CMA Part 1 Essay Practice Questions

Question 1.1 – Coe Company

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.

<u>Question 1.4 – Smart Electronics:</u>

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.

<u>Question 1.7 - Thompson</u>

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.

Question 1.13 – Ecoclock

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.

<u>Question 1.14 - Edge</u>

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.

<u>Question 1.15 - Zavod</u>

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.

Question 1.17 – Stark

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.

Question 1.20 – Holt Manufacturing

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.

Question 1.24 – Great Rivers International

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.

<u>Question 1.25 – Sara Hall</u>

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.

Question 1.26 – Arklan Production

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.

Question 1.27 – Greeting Card Stores

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.

<u>Question 1.28 - Acme</u>

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.