Carleton University Sprott School of Business

BUSI 1002 – Management Accounting

Mid-Term Exam – July 26, 2013

There are 60 marks available on this exam
This exam comprises of 6 questions and has 11 pages.

Question 1 (15 marks) (30 minutes)

Each question is worth 1.5 marks. ***Please circle your answer directly on the test paper.***

1. What is the outcome if the cost of goods sold is greater than the cost of goods manufactured?
   a) Work-in-process inventory has decreased during the period.
   b) Finished goods inventory has increased during the period.
   c) Total manufacturing costs must be greater than cost of goods manufactured.
   d) Finished goods inventory has decreased during the period.

2. Last month, when 10,000 units of a product were manufactured, the cost per unit was $60 (total cost = $600,000). At this level of activity, variable costs are 50% of total unit costs. If 10,500 units are manufactured next month and cost behaviour patterns remain unchanged, what will be the cost per unit? Round to the nearest penny.
   a) $60.00
   b) $59.17
   c) $58.57
   d) $57.14

3. The Work in Process inventory account of a manufacturing company shows a balance of $2,400 at the end of an accounting period. The job cost sheets of two uncompleted jobs show charges of $400 and $200 for direct materials and charges of $300 and $500 for direct labour. From this information, what predetermined overhead rate, as a percentage of direct labour costs, does the company appear to be using?
   a) 80%
   b) 125%
   c) 240%
   d) 300%

4. Dowan Company uses a predetermined overhead rate based on direct labour hours to apply manufacturing overhead to jobs. Last year, Dowan Company incurred $156,600 in actual manufacturing overhead cost. The Manufacturing Overhead account showed that overhead was underapplied by $12,600 for the year. If the predetermined overhead rate is $6.00 per direct labour-hour, how many hours did the company work during the year?
   a) 28,200 hours.
   b) 26,000 hours.
   c) 25,000 hours.
   d) 24,000 hours.

5. Gerber Company is planning to sell 200,000 units for $2.00 a unit and will just break even at this level of sales. The contribution margin ratio is 25%. What are the company's fixed expenses?
   a) $100,000
   b) $160,000
   c) $200,000
   d) $300,000

6. Marling Corporation has budgeted the following data:

Expected Sales	$600,000
Variable Expenses	$420,000
Fixed Expenses	$120,000

   What is the break-even in sales dollars?
   a) $540,000.
   b) $420,000.
   c) $400,000.
   d) $660,000.

7. Atlanta, Inc., which uses the high-low method to analyze cost behavior, has determined that machine hours best explain the company's utilities cost. The following data being available for the first six months of the year:

Month	Machine Hours	Utilities
January	800	$8,700
February	720	8,360
March	810	8,950
April	920	9,760
May	950	9,625
June	900	9,150

The variable utilities cost per machine hour is:

a) $0.18
b) $4.50
c) $5.00
d) $5.50

8. Which of the following are examples of a mixed cost?

I. A building that is used for both manufacturing and sales activities
II. An employee's compensation, which consists of a flat salary plus a commission
III. Amortization that relates to five different machines
IV. Maintenance cost that must be split between sales and administrative offices

a) I only.
b) II only.
c) I and III.
d) I, III, and IV.
e) I, II, III, and IV.

9. How would the cost of rent for a manufacturing plant generally be classified?

	Prime Cost	*Product Cost*
a)	No	Yes
b)	No	No
c)	Yes	No
d)	Yes	Yes

10. 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

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 (13 marks) (26 minutes)

Last night, the sprinkler system at Plant A was accidentally set off. The ensuing deluge destroyed most of the cost records in Plant A for the month just completed (May). The plant manager has come to you in a panic - she has to complete her report for head office by the end of today. She wants you to give her the numbers she needs for her report. She can provide you with the information:

Direct Materials		
Beg	25,000	
End	55,000	

Work in Process		
Beg	15,000	

Finished Goods		
Beg	??	
		400,000 Transferred Out
End	50,000	

Cost of Goods Sold		

Manufacturing Overhead		
Beg	0	

Wages Payable		
	10,000	Beg
	20,000	End

Other information:

- total direct materials transfers to work-in-process for the month were $180,000
- a total of 10,000 direct labour hours were worked during the month at an average wage of $15 per hour
- overhead is applied to production at $10 per direct labour hour
- on May 31, there was 1 job, #XL235, left in Work in Process. It included $4,000 of direct materials and had received 20 direct labour hours to date (it started on May 30).
- actual manufacturing overhead expenses for May were 95,000
- there are no indirect materials or indirect labour charges in the month of May
- the company writes off over/under applied overhead to cost of goods sold at the end of the year. The company's year end is December 31.

Required -

a. Material purchases during May.
b. Cost of work in process inventory at the end of May.
c. Amount paid for direct labour in May.
d. Cost of goods sold for May.
e. Over/under applied overhead in May.
f. Cost of goods transferred from Work in Process to Finished Goods in May.
g. Cost of finished goods inventory at the beginning of May.

Question 4 (10 marks) (20 minutes)

The Manhattan Company manufactures two models of compact disc players: a deluxe model and a regular model. The company has manufactured the regular model for years; the deluxe model was introduced recently to tap a new segment of the market. Since the introduction of the deluxe model, the company's profits have steadily declined and management has become increasingly concerned about the accuracy of its costing system. Sales of the deluxe model have been increasing rapidly.

The current cost accounting system allocates manufacturing support costs to the two products on the basis of direct labor hours. For 20x7, the company has estimated that it will incur $1 million in manufacturing support cost and produce 5000 units of the deluxe model and 40,000 units of the regular model. The deluxe model requires two hours of direct labor and the regular model requires one hour. Material and labor costs per unit and selling price per unit are as follows:

	Deluxe	*Regular*
Direct materials cost	$45	$30
Direct labor cost	$20	$10
Selling price	$140	$80

Required -

(a) Determine the cost to manufacture one unit of each model using the current cost accounting system of allocating manufacturing support costs based on direct labour hours. (3 marks)

(b) The company has decided to allocate manufacturing support costs based on four activities. The amount of manufacturing support cost traceable to the four activities for 20x7 are given below:

COST DRIVER DEMANDED

Activity	Cost Driver Cost		Total	Deluxe	Regular
Purchase orders	Number of orders	$ 180,000	600	200	400
Quality control	Number of inspections	250,000	2,000	1,000	1,000
Production setups	Number of setups	220,000	200	100	100
Machine maintenance	Machine hours	350,000	35,000	20,000	15,000
		$ 1,000,000			

Using the activity-based costing data presented above, compute the total cost to manufacture one unit of each model. (7 marks)

Question 5 (6 marks) (12 minutes)

The Bruggs & Strutton Company manufactures an engine for carpet cleaners called the "Snooper." Budgeted cost and revenue data for the coming month of the "Snooper" are given below, based on sales of 40,000 units.

Sales	$1,600,000
Less: Cost of goods sold	1,120,000
Gross margin	$ 480,000
Less: Operating expenses	100,000
Operating income	$ 380,000

Cost of goods sold consists of $800,000 of variable costs and $320,000 of fixed costs. Operating expenses consist of $40,000 of variable costs and $60,000 of fixed costs.

Required:

a. Calculate the break-even point in units.
b. How many units must be sold to generate an operating income equal to 15% of sales?
c. Using the degree of operating leverage, calculate the percentage increase in operating income that would result if sales were to increase by 25% over the budgeted amount.

Question 6 (9 marks) (18 minutes)

The Foerster Company started operations on January 1, 20x3. The following information is available for the year ended December 31, 20x3:

Units produced	125,000
Units sold	90,000
Selling price (per unit)	$80
Variable costs (per unit):	
Manufacturing	30
Selling	7
Fixed Costs (in total)	
Manufacturing	$2,500,000
Selling	600,000

Required –

(a) Prepare an absorption costing income statement for the year ended December 31, 20x3.

(b) What would variable costing income be for the year ended December 31, 20x3. DO NOT prepare an income statement for this part.

SOLUTION

Question 1

1. d

2. c Fixed cost per unit = 10,000 x $30 / 10,500 = 28.57
   Total unit cost = $30 + 28.57 = $58.57

3. b Total overhead = $2,400 – 400 – 200 – 300 – 500 = $1,000
   Overhead as a % of direct labour cost = $1,000 / 800 = 125%

4. d Applied overhead = $156,600 – 12,600 = $144,000
   $144,000 / 6 = 24,000 hours

5. a At breakeven point, TCM = FC
   TCM = 200,000 x $2 x 25% = $100,000

6. c CM ratio = $180,000 / 600,000 = 30%
   Breakeven sales = $120,000 / .3 = $400,000

7. d Variable cost = ($9,625 – 8,360) / (950 – 720) = $5.50

8. b

9. a

10. d

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 – 13 marks

a. 180,000 $^{\text{Requisitions}}$ - 25,000 $^{\text{Op Inv}}$ + 55,000 $^{\text{End Inv}}$ = $210,000 **1 mark**

b. Job #XL235:

Direct materials	**0.5**	$4,000
Direct labour: 20 hours x $15	**0.5**	300
Overhead: 20 hours x $10	**1**	200
		$4,500

c. 10,000 $^{\text{Wages Pay Beg}}$ + 150,000 $^{\text{Direct Labour}}$ - 20,000 $^{\text{Wages Pay end}}$ = $140,000 **1 mark**

d. $400,000 Amount transferred out of finished goods inventory **1 mark**

e.

Actual overhead incurred	**1**	$95,000
Applied overhead: 10,000 direct labour hours x $10	**1**	100,000
Overapplied overhead		$5,000

f.

Beginning WIP	**0.5**	$15,000
Direct materials	**0.5**	180,000
Direct labour	**1**	150,000
Manufacturing overhead applied	**1**	100,000
Less ending WIP	**1**	-4,500
		$440,500

g. $400,000 $^{\text{Transferred out}}$ - 440,500 $^{\text{Transferred in}}$ + 50,000 $^{\text{End inv}}$ = 9,500 **2 marks**

Question 4 – 10 marks

(a) POR = $1,000,000 / 50,000 = $20 per direct labour hour **1**

		Deluxe	*Regular*
Direct materials	**0.5**	$45	$30
Direct labour	**0.5**	20	10
Overhead: 2 hours x $20 | 1 hour x $20	**1**	40	20
		$105	$ 60

(b) Rates:

Purchase orders: $180,000 ÷ 600 = $300 per purchase order
Quality control: $250,000 ÷ 2,000 = $125 per inspection
Production setups: $220,000 ÷ 200 = $1,100 per setup
Machine maintenance: $350,000 ÷ 35,000 = $10 per machine hour

		Deluxe	*Regular*
Overhead -			
• Purchase Orders: $300 x 200 | 400	**1**	$ 60,000	$120,000
• Quality Control: $125 x 1,000 | 1,000	**1**	125,000	125,000
• Production Setups: $1,100 x 100 | 100	**1**	110,000	110,000
• Machine maintenance: $10 x 20,000 | 15,000	**1**	200,000	150,000
		$495,000	$505,000
		÷ 5,000	÷ 40,000
Overhead cost per unit	**1**	$99.00	12.63
Direct materials	**1**	45.00	$30.00
Direct labour	**1**	20.00	10.00
		$164.00	$52.63

Question 5 – 6 marks

a.

Sales	$1,600,000
Less variable costs ($800,000 + 40,000)	840,000
Contribution margin	$760,000

CM/Unit = $760,000 / 40,000 = $19.00 **1**

BE (units) = $380,000 / 19.00 = 20,000 **1**

b. 19x – 380,000 = .15(40x)
19x – 380,000 = 6x
13x = 380,000
x = 380,000 / 13 = 29,231 units **2**

c. DOL = $760,000 / 380,000 = 2 **1**
Increase in operating income = 2 x 25% = 50% **1**

Question 6 – 9 marks

(a)	Sales (90,000 x $80)			$7,200,000
	Cost of goods sold			
	Cost of goods manufactured			
	Variable: 125,000 x $30	**1**	3,750,000	
	Fixed	**1**	2,500,000	
			6,250,000	
	Ending inventory: 35,000 x ($6,250,000 / 125,000)	**2**	1,750,000	4,500,000
	Gross margin			2,700,000
	Selling expenses			
	Variable: 90,000 x $7	**1**	630,000	
	Fixed	**1**	600,000	1,230,000
	Operating income			$1,470,000
(b)	Absorption costing income			$1,470,000
	Less fixed costs in ending inventory: 35,000 x $20		**2**	700,000
	Variable costing income		**1**	$ 770,000