

國立彰化師範大學九十六學年度碩士班招生考試試題

系所：會計學系

科目：管理會計(含成本會計學)

請在答案紙上作答

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I. Multiple choice (30 % ; 3% for each question)

The following data apply to questions 1-4.

The Hilltop Corporation is considering (as of 1/1/02) the replacement of an old machine that is currently being used. The old machine is fully depreciated but can be used by the corporation through 2006. If Hilltop decides to replace the old machine, Baker Company has offered to purchase it for \$40,000 on the replacement date. The disposal value of the old machine would be zero at the end of 2006. Hilltop uses the straight-line method of depreciation for all classes of machinery. If the replacement occurs, a new machine would be acquired from Busby Industries on January 2, 2002. The purchase price of \$500,000 for the new machine would be paid in cash at the time of replacement. Due to the increased efficiency of the new machine, estimated annual cash savings of \$125,000 would be generated through 2006, the end of its expected useful life. The new machine is expected to have a zero disposal price at the end of 2006. All operating cash receipts, operating cash expenditures, and applicable tax payments and credits are assumed to occur at the end of the year. Hilltop employs the calendar year for reporting purposes.

Discount tables for several different interest (discount) rates that are to be used in any discounting calculations are given below. Assume for questions 1–3 that Hilltop is not subject to income taxes.

<u>Present Value of \$1 Received at the End of Period</u>						<u>Present Value of an Annuity of \$1 Received at the End of Each Period</u>					
<u>Period</u>	<u>6%</u>	<u>8%</u>	<u>10%</u>	<u>12%</u>	<u>14%</u>	<u>Period</u>	<u>6%</u>	<u>8%</u>	<u>10%</u>	<u>12%</u>	<u>14%</u>
1	.94	.93	.91	.89	.88	1	0.94	0.93	0.91	0.89	0.88
2	.89	.86	.83	.80	.77	2	1.83	1.78	1.73	1.69	1.65
3	.84	.79	.75	.71	.68	3	2.67	2.58	2.49	2.40	2.32
4	.79	.74	.68	.64	.59	4	3.47	3.31	3.17	3.04	2.91
5	.75	.68	.62	.57	.52	5	4.21	3.99	3.79	3.61	3.43

- If Hilltop requires investments to earn an 8% return, the net present value for replacing the old machine with the new machine is
A. -\$36,250. B. \$50,000. C. \$48,750. D. \$175,000.
- The payback period to replace the old machine with the new machine is
A. 2.5 years. B. 3.6 years. C. 4 years. D. 5 years.
- The accrual accounting rate of return on the initial investment, to the nearest percent, is
A. 0%. B. 4%. C. 5.6%. D. 28%
- If Hilltop is subject to an income tax rate of 30% and a required rate of return of 8 %, the net present value for replacing the old machine with the new machine is
A. -\$100,875. B. \$3,825. C. \$18,825. D. \$163,425.

The following data apply to question 5. Peters' Company manufactures tires. Some of the company's data was misplaced. Use the following information to replace the lost data:

	Actual Results	Flexible Budget Variances	Flexible Budget	Sales-Volume Variances	Static Budget
Units sold	225,000		225,000		206,250
Revenues	\$84,160	\$2,000 F	(A)	\$2,800 U	(B)
Variable costs	(C)	\$400 U	\$31,720	\$4,680 F	\$36,400
Fixed costs	\$16,560	\$1,720 F	\$18,280	0	\$18,280
Operating income	\$35,480	(D)	\$32,160	(E)	\$30,280

- What amounts are reported for revenues in the flexible-budget (A) and the static-budget (B), respectively?
A. \$82,160; \$84,960. B. \$82,160; \$79,360. C. \$86,160; \$88,960. D. \$86,160; \$83,360.

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Information pertaining to Piney River Division of MO Corporation for 2004:

Revenues	\$950,000
Variable costs	575,000
Traceable fixed costs	336,500
Average invested capital	350,000
Imputed interest rate	10%

6. The residual income was
 A. \$3,500. B. \$35,000. C. \$38,500. D. \$0

Use the following information for questions 7-8.

Top That manufactures baseball-style hats. Material is introduced at the beginning of the process in Cutting Department. Conversion costs are incurred (and allocated) uniformly throughout the process. As the cutting of material is completed, the pieces are immediately transferred to the Sewing Department. Data for the Cutting Department for the month of February 2003 follow:

Work in process, January 31 - 50,000 units

100% complete for direct materials, 40% completed for conversion costs

actual costs of direct materials, \$70,500; actual costs of conversion, \$34,050

Units started during February, 225,000

Units completed during February, 200,000

Work in process, February 28 - 75,000 units

100% complete for direct materials, 20% completed for conversion costs

Direct materials added during February [*actual costs*] \$342,000

Conversion costs added during February [*actual costs*] \$352,950

7. Assuming Top That uses the weighted-average method to account for inventories, the equivalent units of work for the month of February are

	<u>Direct Materials</u>	<u>Conversion Costs</u>
A.	225,000	225,000
B.	200,000	200,000
C.	275,000	215,000
D.	225,000	200,000

8. Assuming Top That uses the first-in, first-out (FIFO) method to account for inventories, the assignment of costs to units completed and transferred to the Sewing Department during February is

- | | |
|---------------|---------------|
| A. \$658,350. | C. \$666,000. |
| B. \$636,450. | D. \$652,000. |

The following data apply to questions 9-10.

Tory Company derived the following cost relationship from a regression analysis of its monthly manufacturing overhead cost.

$$y = \$80,000 + \$12X \quad \text{where: } y = \text{monthly manufacturing overhead cost}$$

$$X = \text{machine-hours}$$

The standard error of estimate of the regression is \$6,000.

The standard time required to manufacture one six-unit case of Tory's single product is four machine-hours. Tory applies manufacturing overhead to production on the basis of machine-hours, and its normal annual production is 50,000 cases.

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9. Tory's estimated variable manufacturing overhead cost for a month in which scheduled production is 10,000 cases would be
 A. \$80,000. B. \$160,000. C. \$560,000. D. \$480,000.
10. Tory's predetermined fixed manufacturing overhead rate would be
 A. \$4.80/MH. B. \$4.00/MH. C. \$3.20/MH. D. \$1.60/MH.

II. Problem (70%) (Attention: you cannot get any point without computation process)

1. The Hope Company produces a gasoline additive, Gas Gain, that increases engine efficiency and improves gasoline mileage. The actual and budgeted quantities and the budgeted prices in April 2006 of the two petroleum products required to produce 50,000 gallons of Gas Gain are as follows:

A	B	C	D
Chemical	Actual Quantity (gallons)	Budgeted Quantity (gallons)	Budgeted Price (per gallon)
Protex	16,200	20,800	\$0.40
Benz	37,800	31,200	\$0.25

Required

- (1) Calculate the total direct materials efficiency variance for April 2006. (7%)
 (2) Calculate the total direct materials yield variances for April 2006. (7%)

2. The SR Corporation uses an injection molding machine to make a plastic product, Z1. SR makes products only after receiving firm orders from its customers. SR estimates that it will receive 50 orders for Z1 (each order is for 1,000 units) during the coming year. Each order of Z1 will take 80 hours of machine time. The annual capacity of the machine is 5,000 hours.

Required

SG is considering introducing a new product, Y28. SG expects it will receive 25 orders of Y28 (each order for 200 units) in the coming year. Each order of Y28 will take 20 hours of machine time. The average demand for Z1 will be unaffected by the introduction of Y28. Calculate (A) the average waiting time for an order received and, (B) the average manufacturing lead time per order for each product, if SR introduces Y28. (12%)

3. The Chion Hardware Company manufactures specialty brass door handles at its Lynchburg plant. Chion is considering implementing a JIT production system. The following are the estimated costs and benefits of JIT production.
- Annual additional tooling costs would be \$100,000.
 - Average inventory would decline by 80% from the current level of \$1,000,000.
 - Insurance, space, materials-handling and setup costs, which currently total \$300,000 annually, would decline by 25%.
 - The emphasis on quality inherent in JIT production would reduce rework costs by 30%. Chion currently incurs \$200,000 in annual rework costs.
 - Improved product quality under JIT production would enable Chion to raise the price of its product by \$4 per unit. Chion sells 40,000 units each year.

Chion's required rate of return on inventory investment is 15% per year.

Required

Calculate the net benefit or cost to Chion if it adopts JIT production at the Lynchburg plant. (12%)

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4. The Green Card is a credit card that competes with national credit cards such as Visa. Green Card is marketed by the V Bank. John is manager of the Green Card division. He is seeking to develop a customer-profitability reporting system. He collects the following information on four users of the Green Card during 2006:

	A	B	C	D
Annual purchases at retail merchants	\$80,000	\$26,000	\$34,000	\$8,000
Number of customer transactions at retail merchant	800	520	272	200
Annual fee	\$50	\$0	\$50	\$0
Average annual outstanding balance on credit card on which interest is paid to V Bank	\$6,000	\$0	\$2,000	\$100
Number of inquiries to V Bank	6	12	8	2
Number of credit-card replacement due to loss or theft	0	2	1	0

Customer B pays no membership fee because his card was issued under a special “lifetime promotion program,” in which annual fees are waived as long as the card is used at least once a year. Customer D is a student. V Bank does not charge an annual fee to student credit-card holders at select universities.

V Bank has an ABC system that John can use in his analysis. The following data are for 2006:

- Each customer transaction with a retail merchant costs V Bank \$0.50 to process.
- Each customer inquiry to V Bank costs \$5.
- Replacing a lost card costs \$120.
- Annual cost to V Bank of maintaining a credit-card account is \$108 (includes sending out monthly statements).

V Bank receives 2% of the purchase amount from retail merchants when Green Card is used. Bad debts of the Green Card in 2006 were 0.5% of the total purchases at retail merchants. Thus, V Bank nets 1.5% of the total purchases made using the Green Card.

V Bank had an interest spread of 9% in 2006 on the average outstanding balances on which interest is paid by its credit-card holders. An interest spread is the difference between what V Bank receives from card holders on outstanding balances and what it pays to obtain the funds so used.

Required

Compute the customer profitability of the representative credit-card users, customer A and customer B, of the Green Card for 2006. (12%)

5. HUE Company uses normal costing in its job-costing system. Partially completed T-accounts and additional information for HUE for 2006 are as follows:

Materials Control		WIP Control		Finished Goods Control			
1/1/2006	30,000	380,000	1/1/2006	20,000	1/1/2006	10,000	900,000
	400,000		DML	360,000		940,000	
MO Control		MO Allocated		COGS			
	540,000						

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Additional information:

- a. DML (direct manufacturing labor) wage rate was \$15 per hour.
- b. MO (manufacturing overhead) was allocated at \$20 per direct manufacturing–labor hour.
- c. During 2006, sales revenues were \$1,090,000, and marketing and distribution costs were \$140,000.

Required (12%)

- (1) What was the balance of work-in-process inventory on December 31, 2006?
 - (2) Assume that HUE adopts the method of Write-off to Cost of Goods Sold to solve the under- or overallocated manufacturing overhead. Please compute HUE's operating income for 2006.
6. CSew is a small company that makes jackets for a ready-to-wear clothes designer at a selling price of \$20. CSew is considering investing in a new plant. It can either invest in a more-manual plant or a more-automated plant. Both types of plants will have the same level of quality. The manual plant will have fixed costs of \$20,000 per year, and a variable cost of \$10 per jacket. The automated plant will have fixed costs of \$30,000 per year, and a variable cost of \$8 per jacket.

Required

What is the breakeven point in units for each type of plant? (8%)