d. Report the loss, net of tax, in a separate section between income before tax and net income.

27. Which one of the following describes what an organization wants to accomplish and leads to the formulation of long-term business objectives?

    a. Values.
    b. Strategy.
    c. Competency.
    d. Mission Statement.

28. Using management by exception allows managers to focus their attention on

    a. areas that have deviated most from expectations.
    b. non-administrative costs and revenues.
    c. unfavorable variances.
    d. variable costs and revenues.

29. Which one of the following is in a company's cash budget?

    a. Depreciation of plant equipment.
    b. Amortization of patent costs.
    c. Conversion of debt for equity.
    d. Disposal of land.

30. A company uses regression analysis in which monthly advertising expenses are used to predict monthly product sales, both in millions of dollars. The results show a regression coefficient for the independent variable equal to 0.8. This coefficient value indicates that

    a. on average, every additional dollar of advertising results in $0.8 of additional sales.
    b. advertising is not a good predictor of sales because the coefficient is so small.
    c. when monthly advertising is at its average level, product sales will be $800,000.
    d. the average monthly advertising expenditure in the sample is $800,000.

31. A company has designed its accounting system to have an automated reconciliation between its payroll and general ledger systems. Which type of control has the company implemented?

    a. Output control.
    b. Input control.
    c. Processing control.
    d. Transaction control.

32. The accounting controls surrounding the revenue cycle should provide assurances of all of the following **except** the

    a. accurate recording, shipping, and billing of all valid sales transactions.
    b. approval of all credit sales transactions after they are processed.
    c. proper authorization of all sales return and allowance transactions.
    d. accurate recording of customer accounts and finished goods inventories.

33. A company reported first quarter revenues of $10,000,000, gross profit margin of 25%, and operating income of 15%. To reduce overhead expenses, a consultant recommends that the company outsource some of its operating activities beginning with the second quarter. This recommendation is anticipated to reduce operating expenses by 20% without affecting sales volume. The company has an income tax rate of 35%. Assuming cost of sales remains at 75%, what is the impact on the income statement if the company implements the recommendation?

    a. Gross profit will increase by 8.0%.
    b. Operating income will increase by 8.7%.
    c. Operating income will increase by $200,000.
    d. Operating expenses will be reduced by $300,000.

34. During the strategic planning process, which one of the following is an external factor to be analyzed?

    a. Organizational culture.
    b. Societal culture.
    c. Employee morale.
    d. Organizational structure.

35. The major feature of zero-based budgeting is that it

    a. assumes all activities are legitimate and worthy of receiving budget increases to cover any increased costs.
    b. evaluates each activity and determines whether it should be maintained as it is, reduced, or eliminated.
    c. uses the previous year's budget and adjusts it for inflation.
    d. focuses on planned capital outlays for property, plant, and equipment.

36. A company has in its disaster recovery plan a process to store in a secure, offsite warehouse building a back-up of its current financial operating systems. What type of back-up location is the company **most** likely using?

    a. A hot site.
    b. A cold site.
    c. A mirrored data center.
    d. A recovery operations center.

37. At the beginning of the year, a company budgeted to sell 600,000 units at a price of $12 per unit. It actually sold 585,000 units at a price of $12.50 per unit. The sales-volume variance is

    a. $112,500 favorable.
    b. $180,000 unfavorable.
    c. $187,500 unfavorable.
    d. $292,500 favorable.

38. A sign of the successful implementation of a balanced scorecard is the presence of cause-and-effect relationship. An example of this success for a hotel is meeting the target of

    a. decreasing a customer’s check-in time, which causes an increase in the number of implemented employee suggestions.
    b. increasing employee training hours, which causes employee compensation to increase.
    c. increasing profit, which causes an increase in employee job satisfaction ratings.
    d. receiving more 5-star ratings from customers, which causes an increase in profit.

39. A manager is reviewing a potential investment, which has significant uncertainty related to its ultimate financial outcome. The manager has estimated the following probabilities for the various levels of net cash flows that may result from the investment.

Likelihood of Outcome	Net Cash Flows
10%	(300,000)
20%	0
50%	100,000
20%	600,000

What is the expected value of net cash flows that the manager should use in evaluating the investment?

a. $100,000.
b. $137,000.
c. $140,000.
d. $400,000.

40. Which of the following is the **most** important for the internal auditor to examine in order to ascertain the quality of manufacturing operations?

a. Current and historical outputs.
b. Fulfillment of production quotas.
c. Cost of material purchases.
d. The related rework and scrap.

41. A company's master budget indicated that 50,000 units of finished goods should be produced using 25,000 feet of materials at $4 per foot. The company actually produced 48,000 units of finished goods, purchased 27,000 feet of materials at $4.25 per foot, and used 25,000 feet of materials in production. The direct material efficiency variance is

a. $0.
b. $4,000 unfavorable.
c. $6,000 unfavorable.
d. $8,000 unfavorable.

42. An accounting associate sets up a new employee in the payroll system and directs the checks to be sent to a post office box. What two duties does this employee have that are incompatible?

a. Authorization and recordkeeping.
b. Custody and recordkeeping.
c. Custody and reconciliation.
d. Reconciliation and authorization.

43. Products that are identified in the BCG Growth-Share Matrix as Cash Cows possess relatively

a. high market share in a low growth market.
b. low market share in a high growth market.
c. high market share in a high growth market.
d. low market share in a low growth market.

44. A company's senior management has determined that the actual full cost will be used to determine the transfer price for goods sold from one division to another division. The selling division has excess capacity and can sell goods to other divisions or to outside customers at a higher price. An advantage of this transfer pricing is that it

a. achieves goal congruence within the company.
b. is effective for performance evaluation.
c. motivates management to achieve cost-effectiveness.
d. preserves each division's autonomy.

45. A company has two business units (Division 1 and Division 2) that are currently operating as profit centers. Management is evaluating the possibility of discontinuing Division 2 because of the operating losses it has experienced over the last few years. Select information from the operating budget for the upcoming fiscal year is shown below.

	Division 1	Division 2
Sales	$800,000	$400,000
Cost of goods sold	300,000	250,000
Gross margin	500,000	150,000
Variable selling and administrative expenses	100,000	80,000
Fixed selling and administrative expenses	75,000	75,000
Operating income (loss)	$325,000	($5,000)

Fixed selling and administrative expenses are allocated equally between the two units. If Division 2 is discontinued, fixed selling and administrative expenses are expected to decrease by 20% from the current level, and Division 1's sales are expected to increase by 15%. Based on the budget information above, should the company discontinue Division 2, and why?

a. Yes, because operating income will increase by $80,000.
b. Yes, because operating income will increase by $20,000.
c. No, because operating income will decrease by $40,000.
d. No, because operating income will decrease by $10,000.

46. Blue Fox Industries had the following account balances at year end.

Sales	$452,000
Cash	23,400
Accounts payable	14,300
Rent expense	3,700
Accounts receivable	9,400
Cost of goods sold	214,000
Land	104,000
Unearned revenue	6,800
Gain on sale	17,500
Equipment	28,800
Inventories	2,200
Notes payable	67,000

What is the amount of total current assets reported on the balance sheet?

a. $35,000.
b. $39,900.
c. $59,300.
d. $63,800.

47. A company is implementing an activity-based budgeting system. Set-up overhead is allocated based on set-up hours and manufacturing overhead is allocated based on direct manufacturing labor hours. Budget information is listed in the table below.

Cost driver information	Product A	Product B
Number of units per batch	50	25
Set-up time per batch	1.75 hours	1.25 hours
Direct manufacturing labor time per batch	1.00 hours	0.75 hours

The company plans to produce 1,000 units of Product A and 750 units of Product B. The activity rates are $100 per set-up hour and $150 per direct manufacturing labor hour. What is the total budgeted overhead?

a. $10,063.
b. $13,625.
c. $15,125.
d. $22,188.

48. In which one of the following situations will ending inventory on the balance sheet computed under absorption costing be exactly equal to ending inventory computed under variable costing?

a. When the number of units produced equals the number of units sold.
b. When there is no fixed factory overhead cost.
c. When the denominator variance is zero.
d. When there is no variable overhead cost.

49. A company has divided its customers into two groups. Group 1 consists of 20% of the company's most loyal and reliable customers. Group 2 consists of 80% of the company's customers who are either small customers or larger customers who order small quantities to test the product before placing larger orders. The most recent results are shown below.

	Group 1	Group 2
Sales	$7,500,000	$2,000,000
Sales discounts	375,000	0
Cost of sales	5,250,000	1,400,000
Order processing	40,000	150,000
Delivery	120,000	500,000
Income (loss)	$1,715,000	$ (50,000)

The **best** way for the company to improve profitability is to

a. charge a separate fee for the delivery of small quantities.
b. discontinue sales to Group 2 customers.
c. eliminate discounts for Group 1 customers.
d. raise the selling price of the product.

50. A company incurred $200,000 of manufacturing cost during the month, with a beginning finished goods inventory of $20,000 and an ending finished goods inventory of $15,000. Assuming no work-in-process inventories, the company's cost of goods sold was

a. $220,000.
b. $205,000.
c. $200,000.
d. $105,000.

51. A corporation maintains a manufacturing division that manufactures printed circuit boards and an assembly division that produces final products. Currently, the manufacturing division has sufficient capacity to manufacture an additional 5,000 circuit boards. An external market exists for circuit boards. The market price for one circuit board is $80 and the cost to sell is $10. The fixed manufacturing cost per circuit board is $15 and the unit variable cost is $50. The assembly division plans to purchase 4,500 circuit boards. Management of the assembly division thinks that it can purchase from the manufacturing division at a lower price since both divisions are under common control of the corporation. What is the minimum transfer price between the manufacturing division and the assembly division?

a. $50.
b. $65.
c. $70.
d. $80.

52. Which of the following costs are generally included in a calculation of operating income when using absorption costing?

I. Fixed direct manufacturing costs
II. Variable direct manufacturing costs
III. Variable manufacturing overhead costs
IV. Fixed manufacturing overhead costs

a. II and III, only.
b. I and IV, only.
c. I, II and III, only.
d. I, II, III, and IV.

53. All of the following are limitations of the balance sheet **except** that

a. the balance sheet is prepared using management judgments and estimates.
b. assets and liabilities are usually recorded at historical cost, which might differ significantly from current market value.
c. the balance sheet provides information on the liquidity and solvency of the company.
d. the balance sheet omits many items that cannot be recorded objectively but which have financial value to the company.

54. For a manufacturing firm, which of the following would be included in cash outflows from financing activities on the Statement of Cash Flows?

a. Payment of salaries and wages.
b. Repayment of the principal portion of firm debt.
c. Issuance of new stock.
d. Interest payments on firm debt.

55. A company produces a wide variety of hand-crafted rocking chairs. The most appropriate allocation base for allocating production supervisor salaries to the products is

a. direct labor hours.
b. machine hours.
c. number of products.
d. sales dollars.

56. The internal auditors of a company are assessing controls over network access. The best source of evidence to determine that terminated employees do not continue to have access to the company's network is to

a. discuss password removal procedures with the database administrator.
b. review access control software to determine whether the most current version is implemented.
c. review computer logs for access attempts.
d. reconcile current payroll lists with database access lists.

57. A company established its annual direct material budget to produce 300,000 units as follows.

150,000 pounds of material @ $0.75 per pound = $112,500

Throughout the year, the company produced 310,000 units of finished goods using 0.48 pounds per unit at a cost of $0.76 per pound. The direct material efficiency variance is

a. $588 unfavorable.
b. $900 favorable.
c. $1,488 unfavorable.
d. $4,650 favorable.

58. A company uses the IFRS lower-of-cost and net realizable value rule to value its inventory of frozen foods. The company applies this method on a total inventory basis, not directly to each item of frozen food. Information on the frozen food inventory at December 31 of the year just ended is provided below.

Replacement cost	$ 80,000
Net realizable value less profit margin	85,000
Weighted average cost	90,000
Net realizable value	100,000

Using this lower-of-cost and net realizable value approach, the company should value its inventory at

a. $80,000.
b. $85,000.
c. $90,000.
d. $100,000.

59. During its first month of operations, a company manufactured 10,000 units of finished goods, incurring $100,000 of direct material costs, $75,000 of direct labor costs, and $125,000 of manufacturing overhead. During the month, the company sold 8,000 units for $60 each. What is the company's throughput contribution margin?

a. $400,000.
b. $380,000.
c. $340,000.
d. $240,000.

60. A company produces products simultaneously through a refining process costing $186,000. The joint products, Alpha and Beta, have selling prices of $8 and $20 per pound, respectively, after additional processing costs of $4 per pound of each product are incurred after the split-off point. Omega, a by-product, is sold at the split-off point for $6 per pound. The number of pounds produced is shown below.

Alpha	10,000 pounds
Beta	5,000 pounds
Omega	1,000 pounds

Assuming the company inventories Omega, the joint cost allocated to Alpha using the sales value at split-off method is

a. $72,000.
b. $80,000.
c. $82,666.
d. $100,000.

61. A company reported the following cost information for the last fiscal year when it produced 100,000 units.

Direct labor	$200,000
Direct materials	100,000
Manufacturing overhead	200,000
Selling and administrative expenses	150,000

All costs are variable except for $100,000 of manufacturing overhead and $100,000 of selling and administrative expenses. Using flexible budgeting, what are the total costs associated with producing and selling 110,000 units?

a. $450,000.
b. $650,000.
c. $695,000.
d. $715,000.

62. A company's master budget for the year planned that the company would manufacture and sell 2,000 units for €500,000 in sales, €350,000 in variable expenses, and €45,000 in fixed expenses. If the company only manufactured and sold 1,750 units during the year, how much is the company's flexible budget operating income?

a. €42,500.
b. €86,250.
c. €91,875.
d. €105,000.

63. A company's management is planning on making an investment of $800,000 to launch a new product. In the first year, the new product is expected to generate sales of $200,000 and a contribution margin of $175,000. Incremental fixed costs are $50,000. The company's expected return on investment in the first year is **closest** to

a. 6%.
b. 16%.
c. 22%.
d. 25%.

64. Which one of the following statements **best** describes the concept of continuous improvement when developing standard costs?

a. Standards become more challenging as time passes.
b. Standards are developed with zero slack or downtime factored into the calculation.
c. Standards remain unattainable to encourage employees to strive harder.
d. Standards are established at an easily attainable level to increase employee morale.

65. A company has two service departments, S1 and S2, and two production departments, P1 and P2. Departmental data for January is shown below.

	S1	S2
Costs incurred	$27,000	$18,000
Service provided to:		
S1	0%	20%
S2	10%	0%
P1	50%	30%
P2	40%	50%

What are the total allocated service department costs to P2 if the company uses the reciprocal method of allocating its service department costs?

a. $19,800.
b. $21,949.
c. $22,500.
d. $23,051.

66. A company's master budget for the year planned for the manufacture and sale of 5,600 toys for ¥750,000 in revenue, ¥400,000 in variable expenses, and ¥255,000 in fixed expenses. By the end of the year, the company had only manufactured and sold 4,500 toys for ¥650,000 in revenue, ¥375,000 in variables expenses, and ¥195,000 in fixed expenses. What is the operating income variance for the company for the year?

a. ¥15,000 unfavorable.
b. ¥25,000 favorable.
c. ¥75,000 unfavorable.
d. ¥100,000 unfavorable.

67. A company uses the calendar year as its financial results reporting time period. On May 31 of the prior year, the company committed to a plan to sell a line of business. As a result, the operation of this line of business and cash flows will be eliminated from the company’s operations, and the company will have no significant continuing involvement with the line of business subsequent to the disposal. For the period January 1 through May 31of the prior year, the line of business had revenues of $1,000,000 and expenses of $1,600,000. The assets of the line of business were sold on November 30, at a loss for which no tax benefit is available. In its income statement for the year ended December 31of prior year, how should the company report the line of business operations from January 1 through May 31?

a. $600,000 should be reported as part of the loss on disposal of a component.
b. $600,000 should be reported as an extraordinary loss.
c. $600,000 should be included in the determination of income or loss from operations of a discontinued component.
d. $1,000,000 and $1,600,000 should be included with revenues and expenses, respectively, as part of continuing operations.

68. All of the following statements in regard to management’s report on internal controls over financial reporting in accordance with the Sarbanes-Oxley Act are true **except** that the report must

a. include a statement of management’s responsibility for establishing effective internal controls over financial reporting.
b. include a statement that the design of the internal controls is the responsibility of the company’s audit committee.
c. assess the effectiveness of the company’s internal controls over financial reporting, as of the end of the period.
d. be attested to by an independent auditor.

69. A company has just completed construction of a new computer facility. To limit unauthorized access to this facility, which one of the following is the **most** effective procedure that the company can implement?

a. Data encryption.
b. Access control software.
c. Input controls.
d. Biometric identification system.

70. A company is currently performing a cost of quality analysis of one of its facilities. The following are costs compiled by the facility accountant.

Inspection	$1,500
Warranty repair	2,800
Testing of new materials	400
Product testing	950
Spoilage	645
Scrap	150
Preventive equipment maintenance	590
Liability claims	1,870
Rework	1,285

Total internal failure cost is

a. $2,080.
b. $2,785.
c. $4,945.
d. $5,955.

71. An auditing firm is concluding its audit of a publicly traded company in the U.S. After obtaining sufficient audit evidence, an external auditor concludes that misstatements in the aggregate are material but not pervasive to the financial statements. What type of opinion should the external auditor issue on the company's financial statements?

a. Unmodified opinion.
b. Qualified opinion.
c. Adverse opinion.
d. Disclaimer of opinion.

72. An example of an item that would fall under the customer perspective on the balanced scorecard of an airline is

a. customer complaints will decrease by 10%.
b. customers will have to wait no longer than 15 minutes to check their bags.
c. 90% of the flights will arrive on time.
d. three new in-flight meals will replace existing offerings that are unpopular with customers.

73. All of the following are issues that should be considered in evaluating performance when common costs are allocated to business segments **except** that

a. cost allocations are not included in the calculation of long-term cost per unit.
b. common costs are not controllable by segment managers.
c. the allocation can be affected by the cost drivers used by other segments.
d. there may be no cause-and-effect relationship between an allocated cost and the segment's operations.

74. A pizza restaurant has recently experienced a decline in profit margin although sales have remained steady. An analysis of direct cost inputs revealed the following.

- A favorable materials price variance
- An unfavorable materials quantity variance
- A favorable labor rate variance
- An unfavorable labor efficiency variance

Which one of the following is the **most** likely cause of the decline in the profit margin?

a. The cheese supplier has raised prices.
b. New employees are still learning the recipes.
c. The employees are being paid more than the budgeted standard rates.
d. The employees are working fewer hours than budgeted standard hours.

75. A corporation has determined that when the quantity produced in units doubles from x to 2x, the average time per unit for 2x units is 90% of the average time per unit for x units. The decline in time per unit as production doubles is an example of

a. incremental unit-time learning model.
b. cumulative average-time learning model.
c. high-low cost estimation model.
d. simple regression cost estimation model.

76. A standard cost system uses

a. actual prime costs with overhead applied based upon the actual cost driver units incurred.
b. actual prime costs with overhead applied based upon the standard cost driver units allowed.
c. standard prime costs with overhead applied based upon the actual cost driver units incurred.
d. standard prime costs with overhead applied based upon the standard cost driver units allowed.

77. Which one of the following is **not** normally measured in a standard cost system?

a. Variable overhead spending.
b. Variable overhead efficiency.
c. Fixed overhead spending.
d. Fixed overhead efficiency.

78. A company has two service departments, Human Resources (HR) and Information Technology (IT). The HR department costs of $150,000 are allocated on the basis of the number of employees. The IT department costs of $200,000 are allocated based on the IT service hours. The costs of operating department X and Y are $250,000 and $180,000, respectively. Data on budgeted number of employees and IT service hours are shown below.

	Service Department		Operating Department	
	HR	IT	X	Y
Budgeted costs	$150,000	$200,000	$250,000	$180,000
Budgeted IT hours	NA	400	450	300
Number of employees	20	NA	120	90

Under the direct method, what amount of IT department costs will be allocated to Department Y?

a. $85,714.
b. $83,721.
c. $80,000.
d. $52,174.

79. Which one of the following statements in regard to internal controls is **not** true?

a. Control environment is the foundation for all other components of internal control, providing discipline and structure.
b. Control activities are the policies and procedures that help ensure that management directives are carried out.
c. Monitoring is a process that penalizes managers for breakdowns in internal control.
d. Risk assessment is the entity's identification and analysis of relevant risks to achievement of its objectives.

80. Which one of the following duties assigned to the cashier exposes the organization to a control risk in terms of segregation of duties?

a. Entering information in the accounts receivable subsidiary ledger.
b. Signing the deposit slips.
c. Depositing cash at the bank.
d. Comparing the check register with the bank statement.

81. Which one of the following methods, for the distribution of employees' paychecks, would provide the best internal control for the organization?

a. Delivery of the paychecks to each department supervisor, who in turn would distribute paychecks directly to the employees in his/her department.
b. Direct deposit in each employee's personal bank account.
c. Distribution of paychecks directly to each employee by a representative of the Human Resource department.
d. Distribution of paychecks directly to each employee by the payroll manager.

82. Which one of the following would be most effective in deterring the commission of fraud?

a. Policies of strong internal control, segregation of duties, and requiring employees to take vacations.
b. Policies of strong internal control and punishments for unethical behavior.
c. Employee training, segregation of duties, and punishment for unethical behavior.
d. Hiring ethical employees, employee training, and segregation of duties.

83. The fundamental mandate of Section 302 of the Sarbanes-Oxley Act is the requirement that senior management of public companies must

a. establish and maintain adequate internal controls.
b. attest to the fair and appropriate presentation of financial statements.
c. maintain a code of ethics for all senior financial officers.
d. provide real time disclosure of material changes in operational conditions.

84. Preventive controls are an integral part of virtually all accounting information systems. All of the following are essential elements of a preventive control system **except**

a. separation of responsibilities.
b. sound personnel practices.
c. documentation of policies and procedures.
d. implementation of state-of-the-art systems.

85. The type of data analytics that is most likely to yield the most impact for an organization, but is also the **most** complex is called

a. diagnostic.
b. predictive.
c. descriptive.
d. prescriptive.

86. In a regression analysis, the coefficient of determination (R^2)

a. identifies the causal factor in a linear model.
b. tests that the independent variable has no correlation with the dependent variable.
c. assesses how well a model can predict an outcome.
d. is the proportion of the variance in the independent variable that is predictable from the dependent variable.

87. Which one of the following statements defines data mining?

a. A process of using statistical techniques to extract and analyze data from large databases to discern patterns and trends.
b. A system used to develop a firm's performance metrics.
c. A process of using algorithms that serve to facilitate efficient communication within a firm.
d. A system used to organize and interpret complex data to ensure the data has been accurately recorded in the database.

88. A simple regression equation has an R^2 of 0.85. This means that

a. 85% of the variation of the dependent variable is explained by the regression line.
b. 85% of the variation of the independent variable is explained by the regression line.
c. the dependent and independent variables have a correlation coefficient of .85.
d. the dependent variable does not have a strong correlation with the independent variable.

89. Software as a service can **best** be defined as a(n)

a. on-premise ERP system installed and serviced locally.
b. type of cloud computing in which applications are hosted by a third party for a monthly fee.
c. type of database management system serviced by a third party for an annual fee.
d. infrastructure platform that replaces complex individual computers within a business.

90. A database management system can **best** be defined as a(n)

a. management system that controls disconnected master files.
b. very large database that is used for analysis and not transactional processing.
c. conceptual level schema that maps the relationships between all data elements.
d. program that manages a set of interrelated, centrally coordinated data files.

91. A leading manufacturer of electric vehicles has accumulated customer driving interaction data through its unique pilot driver-assist program. This data will be used to further develop more advanced autonomous features that the company plans to implement in the near future on its most popular model. In integrated reporting, the system used to accumulate and analyze the driving data is **best** categorized as

e. human capital.
f. intellectual capital.
g. natural capital.
h. manufactural capital.

Answers - CMA Part 1 Practice Questions

1. d
2. c
3. a
4. a
5. c
6. a
7. b
8. b
9. b
10. b
11. d
12. c
13. c
14. d
15. c
16. c
17. a
18. a
19. c
20. d
21. d
22. b
23. c
24. c
25. d
26. b
27. d
28. a
29. d
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67. c
68. b
69. d
70. a
71. b
72. a
73. a
74. b
75. b
76. d
77. d
78. a
79. c
80. a
81. b
82. a
83. d
84. d
85. d
86. c
87. a
88. a
89. b
90. d
91. b

CMA®

IMA's Certification for Accountants and Financial Professionals in Business

CMA Part 2 - Strategic Financial Management

Additional Examination Practice Questions

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CMA Part 2 - Strategic Financial Management
Examination Practice Questions

1. A company sells two products: Sparta and Volta. Volta is manufactured by a third-party supplier, which charges the company a contractual price for each unit of Volta manufactured. A summary of revenue and costs assumptions for each product is as follows.

	Sparta	Volta
Planned sales units prior to promotion	100,000	20,000
Unit selling price	$10	$20
Unit variable cost	$3	$10
Fixed costs	$500,000	0

The company has the opportunity to spend an additional $10,000 in promotional expenditures on either Sparta or Volta, anticipating a 10% increase in unit sales volume as a result. Both product lines have idle capacity and can support the increase in unit volume. The company should spend the additional promotional expenditure on

a. Sparta, because it would generate an additional $10,000 in operating profit.
b. Sparta, because it would generate an additional $60,000 in operating profit.
c. Volta, because it would generate an additional $20,000 in operating profit.
d. Volta, because it would generate an additional $10,000 in operating profit.

2. A profit-maximizing company is considering a price increase on a particular product. After extensive market research, the company has determined that demand for the product is price inelastic. Assuming all other factors remain constant, determine what course of action the company should take and the resulting impact on quantity demanded.

a. Do not increase price; quantity demanded will decrease significantly.
b. Do not increase price; minimal impact on quantity demanded.
c. Increase price; minimal impact on quantity demanded.
d. Increase price; quantity demanded will increase significantly.

3. Which one of the following is **not** correct regarding the value of options?

    a. As the stock price increases, the value of a put option decreases but the value of a call option increases.
    b. The higher the strike price, the lower the value of a call option and the higher the value of a put option.
    c. The value of a put option is adversely related to the risk-free interest rate, and the value of a call is positively related to the risk-free interest rate.
    d. Volatility of the underlying stock increases the value of a call option but decreases the value of a put option.

4. Elements of project risk identification include which one of the following?

    a. Cost estimates.
    b. Actual risk events.
    c. Interviews and observations.
    d. Activity duration estimates.

5. Employee A observes that Employee B is improperly altering department records to meet month end goals. These records are for internal use only and do not impact the company's financial records. Employee A notifies her supervisor of the impropriety, and the supervisor advises Employee A that she instructed Employee B to alter the records and an adjustment would be made the subsequent month to correct the records. Employee A should

    a. advise the supervisor that her behavior was unethical and do not communicate the impropriety any further.
    b. follow the organization's established procedures on the resolution of such conflict.
    c. do nothing since the supervisor authorized the behavior.
    d. communicate the unethical behavior to external authorities.

6. A company’s year-end selected financial data is shown below.

	Year 2	Year 1
Current assets	$250,000	$175,000
Total assets	600,000	500,000
Total liabilities	300,000	225,000
Net sales	200,000	150,000
Net income	75,000	60,000

    The company’s rate of return on assets and rate of return on equity for Year 2 are

    a. 12% and 22%, respectively.
    b. 13% and 25%, respectively.
    c. 14% and 26%, respectively.
    d. 36% and 25%, respectively.

7. A publicly-traded company is planning to divest its Division A for $100 million. Private investors have pooled their capital of $10 million and plan to finance the balance of $90 million via debt financing with Division A's assets as collateral. The new owners plan to give the new management a bigger stake in the company by providing stock options. They also redesigned performance measures and incentive schemes for employees to minimize inefficiencies and bureaucracy. This scenario **most** closely describes a

    a. management recapitalization.
    b. management buyout.
    c. leveraged recapitalization.
    d. leveraged buyout.

8. If the term structure of interest rates has a flat slope, which one of the following statements is correct?

    a. Long-term rates are higher than short-term rates.
    b. Long-term rates are the same as short-term rates.
    c. The intermediate-term interest rate is lower than the T-bill interest rate.
    d. Bank borrowing rates will rise.

9. A company has a strong internal control structure in its accounting department. It has a high degree of duty segregation, regular reconciliations, strict reviews, and comprehensive internal audits. A disgruntled fixed assets accountant has been contemplating the embezzlement of cash receipts processed by the accounts receivable department. The accountant plans to use these funds to sustain his gambling problem. Using the Fraud Triangle model, what is the **best** assessment of fraud risk for the company’s situation?

    a. Low, because both opportunity and rationalization are absent.
    b. Medium, because opportunity is absent.
    c. Medium, because rationalization is absent.
    d. High, because pressure, opportunity, and rationalization are all present.

10. If a corporation has the option to use either a shorter period or a longer period to amortize a patent, and it can use either the declining-balance method or the straight-line method to depreciate a fixed asset. The corporation would be considered to have better earnings quality if it uses the

    a. longer period to amortize the patent and the declining-balance method to depreciate the fixed asset.
    b. longer period to amortize the patent and the straight-line method to depreciate the fixed asset.
    c. shorter period to amortize the patent and the declining-balance method to depreciate the fixed asset.
    d. shorter period to amortize the patent and the straight-line method to depreciate the fixed asset.

11. If a company implements a just-in-time inventory management program, it would expect that its inventory turnover ratio will

    a. increase, and its days sales in inventory will decrease.
    b. increase, and its days sales in inventory will increase.
    c. decrease, and its days sales in inventory will decrease.
    d. decrease, and its days sales in inventory will increase.

12. A company uses cost-volume-profit analysis to evaluate a new product. The total fixed costs of production per year are $160,000. The unit variable cost is $50. Which one of the following combinations of unit selling price and breakeven number of units sold per year is correct?

    a. $50 selling price and 3,200 breakeven number of units.
    b. $100 selling price and 1,600 breakeven number of units.
    c. $25 selling price and 6,400 breakeven number of units.
    d. $70 selling price and 8,000 breakeven number of units.

13. A company had total sales of $500,000 in the first quarter of the year, which was the same amount as it recorded in the first quarter of the prior year. However, its accounts receivable balance increased from $230,000 last year to $300,000 this year. Which one of the following is the **most** likely explanation for the increase in the accounts receivable balance?

    a. The company initiated the use of factoring in the current year.
    b. The company shortened its payment terms in the current year from 60 days to 30 days.
    c. The company discontinued the use of factoring in the current year.
    d. The company hired more people in its credit and collections department.

14. How can a management accountant use the Fraud Triangle to identify and manage the risk of fraud?

    a. The Fraud Triangle provides a model for explaining the pressures, rationalizations, and opportunities that influence people to commit fraud.
    b. The Fraud Triangle provides a SOX-compliant model for examining the company’s internal control environment in terms of its risk of fraud.
    c. The Fraud Triangle provides a model for explaining the motives, means, and opportunities that influence people to commit fraud.
    d. The Fraud Triangle provides a model for explaining how persuasion, coercion, and conviction influence people to commit fraud.

15. Which one of the following is a permitted transaction under the U.S. Foreign Corrupt Practices Act?

    a. Payments to close friends of government officials to obtain an exception to a regulation.
    b. Payments to government officials to circumvent importation rules in countries where such payments are a customary business practice by multinational competitors.
    c. Payments to expedite routine governmental action.
    d. Payments to customs officials to enable the release of an oil drilling rig and other equipment.

16. A commercial bank offered a $100,000 one-year loan with an annual interest rate of 6% and a 10% compensating balance. What is the effective annual interest rate of this loan?

    a. 7.00%.
    b. 6.67%.
    c. 6.00%.
    d. 5.45%.

17. Essential elements in the development of an organization's ethics policy include all of the following **except**

    a. articulation of organizational values.
    b. input from the board of directors in addition to management and employees.
    c. allowances for exceptional circumstances.
    d. relevance to day-to-day implementation.

18. A firm has $10 million in equity and $30 million in long-term debt to finance its operations. The firm's beta is 1.125, the risk-free rate is 6%, and the expected market return is 14%. The firm issued long-term debt at the market rate of 9%. Assume the firm is at its optimal capital structure. The firm's effective income tax rate is 40%. What is the firm's weighted average cost of capital?

    a. 7.8%.
    b. 8.6%.
    c. 9.5%.
    d. 10.5%.

19. Which standard in IMA's Statement of Ethical Professional Practice states that financial management professionals should not engage in activities that might discredit the profession?

    a. Integrity.
    b. Confidentiality.
    c. Competence.
    d. Credibility.

20. Using the capital asset pricing model, an analyst has calculated an expected risk-adjusted return of 17% for the common stock of a company. The company's stock has a beta of 2, and the overall expected market return for equities is 10%. The risk-free return is 3%. All else being equal, the expected risk-adjusted return for the company's stock would increase if the

    a. risk-free return decreases.
    b. beta of the company's stock decreases.
    c. overall expected market return for equities decreases.
    d. volatility of the company's stock decreases.

21. The treasurer of a U.S. company plans to raise $500 million to finance its new business expansion into the Asia Pacific region. The treasurer is analyzing initial public offerings. All of the following are correct **except** that

    a. under an underwritten offering, the investment bank will guarantee the sale of stock at an offering price, however, the commission charged to the company will be higher compared to a best efforts offering.
    b. an initial public offering will increase the liquidity of the company's stock and establish the company's value in the market.
    c. one of the advantages of an initial public offering is that stock price can accurately reflect the true net worth of the company after it goes public.
    d. it is necessary for the company to file a registration statement with the SEC if it decides to launch an initial public offering.

22. Which one of the following rights is ordinarily sacrificed by the holders of preferred stock in exchange for other preferences received over common shareholders?

    a. The right to vote for members of the board of directors and in other matters requiring a vote.
    b. The right to share in the residual assets of the company upon liquidation.
    c. The right to share in the periodic earnings of the company through the receipt of dividends.
    d. The right to accrue dividend payments in arrears when payments are not made for a period of time.

23. The formal code of ethical conduct for a company should do all of the following **except**

    a. effectively communicate acceptable values to all employees.
    b. reflect only the legal standards of conduct of employees and the organization.
    c. provide guidance on compliance requirements for domestic and international operations.
    d. provide guidance on behavior for employees when making decisions.

24. A company is in the process of considering various methods of raising additional capital to grow the company. The current capital structure is 25% debt totaling $5 million with a pre-tax cost of 10%, and 75% equity with a current cost of equity of 10%. The marginal income tax rate is 40%. The company's policy is to allow a total debt to total capital ratio of up to 50% and a maximum weighted-average cost of capital (WACC) of 10%. The company has the following options.

    Option 1: Issue debt of $15 million with a pre-tax cost of 10%.
    Option 2: Offer shares to the public to generate $15 million. The cost of equity is 10%.

    Which option should the company select?

    a. Option 1 because it has the lower WACC of 7.72%.
    b. Option 1 because the equity to total capital ratio will be 43%.
    c. Option 2 because the equity to total capital ratio will be 86%.
    d. Either Option 1 or 2 because both will yield a WACC of 10%.

25. A company currently sells 6,000 units per month and has received a special order from an international customer. The international customer would like to purchase 1,500 units for a price of $80 per unit. The company currently sells the product to regular customers for $95 per unit. The company has excess capacity to produce the special order. The product unit cost is shown below.

Direct materials	$49.50
Direct labor	16.50
Variable overhead	9.50
Fixed overhead	3.50

    Fixed manufacturing overhead totals $35,000 per month. Management has determined that the additional shipping costs for the international delivery would be $4 per unit. Should the company accept the special order?

    a. Yes, because operating income will increase by $750.
    b. Yes, because operating income will increase by $6,750.
    c. No, because operating income will decrease by $4,500.
    b. No, because operating income will decrease by $21,000.

26. A fast food restaurant is considering the addition of a new menu item. Introduction of the new menu item would require an initial investment of $874,200, and the project is projected to produce $300,000 of after-tax cash flows for each of the next four years. The fast food restaurant has a weighted average cost of capital of 15%, and makes project investment decisions on the basis of internal rate of return (IRR). What is the IRR of the new menu item project, and should the fast food restaurant accept or reject the project?

    a. 9%, reject the project.
    b. 14%, reject the project.
    c. 19%, accept the project.
    d. 37%, accept the project.

27. Clear Displays Inc. manufactures display screens for mobile devices and is looking to expand their business through acquisition. Clear Displays has a weighted average cost of capital of 10%. They are evaluating the opportunity to acquire one of their competitors, Bright Screens Inc. Cash flows for Bright Screens are forecasted to be $110,000 in each of the next four years, and net income for Bright Screens is forecasted to be $90,000 in each of the next four years. The projected terminal value for Bright Screens at the end of that four-year period is $1,250,000. Utilizing the discounted cash flow method, the valuation for Bright Screens is expected to be

    a. $1,139,050.
    b. $1,202,450.
    c. $1,535,300.
    d. $1,598,700.

28. A company currently sells 46,000 units of its product annually at a sales price of $38 per unit. Variable costs per unit total $21 and the total fixed costs each year are $749,000. Fixed costs include the annual salary of three sales staff, which is $55,000 each. Management is considering changing the sales staff's compensation. Under this proposal, sales staff salaries would decrease to $25,000, but sales staff would also receive a commission of $2 per unit for each unit sold. Management estimates this option will increase sales 10%. Should management change to the commission-based plan, and why?

    a. Yes, because it will increase operating income by $67,000.
    b. Yes, because it will increase net income by $67,000.
    c. No, because it will decrease net income by $23,000.
    d. No, because it will decrease operating income by $23,000.

29. Which one of the following factors is **least** likely to be taken into account when analyzing a company's selling expenses?

    a. Percentage of variable and fixed selling expenses in relation to revenue.
    b. Changes in the unit selling prices.
    c. Possibility that the expense, such as sales promotion expense, will yield future benefits.
    d. Variance of the expense compared with prior years.

30. Which one of the following is the **most** relevant evidence suggesting that the quality of a company's earnings is weak?

    a. The company's choice of accounting policies appears aggressive.
    b. Inventory levels are rising during a period of falling prices.
    c. A significant portion of the company's business is located in a country where it is difficult for multinational corporations to repatriate profits.
    d. The company's days-sales-outstanding ratio has fallen during an economic downturn.

31. A Bangladeshi wholesale export company publishes a price list in Euros for the products sold by its European Union business unit. The management of the export company has determined that even if there are fluctuations in exchange rates between the Bangladeshi Taka and European Euro, it is not practical for it to change its product prices every six months. Which one of the following is the **most** appropriate solution available to the export company to managing this risk?

    a. Hedging the risk through financial instruments.
    b. Diversifying its product offerings.
    c. Disposing of the business unit.
    d. Establishing operational sales limits.

32. A retailer planned to purchase 55,000 units and sell 50,000 units, yielding the following operating income.

Sales	$50,000,000
Cost of goods sold	33,000,000
Variable selling costs	5,000,000
Fixed selling and administrative costs	7,000,000
Operating income	$ 5,000,000

The company expects to receive an additional order that would allow it to sell all 55,000 units it purchased. If the company accepts this order, its operating income will be

a. $5,500,000.
b. $6,200,000.
c. $6,700,000.
d. $9,500,000.

33. Which one of the following is an example of an overarching ethical principle from IMA's Statement of Ethical Professional Practice?

a. Competence.
b. Confidentiality.
c. Fairness.
d. Integrity.

34. A company produces ready-to-bake pie crusts. In deciding whether to process this product further into complete ready-to-bake pies by adding filling, relevant dollar amounts to consider would include all of the following except the

a. cost to add the filling.
b. cost to manufacture the crusts.
c. selling price of the complete pies.
d. selling price of the crusts.

35. A company can sell its existing building for $500,000 in order to purchase a larger facility for $750,000. The existing building was purchased five years ago for $450,000 and has a current book value of $350,000. The pre-tax net cash outflow from the purchase of the new building is

a. $100,000.
b. $250,000.
c. $300,000.
d. $400,000.

36. A company with a 40% tax rate is deciding whether to keep an old machine or replace it with a new machine. Annual depreciation expense is $3,000 for the old machine and would be $5,000 for the new machine. When using net present value to determine if the new machine should be purchased, depreciation would increase the incremental annual cash inflows of the investment by

    a. $0.
    b. $800.
    c. $1,200.
    d. $2,000.

37. A company is interested in a capital project that has a net present value of $0. The company should

    a. accept the project because the company's required rate of return has been met.
    b. accept the project because the company's value will increase.
    c. reject the project because its cash inflows equal the project's cash outflows.
    d. reject the project because its internal rate of return is 0%.

38. A large multinational company currently has its information technology department located in Germany. In order to reduce the risk of system failure, the company has decided to split up the information technology department into two geographically separate locations and set up a new location in Singapore. The company can still face a catastrophic system failure, but the risk will be greatly reduced. The risk that remains after the company sets up the second information technology department in Singapore is **best** described as

    a. business risk.
    b. residual risk.
    c. hazard risk.
    d. inherent risk.

39. A toothbrush manufacturer has noticed a shift of customer preferences in its growing Asian sales market towards an electronic battery-operated toothbrush from a manual toothbrush. This shifting of customer tastes **best** represents what type of risk to the toothbrush manufacturer?

    a. Strategic risk.
    b. Operational risk.
    c. Financial risk.
    d. Business risk.

40. A company has developed a new technologically advanced paper-thin solar panel for residential home use. The company has decided to start selling this solar panel worldwide next month. As this is a technologically innovative product, one risk that the company faces to sell the solar panel is possible product failure. This risk of product failure is **best** representative of what type of risk to the company?

    a. Inherent risk.
    b. Operational risk.
    c. Residual risk.
    d. Business risk.

41. The management of a company is considering making a capital investment to acquire a machine for its manufacturing facility at a total cost of €600,000 for equipment and installation. The machine has a useful life of 5 years and a zero salvage value at the end of its useful life. The management of the company uses the straight-line depreciation method for all machinery acquired. How much would the company's annual tax savings be upon acquiring the machine if the company's income tax rate is 30%?

    a. €36,000.
    b. €84,000.
    c. €120,000.
    d. €180,000.

42. After completing a marketplace analysis of Product Z, a company's accountant has determined that a price change from $25 to $20 will result in a demand increase for Product Z from 1,000 units to 1,500 units. Based on the information provided, what is the price elasticity of demand for Product Z using the midpoint formula?

    a. 0.56.
    b. 1.33
    c. 1.80.
    d. 2.50.

43. The management of a company is attempting to reduce the cost for Product X by analyzing the trade-offs between different types of product features and total product cost. What type of cost reduction strategy is the company using?

    a. Total quality management.
    b. Activity-based costing.
    c. Kaizen.
    d. Value engineering.

44. A financial analyst has gathered the following select financial data on three companies.

	Company A	Company B	Company C
Total current assets	€500,000	€1,250,000	€870,000
Total current liabilities	€445,000	€970,000	€620,000

On the basis of the information provided above, the financial analyst is able to conclude that

a. Company A and Company B both have a higher liquidity than Company C.
b. Company B has the highest liquidity.
c. Company B and Company C both have a higher liquidity than Company A.
d. Company A has the highest liquidity.

45. A company had $5 million in sales, $3 million in cost of goods sold, and $1 million in selling and administrative expenses during the last fiscal year. If the company's income tax rate was 25%, what was the company's gross profit margin percentage?

a. 20%.
b. 30%.
c. 40%.
d. 50%.

46. A company had $6 million in credit sales last fiscal year. The company's beginning accounts receivable balance was $1 million and its ending receivable balance was $1.25 million on its year-end financial statements. If the industry average period for the collection of accounts receivables is 90 days, the company's accounts receivable collection period is **less** than the industry average by approximately

a. 22 days.
b. 52 days.
c. 60 days.
d. 68 days.

47. Two companies have identical return on assets. Company X purchased most of its assets many years ago when prices were relatively low. Company Y purchased most of its assets in recent years when prices were relatively high. Both companies have identical debt levels, and record their assets at historical cost. The return on assets ratio is **most** likely

a. overstated for both companies.
b. overstated for Company X.
c. overstated for Company Y.
d. accurate for both companies.

48. Select information from a company's year-end balance sheet is shown below.

Balance Sheet
As of December 31, Year 1

Cash	$ 50,000
Accounts receivable	120,000
Inventory	75,000
Property, plant and equipment, net	250,000
Total assets	$495,000
Accounts payable	$ 35,000
Long-term debt	100,000
Total liabilities	135,000
Common stock	300,000
Retained earnings	60,000
Total equity	360,000
Total liabilities and equity	$495,000

Based on the above information, a common-size balance sheet for the company will show

a. long-term debt at 74%.
b. property, plant and equipment, net at 69%.
c. retained earnings at 17%.
d. accounts receivables at 24%.

49. The **best** description of scenario analysis as a risk analysis technique is that it is a method that

a. changes a key variable to assess the impact.
b. applies predetermined probability distributions to estimate risky outcomes.
c. evaluates the impact of changing a group of assumptions.
d. combines negatively correlated assets to reduce overall risk.

50. A company is planning to purchase a furnace that would cost $20,000 and save the company $4,000 pre-tax annually. It has an estimated useful life of seven years with no salvage value. The company would depreciate the furnace using the straight-line method. The company has an effective income tax rate of 30%. Assuming no change in working capital, the payback period for the furnace is

a. 4.12 years.
b. 5.00 years.
c. 5.47 years.
d. 7.14 years.

51. The dollar value of a company's ending inventory on its balance sheet was $500,000, $600,000, and $400,000 for Years 1, 2, and 3, respectively. In preparing a horizontal analysis with Year 1 as the base year, the percentage change shown for Year 3 would be

a. (25%).
b. (20%).
c. 20%.
d. 80%.

52. A company has $100,000 of sales, $60,000 of variable costs, and $30,000 of fixed costs. The degree of operating leverage is

a. 0.1.
b. 0.3.
c. 0.4.
d. 4.0.

53. During a presentation on non-discounted cash flow models for capital budgeting decisions, an analyst made the following two statements concerning the payback method.

Statement 1: It is the best decision criterion for accepting/rejecting the project.
Statement 2: It may encourage excessive investments in short-term projects at the expense of investments in long-term projects.

The analyst is correct regarding

a. statement 1, only.
b. statement 2, only.
c. neither statement 1 nor statement 2.
d. both statement 1 and statement 2.

54. A U.S. company has accounts receivable from a Swiss company for 100,000 Swiss Francs (CHF) due in three months. At the time of contract, the exchange rate was 1.0 CHF =1.0 USD. The U.S. company wishes to manage its foreign exchange exposure and therefore

a. buys a currency swap.
b. sells Swiss franc futures.
c. buys Swiss franc futures.
d. sells a Swiss Francs interest rate swap.

55. A company has a portfolio of four products and incurs $175,000 of allocated fixed costs per year. Financial data for the four products is shown below.

	Product A	Product B	Product C	Product D
Units sold	25,000	18,750	3,750	2,500
Revenue	$750,000	$600,000	$150,000	$100,000
Unit variable costs	24	24	37	41

Which product should the company discontinue?

a. Product A.
b. Product B.
c. Product C.
d. Product D.

56. A company has a current ratio of 2.0. Cash is 20%, accounts receivable is 40%, and inventory is 40% of total current assets. What is the acid-test ratio for the company?

a. 0.8.
b. 1.2.
c. 1.6.
d. 2.0.

57. A tennis equipment company produces two lines of tennis shoes, Professional and Amateur. Income statement data for the tennis shoes is shown below.

	Professional	Amateur	Total
Sales	$550,000	$750,000	$1,300,000
Variable costs	275,000	400,000	675,000
Direct fixed costs	100,000	300,000	400,000
Allocated fixed costs	37,500	112,500	150,000
Operating income	$137,500	$ (62,500)	$ 75,000

Since the Amateur line shows a loss, the company is considering eliminating this line of tennis shoes. Based on the data provided, should the company drop the Amateur tennis shoe line?

a. No, operating income will decrease by $50,000.
b. No, operating income will decrease by $350,000.
c. Yes, operating income will increase by $25,000.
b. Yes, operating income will increase by $62,500.

58. A company is analyzing the opportunity to expand into a new market. The expansion would require an initial investment of $261,600. Cash flows for the new market expansion are forecasted to be $120,000 for each of the next 3 years. The company has a cost of capital of 8%. The discounted payback period for the new market expansion would be

a. 2.0 years.
b. 2.2 years.
c. 2.5 years.
d. 2.8 years.

59. A company has earnings before interest and taxes of $100,000, income taxes of $30,000, and interest expense of $10,000. The company's interest coverage ratio is

a. 6.
b. 7.
c. 9.
d. 10.

60. A company reported the following financial data.

Sales	$2,000,000
Cost of goods sold	800,000
Operating expenses	400,000
Interest expense	200,000
Income tax	300,000

The company's operating profit margin percentage is

a. 15%.
b. 30%.
c. 40%.
d. 80%.

61. The common stock of a company has a market price of $36. The company has 50,000,000 common shares outstanding and net income of $200,000,000. At the end of the fiscal year, the company declared common dividends of $1 per share. What is the price/earnings ratio of the stock?

a. 4.
b. 9.
c. 12.
d. 36.

62. A company has the following account balances.

Cash	$160,000
Equipment	50,000
Inventory	35,000
Accounts receivable	25,000
Accrued wages	10,000
Long-term debt	30,000
Accounts payable	5,000

What is the company’s net working capital?

a. $180,000.
b. $205,000.
c. $220,000.
b. $225,000.

63. The common stock of a beverage company has a current market price of $34. The beverage company is estimated to earn $2 per share in the next year. The average price/earnings ratio of companies in the beverage industry is 15. Using the price/earnings ratio as the comparable valuation method, the beverage company’s stock is

a. $2 undervalued.
b. $2 overvalued.
c. $4 undervalued.
d. $4 overvalued.

64. A retail company has three segments with total operating income of $500,000. Selected financial information for Segment 1 is presented below.

	Segment 1
Unit Sales	28,000
Sales revenue	$700,000
Cost of sales	420,000
Administrative expenses	144,000
Commissions	14,000
Rent	140,000
Salaries	32,000

- Administrative expenses are allocated to the three segments equally.
- Commissions are paid to the salespersons in each segment based on 2% of gross sales.
- The company rents the entire building and allocates the rent to the three segments based on the square footage occupied by each.
- Salaries represent payments to the employees in the segment.

The controller has expressed concern about the operating loss for Segment 1 and has suggested that it be closed. If the segment is closed, none of the employees would be retained. Should the company drop Segment 1?

a. Yes, because total operating income would increase by $50,000.
b. No, because total operating income would decrease by $234,000.
c. No, because total operating income would decrease by $126,000.
d. No, because total operating income would decrease by $94,000.

65. A company uses a joint process to produce three products: A, B and C, all derived from one input. The company can sell these products at the point of split-off or process them further. The joint production costs during October were $10,000. The company allocates joint costs to the products in proportion to the relative physical volume of output. Additional information is presented below.

			If Processed Further	
Product	Units Produced	Unit Sales Price at Split-off	Unit Sales Price	Unit Additional Cost
A	1,000	$4.00	$5.00	$0.75
B	2,000	2.25	4.00	1.20
C	1,500	3.00	3.75	0.90

Assuming sufficient demand exists, to maximize profits, the company should sell

a. product C at split-off and perform additional processing on products A and B.
b. product B at split-off and perform additional processing on products C and A.
c. product A at split-off and perform additional processing on products B and C.
d. products A, B, and C at split-off.

66. A company with an accounts receivable turnover of 8.1 would be **most** concerned if

a. a best practice analysis indicated an accounts receivable turnover of 13.0.
b. last year's days sales outstanding in receivables was 44.9.
c. the accounts receivable turnover for the industry was 10.4.
d. the company's credit terms with customers are net 30 days.

67. A management accountant is leading the effort to completely identify all of the risks that face her company. Which one of the following **best** identifies a technique that she should consider using?

a. Process re-engineering.
b. Self-assessment workshops.
c. Internal audits.
d. Customer surveys.

68. Based on the assumptions of the Capital Asset Pricing Model, the risk premium on an investment with a beta of 0.5 is equal to

a. the risk-free rate.
b. the risk premium on the market.
c. twice the risk premium on the market.
d. half the risk premium on the market.

69. A company installed new equipment with a four-year useful life and no salvage value. The new equipment cost $600,000 and will generate pretax cash savings of $150,000 annually. Old equipment with a book value of $50,000 and a remaining life of two years was sold for $20,000 when the new equipment was purchased. The company uses straight-line depreciation and its effective income tax rate is 40%. The second year's relevant after-tax cash flow is

a. $150,000.
b. $140,000.
c. $110,000.
d. $90,000.

70. A company installed a piece of equipment with a 5-year life and no salvage value. The new equipment costs $500,000 and will generate $150,000 in savings each year. Old equipment with a book value of $50,000 and a remaining life of 2 years was sold for $20,000. No changes in working capital are anticipated. The effective income tax rate is 40%. The total initial investment for the new equipment is

a. $450,000.
b. $468,000.
c. $500,000.
d. $550,000.

71. A company produces and sells 2,000 units of finished goods and incurs $60,000 of fixed costs annually. The contribution margin is $60 per unit, and variable cost is $40 per unit. If the company expects sales quantities to increase by 10% next year, the operating profit will be

a. $60,000.
b. $72,000.
c. $120,000.
d. $132,000.

72. A mobile home manufacturer has a quick ratio of 2.0. Assuming nothing else changes, which of the following actions would decrease the firm's quick ratio?

a. Collecting cash from issuing stock.
b. Writing off obsolete inventory.
c. Converting short-term debt into long-term debt.
d. Buying inventory on credit with 30-day terms.

73. An agreement in which the underwriter attempts to sell as much as possible of an initial public offering, but does not guarantee the sale of the entire offering is a

a. carve-out deal.
b. firm commitment deal.
c. syndicate deal.
d. best-efforts deal.

74. Which one of the followings is **not** a relevant factor that influences the dividend policy of a firm?

a. The amount of cash not needed for operations.
b. The credit policy of the company.
c. The available investment projects.
d. The dividend income tax rate.

75. A company holding cash for a speculative motive is holding cash to

a. pay bills.
b. protect against uncollectible receivables.
c. provide a safety margin.
d. take advantage of future investment opportunities.

76. Money market funds generally invest in all of the following **except**

a. treasury bonds.
b. commercial paper.
c. certificates of deposit.
d. bankers' acceptances.

77. An example of a hedging approach to financing is

a. increasing earnings by purchasing stock puts.
b. matching assets with liabilities of the same maturity.
c. financing building projects with accounts payable.
d. using five-year bonds to finance inventory acquisition.

78. A firm involved in major international market trading can **best** minimize foreign exchange risk by

a. entering into a forward rate contract.
b. requiring collect on delivery payment from customers to avoid exchange rate fluctuations.
c. having customers use the spot rate.
d. factoring in the cost of interest in the commodity price.

79. Which one of the following moral philosophies is focused on the consequences of an action when judging whether that action is morally acceptable or not?

a. Utilitarianism.
b. Deontology.
c. Teleology.
d. Relativism.

80. Unit contribution margin is **best** defined as the difference between the

a. sales price and variable costs.
b. unit sales price and variable costs multiplied by the number of units sold.
c. unit sales price and the unit variable costs.
d. unit sales price and the unit variable costs divided by the sales price.

81. When a product has elastic demand, the percentage change in price

a. is less than the percentage change in quantity demanded.
b. results in no change in quantity demanded.
c. is greater than the percentage change in quantity demanded.
d. results in an equal change in quantity demanded.

82. Based on COSO's integrated framework, all of the following are components of Enterprise Risk Management **except**

a. risk response.
b. control activities.
c. objective setting.
d. feasibility analysis.

83. In preparing a multi-year revenue forecast, a financial analyst uses a technique that generates a distribution of possible results based on repeated sampling. The analyst is **most** likely using which one of the following?

a. Sensitivity analysis.
b. Monte Carlo simulation.
c. Scenario analysis.
d. Activity analysis.

Answers - CMA Part 2 Practice Questions

1. b
2. c
3. d
4. c
5. b
6. c
7. d
8. b
9. b
10. c
11. a
12. d
13. c
14. a
15. c
16. b
17. c
18. a
19. a
20. a
21. c
22. a
23. b
24. c
25. a
26. b
27. b
28. a
29. b
30. a
31. a
32. b
33. c
34. b
35. b
36. b
37. a
38. b
39. a
40. b
41. a
42. c
43. d
44. c
45. c
46. a
47. b
48. d
49. c
50. c
51. b
52. d
53. b
54. b
55. d
56. b
57. a
58. c
59. d
60. c
61. b
62. b
63. d
64. b
65. a
66. d
67. b
68. d
69. b
70. b
71. b
72. d
73. d
74. b
75. d
76. a
77. b
78. a
79. a
80. a
81. d
82. b
83. c

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Additional Examination Practice Essays

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Part 1 Essay Practice Question

Question 1.1-Barton Industries

Barton Industries processes chemicals for the pharmaceutical industry. Wiley Richardson, company president, was eager to see the operating results for the just completed fiscal year as he believed that changes that were made during the year would result in increased profit on the expected sales volume of 1 million kg. At the beginning of the year, in response to a 10% increase in production costs, the sales price had been increased 12%, and the selling and administrative departments had been given strict instructions to hold expenses at the same level as the previous year. Therefore, Richardson was dismayed to learn that net income had dropped despite achieving the planned increase in sales volume. Shown below are comparative operating income statements for Barton Industries for the last two years along with budgeted operating and financial data. This year's cost of goods sold includes an adjustment of fixed overhead costs that were under-applied. Actual results were the same as budget, except for production volume. The company uses the first-in, first-out inventory valuation method, and has an ending inventory of 450,000 kg. this year.

Barton Industries
Comparative Operating Income Statements
($000 omitted)

	Previous Year	Current Year
Sales revenue	$9,000	$11,200
Cost of goods sold	6,600	8,815
Gross profit	$2,400	$ 2,385
Selling and administrative expense	1,500	1,500
Operating income	$ 900	$ 885

Barton Industries
Budgeted Operating and Financial Data

	Previous Year	Current Year
Sales price	$10.00/kg.	$11.20/kg.
Material cost	1.50/kg.	1.65/kg.
Direct labor cost	2.50/kg.	2.75/kg.
Variable overhead cost	1.00/kg.	1.10/kg.
Fixed overhead cost	3.00/kg.	3.30/kg.
Total fixed overhead costs	$3,000,000	$3,300,000
Selling and administrative expense	$1,500,000	$1,500,000
Sales volume	900,000 kg.	1,000,000 kg.
Beginning inventory	300,000 kg.	600,000 kg.

REQUIRED:

1. Explain why Barton Industries' operating income decreased in the current fiscal year despite the sales price and sales volume increases.

2. Prepare an operating income statement for the current fiscal year for Barton Industries using the variable (direct) costing method.

3. Prepare a reconciliation of the difference in Barton's operating income using the current method of absorption costing and using the variable (direct) costing method.

4. Identify two advantages and two disadvantages of using variable (direct) costing for internal reporting.

Question 1.2-Great Heart

Great Heart Clinic is a medical service institute that provides various services for its patients. The doctors working for the institute are required to fill out a note in the medical system for each patient treated. The system then generates a unique bill for each patient according to the pricing for the specific service or treatment received. Included in each patient's bill is the applied overhead cost based on direct labor hours. The clinic created the following overhead budget for this year, but the actual overhead was $296,047.

Direct labor hours	10,000
Overhead costs:	
Indirect material	$ 3,500
Indirect labor	45,000
Utilities	6,000
Insurance	78,000
Property taxes	30,000
Total	$162,500

During this year, the doctors actually charged a total of 12,190 hours as shown below.

Doctor A	2,000
Doctor B	1,850
Doctor C	1,960
Doctor D	2,100
Doctor E	2,500
Doctor F	1,780
Total	12,190

The overhead variance is deemed material by the CEO, and he wonders why this variance happened and how to address this variance. The CEO is also considering implementing an activity-based costing (ABC) system.

REQUIRED:

1. Explain whether the clinic should use a job costing system or a process costing system.

2. Calculate the applied overhead and identify if it is over or under applied. Show your calculations.

3. Identify and explain two shortcomings of using predetermined overhead rates to apply overhead.

4. Identify and explain why there is usually a difference between the applied overhead and the actual overhead.

5. Identify and explain the appropriate accounting treatment of this under or over applied overhead amount.

6. Describe how an ABC system usually assigns overhead costs.

Part 2 Essay Practice Question

Question 2.1-FSL Industries

FSL Industries manufactures and sells conveyor systems to large industrial customers. When systems are sold, the contracts require FSL to provide replacement parts for the systems on fairly short notice so that their customers' operations are not interrupted. FSL is in the process of introducing a new line of products, which would require an estimated $9 million investment in replacement parts and equipment. The CFO is investigating financing options to cover the cost of carrying the replacement parts and the new equipment investment. Two financing alternatives are presented below.

- Option 1: A commercial bank has offered FSL a loan at an interest rate of 5% with a compensating balance of 10%. The loan would have to be renegotiated each year.
- Option 2: An insurance company has offered a ten-year term loan to FSL with a fixed annual interest rate of 7%. Interest is paid semi-annually.

REQUIRED:

1. In order to have sufficient funds to manufacture replacement parts and purchase the new equipment, how much would FSL have to borrow if it uses Option 1? Show your calculations.

2. Calculate the first year's interest cost of Option 1. Show your calculations.

3. Calculate the annual interest cost of Option 2. Show your calculations.

4. Identify and explain two advantages and two disadvantages of Option 2 as compared to Option 1.

5. Identify and explain the impact on FSL's net working capital and balance sheet accounts if it utilizes Option 1, the bank loan to finance the replacement parts and new equipment.

6. Identify and explain the impact on FSL's net working capital and balance sheet accounts if it utilizes Option 2, the term loan to finance the replacement parts and new equipment.

7. In addition to the manufacturing cost of the replacement parts in inventory, identify three other costs FSL can expect to incur in relation to this inventory.

Question 2.2-Spreck

Spreck Technologies manufactures microchips and interfaces for several electronics manufacturers. Spreck's reputation has been built on quality, timely delivery, and cutting-edge products. The company's business is fast-paced as its products tend to have a short life. Each product is in development for about a year followed by a year of strong demand. The products then experience reduced sales as new products and technologies become available.

Marc Elvar has recently been hired by Spreck as a member of the finance department with primary responsibility for cash budgeting and cash management. During his orientation with Spreck's CFO, the CFO said, "The thing that fascinates me about this business is that change is its central ingredient. One of our key variables is a reliable stream of new products; in fact, it is the only way to deal with the threat of product obsolescence. Our products go through only the first two stages of the product life cycle as they rarely reach the other stages. Of course, this situation affects our cash flow. We have not been managing our cash well, so we are looking forward to having you improve our cash forecasting and management." In addition, Elvar has been asked to analyze the company's pricing tactics.

REQUIRED:

1. Define product life cycle.

2. Identify the four stages of the product life cycle.

3. Identify and explain the characteristics of each stage of the product life cycle.

4. Explain why pricing decisions might be different over the last three stages of the product life cycle.

5. Identify and explain two factors affecting the cash inflows and two factors affecting cash outflows at Spreck Technologies.

6. Identify and explain three actions that Elvar could take to improve Spreck Technologies' cash management processes.

Answer to Part 1 Practice Questions

<u>Answer: Question 1.1-Barton Industries</u>

1. Production was less than budget, and fixed overhead costs were under-applied. This caused an unfavorable volume variance that was charged to cost of goods sold.

2. Barton's operating income using variable costing:

Sales		$11,200
Variable cost of goods sold:		
600,000 units (inventory) @$5.00	$3,000	
400,000 units (production) @$5.50	2,200	5,200
Contribution margin		$ 6,000
Fixed costs of operations:		
Factory overhead	$3,300	
Selling and administrative	1,500	4,800
Operating income		$ 1,200

3. Reconciliation:

Variable costing income	$1,200
Absorption costing income	885
Difference	$ 315
Beginning inventory reduction:	
600,000 units @$3.00	$1,800
Ending inventory:	
450,000 units @$3.30	1,485
Difference	$ 315

4. Advantages of variable costing for internal reporting:
   - Aids in reporting and forecasting contribution margin.
   - Because fixed costs are period costs, they are more predictable and controllable.
   - Profits vary directly with sales volume and are unaffected by inventory changes.
   - Aids CVP analysis/can determine breakeven point.

   Disadvantages of using variable costing for internal reporting:
   - Fixed costs may be overlooked as part of the decision-making process.
   - Lacks acceptability for external reporting.
   - Cannot be used as a basis for income tax calculations.
   - Sometimes the distinction between fixed and variable costs is arbitrary.

Answer: Question 1.2-Great Heart

1. The clinic should use a job costing system since the clinic has a wide variety of different services. The job costing system can accumulate costs to a specific job, which better reflect the specific service each patient received.

2. Predetermined overhead rate: $162,500/10,000=$16.25
   Applied overhead: $16.25*12,190= $198,088<$296,047, so overhead is under applied

3. The predetermined overhead rate is usually based on overall level of activity without considering the relationships between costs and their drivers. So apply overhead based on this rate usually is not accurate enough to provide management meaningful data to assist them to achieve cost effectiveness. The predetermined overhead rate is an estimated rate, applied overhead maybe quite different from the actual cost.

4. The applied overhead is likely to differ from actual overhead cost incurred for the period. Applied overhead can be higher or lower than the actual overhead because the applied overhead is based on the predetermined overhead rate, which is calculated by using budgeted overhead costs divide estimated activity level of the chosen cost drivers, times the actual level of cost drivers.

5. Since the overhead variance is deemed material, so the under-applied overhead amount usually is prorated among WIP inventory, finished goods inventory, and COGS accounts.

6. ABC assigns overhead costs to products or services using cause-and-effect criteria with several cost pools. The use of both volume-based and nonvolume-based cost drivers is determined according to the consumption of resources in performing various activities. ABC helps clinic assign overhead costs more accurately and manage costs more efficiently to achieve its strategy.
   - Identify activities and cost drivers
   - Select the cost allocation bases to use for allocating overhead cost
   - Identify the overhead costs associated with each cost allocation base on the basis of cause and effect relationship
   - Calculate the rate per unit of each cost allocation base
   - Calculate overhead costs allocated to the products

Answer to Part 2 Practice Questions

Answer: Question 2.1-FSL Industries

1. Since FSL requires the use of $9 million, it will have to borrow $10 million ($9 million / (1-10%)). This will result in 10% of the loan principle ($1 million) being used to satisfy the compensating balance.

2. Annual interest would be 5% of the total loan of $10 million or $500,000.

3. The semi-annual interest cost of the term loan would be $9million*(7%/2) =$315,000.
   The annual interest cost would then be $315,000*2=$630,000.

4. Advantages of this loan over the short-term loan include:
    - The loan would be outstanding for 10 years and would not have to be renegotiated each year. Since the need for these funds is quite long due to the need to carry the spare parts inventory, this is an advantage
    - The interest rate is fixed for 10 years, eliminating interest rate risk which is inherent in the short-term loan

   Disadvantages of such a loan include:
    - FSL would not be able to take advantage of falling interest rates in the future. The short-term loan would allow the interest rate to adjust each year.
    - The interest cost of this loan in the first year is $130,000 greater than the cost of the short-term loan.

5. If the bank loan was used to finance the new inventory, net working capital would decrease since current assets (inventory) and long-term assets (equipment) would increase by a combined $9 million, and current liabilities (short term loan) would increase by $10 million.

6. If the term loan was used to finance the inventory, there would be an increase in net working capital since current assets would increase, and there would be no impact on current liabilities since the term loan is classified as long term.

7. Other costs related to this inventory would include carrying costs such as:
   - Storage
   - Security
   - Losses due to theft
   - Obsolescence

Answer: Question 2.2-Spreck

1. The entire life cycle of a product, including design and development, acquisition, operation, maintenance, and service.

2. Introduction, growth, maturity, and decline.

3.
   - Introduction stage – This stage of the cycle could be the most expensive for a company launching a new product. It is generally characterized by large cash outflows and little or no cash inflows. Expenditures for research and development, plant and equipment, retooling, distribution and promotion are required. During this stage, a project or company normally generates losses and may require an infusion of outside capital.
   - Growth stage – Sales and revenues rise rapidly. Significant cash inflows are generally present. However, these inflows may be offset by cash outflows to build production capacity and for growing inventories and receivables. During this stage, manufacturing efficiencies will improve contribution margins as volume increases.
   - Maturity stage – Net cash inflows are generally at an optimum. Production capacity is in place and inventories and receivables should approach steady-state. By this stage, competitors generally have entered the market which could result in higher promotional costs to maintain market share. As a consequence, margins could begin to decline.
   - Decline stage – Both sales volume and profits fall. Increased price competition and the increased availability of alternative products will reduce margins. The declining volume will generally increase the unit cost at the manufacturing level. Sometimes, significant cash inflows can be generated from the liquidation of inventories and other product related assets.

4. Sales, costs, profits are different over the stages of the product life cycle. Marketing objectives are different. In growth stage, price is usually high to recover the investment. Pricing during maturity stage has to be competitive to hold onto market share. The price plummets during the decline stage.

5. Factors affecting cash inflow:
   - The maturity stage, the period of optimum net cash flows, is missing from the product life cycle.
   - Credit policies.
   - Factors affecting cash outflow:
   - Research and development, capital investment, and promotional costs during the introduction stage.
   - Obsolescent inventory is actually cash outflow without future cash inflow to recover the cost.

6.
   - Careful cash budgeting and monitoring.
   - Matching cash flows from products in the growth stage with the cash outflows of products in the research and development stage.
   - Establishing good banking relationships.
   - Setting up flexible lines of credit to cover short-term borrowing needs.
   - Aggressive accounts receivable management.

- Tight control of materials purchasing.
- Aggressive inventory management.
- Strict cost control.
- Timely decisions on inventory liquidation as product life cycles end.

Suggested Reading List

PART 1: Financial Planning, Performance, and Analytics

External Financial Reporting Decisions

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Technology and Analytics

- Romney, Marshall B., and Steinbart, Paul J., *Accounting Information Systems,* 14th edition, Pearson Education, New York, NY, 2018.

- Sharda, Ramesh, Delen, Dursun, and Turban, Efraim, *Business Intelligence, Analytics, and Data Science: A Managerial Perspective*, 4th edition, Pearson Education, New York, NY, 2018.

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- Dimon, Ron, *Enterprise Performance Management Done Right: An Operating System for Your Organization,* 1st Edition, John Wiley & Sons, Hoboken, NJ, 2013.

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<u>**Part 2: Strategic Financial Management**</u>

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CMA Exam Ratio Definitions

Abbreviations

EBIT = Earnings before interest and taxes
EBITDA = Earnings before interest, taxes, depreciation and amortization
EBT = Earnings before taxes
EPS = Earnings per share
ROA = Return on assets
ROE = Return on equity

<u>Part 1 Financial Reporting, Performance, and Analytics</u>
<u>Section C Performance Management</u>

Section C.3 Performance measures

e[1]. ROI = Income of business unit / Assets of business unit
g. Residual Income (RI) = Income of business unit – (Assets of business unit x required rate of return)

Note: "Income" means operating income unless otherwise noted

<u>Part 2 Strategic Financial Management</u>
<u>Section A Financial Statement Analysis</u>

Section A.1 Basic Financial Statement Analysis

a. Common size statement = line items on income statement and statement of cash flows presented as a percent of sales; line items on balance sheet presented as a percent of total assets
b. Common base year statements = (new line item amount /base year line item amount) x 100
c. Annual growth rate of line items = (new line item amount / old line item amount) – 1

[1] Letter references refer to subtopics in Learning Outcome Statements

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Section A.2 Financial Ratios

Unless otherwise indicated, end of year data is used for balance sheet items; full year data is used for income statement and statement of cash flow items.

Liquidity

a(1) Current ratio = current assets / current liabilities
a(2) Quick ratio or acid test ratio = (cash + marketable securities + accounts receivable) / current liabilities
a(3) Cash ratio = (cash + marketable securities) / current liabilities
a(4) Cash flow ratio = operating cash flow / current liabilities
a(5) Net working capital ratio = net working capital / total assets

Leverage

f(1) Degree of financial leverage = % change in net income / % change in EBIT, or
= EBIT / EBT
f(2) Degree of operating leverage = % change in EBIT / % change in sales, or
= contribution margin / EBIT

h. Financial leverage ratio = assets / equity

i(1) Debt to equity ratio = total debt / equity
i(2) Long-term debt to equity ratio = (total debt – current liabilities) / equity
i(3) Debt to total assets ratio = total debt / total assets

j(1) Fixed charge coverage = earnings before fixed charges and taxes / fixed charges
fixed charges include interest, required principal repayment, and leases
j(2) Interest coverage (times interest earned) = EBIT / interest expense
j(3) Cash flow to fixed charges = (cash from operations + fixed charges + tax payments) / fixed charges. Note: cash from operations is after-tax.

Activity

l(1) Accounts receivable turnover = credit sales / average gross accounts receivables
l(2) Inventory turnover = cost of goods sold / average inventory
l(3) Accounts payable turnover = credit purchases / average accounts payable

m(1) Days sales in receivables = average accounts receivable / (credit sales / 365), or
= 365 / accounts receivable turnover
m(2) Days sales in inventory = average inventory / (cost of sales / 365), or
= 365 / inventory turnover
m(3) Days purchases in payables = average payables / (purchase / 365), or
= 365 / payables turnover

n(1) Operating cycle = days sales in receivables + days sales in inventory
n(2) Cash cycle = Operating cycle – days purchases in payables

o(1) Total asset turnover = sales / average total assets
o(2) Fixed asset turnover = sales / average net plant, property and equipment

Profitability

p(1) Gross profit margin percentage = gross profit / sales
p(2) Operating profit margin percentage = operating income / sales
p(3) Net profit margin percentage = net income / sales
p(4) EBITDA margin = EBITDA / sales

q(1) ROA = net income / average total assets
q(2) ROE = net income / average equity

Market

r(1) Market-to-book ratio = current stock price / book value per share
r(2) Price earnings ratio = market price per share / EPS

s. Book value per share = (total stockholders' equity – preferred equity) / number of common shares outstanding

u(1) Basic EPS = (net income – preferred dividends) / weighted average common shares outstanding
(Number of shares outstanding is weighted by the number of months shares are outstanding)
u(2) Diluted EPS = (net income – preferred dividends) / diluted weighted average common shares outstanding
(Diluted EPS adjusts common shares by adding shares that may be issued for convertible securities and options)

v(1) Earnings yield = EPS / current market price per common share
v(2) Dividend yield = annual dividends per share / market price per share
v(3) Dividend payout ratio = common dividend / earnings available to common shareholders
v(4) Shareholder return = (ending stock price – beginning stock price + annual dividends per share) / beginning stock price

Section A.3 Profitability Analysis

a(1) ROA = Net profit margin x total asset turnover; (net income / sales) x (sales / average total assets) = net income / average total assets
a(2) ROE = ROA x financial leverage; (net income / average total assets) x (average total assets / average equity)= net income / average equity

h(1) Operating profit margin percentage = operating income / sales
h(2) Net profit margin percentage = net income / sales

j. Sustainable growth rate = (1- dividend payout ratio) x ROE

Section B Corporate Finance

Section B.4 Working capital management

b. Net working capital = current assets – current liabilities

Section C Decision Analysis

Section C.1 Cost/volume/profit analysis

f(1) Breakeven point in units = fixed costs / unit contribution margin
f(2) Breakeven point in dollars = fixed costs / (unit contribution margin / selling price)

i(1) Margin of safety = planned sales – breakeven sales
i(2) Margin of safety ratio = margin of safety / planned sales

Section C.3 Pricing

n. Elasticity is calculated using the midpoint formula. For price elasticity of demand
E = [change in quantity / (average of quantities)] / [change in price / (average of prices)]

Exam Test Taking Strategies

The best preparation you can make for taking the exam is thoroughly studying the material and content covered by the examination. Beyond that, however, there are several strategies you can use while taking the test that will help to maximize your performance.

1. Answer the questions that you know first.

Try to avoid dwelling on any particular question(s) for extended periods of time. This will give you the opportunity to answer all of the questions you may know and also allow you to see how much time you have to devote to the questions that are more difficult for you.

2. Mark the difficult questions for later review.

You should approach the test with the expectation that you will encounter at least some questions that you cannot immediately answer. Keep in mind that each question is worth the same number of points (i.e., 1 for correct and 0 for incorrect), regardless of its difficulty. Do not agonize over any particular question, but mark those questions you are unsure of so that you can readily locate them when you are ready to look at them a second time.

3. Read each question carefully, noting any key words.

Pay close attention to the wording of the question. Words such as except, least, and most in a question will have a significant bearing on the correct answer. Think each question through very carefully before answering. You may want to jot down key words that appear in the question, or to rephrase the question in your own words if you are having trouble understanding it.

4. Try to answer the question in your mind before actually looking at the options.

Then see if the answer you formulated exists among the options. Doing this could serve as a sort of verification of the correct answer. You should still carefully review the other options as well, to be certain there isn't a more appropriate answer than the one you selected.

5. If you are uncertain about an answer, try to make an educated guess.

You are likely to know something about the topic presented in the question and are, therefore, often able to eliminate at least one incorrect option. If you come across an item for which you truly do not know the answer, try to eliminate those options that you deem likely to be incorrect. This will increase your chances of selecting the correct answer.

6. Answer ALL of the questions.

The CMA exams do not employ a penalty for incorrect answers. Points are not deducted from your score for an incorrect answer. There is nothing to gain by leaving questions unanswered; therefore, answer all questions on the exam.

7. Keep scratch paper organized.

You will be given a booklet similar to a college "bluebook," to be used as scratch paper for doing calculations or other notes. Label these notes clearly, and show your work clearly. The scratch paper booklet is turned in at the end, and is not used in scoring your exam. However, when you go back to review your work, it is much easier and quicker if you do it neatly.

8. Keep track of time

When taking the multiple-choice test, plan the amount of time given vs. the number of questions that will be presented. Watch the time you invest in each question—don’t get stuck for too long on one question. Keep moving through the questions.

9. Use the full time allotted to you.

In a similar vein, there is no advantage in ending the test early. Make the most of any remaining time you may have by reviewing your work, making corrections, or going back to more difficult questions. It is possible that during such review time, you will recall some fact or information which you may have previously overlooked on one or more questions. Though it may seem like a relief to end the test early, bear in mind that the allotted time will end soon enough, and you will want to make the most of the few minutes you have remaining to you to help maximize your score.

Candidate Resources

MyIMA Network is IMA's online social network exclusively for IMA members. Within the community you will be able to join groups based on topic areas, industries, Chapters & Councils, CMA Study Groups, or start your own group based on your area of interest. Each group's section offers its members the opportunity to post announcements and local events, participate in a forum and access a shared workspace for members to use as they wish. All members can share ideas in the myIMA Network Forums section, visit IMA's Job Connections page, or view IMA's national and international Events calendar. Plus, IMA's searchable Library includes a variety of IMA resources and those added by members.

Exam Sites and Sample Screen Layout

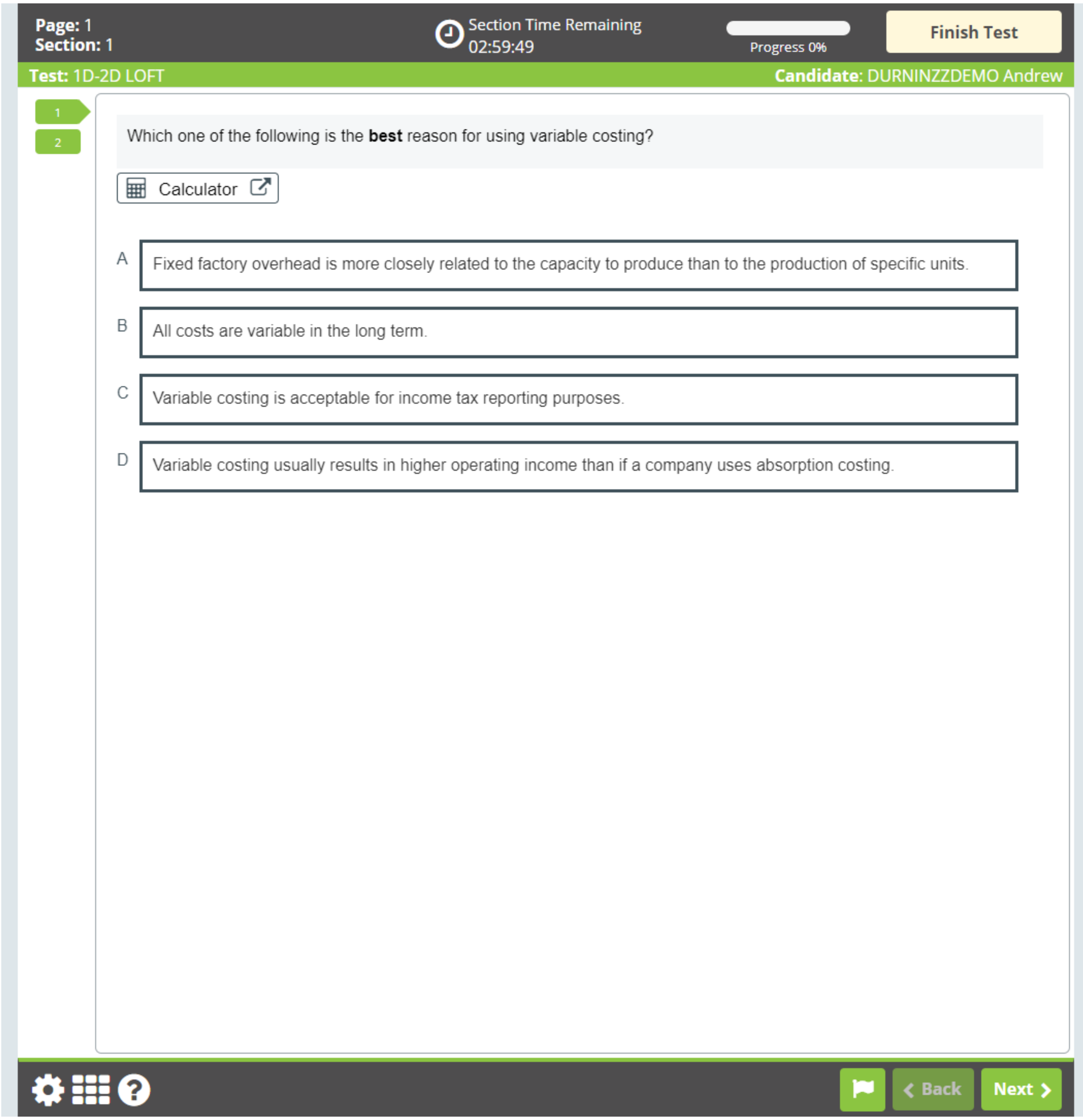
Another possible source of anxiety is not knowing what to expect at the exam site. The ICMA uses Prometric to administer the exams. Prometric has an extensive network of U.S. and international testing centers. See this link http://www.prometric.com/ICMA/default.htm for locations.
These Prometric Testing Centers (PTCs) are permanent computer-equipped testing facilities with testing hours available daily (except holidays and Sundays in certain locations) in the U.S. Internationally, testing times are set in accordance with local laws and customs. All U.S. PTCs are handicapped accessible and conform with the Americans with Disabilities Act (ADA).
The PTCs offer private, modular testing booths with ample workspace, comfortable seating, proper lighting, and ventilation. The computer workstations employ state-of-the-art technology with high-clarity screen displays to minimize eye-strain. Candidates may use either a computer keyboard or a mouse to enter test answers. On request, candidates will be provided with scrap paper and pencils for use in making calculations. If additional booklets are needed, you would need to raise your hand and request it. The scrap paper is counted by the test center personnel and all paper is collected at the end of the exam. Candidates are allowed to bring a small battery or solar powered electronic calculators restricted to a maximum of six functions –addition, subtraction, multiplication, division, square root, and percentage are allowed. The calculator must not be programmable and must not use any type of tape. Candidates can also use the Texas Instrument's BA II Plus, HP 12c, or HP 12c Platinum calculators when taking the exams. The Hewlett- Packard 10BII is valid, but no longer to purchase. Candidates will not be allowed to use calculators that do not comply with these restrictions.

Candidates are not permitted to bring personal belongings, such as purses, briefcases, and jackets, into the testing room. Small lockers are available at the test centers for storage of personal belongings.

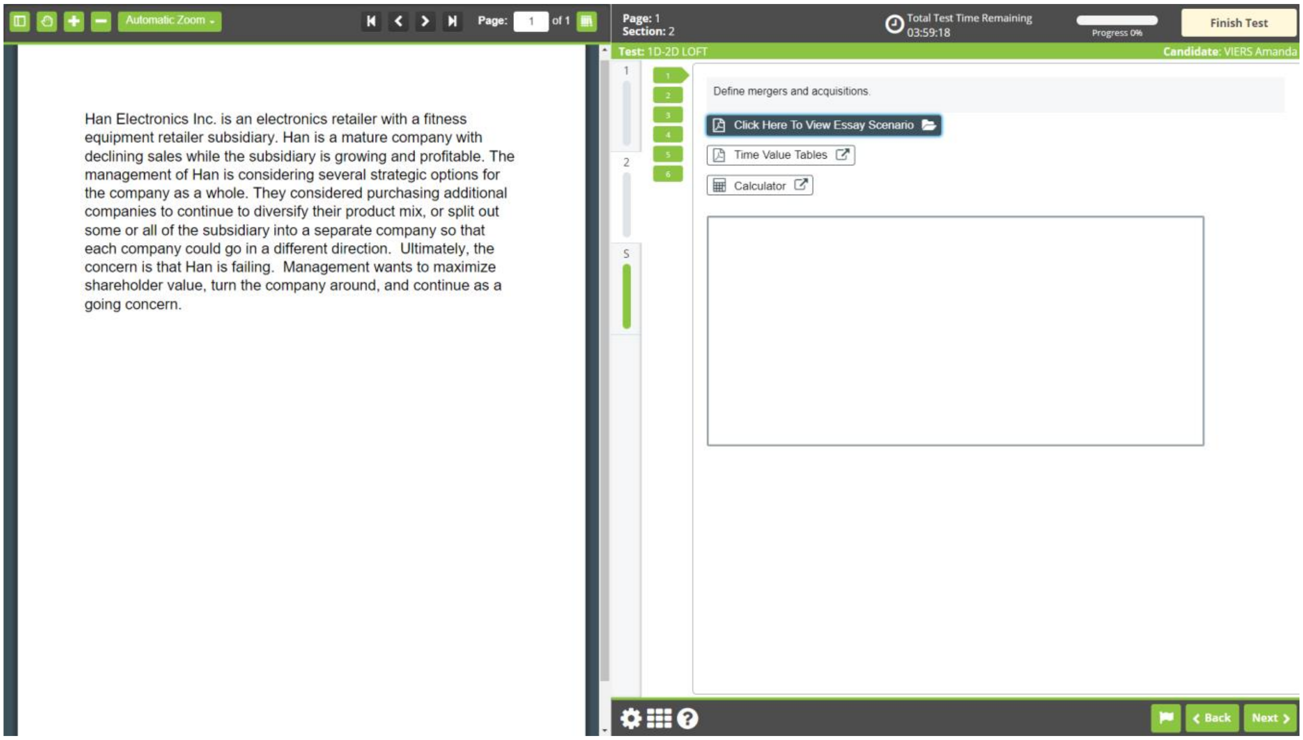
At the start of the test, you will be taken through a short tutorial that introduces the testing screens and shows you how to select answers and mark questions for review. The tutorial can be repeated if you wish; however, total tutorial time is limited to 15 minutes. Following the tutorial, the exam begins. The time remaining to complete the exam is displayed in the upper right corner of the screen. The tutorial does not affect the three hours allowed for the exam part being taken.
A sample screen layout for the multiple choice sections of CMA parts 1 and 2 is provided on the next page. This screen layout shows the time display; the next and previous selections, which take you to the next or previous page; the selection to mark a question for review; and the selection to review marked items.

The CMA written-response questions will be delivered via computer at Prometric Testing Centers in the same manner as the other exam parts. For these questions, you will have a text box in which to type your response.

CMA Multiple Choice sample screen shot



CMA Essay sample screen shot



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