CMA®

IMA's Certification for Accountants and Financial Professionals in Business

CMA EXAM

Essay Questions

For Practice

Parts 1 and 2

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

(Answers begin on Page 61)

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. a. Define budgetary slack.
   b. 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.
   a. If the company ignored the learning curve when creating the budget, for the four units produced, compute Coe's
      1. direct labor rate (price) variance.
      2. direct labor efficiency variance.
   b. 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. a. Calculate the variable expense variance. Show your calculations.
   b. 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 the following.
   a. Inman's September manufacturing cost per unit
   b. Inman's September 30 inventory value
   c. Inman's September net income

2. Using variable costing, calculate the following.
   a. Inman's September manufacturing cost per unit
   b. Inman's September 30 inventory value
   c. 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 each of the following:
   a. absorption costing
   b. variable costing

5. a. Identify one strength and one weakness each of authoritative budgeting and participative budgeting.
   b. Which of these budgeting methods will work best for Inman Inc.? Explain your answer.
   c. 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 ghave 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 – Ace Contractors

Ace Contractors is a large regional general contractor. As the company grew, Eddie Li was hired as the controller and tasked with analyzing the monthly income statements and reconciling all of the accounts formerly handled by Susan Zhao, the sole accounting associate. Li noticed a large amount of demolition expense for February, even though no new projects had started over the past few months. Since Li did not expect such a large amount of demolition expense, nor was any of this type of expense budgeted, Li dug a little deeper. He found that all of those expenses were bank transfers into another bank account. After additional research, it became evident that Zhao had been transferring funds out of the company bank account and into her own, and recording fake expenses to make the bank account reconciliation work. While the president kept the prenumbered checks locked up until check run time and signed all of the outgoing checks, he was unaware of the ability to initiate transfers via the internet. Li had also reviewed the bank reconciliations, which were completed by the office manager, and this fraud was not evident since the ending balance was reasonable.

REQUIRED:

1. a. Identify and explain the four types of functional responsibilities that should be segregated properly.
   b. Identify and explain two incompatible duties that Zhao had that allowed her to take company funds.

2. Identify and explain two ways that the company had attempted to safeguard its assets and suggest two ways to strengthen controls in this area.

3. Refer to COSO's Internal Control Framework to answer the following questions.
   a. Identify and describe the three objectives of internal control.
   b. Identify and describe five components of internal controls.

4. Identify and explain three ways internal controls provide reasonable assurance.

Question 1.6 - 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: 1.7 – 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. Define the objectives of
   a. a compliance audit.
   b. an operational audit.

2. 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.

3. Identify four components of a sound disaster recovery plan.

4. 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, (1) describe a possible cause of the condition and (2) recommend actions to be taken and/or controls to be implemented that would correct the condition.

Question 1.8 – Brawn Technology

Brawn Technology, Inc. is a manufacturer of large wind energy systems. The company has its corporate headquarters in Buenos Aires and a central manufacturing facility about 200 miles away. Since the manufacturing facility is so remote, it does not receive the attention or the support from the staff that the other units do. The president of Brawn is concerned about whether proper permits have been issued for new construction work being done to handle industrial waste at the facility. In addition, he wants to be sure that all occupational safety laws and environmental issues are being properly addressed. He has asked the company's internal auditor to conduct an audit focusing on these areas of concern.

REQUIRED:

1. Identify and describe the two fundamental types of internal audits. Using examples, describe two situations where each type of audit would be applicable.

2. Referring to Brawn Technology,
   a. identify the type of audit that would best address the concerns of the president .
   b. identify the objective of this audit.
   c. give two reasons why this type of audit would best address the concerns of the president.

3. Recommend two procedures that could be implemented at Brawn's manufacturing plant that would lessen the president's concerns. Explain each of your recommendations.

Question 1.9 - 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 for each of the following transfer pricing methods being considered by Thompson Corporation.
   a. Standard full manufacturing costs plus markup.
   b. Market selling price of the products being transferred
   c. Outlay (out-of-pocket) costs incurred to the point of transfer plus opportunity cost per unit.

Question 1.10 – 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 1.11 – 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. a. Calculate the unit cost of goods sold using variable costing.
   b. Prepare the income statement for March using variable costing.

3. a. Calculate the unit cost of goods sold using absorption costing.
   b. Prepare the income statement for March using absorption costing.

4. a. Identify and describe two advantages of using variable costing.
   b. Identify and describe 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 1.12 - TruJeans

TruJeans, a new startup company, plans to produce blue jean pants, customized with the buyer's first name stitched across the back pocket. The product will be marketed exclusively via an internet website. For the coming year, sales have been projected at three different levels: optimistic, neutral, and pessimistic. TruJeans does keep inventory on hand, but prefers to minimize this investment.

The controller is preparing to assemble the budget for the coming year, and is unsure about a number of issues, including the following.

- The level of sales to enter into the budget.
- How to allocate the significant fixed costs to individual units.
- Whether to use job order costing or process costing.

In addition, the controller has heard of kaizen budgeting and is wondering if such an approach could be used by TruJeans.

REQUIRED:

1. How can the controller use the expected value approach to set the sales level for the budget? What additional information would be needed?

2. How could the use of variable (direct) costing mitigate the problem of how to allocate the fixed costs to individual units?

3. Which cost system seems to make more sense for TruJeans, job order costing or process costing? Explain your answer.

<u>Question 1.13 – Sonimad Sawmill</u>

Sonimad Sawmill Inc. (SSI) purchases logs from independent timber contractors and processes the logs into the following three types of lumber products.

- Studs for residential building (e.g., walls, ceilings).
- Decorative pieces (e.g., fireplace mantels, beams for cathedral ceilings).
- Posts used as support braces (e.g., mine support braces, braces for exterior fences around ranch properties).

These products are the result of a joint sawmill process that involves removal of bark from the logs, cutting the logs into a workable size (ranging from 8 to 16 feet in length), and then cutting the individual products from the logs, depending upon the type of wood (pine, oak, walnut, or maple) and the size (diameter) of the log. The joint process results in the following costs and output of products for a typical month.

Joint production costs:

Materials (rough timber logs)	$ 500,000
Debarking (labor and overhead)	50,000
Sizing (labor and overhead)	200,000
Product cutting (labor and overhead)	250,000
Total joint costs	$1,000,000

Product yield and average sales value on a per unit basis from the joint process are as follows.

Product	Monthly Output	Fully Processed Sales Price
Studs	75,000	$ 8
Decorative pieces	5,000	100
Posts	20,000	20

The studs are sold as rough-cut lumber after emerging from the sawmill operation without further processing by SSI. Also, the posts require no further processing. The decorative pieces must be planed and further sized after emerging from the SSI sawmill. This additional processing costs SSI $100,000 per month and normally results in a loss of 10% of the units entering the process. Without this planning and sizing process, there is still an active intermediate market for the unfinished decorative pieces where the sales price averages $60 per unit.

REQUIRED:

1. Based on the information given for Sonimad Sawmill Inc., allocate the joint processing costs of $1,000,000 to each of the three product lines using the
   a. relative sales value method at split-off.
   b. physical output (volume) method at split-off.
   c. estimated net realizable value method.

2. Prepare an analysis for Sonimad Sawmill Inc. to compare processing the decorative pieces further as they presently do, with selling the rough-cut product immediately at split-off and recommend which action the company should take. Be sure to provide all calculations.

Question 1.14 – 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 the following performance measures for the year just ended for the Presser Division of Lawton Industries.
   a. Return on average investment in operating assets employed (ROI).
   b. Residual income calculated on the basis of average operating assets employed.

2. 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.

3. 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 1.15 – Standard Lock

Ted Crosby owns Standard Lock Inc., a small business that manufactures metal door handles and door locks. When he first started the company, Crosby managed the business by himself, overseeing purchasing and production, as well as maintaining the financial records. The only employees he hired were production workers.

As the business expanded, Crosby decided to hire John Smith as the company's financial manager. Smith had an MBA and ten years of experience in the finance department of a large company. During the interview, Smith mentioned that he was considering an offer from another company and needed to know of Crosby's decision within the next couple of days. Since Crosby was extremely impressed with Smith's credentials, he offered him the job without conducting background checks. Smith seemed to be a dedicated and hard-working employee. His apparent integrity quickly earned him a reputation as an outstanding and trusted manager.

Later in the year, Crosby hired another manager, Joe Fletcher, to oversee the production department. Crosby continued to take care of purchasing and authorized all payments. Fletcher was highly qualified for the position and seemed to be reliable and conscientious. After observing Fletcher's work for one year, Crosby concluded that he was performing his duties efficiently. Crosby believed that Fletcher and Smith were both good managers whom he could trust and gave them expanded responsibilities. Fletcher's additional responsibilities included purchasing and receiving; Smith paid all the bills, prepared and signed all checks, maintained records, and reconciled the bank statements.

Soon Crosby began taking a hands-off approach to managing his business. He frequently took long vacations with his family and was not often at the office to check on the business. He was pleased that the company was profitable and expected that it would continue to be profitable in the future under the supervision of two qualified and trusted managers. One year after Crosby left the management of the company to Smith and Fletcher, business began to experience a decline in profits. Crosby assumed that it was due to a cyclical downturn in the economy. When Standard continued to decline even as the economy improved, Crosby began to investigate. He noticed that revenues were increasing but profits were declining. He also discovered that purchases from one vendor had increased significantly as compared to the other five vendors. Crosby is concerned that fraud may be occurring in the company.

REQUIRED:

1. Identify and describe four internal control deficiencies within Standard Lock Inc.

2. For each of the internal control deficiencies identified, recommend an improvement in procedures that would mitigate these deficiencies.

3. If the company were to implement an ideal internal control system, can it guarantee that fraud would not occur in future? Explain your answer.

Question 1.16 – 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 1.17 – Giga

Giga Industries is a large publicly-held manufacturer of telecommunications equipment. The firm developed the following forecast for the upcoming year.

Balance Sheet (thousands of dollars)

Current assets		$100,000
Fixed assets	750,000	
Accumulated depreciation	200,000	
Net fixed assets		550,000
TOTAL ASSETS		$650,000
Current liabilities		$50,000
Long-term debt		150,000
Shareholders' equity		
Preferred stock	50,000	
Common – par of $2	100,000	
Common – premium	200,000	
Retained earnings	100,000	
		450,000
TOTAL LIABILITIES & EQUITY		$650,000

Income Statement (thousands of dollars)

Revenue	$2,000,000
Depreciation expense	50,000
Other expenses	1,775,000
Earnings before interest & taxes	175,000
Interest expense	15,000
Taxes (40% effective rate)	64,000
Net income	96,000
Preferred stock dividends	5,000
Earnings for common stock	$ 91,000

The Product Development Team has developed a new line of state-of-the-art switching devices and is proposing a major capital investment of $200 million for a new division of the firm that will manufacture and sell the new line. An extensive financial analysis was prepared using estimates for each year of the estimated 10-year product life and presented to the Board of Directors indicating that the project would result in a positive net present value (NPV) of $60 million and an internal rate of return (IRR) of 25%. A board member commented that the project looked very promising but expressed concern about the impact on earnings. The Controller was asked to develop a revised forecast for the coming year assuming the project was approved.

REQUIRED:

1. You are preparing the revised forecast for the Controller. For each of the following assumptions show the Balance Sheet and/or Income Statement account that would be affected, the amount of the change and if the change increases or decreases the account. Assume no floatation costs on all financing.

   a. The $200 million investment in fixed assets will be made on January 1 and will be depreciated on a 10-year straight-line basis for financial statement and income tax purposes.

   b. On January 1, $75 million of 10-year bonds will be issued at par with annual interest of 10% payable December 31 with principle to be repaid at maturity.

   c. On January 1, $25 million of Preferred Stock will be issued with an annual dividend rate of 14% payable December 31.

   d. On January 1, 4 million new shares of common stock will be issued to net the firm $25 per share. Common stock dividends are expected to be $0.50 payable December 31, as in the original forecast.

   e. During the initial year of operation, the new product is expected to produce cash revenue of $60 million and have cash expenses (other than depreciation) of $30 million.

2. Assume the tax rate is expected to remain at 40% and taxes are paid on December 31, calculate the change in net income resulting from the transactions in question A.

Question 1.18 – Borealis Industries

Borealis Industries has three operating divisions – Sandstone Books, Corus Games, and Sterling Extraction Services. Each division maintains its own accounting system and method of revenue recognition.

Sandstone Books

Sandstone Books sells novels to regional distributors who then sell to independent bookstores and retail chains in their territory. The distributors are allowed to return up to 25% of their purchases to Sandstone, and the distributors have the same return allowance with the bookstores. The returns from distributors have averaged 20% over the past five years. During the fiscal year just ended, Sandstone's sales to distributors totaled $15,000,000. At year end, $6,800,000 of sales are still subject to return privileges over the next six months. The balance of the book sales, $8,200,000, had actual returns of 19%. Sales from the previous fiscal year totaling $5,500,000 were collected in the current fiscal year, with 21% of sales returned. Sandstone records revenue in accordance with the method referred to as revenue recognition when the right of return exists as the company's operations meet all the applicable criteria for use of this method.

Corus Games

Corus Games supplies video arcades with new games and updated versions of standard games. The company works through a network of sales agents in various cities. Orders are received from the sales agents along with down payments; Corus then ships the product directly to the customer, f.o.b. shipping point. The customer is billed for the balance due plus the actual shipping costs. During the fiscal year just ended, Corus received orders for $12,000,000 from the sales agents along with $1,200,000 in down payments. Customers were billed $150,000 in freight costs and $9,180,000 for goods shipped. After an order has been shipped, the sales agent receives a 12% commission on the product price. The goods are warranted for 90 days after sales, and warranty returns have been about 3% of sales. Corus recognizes revenue at the point of sale.

Sterling Extraction Services

Sterling specializes in the extraction of precious metals. During the fiscal year just ended, Sterling entered into contracts worth $36,000,000 and shipped metals worth $32,400,000. One quarter of the shipments was made from inventories on hand at the beginning of the year, and the remaining shipments were made from metals that were mined during the year. Sterling uses the completion-of-production method to recognize revenue, because the operations meet the specified criteria, i.e., reasonably assured sales prices, interchangeable units, and insignificant distribution costs.

REQUIRED:

1. Define the two conditions that must be present for proper revenue recognition, according to the revenue recognition principle.

2. Define and describe each of the following revenue recognition methods.
   a. Percentage-of-completion method.
   b. Installment-sales method.

3. Calculate the revenue to be recognized at the end of the fiscal year for
    a. Sandstone Books.
    b. Corus Games.
    c. Sterling Extraction Services.

Question 1.19 – 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. a. Calculate the flexible-budget variance by comparing actual results to the flexible budget.
   b. Explain the significance of these variances.

3. a. Identify and describe three benefits of measuring performance by comparing actual results to the master budget.
   b. Identify and describe one limitation of measuring performance by comparing actual results to the master budget.

4. a. Identify and describe the different types of responsibility centers.
   b. 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 1.20 – 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.
   a. Calculate Center C's per unit cost with no change in production.
   b. If Center B reduces the number of units produced to 5,000, will Center C's cost increase or decrease and by how much?

4. The center managers are concerned that being charged for unused capacity will impact their bonus.
   a. Explain how company management could alleviate the concerns.
   b. Identify three additional measures that could be used to evaluate manager performance.

Question 1.21 - 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. a. Define transfer pricing.
   b. Identify the objectives of transfer pricing.

2. a. Identify the methods for determining transfer prices.
   b. Explain the advantages and disadvantages of each method.
   c. Based on the scenario, which method should this company select? Explain your answer.

3. How could tariffs, customs duties, or taxes affect transfer pricing and related performance evaluation in this multinational company?

4. Identify and explain the four different types of responsibility centers.

Question 1.22 - 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. a. Calculate the unit cost to be used in valuation of the ending inventory under absorption costing. Show your calculations.
   b. Calculate the unit cost to be used in valuation of the ending inventory under variable costing. Show your calculations.

3. a. Calculate operating income using absorption costing. Show your calculations.
   b. Calculate operating income using variable costing. Show your calculations.

4. Explain why operating income calculated under absorption costing differs from operating income calculated under variable costing.

5. a. Explain why absorption costing is required under U.S. GAAP.
   b. Explain why variable costing is more appropriate for management decision-making.

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. a. Budgetary slack is the practice of underestimating budgeted revenues, or overestimating budgeted costs, to make budgeted targets more easily achievable.
   b. 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. a. 1. 1,740 x (25.00 – [44,805/1,740]) = 1,305U
   2. 25.00 x (1,740 – [4 x 500]) = 6,500F
   b. 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
   5,700 * 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. a.

Materials	$400,000
Direct labor	100,000
Variable manufacturing overhead	20,000
Fixed manufacturing overhead	200,000
	$720,000/100,000 = $7.20

b. 10,000 beginning inventory + 100,000 manufactured – 106,000 sold = 4,000 units in ending inventory; 4,000 x $7.20 = $28,800.

c.

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. a.

Materials	$400,000
Direct labor	100,000
Variable manufacturing overhead	20,000
	$520,000/100,000 = $5.20

b. 4,000 units x $5.20 = $20,800

c.

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. a. The advantages of using absorption costing are:
   It is required for external reporting.
   It matches all manufacturing costs with revenues.

b. 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. a. 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

b. Best: top-down, cost of products most important, want to focus on control

c. 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 use 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.

Answer: Question 1.5 – Ace Contractors

1. a. Four types of functional responsibilities that should be performed by different people
   - Authority to execute transactions
   - Recording transactions
   - Custody of assets and
   - Periodic reconciliations

   b. Zhao could execute transactions by initiating a transfer and could record transactions by entering the Joint Venture that was erroneous.

2. Attempted controls
   - The company had physical controls over their checks
   - The president authorized and signed all checks
   - The company maintained pre-numbered check stock.
   - The company had a prepared budget to compare to actuals to identify variances

   Ways to strengthen
   - Restrict fund on-line transfer ability.
   - Randomly select audit expense transactions on a periodic basis
   - Separate the incompatible duties

3. a. Three internal control objectives
   - Effectiveness and efficiency of operations - operations should be as efficient as possible
   - Compliance with applicable laws and regulations - care should be taken to follow and be in compliance with all applicable laws and regulations
   - Reliability of Financial reporting – financial data should be reliable and timely so that it can be useful for management decisions or outside users.

   b. Identify and describe five components of internal control.

   Control Environment – sets the tone of an organization, influencing the control consciousness of its people.
   Risk Assessment – identify and analyze relevant risks as a basis for management
   Control Activities – the policies and procedures that help ensure that management directives are carried out.
   Information and Communication
   Information – systems support the identification, capture, and exchange of information in a form and time frame that enable people to carry out their responsibilities.
   Communication - providing an understanding to employees about their roles and responsibilities.
   Monitoring – assesses the quality of internal control performance over time.

4. Describe three ways internal controls are designed to provide reasonable assurance.
   - Segregation of duties – assigning different employees to perform functions
   - Reconciliation of recorded accountability with assets
   - Safeguarding controls – limit access to an organization’s assets to authorized personnel.

Answers: Question 1.6 – 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 1.7 – Michael Hanson

1. a. The objective of a compliance audit is to see how financial controls, operating controls conform with established laws, standards, and procedures.
   b. The objective of an operational audit is to appraise the efficiency and economy of operations, and the effectiveness with which those functions achieve their objectives.

2. a. Transaction processing controls include: passwords to limit access to input or change data, segregation of duties to safeguard assets, 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, 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 recover plan, testing of backup communications and resources

3. 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

4. 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 1.8 - Brawn Technology, Inc.

1. The two fundamental types of internal audits are operational audits and compliance audits.

   An operational audit is a comprehensive review of the varied functions within an enterprise to appraise the efficiency and economy of operations and the effectiveness with which those functions achieve their objective. An example would be an audit to assess productivity. Other examples could include an evaluation of processes to reduce rework, or reduce the time required to process paperwork or goods.

   A compliance audit is the review of both financial and operating controls to see how they conform to established laws, standards, regulations, and procedures. An environmental audit would be an example of a compliance audit. Other examples of compliance audits could include the review of controls over industrial wastes or the review of procedures ensuring that proper disclosure is made regarding hazardous materials on site.

2. a. A compliance audit would best fit the requirements of the president of Brawn.

   b. The objective of this compliance audit is to assure the president that the manufacturing facility has appropriate policies and procedures in place for obtaining the needed permits, has obtained all the required permits in accordance with the law, and that environmental and safety issues are being properly addressed.

   c. The assignment specifically is to address the proper use of permits, compliance with safety regulations, and compliance with environmental standards. These issues can only be properly addressed by conducting a compliance audit. Although financial and operational areas might be involved, they would be secondary to the compliance issues. For example, a financial impact could result from the evaluation of compliance with safety regulations. The findings might result in additional expenditures for safety precautions or a reduction in the company's risk of being fined for lack of compliance.

3. To mitigate the president's concern, the following activities and procedures could be implemented.

   - Set the tone at the top. The president should communicate to all employees that the company expects appropriate business practices on the part of all employees in all divisions.

   - Ensure that all employees have the necessary information to perform their duties. Keep the lines of communication open. For example, involve senior mangers from the manufacturing facility in monthly operational meetings for the whole company.

   - Conduct regularly scheduled audits of compliance with applicable laws, regulations, and standards.

   - Periodically review and update policies, rules, and procedures to ensure that internal controls prevent or help to detect material risks. Make sure all employees have access to the relevant policies and procedures. For example, post the policies and procedures on the company's intranet.

Answer: Question 1.9 – 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:

   a. 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.

b. 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.

c. 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 1.10 - 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 1.11 – 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. a. Direct materials \$15 + Direct labor \$6 + Variable manufacturing overhead \$4 = Unit Cost of Goods sold \$25.

   b.

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. a. 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.

   b.

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. a. 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.

b. 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 1.12 - TruJeans

1. The sales staff has not presented the controller with a unique expected level of sales, but rather sales numbers under various scenarios. The controller could use the expected sales in the budget, which is the summation of the anticipated sales under each scenario times the probability of that scenario. The controller would need to estimate the probability of each scenario in order to complete the task.

2. Under direct costing, fixed manufacturing costs are expensed rather than being added to the inventorial cost of each unit. Thus, it is not necessary to determine the allocation of fixed costs to individual units.

3. At first glance, job order costing appears to make more sense, as each pair of jeans is literally unique, given that the buyer's name is stitched on the back pocket. However, in reality, process costing should be used, because jeans will be produced continually, and for cost purposes, will be same for each pair.

Answer: Question 1.13 – Sonimad Sawmill

1. a. Relative sales value method at split-off

Product	Monthly Output	Sales Price	Split-off Value	% of Sales	Allocated Costs
Studs	75,000	$ 8	$ 600,000	46.15%	$ 461,539
Decorative pieces	5,000	60	300,000	23.08%	230,769
Posts	20,000	20	400,000	30.77%	307,692
Totals			$1,300,000	100.00%	$1,000,000

b. Physical output (volume) method at split-off

Product	Monthly Output	% of Output	Allocated Costs
Studs	75,000	75.00%	$ 750,000
Decorative pieces	5,000	5.00%	50,000
Posts	20,000	20.00%	200.000
Totals	100,000	100.00%	$1,000,000

c. Estimated net realizable value method

Product	Monthly Output	Sales Price	Net Value	% of Net Value	Allocated Costs
Studs	75,000	$ 8	$ 600,000	44.44%	$ 444,445
Decorative pieces	4,500[1]	100	350,000[2]	25.93%	259,259
Posts	20,000	20	400,000	29.63%	296,296
Totals			$1,350,000	100.00%	$1,000,000

Notes:
(1) 5,000 monthly units of output – 10% normal spoilage = 4,500 good units
(2) 4,500 good units x $100 = $450,000 – further processing costs of $100,000 = $350,000

2. Presented below is an analysis for Sonimad Sawmill comparing the processing of decorative pieces further versus selling the rough-cut product immediately at split-off.. Based on this analysis, it is recommended that Sonimad further process the decorative pieces as this action results in an additional contribution of $50,000.

	Units	Dollars
Monthly unit output	5,000	
Less normal further processing shrinkage	500	
Units available for sale	4,500	
Final sales value (4,500 units @$100 each)		$450,000
Less sales value at split-off		300,000
Differential revenue		150,000
Less further processing costs		100,000
Additional contribution from further processing		$ 50,000

Answer: Question 1.14 - Lawton Industries

1. a. 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%

b. 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

2. 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.

3. 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 1.15 Standard Lock

1. 1) Crosby, the owner is taking a hands-off approach. He is hardly around to check on the business; 2) the two managers Smith and Fletcher have too much control without any independent checks on them; 3) hiring policies to hire the right kind of employees are lacking; Crosby does not screen the job applicants; he did not check any background references for Smith and Fletcher; 4) proper internal controls such as segregation of duties, authorizations, independent checks are not in place. Fletcher places purchase orders, and also receives materials. Crosby is in charge of collecting the payments, maintaining records, reconciling the bank accounts, preparing and signing checks, and approving payments. Lack of basic internal controls seems to have opened the door for employees to commit fraud.

2. Proper internal controls must be in place so that opportunities to commit, and/or conceal fraud are eliminated. In this case, the internal controls needed are: 1) segregation of duties; 2) system of authorizations; 3) independent checks; and 4) proper documentation. No one department or individual should handle all aspects of a transaction from beginning to end. No one person should perform more than one functions recording transactions, and reconciling bank accounts (as done by Crosby in this case). In a similar manner, Fletcher should not authorize purchases, receive inventory and issue materials for production. The company should also separate the duties of preparing and signing checks, especially because the same person has the authority to approve payment.

   There is a failure to enforce authorization controls. Crosby should authorize purchases and approve payments. He might consider hiring another person so that the two tasks, record keeping and bank reconciliation can be separated.

   In addition to that, the company must have better hiring policies in place, they may require vacations, conduct internal audits and have good oversight of employees.

   Require vacations, conduct internal audits, owner/board oversight.

3. Even the best internal controls do not guarantee that fraud will be eliminated. These controls provide reasonable, not absolute, assurance against fraud. Internal controls are not fraud-proof, internal controls never provide absolute insurance that fraud will be prevented. Effectiveness depends on competency and dependability of people enforcing the controls.

Answer: Question 1.16 – 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 1.17 – Giga

1. a. $200 million depreciated over 10 years, straight line = $20 million annual depreciation. Increases depreciation expense by $20 million. The purchase will decrease Cash and increase Gross Fixed Assets by $200 million. The depreciation expense will increase Accumulated Depreciation, and decrease Net Fixed Assets by $20 million.

   b. Long term debt increases by $75 million. Cash, which is part of Current Assets, will also increase by $75 million. The annual interest expense is $75 million x 10% = $7.5 million.

   c. Increases Preferred Stock, part of Equity, by $25 million. Cash, part of Current Assets, will increase by $25 million. The preferred dividend will increase by $25 million x 14% = $3.5 million.

   d. Common stock, part of Equity, will increase by $2 par x 4 million = $8 million. Common stock premium, part of Equity, will increase by $23 x 4 million = $92 million. Cash, part of Current Assets, will increase by $25 x 4 million = $100 million.

   e. Revenues increase by $60 million, operating expenses increase by $30 million, Cash increases by $30 million.

2. The revised forecast is as follows.

Balance Sheet (Thousands of dollars)

	Original	Changes	Revised
Current Assets	100,000	16,000	116,000
Fixed Assets	750,000	200,000	950,000
Accumulated Depreciation	200,000	20,000	220,000
Net Fixed Assets	550,000	180,000	730,000
TOTAL ASSETS	650,000	196,000	846,000
Current Liabilities	50,000	0	50,000
Long-Term Debt	150,000	75,000	225,000
Stockholders' Equity			
Preferred Stock	50,000	25,000	75,000
Common - Par	100,000	8,000	108,000
Common Premium	200,000	92,000	292,000
Retained Earnings	100,000	(4,000)	96,000
	450,000	121,000	571,000
TOTAL LIABILITIES & EQUITY	650,000	196,000	846,000

Income Statement (thousands of dollars)

	Original	Changes	Revised
Revenue	2,000,000	60,000	2,060,000
Depreciation Expense	50,000	20,000	70,000
Other Expenses	1,775,000	30,000	1,805,000
Earnings Before Interest & Taxes	175,000	10,000	185,000
Interest	15,000	7,500	22,500
Taxes (40% effective rate)	64,000	1,000	65,000
Net Income	96,000	1,500	97,500
Preferred Stock Dividends	5,000	3,500	8,500
Earnings for Common Stock	91,000	(2,000)	89,000

Answer: Question 1.18 - Borealis Industries

1. According to the revenue recognition principle in SFAC No. 5, revenue should be recognized (1) when it is realized or realizable and (2) when it is earned.

   Realized: when goods or services are exchanged for cash or claims to cash.

   Realizable: when assets received for goods or services are readily convertible to known amounts of cash or claims to cash.

   Earned: when the seller has substantially completed what it must do to be entitled to the benefits represented by the revenues.

2.
   a. Percentage-of-completion method: Recognizes revenues, costs, and gross profit as a company makes progress toward completion of a long-term contract. Deferring recognition until the completion of the contract would misrepresent the efforts and accomplishments of the accounting periods during the contract. Generally, progress is measured on a cost-to-cost basis where a company measures the percentage of completion by comparing costs incurred to date with the most recent estimate of the total costs required to complete the contract. To use this method, the following conditions should exist: (1) a firm contract price with a high probability of collection, (2) a reasonably accurate estimate of costs, and (3) a way to reasonably estimate the extent of progress to completion of the project.

   b. Installment-sales method: Recognizes income in the period of collection rather than in the period of sale. The underlying rationale of this method is that when there is no reasonable approach for estimating the degree of collectability of the sales price, companies should not recognize income until cash is received. Using the installment-sales method, both revenue and costs are recognized in the period of sale but the gross profit related to those periods is deferred until cash is collected.

3. a.

Sandstone Books:	Sales	$15,000,000
	Less returns @20%*	3,000,000
	Recognized revenue	$12,000,000

*Although up to 25% of sales can be returned, prior experience indicates that 20% of sales is the expected average amount of returns. The 19% returns on the initial portion of current sales confirms that 20% of sales will provide a reasonable estimate.

b.

Corus Games:

Sales invoiced		$ 9,180,000
Total sales to be invoiced		$10,800,000*
= Completion rate		85%
Total down payments		$1,200,000
x Completion rate		.85
Down payments recognized		$1,020,000
Sales invoiced		$ 9,180,000
Down payments		1,020,000
Recognized revenue	$10,200,000	

*Orders less down payments ($12,000,000 - $1,200,000)

Warranty expense does not generally reduce the revenue recognized, particularly when there is experience on which to estimate the expense. The warranty expense should be accrued at the time of sale. Similarly, commissions are part of the cost of sales and should be expensed at the time of sale.

c.

Sterling Extraction Services:

Percentage-of-completion cost to cost method

Current year costs to date	$18,000,000
Estimated costs to complete	$12,000,000
Estimated total costs	$30,000,000
Percentage complete ($18,000,000/$30,000,000)	60%
Contract Price	$36,000,000
Revenue to date $36,000,000@.60	$21,600,000
Less: Prior year revenue	$14,400,000
Current year revenue	$7,200,000
Less Current year expenses	$8,000,000
Net Profit (Loss) for current year	($800,000)

Answer: Question 1.19 - Bellaton

1\. Flexible Budget

	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\. a.

	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)

b. Revenues: unit price < €85
Direct Material: unit purchase price > €42
Direct Labor: labor rate < €15
Fixed costs: actual fixed costs lower than expected

3\. a. Budgets promote coordination and communication among subunits within the company. They provide a framework for judging performance and they motivate managers and other employees.

b. Budgets can be time consuming, require everyone's participation, and require adaptability to changing circumstances.

4. a. 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

   b. 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 1.20- 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. A 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

   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

4. a. 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.

   b. 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 1.21 - Edge

1. a. Transfer pricing is the price one subunit department or division charges for a product or service supplied to another subunit of the same organization.

   b. 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. a. 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.

   b. 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.

c. This company should use market based 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.

3. 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.

4. 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 1.22 - 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. a. 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

   b. 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

3. a. 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

   b. 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

4. 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.

5. a. 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.

   b. 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.