Carleton University
Sprott School of Business

# BUSI 1002 – Management Accounting

## Sample Mid-Term Exam

**There are 60 marks available on this exam**
**This exam comprises of 6 questions and has 10 pages.**

**Question 1 (10 marks) (20 minutes)**

*Each question is worth 1 marks (except questions 7 and 8 which are worth 2 marks each).* ***Please circle your answer directly on the test paper.***

1. The relevant range is the range of activity over which:
   a) Costs may fluctuate.
   b) Fixed and variable cost relationships are valid.
   c) Production will occur.
   d) Profits are maximized.

2. Manufacturing overhead includes
   a) all direct material, direct labour and administrative costs.
   b) all manufacturing costs except direct labour.
   c) all manufacturing costs except direct labour and direct materials.
   d) all selling and administrative costs.

3. A lawnmower manufacturer computed a cost per unit of $53 by adding together last month's direct labour, direct materials, and manufacturing overhead and dividing that total by the 10,000 units produced last month. (There were no beginning or ending inventories.) If 9,000 units are going to be manufactured this month, we would expect that the:
   a) cost per unit will remain the same.
   b) cost per unit will decrease.
   c) direction of change in unit costs cannot be determined.
   d) cost per unit will increase.

4. The plant manager's salary is an example of:
   a) Unit-level activity
   b) Batch-level activity
   c) Product-level activity
   d) Facility-level activity

5. The break-even volume in units will decrease if there is a(an)
   a) decrease in unit selling price.
   b) decrease in total fixed costs.
   c) increase in unit variable cost
   d) decrease in sales volume.

6. If company A has a higher degree of operating leverage than company B, then:
   a) the company A has higher variable expenses.
   b) the company A's profits are more sensitive to percentage changes in sales.
   c) the company A is more profitable.
   d) the company A is less risky.

7. Last year, Black Company reported sales of $640,000, a contribution margin of $160,000, and a net loss of $40,000. Based on this information, the break-even point was:
   a) $640,000.
   b) $480,000.
   c) $800,000.
   d) $960,000.
   e) $1,020,000.

8. The following data pertain to activity and costs for two recent months:

| | October | November |
|---|---|---|
| Activity level in units | 5,000 | 10,000 |
| Variable costs | $10,000 | ? |
| Fixed costs | 30,000 | ? |
| Mixed costs | 20,000 | ? |
| Total costs | $60,000 | $75,000 |

Assuming that these activity levels are within the relevant range, what were the mixed costs for November?

a) $20,000.
b) $25,000.
c) $35,000.
d) $40,000.

**Question 2 (7 marks) (14 minutes)**

Barnes, Inc. produces flags for department stores. The raw materials account includes both direct and indirect materials. The account balances at the beginning and at the end of August 20x4 are as follows:

| | *August 1* | *August 31* |
|---|---|---|
| Raw materials inventory | $14,000 | $15,300 |
| Work in process inventory | 20,500 | 18,800 |
| Finished goods inventory | 7,000 | 5,200 |

During the month, Barnes purchased $46,000 of raw materials; direct materials used in August amounted to $34,400. Factory labour cost for August was $85,200, of which 72% was related to direct labour. Overhead charges for depreciation, insurance, utilities and maintenance were $55,300 for the month.

***Required –***

(a) Determine total actual overhead for August.
(b) Prepare a schedule of cost of goods manufactured. Use actual overhead costs calculated in part (a).

**Question 3 (4 marks) (8 minutes)**

Classify each of the following manufacturing cost categories as direct material (DM), direct labor (DL), or indirect (I)

___ 1. Insurance on packaging equipment.
___ 2. Sheet aluminum used in making beer cans.
___ 3. Wages of machine operators.
___ 4. Salaries of plant security guards.
___ 5. Leather used in making footballs.
___ 6. Depreciation on materials handling equipment.
___ 7. Factory heating costs.
___ 8. Grapes used in making wine.
___ 9. Wages of finished goods quality inspectors.
___ 10. Wages of woodworkers in a furniture factory.

**Question 4 (12 marks) (24 minutes)**

Alanis Mor is set to analyze her costs for the year. She is the accountant in charge of product costing. She has recently received calls from the marketing department enquiring about the accuracy of product costing, because the company has recently raised prices of one of their product the without any response from competitors. Similarly, their other product has been under severe price competition by competitors and management is wondering if they can maintain their leadership role with regard to product position. Alanis, gathered the following information to help in her analysis:

Total manufacturing overhead for the year was budgeted at $5,525,000. Manufacturing overhead is charged on the basis of machine hours. The company only manufactures two products per year.

| | ***XZ14*** | ***JA21*** |
|---|---|---|
| Direct Costs | $15.50 | $17.25 |
| Machine hours worked | 30,000 | 120,000 |
| Direct Labour hours worked | 25,000 | 25,000 |
| Machine set-ups | 700 | 300 |
| Units produced | 60,000 | 200,000 |

***Required:***

a) Compute the unit cost of XZ14 and JA21, using the current cost allocation method. (4 marks)

b) Alanis decided to look into the activity based costing she heard about at a conference. Upon analysis, the following additional information was acquired: Manufacturing overhead consisted of the following cost pools:

| Item or Category | Cost Driver | Dollar Value |
|---|---|---|
| Machine Related Costs | Machine Hours | $1,650,000 |
| Labour Related Costs | Direct Labour Hours | $2,550,000 |
| Machine Setups | Machine Setups | $1,325,000 |
| Total | | $5,525,000 |

Compute the unit cost of XZ14 and JA21, using activity based costing. (8 marks)

**Question 5 (15 marks) (30 minutes)**

Dexter Corporation, which uses a job costing system, had two jobs in process at the start of 20x1: job no. 59 ($95,000) and job no. 60 ($39,500). The following information is available:

- The company applies manufacturing overhead on the basis of machine hours. Budgeted overhead and machine activity for the year were anticipated to be $720,000 and 20,000 hours, respectively.
- The company worked on three jobs during the first quarter. Direct materials used, direct labor incurred, and machine hours consumed were:

| Job No. | Direct Material | Direct Labor | Machine Hours |
|---|---|---|---|
| 59 | $18,000 | $45,000 | 900 |
| 60 | ---- | 25,000 | 600 |
| 61 | 37,000 | 35,000 | 1,200 |

- Manufacturing overhead during the first quarter included charges for depreciation ($20,000), indirect labor ($50,000), indirect materials used ($4,000), and other factory costs ($108,700).
- Dexter completed job no. 59 and job no. 60. Job no. 59 was sold for cash, producing a profit of $24,600 for the firm.

***Required:***

a. Determine the company's predetermined overhead application rate.

b. Prepare journal entries as of March 31 to record the following.

(i) The issuance of direct material to production, and the direct labor incurred.
(ii) The manufacturing overhead incurred during the quarter.
(iii) The application of manufacturing overhead to production.
(iv) The completion of job no. 59 and no. 60.
(v) The sale of job no. 59.

**Question 6 (12 marks) (24 minutes)**

Teri Hall has recently opened Sheer Elegance, Inc., a store specializing in fashionable stockings. Ms. Hall has just completed a course in managerial accounting, and she believes that she can apply certain aspects of the course to her business. She is particularly interested in adopting the cost-volume-profit (CVP) approach to decision making. Thus, she has prepared the following analysis:

| | |
|---|---|
| Sales price per pair of stockings | $2.00 |
| Variable expense per pair of stockings | 0.80 |
| Contribution margin per pair of stockings | $1.20 |
| | |
| Fixed expenses per year: | |
| Building rental | $12,000 |
| Equipment depreciation | 3,000 |
| Selling | 30,000 |
| Administrative | 15,000 |
| | $60,000 |

1. How many pairs of stockings must be sold to break even?
2. How many pairs of stockings must be sold to earn a $9,000 target net income for the first year? Assume a tax rate of 40%.
3. Ms. Hall believes that a 10% reduction in the selling price combined with a $5,000 increase in advertising expense will increase sales by 25%. What is the impact on operating income if this happens? Assume the current sales level is 70,000 pair of stockings. Use the incremental approach.
4. Refer to the original data. Actual sales for the first year were $125,000.
   a. What is the store's degree of operating leverage?
   b. Ms. Hall is confident that with some effort she can increase sales by 20% next year. What would be the expected percentage increase in net income? Use the operating leverage concept to compute your answer.

**SOLUTION**

**Question 1 – Questions 1-6 = 1 marks each; Questions 7-8: 2 marks each**

1. b

2. c

3. d

4. d

5. b

6. b

7. c Fixed costs = $160,000 + 40,000 = $200,000
CM Ratio = $160,000 / 640,000 = 25%
Breakeven point = $200,000 / .25 = $800,000

8. b Variable costs = $10,000 / 5,000 x 10,000 = $20,000
Mixed costs = $75,000 – 20,000 – 30,000 = $25,000

**Question 2 – 7 marks**

(a) Indirect materials used

| | | |
|---|---|---|
| Raw materials inventory, Aug 1 | | $14,000 |
| Purchases | | 46,000 |
| Raw materials inventory, Aug 31 | | (15,300) |
| Raw materials used | | 44,700 |
| Less direct materials used | | (34,400) |
| | **2** | 10,300 |
| Indirect labour ($85,200 x 28%) | **1** | 23,856 |
| Other overhead | **0.5** | 55,300 |
| | | $89,456 |

(b) *Barnes Inc.*
*Schedule of Cost of Goods Manufactured*
*For the month ended August 31, 20x4*

| | | |
|---|---|---|
| Direct materials used | **1** | $34,400 |
| Direct labour ($85,200 x 72%) | **1** | 61,344 |
| Overhead | **0.5** | 89,456 |
| Total manufacturing costs | | 185,200 |
| WIP – beginning | **0.5** | 20,500 |
| WIP – end | **0.5** | (18,800) |
| Cost of goods manufactured | | 186,900 |

**Question 3 – 4 marks: take each correct answer and multiply by 0.4**

1. I
2. DM
3. DL
4. I
5. DM
6. I
7. I
8. DM
9. I
10. DL

**Question 4 – 12 marks**

a. POR = $5,525,000 ÷ 150,000 = $36.83 per MH **1 mark**

| | | *XZ14* | *JA21* |
|---|---|---|---|
| Direct Costs | **1** | $15.50 | $17.25 |
| Overhead: 0.5 hours x $36.83 \| 0.6 hours x $36.83 | **1** | 18.42 | 22.10 |
| Cost per unit | | $33.92 | $39.35 |

b. Rates -

Machine related: $1,650,000 ÷ 150,000 = $11/MH **1**

Labour related: $2,550,000 ÷ 50,000 = $51/DLH **1**

Machine setups: $1,325,000 ÷ 1,000 = $1,325/Setup **1**

| | | *XZ14* | *JA21* |
|---|---|---|---|
| Machine related: $11 x 30,000 \| $11 x 120,000 | **1** | $330,000 | $1,320,000 |
| Labour related: $51 x 25,000 \| $51 x 25,000 | **1** | 1,275,000 | 1,275,000 |
| Machine Setups: $1,325 x 700 \| $1,325 x 300 | **1** | 927,500 | 397,500 |
| | | 2,532,500 | 2,992,500 |
| | | ÷ 60,000 | ÷ 200,000 |
| Overhead cost per unit | **1** | 42.21 | 14.96 |
| Direct costs | **1** | 15.50 | 17.25 |
| Cost per unit | | $54.71 | $32.21 |

**Question 5 – 15 marks**

a. Predetermined overhead rate: $720,000 ÷ 20,000 hours = $36 per machine hour
**1 mark**

b. 1.

| | | |
|---|---|---|
| Work-in-Process Inventory | 55,000* | |
| Raw-Material Inventory | | 55,000 |

**1 mark**

| | | |
|---|---|---|
| Work-in-Process Inventory | 105,000** | |
| Wages Payable | | 105,000 |

**2 marks**

*$18,000 + $37,000 = $55,000
**$45,000 + $25,000 + $35,000 = $105,000

2.

| | | |
|---|---|---|
| Manufacturing Overhead | 182,700 | |
| Accumulated Depreciation | | 20,000 |
| Wages Payable | | 50,000 |
| Manufacturing Supplies Inventory | | 4,000 |
| Miscellaneous Accounts | | 108,700 |

**3 marks**

3.

| | | |
|---|---|---|
| Work-in-Process Inventory | 97,200* | |
| Manufacturing Overhead | | 97,200 |

**2 marks**

* (900 + 600 + 1,200) x $36 = $97,200

4.

| | | |
|---|---|---|
| Finished-Goods Inventory | 276,500* | |
| Work-in-Process Inventory | | 276,500 |

**3 marks**

* Job 59: $95,000 + $18,000 + $45,000 + (900 x $36) = $190,400
Job 60: $39,500 + $25,000 + (600 x $36) = $86,100

5.

| | | |
|---|---|---|
| Cash | 215,000* | |
| Sales Revenue | | 215,000 |

**2 marks**

*$190,400 + $24,600 = $215,000

| | | |
|---|---|---|
| Cost of Goods Sold | 190,400 | |
| Finished-Goods Inventory | | 190,400 |

**1 mark**

**Question 6 – 12 marks**

1. $60,000 / 1.20 = 50,000 units **1**

2. Operating income = $9,000 / .6 = $15,000
($15,000 + 60,000) / 1.20 = 62,500 **2**

3. Net selling price = $2.00 x .9 = $1.80; **1**
New CM/unit = $1.80 – 0.80 = $1.00 **1**

| | | |
|---|---|---|
| Change in contribution margin - | | |
| Before: 70,000 x $1.20 | **1** | 84,000 |
| After: 70,000 x 1.25 x 1.00 | **1** | 87,500 |
| Increase in CM | | 3,500 |
| Increase in advertising | **1** | (5,000) |
| | | ($1,500) |

4a. Total CM = $125,000 x 0.60 = $75,000
Operating income = $75,000 - 60,000 = $15,000
DOL = $75,000 / 15,000 = 5 **3**

4b. 5 x 20% = 100% **1**