

# 淡江大學八十八學年度碩士班招生考試試題

系別：會計學系

科目：成本與管理會計

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一、選擇題：(25%)

請將下列格式劃在你的試卷上，並依序寫上正確答案，不列格式者不予計分：

(1)	(2)	(3)	(4)	(5)
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(1) Hoger Corporation accumulated the following cost information for its two products, A and B:

	<u>A</u>	<u>B</u>	<u>Total</u>
production volume	2,000	1,000	
Total direct manufacturing labor hours	5,000	20,000	25,000
Set-up cost per batch	\$1,000	\$2,000	
Batch size	100	50	
Total set-up costs incurred	\$20,000	\$40,000	\$60,000
DMLH per unit	2	1	

A traditional costing system would allocate set-up costs on the basis of DMLH. An ABC system would trace costs by spreading the costs per batch over the units in a batch. What is the set-up cost per unit of product A under each costing system?

	<u>Traditional</u>	<u>ABC</u>
a.	\$ 4.80	\$ 10.00
b.	\$ 2.40	\$ 10.00
c.	\$ 40.00	\$ 200.00
d.	\$ 4.80	\$ 20.00

(2) The benefits of a just-in-time system for raw materials usually include

- a. Elimination of non-value-added operations.
- b. Increase in the number of suppliers, thereby ensuring competitive bidding
- c. Maximization of the standard delivery quantity, thereby lessening the paperwork for each delivery.
- d. Decrease in the number of deliveries required to maintain production.

(3) Mig Co., which began operations in 1998, produces gasoline and a gasoline by-product. The following information is available pertaining to 1998 sales and production:

Total Production costs to split-off point	\$120,000
Gasoline sales	270,000

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By-product sales	30,000
Gasoline Inventory, 12/31/98	15,000
Additional by-product costs:	
Marketing	10,000
Production	15,000

Mig accounts for the by-product at the time of production. What are Mig's 1998 cost of sales for gasoline and the by-product?

	<u>Gasoline</u>	<u>By-product</u>
a.	\$105,000	\$25,000
b.	\$115,000	\$0
c.	\$108,000	\$37,000
d.	\$100,000	\$0

(4) Jago Co. has 2 products that use the same manufacturing facilities and cannot be subcontracted. Each product has sufficient orders to utilize the entire manufacturing capacity. For short-run profit maximization, Jago should manufacture the product with the

- a. Lower total manufacturing costs for the manufacturing capacity.
- b. Lower total variable manufacturing costs for the manufacturing capacity.
- c. Greater gross profit per hour of manufacturing capacity.
- d. Greater contribution margin per hour of manufacturing capacity.

(5) The budget for Klunker Auto Repair Shop for the year is as follows:

Direct labor per hour	\$ 30
Total labor hours	10,000
Overhead costs:	
Materials handling and storage	\$ 10,000
Other( rent, utilities, depreciation, insurance)	\$ 120,000
Direct materials cost	\$ 500,000

Klunker allocates materials handling and storage costs per dollar of direct materials cost. Other overhead is allocated based on total labor hours. In addition, Klunker adds a charge of \$8 per labor hour to cover profit margin. Tardy Trucking Co. has brought one of its trucks to Klunker for an engine overhaul. If the overhaul requires 12 labor hours and \$800 parts, what price should Klunker charge Tardy for these repair services?

- a. \$1,160
- b. \$1,256
- c. \$1,416
- d. \$1,472

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二、 (24%)

AgriCorp sells farm equipment. AgriCorp's Service Division provides spare parts to various repair centers that repair AgriCorp's equipment. In an effort to reduce inventory costs, the Service Division implemented a just-in-time inventory program on January 1, 1997. On January 1, 1998, Janice Grady, the Service Division controller, decides to evaluate the effect the program has had on the Service Division's financial performance. Grady documents the following results.

- The Service Division's average inventory declined from \$550,000 to \$150,000
- Projected annual insurance costs of \$80,000 declined 60% owing to the lower average inventory.
- A leased 8,000-square-foot warehouse, previously used for materials storage, was not used at all during the year. The division paid \$11,200 annual rent for the warehouse and was able to sublet 75% of the building to several tenants at \$2.50 per square foot. The balance of the space remained idle.
- Two warehouse employees whose services were no longer needed were transferred on January 1, 1997, to the purchasing department to assist in the coordination of the just-in-time program. The annual salary costs for these two employees totaled \$38,000 and continued to be charged to the indirect manufacturing labor portion of fixed manufacturing costs.
- Despite the use of overtime to manufacture 7,500 spare parts, lost sales due to stockouts totaled 3,800 spare parts. The overtime premium incurred amounted to \$5.60 per part manufactured. The use of overtime to fill spare parts orders was immaterial prior to January 1, 1997.

Before the decision to implement the just-in-time inventory program, AgriCorp's Service Division had completed its 1997 budget. The division's budgeted income statement, without any adjustments for just-in-time inventory, is presented below. AgriCorp's required rate of return for investment in inventory is 15% per year.

AgriCorp Service Division Budgeted Income Statement  
for the Year Ended December 31, 1997  
(in thousands)

Revenues(280,000 spare parts)		\$6,160
Cost of goods sold		
Variable manufacturing costs	\$ 2,660	
Fixed manufacturing costs	1,120	3,780
Gross margin		2,380
Marketing and distribution costs		

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Variable marketing and distribution costs	700		
Fixed marketing and distribution costs	555		1,255
Operating income			\$1,125

Required

1. Calculate the cash saving (loss) of AgriCorp's Service Division for 1997 that resulted from the adoption of the just-in-time inventory program.
2. Calculate the unit contribution margin. (調整前)

三、(24%)

National Industries is a diversified corporation with separate and distinct operating divisions. Each division's performance is evaluated on the basis of total dollar profits and return on division investment.

The WindAir Division manufactures and sells air conditioner units. The coming year's budgeted income statement, based on a sales volume of 15,000 units, is as follows:

WindAir Division  
Budgeted Income Statement  
For 1998

	Per Unit	Total
Sales revenue	\$ 400	\$6,000,000
Manufacturing costs:		
Compressor	\$ 70	\$1,050,000
Other raw materials	37	555,000
Direct labor	30	450,000
Variable factory overhead	45	675,000
Fixed factory overhead	32	480,000
Total manufacturing cost	\$ 214	\$ 3,210,000
Gross profit	\$ 186	\$ 2,790,000
Commercial expenses:		
Variable marketing	\$ 18	\$ 270,000
Fixed marketing	19	285,000
Fixed administrative	38	570,000
Total commercial expense	\$ 75	\$ 1,125,000
Income before income tax	\$ 111	\$ 1,665,000

WindAir's division manager believes sales can be increased if the unit sales price is reduced. A market research study conducted by an independent firm at the request of the manager indicates that a 5% reduction in the sales price(\$20) would increase sales volume 16%, or 2,400 units. WindAir has sufficient production capacity to manage this

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increased volume with no increase in fixed cost.

At the present time, WindAir uses a compressor in its units, which it purchases from an outside supplier at a cost of \$70 each. The division manager of WindAir has approached the manager of the Compressor Division regarding the sale of compressor units to WindAir. The Compressor Division currently manufactures and sells a unit exclusively to outside firms which is similar to the unit used by WindAir. Specifications for the WindAir compressor are slightly different, which would reduce the Compressor Division's raw materials cost by \$1.50 per unit. In addition, the Compressor Division would not incur any variable marketing cost for the units sold to WindAir. The Manager of WindAir wants all of the compressors it uses to come from one supplier and has offered to pay the Compressor Division \$50 for each unit.

The Compressor Division has the capacity to produce 75,000 units. The coming year's budgeted income statement for the Compressor Division, shown as follows, is based on a sales volume of 64,000 units, without considering WindAir's proposal:

Compressor Division  
Budgeted Income Statement  
For 1998

	Per Unit	Total
Sales revenue	\$ 100	\$ 6,400,000
Manufacturing costs:		
Raw materials	\$ 12	\$ 768,000
Direct labor	8	512,000
Variable factory overhead	10	640,000
Fixed factory overhead	11	704,000
Total manufacturing cost	\$ 41	\$ 2,624,000
Gross profit	\$ 59	\$ 3,776,000
Commercial expenses:		
Variable marketing	\$ 6	\$ 384,000
Fixed marketing	4	256,000
Fixed administrative	7	448,000
Total commercial expense	\$ 17	\$ 1,088,000
Income before income tax	\$ 42	\$ 2,688,000

Required:

1. Compute the estimated result if the WindAir Division reduces its sales price by 5%, even if it cannot acquire the compressors internally at \$50 each.
2. Compute the estimated effect on the Compressor Division, from its own viewpoint, if the 17,400 units are supplied to WindAir at \$50 each.
3. Determine whether it would be in the best interest of National Industries for the Compressor Division to supply the 17,400 units at \$50 each.

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四、(27%)

Energy Products Company produces a gasoline additive, Gas Gain. This product increases engine efficiency and improves gasoline mileage through more complete combustion.

Careful control are required during the production process to ensure that the proper mix of input chemicals is achieved and that evaporation is controlled. If the controls are not effective, there can be loss of output and efficiency.

The standard material cost of producing a 500-liter batch of Gas Gain is \$135. The standard materials mix and related standard cost of each chemical used in a 500-liter batch are as follows:

Chemical	Standard Input Quantity(liters)	Standard Cost Per liter	Total Cost
Echol.....	200	\$ 0.200	\$ 40.00
Protex.....	100	0.425	42.50
Benz.....	250	0.150	37.50
CT-40.....	50	0.300	15.00
	<u>600</u>		<u>\$ 135.00</u>

The quantities of chemicals purchased and used during the current production period are shown in the following schedule. A total of 136 batches of Gas Gain were manufactured during the current production period. Energy Products determines its cost and chemical usage variations at the end of each production period.

Chemical	Quantity Purchased(liters)	Total Purchase Price	Quantity Used (liters)
Echol.....	25,000	\$ 5,365	26,800
Protex.....	13,000	6,240	12,660
Benz.....	40,000	5,840	37,400
CT-40.....	7,500	2,220	7,140
	<u>85,500</u>	<u>\$ 19,665</u>	<u>84,000</u>

Required

1. Calculate the purchase price variance by chemical for Energy Products Company.
2. Compute the materials mix and yield variances and prepare the necessary entry.

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