

※ 考生請注意：本試題可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

一、選擇題：(75分; 每題2.5分, 共30題)

1. When deciding to accept a one-time-only special order from a wholesaler, management should _____.

- A) consider the sunk costs and opportunity costs
- B) not consider the special order's impact on future prices of their products
- C) determine whether excess capacity is available
- D) verify past design costs for the product

2. NCKU Company has three products, A, B, and C. The following information is available:

	<u>Product A</u>	<u>Product B</u>	<u>Product C</u>
Sales	\$70,000	\$97,000	\$23,000
Variable costs	<u>37,000</u>	<u>51,000</u>	<u>15,000</u>
Contribution margin	33,000	46,000	8,000
Fixed costs:			
Avoidable	10,000	20,000	2,000
Unavoidable	<u>7,000</u>	<u>12,000</u>	<u>9,400</u>
Operating income	<u>\$16,000</u>	<u>\$14,000</u>	<u>\$ (3,400)</u>

NCKU Company is thinking of dropping Product C because it is reporting a loss. Assuming NCKU drops Product C and does NOT replace it, operating income will _____.

- A) increase by \$3,400
- B) increase by \$2,000
- C) decrease by \$6,000
- D) decrease by \$11,400

3. NCKU Services, Inc., is considering replacing a machine. The following data are available:

	Replacement	
	<u>Old Machine</u>	<u>Machine</u>
Original cost	\$630,000	\$490,000
Useful life in years	10	5
Current age in years	5	0
Book value	\$350,000	—
Disposal value now	\$112,000	—

Disposal value in 5 years	0	0
Annual cash operating costs	\$98,000	\$56,000

The difference between keeping the old machine and replacing the old machine is _____.

- A) \$518,000 in favor of keeping the old machine
- B) \$168,000 in favor of keeping the old machine
- C) \$518,000 in favor of replacing the old machine
- D) \$168,000 in favor of replacing the old machine

4. If scrap is reused as direct material rather than sold as scrap _____.

- A) Accounts Receivable is debited at its estimated net realizable value and then credited when the scrap is reused
- B) Materials Control is debited at its estimated net realizable value and then credited when the scrap is reused
- C) Manufacturing Overhead Control is debited at its estimated net realizable value and then credited when the scrap is reused
- D) Work-in-Process Control is debited at its estimated net realizable value and then credited when the scrap is reused

5. Which of the following sentences is true of normal spoilage and abnormal spoilage?

- A) Normal spoilage costs are inventoriable and are added to the cost of good units produced, while abnormal spoilage costs are deducted from the cost of good units produced.
- B) Abnormal spoilage costs are inventoriable and are deducted from the cost of good units produced, while normal spoilage costs are expensed in the accounting period in which they occur.
- C) Abnormal spoilage costs are inventoriable and are added to the cost of good units produced, while normal spoilage costs are expensed in the accounting period in which they occur.
- D) Normal spoilage costs are inventoriable and are deducted from the cost of good units produced, while abnormal spoilage costs are expensed in the accounting period in which they occur.

6. Which of the following sentences is true of classification of spoilage as normal or abnormal when inventories are present?

- A) Classifying spoilage as normal rather than abnormal results in same current operating income.
- B) Classifying spoilage as normal rather than abnormal results in an decrease in current operating income.
- C) Classifying spoilage as abnormal rather than normal results in an increase in current operating income.
- D) Classifying spoilage as normal rather than abnormal results in an increase in current operating income.

Answer the following questions 7-10 using the information below:

NCKU Corporation has two divisions: A and B. Division A makes beverages that Division B is currently buying on the open market. Division A has a capacity to produce 500,000 units of beverages at a variable cost of \$7.50 per unit and a full cost of \$10.00 per unit.

Division A has outside sales of 460,000 units of beverages at a price of \$12.50 per unit. Division B currently buys 45,000 units from an outside supplier at a price of \$12.00 per unit. Assume Division B wants to use a single supplier for beverages.

7. What is the minimum transfer price for Division B to buy internally (from Division A)?

- A) \$7.5
- B) \$7.6
- C) \$8.1
- D) \$8.5

8. What is the (net) effect on NCKU Corporation's operating profit if the transfer (of 45,000 units) is made internally (that Division B buys internally from Division A)?

- A) \$177,500
- B) \$105,500
- C) \$35,500
- D) -\$45,500

9. Assume Division A has outside sales of 490,000 units of beverages, instead of 460,000 units of beverages. What is the minimum transfer price for Division B to buy internally (from Division A)?

- A) \$12.0
- B) \$11.4
- C) \$11.0
- D) \$10.4

10. Assume Division A has outside sales of 490,000 units of beverages, instead of 460,000 units of beverages.

Also assume that Division B currently buys from an outside supplier at a price of \$12.20 per unit, instead of \$12.00 per unit.

What is the (net) effect on NCKU Corporation's operating profit if the transfer (of 45,000 units) is made internally (that Division B buys internally from Division A)?

- A) \$46,500
- B) \$36,500

C) \$6,500

D) -\$6,500

Answer the following questions 11-13 using the information below:

NCKU Corporation manufactures industrial-sized gas furnaces and uses budgeted machine hours to allocate variable manufacturing overhead. The following information relates to the company's manufacturing overhead data:

Budgeted output units	31,000 units
Budgeted machine-hours	16,585 hours
Budgeted variable manufacturing overhead costs for 16,585 hours	\$348,285
Actual output units produced	33,000 units
Actual machine-hours used	14,400 hours
Actual variable manufacturing overhead costs	\$384,000

11. What is the flexible-budget amount for variable manufacturing overhead?

A) \$348,750

B) \$370,755

C) \$384,000

D) \$360,727

12. What is the flexible-budget variance for variable manufacturing overhead?

A) \$13,245 unfavorable

B) \$35,715 unfavorable

C) \$13,245 favorable

D) \$35,715 favorable

13. What is the amount of the budgeted variable manufacturing overhead cost per unit?

A) \$11.745

B) \$10.570

C) \$11.235

D) \$11.636

Answer the following questions 14-15 using the information below:

NCKU Corporation manufactured 3,000 chairs during June. The following variable overhead data relates to June:

Budgeted variable overhead cost per unit	\$12.00
Actual variable manufacturing overhead cost	\$49,900
Flexible-budget amount for variable manufacturing overhead	\$47,800
Variable manufacturing overhead efficiency variance	\$720 unfavorable

14. What is the variable overhead flexible-budget variance?

- A) \$2,100 favorable
- B) \$1,380 favorable
- C) \$2,100 unfavorable
- D) \$1,380 unfavorable

15. What is the variable overhead spending variance?

- A) \$1,380 favorable
- B) \$2,820 favorable
- C) \$2,820 unfavorable
- D) \$1,380 unfavorable

Answer the following questions 16-18 using the information below:

NCKU Corporation manufactured 30,000 ice chests during September. The variable overhead cost-allocation base is \$11.25 per machine-hour. The following variable overhead data pertain to September:

	<u>Actual</u>	<u>Budgeted</u>
Production	30,000 units	24,000 units
Machine-hours	15,000 hours	10,800 hours
Variable overhead cost per machine-hour:	\$11.00	\$11.25

16. What is the flexible-budget amount?

- A) \$121,500
- B) \$151,875
- C) \$165,000
- D) \$168,750

17. What is the variable overhead spending variance?

- A) \$3,750 favorable
- B) \$16,875 unfavorable
- C) \$13,125 unfavorable
- D) \$30,375 unfavorable

18. What is the variable overhead efficiency variance?

- A) \$3,750 favorable
- B) \$16,875 unfavorable
- C) \$13,125 unfavorable
- D) \$30,375 unfavorable

Answer the following questions 19-20 using the information below:

NCKU Corporation manufactured 33,000 grooming kits for horses during March. The following fixed overhead data pertain to March:

	<u>Actual</u>	<u>Static Budget</u>
Production	33,000 units	30,000 units
Machine-hours	6,100 hours	6,000 hours
Fixed overhead costs for March	\$153,000	\$144,000

19. What is the fixed overhead production-volume variance?

- A) \$9,000 unfavorable
- B) \$14,400 favorable
- C) \$14,400 unfavorable
- D) \$9,000 favorable

20. What is the fixed overhead spending variance?

- A) \$14,400 favorable
- B) \$9,000 favorable
- C) \$9,000 unfavorable
- D) \$14,400 unfavorable

21. NCKU's Bridal Shoppe sells wedding dresses. The average selling price of each dress is \$1,000, variable costs are \$400, and fixed costs are \$90,000. How many dresses must the Bridal Shoppe sell to yield after-tax net income of \$18,000, assuming the tax rate is 40%?

- A) 200 dresses

- B) 170 dresses
- C) 150 dresses
- D) 145 dresses

22. NCKU Autos sells a single product. 8,000 units were sold resulting in \$80,000 of sales revenue, \$20,000 of variable costs, and \$10,000 of fixed costs. If variable costs decrease by \$1 per unit, the new margin of safety is _____.

- A) \$65,000
- B) \$73,567
- C) \$68,235
- D) \$66,765

Answer the following questions 23-24 using the information below:

The following information is for the NCKU Corporation:

Product A: Revenue	\$16.00
Variable Cost	\$12.00
Product B: Revenue	\$24.00
Variable Cost	\$16.00
Total fixed costs	\$75,000

23. What is the breakeven point, assuming the sales mix consists of three units of Product A and one unit of Product B?

- A) 10,000 units of A and 5,000 units of B
- B) 11,250 units of A and 3,750 units of B
- C) 12,000 units of A and 4,000 units of B
- D) 4,000 units of A and 12,000 units of B

24. What is the operating income of NCKU Corporation, assuming actual sales total 25,000 units, and the sales mix is three units of Product A and one unit of Product B?

- A) \$50,000
- B) \$60,000
- C) \$77,000
- D) \$66,000

25. Taiwan Vision Company sells optical equipment. Blitz Company manufactures special glass lenses. Taiwan Vision orders 11,400 lenses per year, 200 per week, at \$35 per lens. Blitz covers all shipping costs. Taiwan Vision earns 25% on its cash investments. The purchase-order lead time is 2.5 weeks. Taiwan Vision sells 225 lenses per week. The following data are available:

Relevant ordering costs per purchase order	\$41.25
Relevant insurance, materials handling, breakage, and so on, per year	\$ 4.50

What is the economic order quantity for Taiwan Vision?

- A) 457 lenses
- B) 328 lenses
- C) 266 lenses
- D) 161 lenses

Answer the following questions 26-28 using the information below:

NCKU Company has two sources of funds: long-term debt with a market and book value of \$15 million issued at an interest rate of 10%, and equity capital that has a market value of \$9 million (book value of \$5 million). NCKU Company has profit centers in the following locations with the following operating incomes, total assets, and current liabilities. The cost of equity capital is 15%, while the tax rate is 30%.

	Operating Income	Assets	Current Liabilities
Bish Bash Falls	\$ 815,000	\$ 3,750,000	\$ 800,000
Brooksville	\$1,100,000	\$ 5,000,000	\$ 1,200,000
Stonybrook	\$2,450,000	\$9,250,000	\$3,180,000

26. What is the EVA[®] for Bish Bash Falls?

- A) \$338,563
- B) \$305,000
- C) \$275,500
- D) \$255,500

27. What is the EVA[®] for Brooksville?

- A) \$476,250

B) \$428,000

C) \$415,525

D) \$390,000

28. What is the EVA® for Stonybrook?

A) \$1,108,000

B) \$1,168,700

C) \$1,315,063

D) \$1,403,063

Answer the following questions 29-30 using the information below:

NCKU Corporation incurred fixed manufacturing costs of \$24,000 during 2015. Other information for 2015 includes:

The budgeted denominator level is 2,000 units.

Units produced total 1,500 units.

Units sold total 1,200 units.

Beginning inventory was zero.

The company uses absorption costing and the fixed manufacturing cost rate is based on the budgeted denominator level. Manufacturing variances are closed to cost of goods sold.

29. The production-volume variance is _____.

A) \$8,000

B) \$6,000

C) \$9,600

D) 0

30. Operating income using absorption costing will be _____ than operating income if using variable costing.

A) \$9,600 higher

B) \$4,800 lower

C) \$3,600 higher

D) \$14,400 lower

二、計算題: (25 分)

NCKU, Inc., purchased a \$688,750 machine to manufacture specialty taps for electrical equipment. NCKU expects to sell all it can manufacture in the next 10 years. The government has exempted taxes on profits from new investments to encourage capital investments. This legislation is to be in effect in the foreseeable future. The machine is expected to have 10 years' useful life with no salvage value. NCKU uses straight-line depreciation. The net cash inflow is expected to be \$145,000 each year for 10 years. NCKU uses 12 percent in evaluating capital investments.

Required (25 points in total) :

1. Calculate the payback period (in the number of years), under the assumption that cash inflows occur evenly throughout the year. (3 points)
2. Calculate the accounting (book) rate of return based on:
 - (a) initial investment (3 points), and
 - (b) average investment. (3 points)
3. Calculate the net present value (NPV) of the proposed investment under the assumption that cash inflows occur at year-end. All calculations should be shown in order to receive full marks. You may use 4 decimal places (e.g., 0.9999) for the discount factor calculation. (6 points)
4. Calculate the present value payback period (in the number of years) of the proposed investment under the assumption that cash inflows occur evenly throughout the year. All calculations should be shown in order to receive full marks. You may use 4 decimal places (e.g., 0.9999) for the discount factor calculation. (10 points)