

### Cost and Management Accounting

**Multiple Choices (30 points in total, 3 points per question)** Choose the one alternative that best completes the statement or answers the question.

1. Consider the following statements about the step-down method of service department cost allocation:

- I. Under the step-down method, all service department costs are eventually allocated to production departments.
- II. The order in which service department costs are allocated is important.
- III. Once a service department's costs have been allocated, no costs are re-circulated back to that department.

Which of the above statements is (are) correct?

- A. I.
- B. II.
- C. I and II.
- D. I and III.
- E. I, II, and III.

2. Laissez Faire, has two divisions: the Cologne Division and the Bottle Division. The Bottle Division produces containers that can be used by the Cologne Division. The Bottle Division's variable manufacturing cost is \$2, shipping cost is \$0.10, and the external sales price is \$3. No shipping costs are incurred on sales to the Cologne Division, and the Cologne Division can purchase similar containers in the external market for \$2.60.

Assume the Bottle Division has no excess capacity and could sell everything it produced externally. Using the general economic rule, the transfer price from the Bottle Division to the Cologne Division would be:

- A. \$2.00.
- B. \$2.10.
- C. \$2.60.
- D. \$2.90.
- E. \$3.00.

3. The Bandage Medical Supply Company has two divisions that operate independently of one another. The financial data for the year 2007 reported the following results:

	<u>North</u>	<u>South</u>
Sales	\$ 3,000,000	\$ 2,500,000
Operating income	750,000	550,000
Taxable income	650,000	375,000
Investment	6,000,000	5,000,000

The company's desired rate of return is 10%. Income is defined as operating income.

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Which division has the best return on investment and which division has the best residual income figure, respectively?

- A. South, South
- B. North, North
- C. South, North
- D. North, South
- E. Not Comparable

4. The costs that follow appeared on New Hampshire's quality cost report:

Warranty costs	\$12,000
Raw-materials inspection	7,000
Quality training	28,000
Customer complaints	2,500
Production stoppages from machine breakdowns	9,800

The sum of New Hampshire's prevention and external failure costs is:

- A. \$28,000.
- B. \$35,000.
- C. \$40,000.
- D. \$42,500.
- E. some other amount.

5. Zorro Company manufactures remote control devices for garage doors. The following information was collected during June:

Actual market size (units)	10,000
Actual market share	32%
Actual average selling price	\$10.00
Budgeted market size (units)	11,000
Budgeted market share	30%
Budgeted average selling price	\$11.00
Budgeted contribution margin per composite unit for budgeted mix	5%

What is the market-size variance?

- A. \$1,600 Favorable
- B. \$1,000 Favorable
- C. \$1,500 Unfavorable
- D. \$1,000 Unfavorable
- E. \$500 Unfavorable

6. The following budget information is available for the XYZ Company for the first quarter of 2007:

Sales	\$320,000
Freight out	\$0.25 per unit sold
Depreciation on Admin. Equipment	\$10,000
Sales & Admin. Salaries	\$40,000 +2% of sales
Advertising	\$12,000
Depreciation on Manufacturing Equip.	\$15,000
Lease on Sales Building	\$45,000
Miscellaneous Selling Expenses	\$5,000

All operating expenses are paid in cash in the month incurred. If XYZ expects to sell 20,000 inventory units in the first quarter, the total budgeted selling and administrative expenses would be what amount for the first quarter of 2007?

- A. \$123,400
- B. \$138,400
- C. \$113,400
- D. \$293,400
- E. An amount other than those above.

7. NickJr Company produced and sold 45,000 units of a single product last year, with the following results:

Sales revenue	\$1,350,000
Manufacturing costs:	
Variable	585,000
Fixed	270,000
Selling costs:	
Variable	40,500
Fixed	54,000
Administrative costs:	
Variable	184,500
Fixed	108,000

If NickJr's sales revenues increase 15%, what will be the percentage increase in income before income taxes?

- A. 15%.
  - B. 45%.
  - C. 60%.
  - D. 75%.
  - E. An amount other than those above.
8. Deluxe, Inc., which manufactures various lines of computer equipment, is planning to introduce a new line of laptops. Current plans call for the production and sale of 1,000 units, with estimated production costs as follows:

Variable costs:		
Manufacturing	\$450,000	
Selling and administrative	<u>100,000</u>	
Total variable costs		\$ 550,000
Fixed costs:		
Manufacturing	\$300,000	
Selling and administrative	<u>180,000</u>	
Total fixed costs		<u>480,000</u>
Total costs		<u>\$1,030,000</u>

The average amount of capital invested in the laptop product line is \$900,000 and Deluxe's target return on investment is 18%. If Deluxe uses cost-plus pricing based on total cost, the markup percentage the company must use would be:

- A. 21.64%.
- B. 15.72%.
- C. 58.93%.
- D. 29.56%.
- E. some other amount.

9. Elmo Company had 3,000 units in finished-goods inventory on December 31. The following data are available for the upcoming year:

	<u>January</u>	<u>February</u>
Units to be produced	9,400	10,200
Desired ending finished-goods inventory	2,500	2,100

The number of units the company expects to sell in January is:

- A. 6,900.
- B. 8,900.
- C. 9,400.
- D. 9,900.
- E. 11,900.

10. Dora Corporation, which uses least-squares regression analysis, has derived the following regression equation for estimates of manufacturing overhead:  $Y = 495,000 + 5.65X$ . Which of the following statements is true if the primary cost driver is machine hours?

- A. Total manufacturing overhead is represented by the variable "X."
- B. The company anticipates \$495,000 of fixed manufacturing overhead.
- C. "X" is commonly known as the dependent variable.
- D. "X" represents the number of machine hours.
- E. Both "B" and "D" are true.

**Essay I. (20 points)** Green Chemicals uses a joint process to produce VX-4, a chemical used in the manufacture of paints and varnishes; HD-10, a chemical used in household cleaning products; and FT-5, a by-product that is sold to fertilizer manufacturers. Joint production costs are allocated to the main products on the basis of net realizable value. The by-product is inventoried at its net realizable value, and this value is used to reduce the joint production cost before allocation to the main products.

During the month of November, Green incurred joint production costs of \$1,568,000. Data regarding Green's November operations are as follows:

	<u>VX-4</u>	<u>HD-10</u>	<u>FT-5</u>
November production in gallons	600,000	320,000	85,000
Sales value per gallon at split-off	None	\$3.00	\$90*
Separable processing cost	\$720,000	\$920,000	None
Final sales value per gallon	\$4.00	\$6.375	None
Finished-goods inventory in gallons on			
Nov. 30 (all produced during November)	9,000	26,000	1,500

\*Disposal costs of \$.10 per gallon will be incurred in order to sell the by-product.

**Required:**

1. Determine the dollar values of Green Chemicals' finished-goods inventories on November 30 for VX-4 and HD-10.
2. Green Chemicals has an opportunity to sell HD-10 for its sales value at the split-off point. Determine if Green should sell HD-10 at the split-off point or continue to process it further.

**Essay II. (30 points)** The Winchester Company currently makes as many units of Part No. 789 as it needs. Joseph Lin, general manager of the Winchester Company, has received a bid from the Greg Company for supplying Part No. 789. Current plans call for Greg to supply 1,000 units of Part No. 789 per year at \$50 a unit. Greg can begin supplying on January 1, 2006, and continue for five years, after which time Winchester will not need the part. Greg can accommodate any change in Winchester's demand for the part and will supply it for \$50 a unit, regardless of quantity.

James Tyson, controller of the Winchester Company, reports the following costs for manufacturing 1,000 units of Part No. 789:

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Direct materials	\$22,000
Direct manufacturing labor	11,000
Variable manufacturing overhead	7,000
Depreciation on machine	10,000
Product and process engineering	4,000
Rent	2,000
Allocation of general plant overhead costs	<u>5,000</u>
Total costs	<u>\$61,000</u>

The following additional information is available:

- Part No. 789 is made on a machine used exclusively for the manufacture of Part No. 789. The machine was acquired on January 1, 2005, at a cost of \$60,000. The machine has a useful life of six years and no terminal disposal value. Depreciation is calculated on the straight-line method.
- The machine could be sold on January 1, 2006, for \$15,000.
- Variable manufacturing overhead is allocated based on the units of production.
- Product and process engineering costs are incurred to ensure that the manufacturing process for Part No. 789 works smoothly. Although these costs are fixed in the short run with respect to units of Part No. 789 produced, they can be saved in the long run if this part is no longer produced. If Part No. 789 is outsourced, product and process engineering costs of \$4,000 will be incurred for 2006 but not thereafter.
- Rent costs of \$2,000 are allocated to products on the basis of the floor space used for manufacturing the product. If Part No. 789 is discontinued, the space currently used to manufacture it would become available. The company could then use the space for storage and save \$1,000 currently paid for outside storage.
- General plant overhead costs are allocated to each department on the basis of direct manufacturing labor dollars. These costs will not change in total, but no general plant overhead will be allocated to Part No. 789 if the part is outsourced.

Assume all cash flows other than disposal of machine occur at the end of each year. Ignore income taxes. Winchester has a 12% required rate of return for this project.

**Required:**

- Use the net present value method to determine whether Joseph Lin should outsource Part No. 789.
- Provide sensitivity analysis if Winchester's demand for Part No. 789 decreased to 900 units in years 2007 through 2010.
- Lin is particularly concerned about his bonus for 2006. The bonus is based on Winchester's accounting income. What decision will Lin make if he wants to maximize his bonus in 2006?

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**Essay III. (20 points)** Brocade Company manufactures 1,000 industrial and 8,000 consumer products. The following unit data is provided:

	<u>Industrial</u>	<u>Consumer</u>
Selling price	\$720.00	\$360.00
Direct material	(250.00)	(125.00)
Direct labor	(200.00)	(100.00)

Currently, the company uses a traditional costing system to assign overhead cost. You are worried that the current cost accounting system may be providing inaccurate results and would like to implement an ABC system. All overhead costs are traceable to the following four activities for the current year, as provided below:

<u>Activity</u>	<u>Cost Driver</u>	<u>Overhead</u>	<u>Budgeted</u>		<u>Actual</u>	
		<u>Costs</u>	<u>Cost Driver Data</u>		<u>Cost Driver Data</u>	
			<u>Industrial</u>	<u>Consumer</u>	<u>Industrial</u>	<u>Consumer</u>
Material handling	No. of purchase Orders	\$ 30,000	100	500	150	450
Setup	No. of setups	??*	500	250	550	200
Assembly	No. of machine hours	112,500	7,000	3,000	6,000	4,000
Maintenance	No. of maintenance Requests	73,500	440	295	440	295

\*The information about setup cost is somehow missing.

Under the ABC system, the industrial product has gross profit \$46.25 per unit.

**Required:** Calculate the gross profit per unit for consumer product under activity-based costing.  
(Round your answer to the nearest a hundredth)

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