

※ 注意：請於試卷上「非選擇題作答區」內依序作答，並應註明作答之大題及其題號。

1. Daniel, Inc., incurs the following costs to produce and sell a single product.

Variable costs per unit:	
Direct materials .....	\$ 12
Direct labor .....	\$ 7
Variable manufacturing overhead .....	\$ 2
Variable selling and administrative expenses .....	\$ 4
Fixed costs per year:	
Fixed manufacturing overhead .....	\$ 180,000
Fixed selling and administrative expenses .....	\$ 300,000

During the last year, 30,000 units were produced and 26,000 units were sold. The Finished Goods inventory account at the end of the year shows a balance of \$84,000 for the 4,000 unsold units.

**Required:**

- (1) Is the company using absorption costing or variable costing to cost units in the Finished Goods inventory account? Show computations to support your answer. (5%)
- (2) Assume that the company wishes to prepare financial statements for the year to issue to its stockholders. At what dollar amount should the 4,000 units be carried in inventory for external reporting purposes? (5%)

2. Movenpick's Cookhouse is a popular restaurant located on Lake Union in Taipei. The owner of the restaurant has been trying to better understand costs at the restaurant and has hired a student intern to conduct an activity-based costing study. The intern, in consultation with the owner, identified three major activities. She then completed the first-stage allocations of costs to the activity cost pools, using data from last month's operations. The results appear below:

<u>Activity Cost Pool</u>	<u>Activity Measure</u>	<u>Total Cost</u>	<u>Total Activity</u>
Serving a party of diners.	Number of parties served	\$ 24,000	5,000 parties
Serving a diner .....	Number of diners served	\$ 60,000	12,000 diners
Serving a drink .....	Number of drinks ordered	\$ 26,000	10,000 drinks

The above costs include all of the costs of the restaurant except for facility-sustaining costs such as rent, property taxes, and top-management salaries. A group of diners who ask to sit at the same table are counted as a party. Some costs, such as the costs of cleaning linen, are the same whether one person is at a table or the table is full. Other costs, such as washing dishes, depend on the number of diners served.

Prior to the activity-based costing study, the owner knew very little about the costs of the restaurant. He knew that the total cost for the month (including facility-sustaining costs) was \$180,000 and that 12,000 diners had been served. Therefore, the average cost per diner was \$15.00.

**Required:**

- (1) Accounting to the activity-based costing system, what is the total cost of serving each of the following parties of diners?
  - (a) A party of four diners who order three drinks in total. (5%)
  - (b) A party of two diners who do not order any drinks. (5%)
- (2) Convert the total costs you computed in (1) above to costs per diner. In other words, what is the average cost per diner for serving each of the following parties?
  - (a) A party of four diners who order three drinks in total. (2.5%)
  - (b) A party of two diners who do not order any drinks. (2.5%)
- (3) Why do the costs per diner for the three different parties differ from each other and from the overall average cost of \$15.00 per diner? (5%)

3. Penexpert Company manufactures a variety of ballpoint pens. The company has just received an offer from an outside supplier to provide the ink cartridge for the company's Zippo pen line, at a price of \$0.50 per dozen cartridges. The company is interested in this offer because its own production of cartridges is at capacity.

Penexpert Company estimates that if the supplier's offer were accepted, the direct labor and variable manufacturing overhead costs of the Zippo pen line would be reduced by 10% and the direct materials cost would be reduced by 20%.

Under present operations, Penexpert Company manufactures all of its own pens from start to finish. The Zippo pens are sold through wholesalers at \$4 per box. Each box contains one dozen pens. Fixed manufacturing overhead costs charged to the Zippo pen line total \$60,000 each year. (The same equipment and facilities are used to produce several pen lines.) The present cost of producing one dozen Zippo pens (one box) is given below:

Direct materials .....	\$ 1.50
Direct labor .....	1.00
Manufacturing overhead .....	<u>0.80*</u>
Total cost .....	<u>\$ 3.30</u>

\*Includes both variable and fixed manufacturing overhead, based on production of 100,000 boxes of pens each year.

**Required:**

- (1) Should Penexpert Company accept the outside supplier's offer? Show computations. (5%)
- (2) What is the maximum price that Penexpert Company should be willing to pay the outside supplier per dozen cartridges? Explain. (5%)
- (3) Due to the bankruptcy of a competitor, Penexpert Company expects to sell 150,000 boxes of Zippo pens next year. As previously stated, the company presently has enough capacity to produce the cartridges for only 100,000 boxes of Zippo pens annually. By incurring \$3,000 in added fixed cost each year, the company could expand its production of cartridges to satisfy the anticipated demand for Zippo pens. The variable cost per unit to produce the additional cartridges would be the same as at present. Under these circumstances, how many boxes of cartridges should be purchased from the outside supplier and how many should be

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made by Penexpert? Show computations to support your answer. (10%)

4. Empire-baby is the managing partner of a newly renovated baseball stadium that charges clients differently by popularity of the games. The renovation incurred \$30,000 in development costs on January 1<sup>st</sup> and is expected to enable the stadium running effectively over five baseball seasons. She is evaluating ticket prices for its baseball games. Studies show that Friday and Saturday night games average more than twice the number of fans compared to other days. The following information pertains to the stadium's normal operations per baseball season:

Average fans per game (among all 30 games)	2,500	fans
Average fans per Friday and Saturday night games	4,500	fans
Number of Friday and Saturday night games per season	10	games
Number of regular games per season	20	games
Stadium capacity	5,500	seats

- This stadium has two inspection runs per season, each with \$10,000 in inspection costs.
- For each season, total fixed operating costs are \$100,000, and variable operating costs are \$1,000 per operating hour.
- The budgeted operating hours are 5 hours for regular nights and 6 hours for peak nights on each day a game is played. All employees work by the hour except for the administrators. A maximum of one game is played per day and each fan has only one ticket per game.
- Customer-service costs per season are \$25,000; marketing costs per season is \$500,000.

**Required:**

- (1) Determine the life-cycle costs for the second baseball season. (5%)
- (2) The ticket prices are set only based on the type of nights, regular or peak. According to the cause-and-effect criterion, Empire-baby allocates development costs, inspection costs, and operating costs based on operating hours to each fan. All other costs are allocated based on the number of fans. Then Empire-baby sets up the price for regular nights equally throughout each season, as she assumes that the future prices are not volatile. Namely, the price for the season one would be the same as that for the season two. Additionally, the expected regular sales will eventually cover the life-cycle costs of regular nights in five seasons and are expected to earn the required rate of after-tax return on sales (ROS) of 60%. Income tax rate is 10%. As the peak nights usually have more demands than supplies, Empire-baby would use peak-load pricing, i.e., to charge fans on peak nights at a premium of 50% on the regular price. What are the prices that should be charged for a game held at regular and peak attendance nights? If the amount is undividable, please round to the nearest cent. (10%)
- (3) After determining the prices for regular and peak nights, Empire-baby tries to find the economic value added (EVA) for this stadium. Its sources of funds include long-term debt with a market value of \$8,000,000 and an interest rate of 8%, and equity capital with a market value of \$12,000,000 and a cost of equity of 12%. The book value of the stadium is \$9,500,000, and current liabilities are \$2,800,000. Income tax rate is still 10%. Assume that every year the stadium holds games for only one baseball season and that costs and revenues are incurred only in season but not off-season. What is weighted average cost of capital and EVA for the first

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operating year after renovation? (10%)

5. Star Guardian Corp., an international manufacturer of plastic toys, has four departments, including two support departments (Alien & Human Resource and Artificial Intelligence) and two operating departments (Modeling and Molding). Loop Sky-runner is its Chief Financial Officer, who allocates support costs to operating departments using the reciprocal method. The allocation is also based the dual-rate method, i.e., allocating fixed overhead by budgeted cost drivers and variable overhead by actual cost drivers.

The toys are quite homogeneous, and thus the Modeling department adopts the first-in first-out (FIFO) method of process costing. Specifically, there are 44,000 units of 25% completed beginning work in process (WIP) inventory, including \$70,000 of direct materials and \$40,000 of conversion costs. Loop expects that 80,000 units of toys completed and transferred out from Modeling to Molding Department, and that there will be 18,000 units of 70% completed ending work in process inventory. Direct materials are added at the 20% of the production cycle and must be bundled in single kits for each unit. Conversion costs are incurred evenly throughout the production cycle. Spoiled toys are detected upon inspection at the 30% completion of the process and are disposed of at zero net disposal value. Due to non-detectible material defects, normally spoiled units generally constitute 4% of the good units that pass the inspection. This month, the company starts to produce 70,000 units of toys by spending \$900,000 in direct materials, \$150,000 in direct labors, and the rest of funds in overhead costs established as follows:

	<u>Support Department</u>		<u>Operating Department</u>	
	Alien & Human Resource	Artificial intelligence	Modeling	Molding
Fixed overhead costs before any interdepartmental cost allocation:				
Salaries	\$360,000	\$160,000	\$100,000	\$200,000
Rent	\$100,000	\$140,000	\$50,000	\$50,000
Variable overhead costs before any interdepartmental cost allocation:				
Inspection	\$20,000	\$140,000	\$200,000	\$100,000
Product Design	\$20,000	\$345,000	\$500,000	\$50,000
Budgeted Usage:				
Alien & human resource (interview or paperwork hours)		500	600	400
Artificial intelligence (computer Process hours)	300		800	700
Actual Usage:				
Alien & human resource (interview or paperwork hours)	-	400	700	500
Artificial intelligence (computer Process hours)	100	-	1,300	1,100

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國立臺灣大學 105 學年度碩士班招生考試試題

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**Required:**

- (1) Determine the amounts of costs from support departments to Modeling and Molding Department respectively. Calculate final answers to the nearest dollar. (10%)
- (2) Determine the costs of units completed and transferred out to Molding Department and the ending work in process inventory in Modeling Department. If applicable, the costs should include normal spoilage. Calculate final answers to the nearest dollar. (15%)

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