



BSc Program in Industrial Engineering - Faculty of Engineering – Fayoum University

IE 205: Industrial Cost Accounting

هنص 205: محاسبة تكاليف صناعية

2nd Year IE – Final Exam – Jan. 2016 – Dr. Ahmed Shaban

Closed Book Exam, Time: 3 Hours, Total points: 70, 8 pages exam

Attempt ALL questions, answer in the same paper, and show all detailed calculations.

Assume any necessary missing information

Question #1: (15 points, time 20 minutes)

Put True (T) or False (F) and Justify the false statements.

Statement	Ans.
1. Management accounting focuses mainly on providing data for internal uses by managers. Justify:	[]
2. Compared to financial accounting, managerial accounting places more emphasis on the flexibility and precision of information. Justify:	[]
3. Directing and motivating involves comparing planned results to actual results. Justify:	[]
4. For a hospital, both the emergency room manager and the human resources manager occupy line positions. Justify:	[]
5. A performance report is a detailed report comparing budgeted data to actual data for a specific time period. Justify:	[]
6. Depreciation on machines would not be included in the cost of goods manufactured. Justify:	[]
7. Depreciation on equipment that a company uses in its selling and administrative activities would be classified as a product cost. Justify:	[]
8. The amount that a manufacturing company could earn by renting unused areas of its <u>warehouse</u> (مخزن) is an example of an opportunity cost. Justify:	[]
9. The cost of lubricants used to grease a production machine in a manufacturing company is an example of direct material cost. Justify:	[]

10. The salary paid to the president of a company would be classified on the income statement as direct labor cost. [1]
Justify:
11. Process costing is used in those situations where many different products or services are produced each period to customer specifications. [1]
Justify:
12. Over-applied overhead means that the applied overhead cost was greater than the actual overhead cost. [1]
Justify:
13. At the break-even point, profit is equal to zero. [1]
Justify:
14. The break-even point is the point where total contribution margin equals total variable expenses. [1]
Justify:
15. The contribution margin ratio always increases when the variable expenses as a percentage of net sales increase. [1]
Justify:

Question #2: (10 points, time 25 minutes)

The **Plastechnics Company** began operations several years ago. The company purchased a building and, since only half of the space was needed for operations, the remaining space was rented to another firm for rental revenue of \$20,000 per year. The success of Plastechnics Company's product has resulted in the company needing more space. The renter's lease (عقد الإيجار) will expire (سيتنتهي) next month and Plastechnics will not renew the lease in order to use the space to expand operations and meet demand.

The company's product requires materials that cost \$25 per unit. The company employs a production supervisor whose salary is \$2,000 per month. Production line workers are paid \$15 per hour to manufacture and assemble the product. The company rents the equipment needed to produce the product at a rental cost of \$1,500 per month. Additional equipment will be needed as production is expanded and the monthly rental charge for this equipment will be \$900 per month. The building is depreciated on the straight-line basis at \$9,000 per year.

The company spends \$40,000 per year to market the product. Shipping costs for each unit are \$20 per unit. The company plans to liquidate (تصفية) several investments in order to expand production. These investments currently earn a return of \$8,000 per year.

Required:

Complete the answer sheet below by placing an "X" under each heading that identifies the cost involved. The "Xs" can be placed under more than one heading for a single cost, e.g., a cost might be a sunk cost, an overhead cost, and a product cost. An "X" can thus be placed under each of these headings opposite the cost.

	Variable Cost	Fixed Cost	Direct Materials	Direct Labor	Manufacturing Overhead	Period Cost	Opportunity Cost	Sunk Cost
Rental revenue								
Materials costs								
Production supervisor salary								
Production line workers wages								
Equipment rental								
Building depreciation								
Marketing costs								
Shipping costs								
Return on present investments								

Question #3: (20 points, time 50 minutes)

The Fine manufacturing company uses job order costing system. The company uses machine hours to apply overhead cost to jobs. At the beginning of 2015, the company estimated that 150,000 machine hours would be worked and \$900,000 overhead cost would be incurred during 2015. The balances of raw materials, work in process (WIP), and finished goods at the beginning of 2015 were as follows:

Raw materials	\$ 40,000
Work in process	30,000
Finished goods	60,000

The Fine manufacturing company recorded the following transactions during 2015:

- Raw materials purchased on account, \$820,000.
- Raw materials were requisitioned for use in production, \$760,000 (\$720,000 direct materials and \$40,000 indirect materials).
- Direct labor labor, \$150,000; indirect labor, \$220,000; sales commission, \$180,000; and administrative salaries, \$400,000.
- Sales travel costs were \$34,000.
- Utility costs incurred in the factory, \$86,000.
- Advertising expenses were \$360,000.
- Depreciation for the year was \$700,000 (\$560,000 relates to factory and \$140,000 relates to selling and administrative activities).
- Insurance expired during the year, \$20,000 (\$14,000 relates to factory operations and \$6,000 relates to selling and administrative activities).
- Fine manufacturing company worked 160,000 machine hours. Manufacturing overhead was applied to production.
- Goods costing \$1,800,000 were completed during the year.
- The goods costing \$1,740,000 were sold to customers for \$3,000,000.

Required:

1. Prepare journal entries to record the information given above.
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2. Prepare T-account for Manufacturing Overhead

3. Is Manufacturing Overhead (MOH) under-applied or over-applied for the year? Prepare a journal entry to close any balance in the Manufacturing Overhead account to Cost of Goods Sold.

4. Prepare an income statement for the year.

Question #4: (15 points, time 25 minutes)

A. The following data (in thousands of dollars) have been taken from the accounting records of Karter Corporation for the just completed year. Use these data to answer questions 1-5.

Sales	\$990	Administrative expenses	\$280
Raw materials inventory, beginning ...	\$70	Selling expenses	\$230
Raw materials inventory, ending	\$30	Work in process inventory, beginning	\$40
Purchases of raw materials	\$100	Work in process inventory, ending	\$70
Direct labor	\$200	Finished goods inventory, beginning	\$530
Manufacturing overhead	\$160	Finished goods inventory, ending	\$230

- The cost of the raw materials used in production during the year (in thousands of dollars) was:
A) \$130 B) \$170 C) \$140 D) \$60
- The cost of goods manufactured (finished) for the year (in thousands of dollars) was:
A) \$530 B) \$540 C) \$470 D) \$570
- The cost of goods sold for the year (in thousands of dollars) was:
A) \$490 B) \$450 C) \$620 D) \$600
- The total amount of inventories in this company at the end of this year (in thousands of dollars) was:
A) \$70 B) \$230 C) \$30 D) \$200
- The net operating income for the year (in thousands of dollars) was:
A) \$170 B) \$140 C) \$500 D) \$200

Question Number	1	2	3	4	5
Answer (Letter)					

B. Eames Company's quality cost report is to be based on the following data:

Technical support provided to suppliers	\$20,000	Depreciation of test equipment	\$68,000
Test and inspection of in-process goods	\$67,000	Debugging software errors	\$22,000
Returns arising from quality problems	\$12,000	Downtime caused by quality problems	\$95,000
Quality data gathering, and analysis	\$46,000	Supervision of inspection activities	\$12,000
Warranty repairs and replacements	\$97,000	Maintenance of test equipment	\$12,000

- What would be the total prevention cost appearing on the quality cost report?
A) \$44,000 B) \$66,000 C) \$32,000 D) \$113,000
- What would be the total appraisal cost appearing on the quality cost report?
A) \$163,000 B) \$135,000 C) \$159,000 D) \$92,000
- What would be the total internal failure cost appearing on the quality cost report?
A) \$162,000 B) \$34,000 C) \$117,000 D) \$192,000
- What would be the total external failure cost appearing on the quality cost report?
A) \$226,000 B) \$451,000 C) \$109,000 D) \$34,000
- What would be the total quality cost appearing on the quality cost report?
A) \$226,000 B) \$451,000 C) \$109,000 D) \$34,000

Question Number	6	7	8	9	10
Answer (Letter)					

Question #5: (10 points, time 30 minutes)

Delphi Company has developed a new product that will be marketed for the first time during the next fiscal year. Although the Marketing Department estimates that 35,000 units could be sold at \$36 per unit, Delphi's management has allocated only enough manufacturing capacity to produce a maximum of 25,000 units of the new product annually. The fixed expenses associated with the new product are budgeted at \$450,000 for the year. The variable expenses of the new product are \$16 per unit.

Required:

1. What is the total contribution margin at the break-even point?

2. How many units of the new product must Delphi sell during the next fiscal year in order to break even on the product?

3. What is the profit Delphi would earn on the new product if all of the manufacturing capacity allocated by management (25,000 units) is used and the product is sold for \$36 per unit?

4. What would be the percentage increase in net operating income for the new product if its unit sales could be increased by 10% without any increase in fixed expenses and without any change in the unit selling price and unit variable expense?

5. Delphi's management has stipulated (حدد) that the new product must earn a profit of at least \$125,000 in the next fiscal year. What unit selling price would achieve this target profit if all of the manufacturing capacity allocated by management is used and all of the output can be sold at that selling price?

Best Wishes