

考試科目	成本與管理會計學	系所別	會計學系／會計組	考試時間	2月2日(五)第三節
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一、 Multiple Choice (10%)

1. Activity-based-costing analysis makes no distinction between:

- A) direct-materials inventory and work-in-process inventory
- B) short-run variable costs and short-run fixed costs
- C) parts of the supply chain
- D) components of the value chain

2. Activity-based budgeting includes all the following steps EXCEPT:

- A) determining demands for activities from sales and production targets
- B) computing the cost of performing activities
- C) determining a separate cost-driver rate for each department
- D) describing the budget as costs of activities rather than costs of functions

3. Budgeted fixed manufacturing costs of a product using practical capacity:

- A) represents the cost per unit of supplying capacity
- B) can result in setting selling prices that are not competitive
- C) includes the cost of unused capacity
- D) should be used to evaluate a marketing manager's performance in the current year

4. Happy Company makes internal transfers at 180% of full cost. The Soda Refining Division purchases 30,000 containers of carbonated water per day, on average, from a local supplier, who delivers the water for \$30 per container via an external shipper. To reduce costs, the company located an independent supplier in Wensen who is willing to sell 30,000 containers at \$20 each, delivered to Happy Company's Shipping Division in Wensen. The company's Shipping Division in Wensen has excess capacity and can ship the 30,000 containers at a variable cost of \$2.50 per container. What is the total cost to Happy Company if the carbonated water is purchased from the local supplier?

- A) \$ 900,000
- B) \$1,200,000
- C) \$1,501,000
- D) \$1,620,000

5. A tool which indicates how frequently each type of defect occurs is a:

- A) control chart
- B) fishbone diagrams
- C) cause-and-effect diagram
- D) Pareto diagram

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二、(15%)

Chengchi Company has designed a new product to replace its old product line. Because of the unique design of the new product, the company anticipates that it will be able to sell all the units that it can produce. On this basis, budgeted cost of goods sold and budgeted operating expenses for the first year of activity is \$3,840,000 and \$1,750,000, respectively. Additional information on the new product is as follows:

- (1) Suppose the company can acquire all the materials that it will need. 25,000 machine-hours are available yearly for producing the new product. Chengchi estimates it will take 0.50 of a machine-hour per output unit. The standard costs for one unit of the new product are given below:

	Standard quantity	Standard price	Standard cost
Direct materials	5 pounds	\$9 per pound	\$ 45
Direct manufacturing labor	1.5 hours	\$ ? per hour	?
Variable manufacturing overhead	?	?	9
Fixed manufacturing overhead	?	?	?

- (2) Chengchi will employ 30 workers in the manufacture of the new product. Each will work 40-hour week, 50 weeks a year. Overtime won't be allowed in the company.
- (3) An investment of \$2,600,000 will be necessary to carry inventories and accounts receivable and to purchase some new equipment needed in the manufacturing process. The company requires a 25% target return on investment.
- (4) Manufacturing overhead (both variable and fixed) is allocated to products on the basis of direct manufacturing labor-hours. Total fixed manufacturing overhead per year will be \$ 600,000. Variable operating expenses per finished unit will be \$ 20.

**Required:**

1. What is the standard direct manufacturing labor wage rate?
2. Chengchi Company uses the absorption costing approach to cost-plus pricing. What is the markup that the company needs on the new product to achieve an 18% return on investment if it sells all of the units that it can produce?
3. Identify the alternatives Chengchi Company may consider so it can produce more units of the new product.

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## 三、(20%)

Shine Company has three products: AA, BB, and CC. The company's operating income for last year was \$19,000, and its income statement segmented by products for last year is given below:

	<u>AA</u>	<u>BB</u>	<u>CC</u>
Sales	\$ 900,000	\$ 600,000	\$ 700,000
Cost of goods sold	<u>550,000</u>	<u>320,000</u>	<u>430,000</u>
Gross margin	\$ 350,000	\$ 280,000	\$ 270,000
Selling expenses	250,000	165,000	220,000
Administrative expenses	<u>96,000</u>	<u>70,000</u>	<u>80,000</u>
Operating income	<u>\$ 4,000</u>	<u>\$ 45,000</u>	<u>\$ (30,000)</u>

Management is disappointed with the company's performance and is wondering what can be done to improve profits. By examining sales and cost records, you have determined the following:

- (1) Products AA, BB, and CC sell for \$150, \$120, and \$70 per unit, respectively.
- (2) Variable manufacturing costs are 25% of the sales for AA, 38% for BB, and 30% for CC.
- (3) Selling expenses are 14% of the sales for AA, 12% for BB, and 12% for CC.
- (4) Fixed manufacturing overhead of \$240,000, \$74,000, and \$200,000 are traceable to the product AA, BB, and CC, respectively. The rest of the fixed manufacturing overhead are common to the three products.
- (5) Cost records show that \$112,000 of the fixed selling expenses are traceable to AA, \$90,000 to BB, and \$110,000 to CC, with the remainder common to the three products.
- (6) All of the administration expenses are fixed and common to the three products.
- (7) Work-in-process and finished goods inventories are negligible and can be ignored.

**Required:** The following requirements refer only to the preceding data; there is no connection between the requirements.

1.

- (1) Shine Company's CEO is concerned about the losses incurred on the product CC. He is considering dropping the product CC and offering only AA and BB. What points would you make for or against elimination of product CC? Show computations to support your points.
- (2) What other five factors should the top management of Shine Company consider before making the dropping decision?

2. The sales manager wants to run a special advertising campaign on one of the products. A market study indicates that such a campaign would increase sales of AA by 8%, sales of BB by 12.5%, or sales of CC by 10%. The campaign would cost \$35,000. Which product would you suggest the company should

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choose? By how much would Shine Company's operating income increase if it accepts your suggestion? (Assume the sales volume is still within the relevant range.)

3. The company uses material ZZ to produce the three products. The pounds of material ZZ required to produce one unit of the three products are: AA 3 pounds, BB 1.5 pounds, CC 2 pounds. The material ZZ are on back order and will be available with a maximum of 3,000 pounds each month. The marketing department believes that the monthly sales demand will be product AA 500 units, BB 420 units, and CC 800 units. What product mix will maximize Shine Company's operating income?

四、(10%)

A company is planning a new three year project which will start in a year's time when \$10,000 will be invested. The project will require 5,000kg per amount of a dangerous chemical. The company currently has 4,500kg in inventory of the material which cost \$4 per KG when bought but cost \$6 per kg now. No further price rises are anticipated. The chemical has no resale value, and it is not used in the project, will be disposed of now at a cost of \$300. Other incremental costs will come to \$20,000 per year and revenues of \$120,000 per year are anticipated.

**Required:**

What is the NPV of the project if the cost of capital is 10%?

五、(10%)

AA company with a 15% cost of capital is investing a potential project. It would require an initial investment of \$18,688 in equipment which could be sold at the end of seven year project for \$6,000 and fixed costs are expected to be \$24,000 annum. If the selling price per unit of the product for the project was \$ 10 and variable manufacturing cost per unit is \$3. Variable marketing cost per unit of the product is \$1.5. BB company is willing to provide AA company the same marketing service for seven years. The service will totally charge AA company \$8650. AA company is required to pay company BB total costs at the end of second year.

**Required:**

How many minimum units would the company need to sell to make the project worthwhile?

六、(35%)

For nearly 20 years, Specialized Coating has provided painting and galvanizing services for manufacturers in its region. There are several competitors in the region. Manufacturers of various metal products have relied on the quality and quick turnaround time provided by Specialized Coatings and its 20 skilled employees, who possess knowledge and experience to ensure the quality of the work. During the last year, as a result of a sharp upturn in the economy, the company's sales have increased by 30% relative to the previous year. The company

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has not been able to increase its capacity fast enough, so Specialized Coating has had to turn work away because it cannot keep up with customer requests.

Top management is considering the purchase of a sophisticated robotic painting booth. The booth would represent a considerable move in the direction of automation versus manual labor. If Specialized Coating purchases the booth, it would most likely lay off 15 of its skilled painters. To analyze the decision, the company compiled production information from the most recent year and then prepared a parallel compilation assuming the company would purchase the new equipment and lay off the workers. Those data, not factoring in quality-related costs, are shown below. As you can see, the company projects that during the last year, it would have been far more profitable if it had used the automated approach.

	<u>Current Approach</u>	<u>Automated Approach</u>
Sales	\$2,000,000	\$2,000,000
Variable costs	1,500,000	1,000,000
Fixed costs	380,000	800,000
Net income	120,000	200,000

Before making the automation decision, the top management would like to know by what percentage its sales could fall before it is operating at a loss and how much the company's net income would decrease under each approach with a 10% decline in sales in case there is a downturn in the economy. The management also would like to know how to better allocate the fixed overhead for various purposes that the company would face if the company decides to go with the direction of automation.

**Required:**

You are the management accountant of Specialized Coating. The management team has asked you to provide advice and recommendations on this issue of automation facing Specialized Coating. Draft an email to Specialized Coating's management team. This email should provide your quantitative and qualitative analyses and discuss the issues that the top management would like to know and the issues that the company must consider in making this decision, together with your recommendations and suggested actions to the top management. You are also encouraged to provide real-life business examples anywhere appropriate in the email.

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- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。