

MID TERM EXAMINATION

Fall 2007

PLEASE READ THIS PAGE – IT CONTAINS IMPORTANT INFORMATION BEFORE STARTING TO WRITE BE SURE YOU ARE WRITING IN THE CORRECT EXAM ROOM RELATED TO YOUR SECTION

1. This examination will last Three (3) hours and consists of Five (6) Questions printed on (9) pages including this page. Make sure your copy of the exam is complete before starting.
2. Write all your answers (including answers to multiple-choice statements) in the lined examination answer booklet that has been provided to you separately. You may answer the Questions in any order. Indicate clearly your *professors name* in the front of the booklet..
3. Your answers may be written in pencil or ink.
4. Read the Questions carefully and budget your time carefully. Show details of all work in order to benefit from part marks, except for Multiple-choice questions. Attempt all Questions.
5. This is a closed book examination; no reference to notes, etc. is allowed. However, a silent hand-held four-function calculator and one standard (not electronic) dictionary are permitted.
6. Invigilators will not answer questions, unless you think there is an error in the examination questionnaire.

QUESTION I. 15 POINTS

MULTIPLE CHOICES: Choose the one alternative that best completes the statement or answers the question.

- 1) As activity volume changes within the relevant range, costs that tend to remain the same include:
 - A) fixed costs per unit
 - B) total variable costs
 - C) total mixed costs
 - D) all of the above
 - E) none of the above
- 2) Which of the following is NOT TRUE of Period Costs?
 - A) For manufacturing sector companies they include all non-manufacturing costs.
 - B) They are expected to benefit future periods.
 - C) They are all of the costs on the income statement except cost of goods sold.
 - D) They are also called operating costs.
 - E) For merchandising sector companies they include all costs not related to the cost of goods purchased for resale.
- 3) Which of the following is true concerning Prime Costs?
 - A) They include direct manufacturing labour, in a two-part classification.
 - B) They are indirect manufacturing costs.
 - C) They equal the sum of fixed manufacturing costs plus conversion costs.
 - D) Prime costs are direct manufacturing costs.
 - E) They equal the sum of direct manufacturing costs plus conversion costs.
- 4) Cost-volume profit is used to analyze
 - A) the behaviour of variable costs at all levels of output.
 - B) the behaviour of some costs and revenues as changes occur in the output level.
 - C) the behaviour of total costs, total revenues, and operating income as changes occur in the output level.
 - D) multiple revenue drivers and a single cost driver in special case CVP.
 - E) a single revenue driver and multiple cost drivers in special case CVP.
- 5) The determination of a cost as being either direct or indirect depends upon
 - A) the allocation system.
 - B) only the cost object chosen to determine its individual costs.
 - C) the cost tracing system.
 - D) the accounting system.
 - E) the choice of the cost object, and the materiality of the cost in question.

- 6) Which one of the following methods focuses on the total costs and total equivalent units completed to date?
 - A) first-in, first-out method
 - B) equivalent-units method
 - C) standard-costs method
 - D) last in last out method
 - E) weighted-average method

- 7) The breakeven point in CVP analysis is defined as
 - A) where the unit contribution margin equals the selling price less the unit variable cost.
 - B) the point where total revenue equals fixed costs.
 - C) the point where total revenue equals total costs.
 - D) the point where output units equal input units.
 - E) where revenues less variable costs equal operating income.

- 8) Comparing contribution margin [CM] to Gross margin [GM], which of the following is TRUE?
 - A) If Cost of goods sold does not include any fixed costs, then CM will equal GM.
 - B) In the merchandising sector, CM and GM are equivalent terms
 - C) If Cost of goods sold includes fixed costs, then CM will exceed GM.
 - D) CM is computed after all variable costs are deducted, but GM is computed by deducting only cost of goods sold from revenues.
 - E) If CM and GM remain constant from one period to the next, operating income has to remain constant as well.

- 9) Which of the following statements about normal costing is TRUE?
 - A) Direct costs and indirect costs are traced using budgeted rates.
 - B) Direct costs are traced by using the actual direct-cost rate times the budgeted quantity of the direct costs input.
 - C) Direct costs are traced using a budgeted rate, and indirect costs are allocated using an actual rate.
 - D) Direct costs and indirect costs are allocated using an actual rate.
 - E) Direct costs are traced using an actual rate, and indirect costs are allocated using a budgeted rate.

- 10) Manufacturing Overhead Control and Manufacturing Overhead Allocated in the General Ledger respectively, refer to
 - A) the record of actual overhead costs, and the record of overhead allocated to specific jobs using budgeted rates x actual base units.
 - B) the record of total budgeted overhead costs and the record of actual overhead allocated to date.
 - C) the record of actual overhead costs, and the record of overhead allocated to specific jobs using budgeted rates x budgeted base units.
 - D) the record of total budgeted overhead costs, and the record of overhead allocated to specific jobs using budgeted rates x actual base units.
 - E) the record of actual overhead costs, and the record of overhead allocated to specific jobs using actual rates x budgeted base units.

- 11) When using activity-based costing in a manufacturing setting, its' distinctive feature is the focus on
- minimizing manufacturing costs.
 - materials handling.
 - minimizing the number of journal entries related to the manufacturing process.
 - materials sorting.
 - activities as the fundamental cost objects.
- 12) The logic of an ABC system includes all of the following statements, EXCEPT
- a greater level of detailed information concerning costs will help organizations be more efficient.
 - a strong cause-and-effect relationship between overhead costs and the cost allocation base is essential.
 - activity-specific cost-allocation bases are the drivers of costs in the cost pools.
 - the requirement to measure cost-allocation bases of different activities used by different products is essential.
 - the overhead used by different products is not important, as it is a fixed cost.
- 13) Which of the following formulae is correct when using the contribution margin method to determine the breakeven point?
- unit contribution margin times unit variable cost equals the breakeven number of units
 - unit contribution margin times the breakeven number of units equals fixed costs
 - unit contribution margin times the breakeven number of units equals total variable costs
 - selling price less unit contribution margin equals unit fixed cost for all values below or at the breakeven number of units
 - revenues less operating income equal variable costs plus fixed costs
14. Mansfield Company's factory overhead costs was under-applied by \$14,000 in a certain year. The budgeted overhead was \$303,000 and the applied overhead was \$310,000. Compute the actual overhead:
- \$310,000
 - \$324,000
 - \$296,000
 - \$289,000
 - None of the above
15. Liva Company is trying to develop a cost formula for its maintenance costs in order to estimate such costs for the coming year. The following observations have been made:

Month	Direct Labour Hours	Maintenance Costs Incurred
January	4,000	\$ 900
February	6,500	\$ 1,325
March	7,000	\$ 1,500
April	5,500	\$ 1,150

Using high-low analysis, determine the variable cost per direct labour hour.

- \$1.00
- \$0.10
- \$0.20
- \$1.50
- None of the above

QUESTION II. 20 POINTS

The following information is taken from the records of Montreal Company for March:

Purchases:

Direct materials	\$9,000,000
Indirect materials	\$200,000
Office supplies	\$420,000

Sales \$36,000,000

Salaries and Benefits:

Selling and administrative	\$4,000,000
Direct manufacturing labour	\$6,000,000

Rent*	\$4,000,000
Utilities*	\$1,200,000
Advertising	\$700,000

Inventories:	<u>March 1</u>	<u>March 31</u>
Direct materials	\$4,400,000	\$1,600,000
Indirect materials	\$500,000	\$ 600,000
Office supplies	\$150,000	\$180,000
Finished goods	\$24,000,000	\$16,000,000

*Of these costs, 60 percent are assigned to manufacturing and 40 percent to selling and administration.

Required:

- Prepare a schedule of cost of goods manufactured.
- Prepare an income statement for the month.
- Compute the prime costs, conversion costs, and indirect manufacturing costs.

QUESTION III. 20 POINTS

Popcorn, Inc. currently sells plain popcorn at the ballpark. During a typical month the stand reports a profit of \$18,000 with sales of \$100,000 and fixed costs of \$42,000 and variable costs of \$0.64 per box. Next year the company plans to start selling candy-coated popcorn for \$3 a box. The candy-coated popcorn will have a variable cost of \$0.72. The new equipment and personnel to handle the popcorn will increase monthly fixed costs by \$17,616. Initial sales of candy-coated popcorn should total 10,000 boxes. However, most of the candy-coated popcorn sales are anticipated to come from current plain popcorn purchasers. Consequently, monthly sales of plain popcorn will decline to \$40,000. After the first year of candy-coated popcorn sales, the company president believes that it will increase to 15,000 boxes a month and that plain popcorn sales will increase to \$225,000 a month.

Required:

- a. Determine the monthly breakeven sales in dollars before adding the candy-coated popcorn product.
- b. Determine the monthly breakeven sales during the first year of candy-coated popcorn sales assuming a constant sales mix of **\$160** plain popcorn to **\$600** candy-coated popcorn.

QUESTION IV. 10 POINTS

Moir Company has just finished its first year of operations and must decide which method to use for adjusting cost of goods sold. Because the company used a budgeted overhead-cost rate for its manufacturing operations, the amount that was allocated (\$435,000) to jobs manufactured was different from the actual amount incurred (\$425,000).

Ending balances in the relevant accounts were:

Work-in-Process	\$ 40,000
Finished Goods	80,000
Cost of Goods Sold	680,000

Required:

- a. Prepare a journal entry to write off the difference between allocated and actual overhead that was allocated to jobs manufactured.
- b. Prepare a journal entry that prorates the write-off of the difference between allocated and actual overhead that was allocated to jobs manufactured.

QUESTION V. 15 POINTS

A company manufactures household items sold at trade shows. The items, classified as either Trinkets or Widgets are manufactured on a common assembly line. Although different direct materials are used, and the machinery is re-tooled for each product, the direct labourers are the same for each product line.

The plant-wide rate for allocating manufacturing overhead to its products is no longer acceptable. The production manager has heard about activity-based costing and has assembled some information for use in changing the cost system to a cost driver concept.

With the help of the accounting department, the manager has been able to establish the following relationships between production costs and some of the indirect manufacturing activities for August, along with the production data for the two product lines:

Activity	Cost Driver	Allocation Rate	Trinkets	Widgets
Material handling	Number of parts	\$ 1.00 per part	2,000	1,300
Machining	Machine hours	\$15.00 per hour	205	300
Assembly	Units began	\$ 1.60 per unit	1,000	1,300
Inspection	Number tested	\$ 2.00 per unit	100	1,200
Direct costs:				
Labour			\$12,000	\$12,000
Materials			\$ 5,200	\$ 2,600

Required:

Determine the total production cost of each of the two product lines for August and the cost per unit assuming all units started were completed.

QUESTION VI. 20 POINTS

General Fabricator assembles its product in several departments. It has two departments that process all units. During October the beginning work-in-process in the Cutting department was half completed as to conversion and completed as to direct materials. The beginning inventory included \$12,000 for materials and \$3,000 for conversion costs. Ending work-in-process inventory in the Cutting department was 40 percent complete. In the Cutting department direct materials are added at the beginning of the process and conversion costs are incurred evenly during the process. General Fabricator uses the weighted average method to calculate equivalent units in the Cutting department.

Beginning work-in-process in the Finishing department was 75 percent complete as to conversion. In the Finishing department direct materials are added at the end of the process and conversion costs are incurred evenly during the process.

Beginning inventories included \$16,000 for transferred-in costs and \$20,000 for conversion costs. Ending inventory was 25 percent complete. General Fabricator uses the FIFO method to calculate equivalent units in the Finishing department

Additional information about the two departments follows:

	Cutting	Finishing
Beginning work-in-process units	20,000	20,000
Units started this period	40,000	
Units transferred this period	50,000	50,000
Ending work-in-process units		20,000
Material costs added	\$48,000	\$28,000
Direct manufacturing labour	\$16,000	\$40,000
Factory overhead costs	\$8,000	\$24,000

Required:

Prepare the equivalent units of production and the production cost report using FIFO for the Finishing department for the month of October. (Hint using the appropriate method to calculate first the costs of units transferred from Cutting Department to Finishing Department).

QUESTION I. 15 POINTS

1 Mark each.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) E

2) B

3) D

4) C

5) E

6) E

7) C

8) D

9) E

10) A

11) E

12) E

13) B

14) B

15) C

QUESTION II. 20 POINTS

a.

Britton Company Cost of Goods Manufactured Schedule For March

Direct materials:

Beginning inventory	\$ 4,400,000		
Purchases of direct materials	<u>9,000,000</u>		
Cost of direct materials available	\$13,400,000		
Ending inventory	<u>1,600,000</u>		
Direct materials used		\$11,800,000	3 Marks
Direct manufacturing labour		6,000,000	1 Mark
Manufacturing overhead:			
Rent (60%)	\$2,400,000		1.5 Marks
Utilities (60%)	720,000		1.5 Marks
Indirect materials			
(\$200,000 + \$500,000 - \$600,000)	<u>100,000</u>	<u>3,220,000</u>	1 Mark
Cost of goods manufactured		\$21,020,000	1 mark TOTAL 9 Marks

B. Britton Company Income Statement For the Month of March

Sales		\$36,000,000	0.5 Mark
Cost of goods sold			
Beginning inventory	\$24,000,000		
Cost of goods manufactured	<u>21,020,000</u>		
Cost of goods available for sale	\$45,020,000		
Ending inventory	<u>16,000,000</u>		
Cost of Goods Sold		<u>29,020,000</u>	2.0 Marks
Gross margin		\$ 6,980,000	0.5 Mark
Other costs			
Supplies			
(\$420,000 + \$150,000 - \$180,000)	\$ 390,000		1.5 Marks
Selling and administrative salaries	4,000,000		0.5 Mark
Rent (40%)	1,600,000		1 Mark
Utilities (40%)	480,000		1 Mark
Advertising	<u>700,000</u>	.05 Mark	<u>7,170,000</u>
Operating Income <Loss>		\$ (190,000)	.05 Mark

c.	Prime costs	$\$11,800,000 + \$6,000,000 = \$17,800,000$	1 Mark
	Conversion costs	$\$6,000,000 + \$3,220,000 = \$9,220,000$	1 Mark
	Indirect manufacturing costs	$= \$3,220,000$	1 mark TOTAL 11 Marks
	TOTAL		20 Marks

QUESTION III. 20 POINTS

a. Contribution margin = Fixed costs + Profit
 $= \$42,000 + \$18,000 = \$60,000$ **2 marks**

Variable costs = Sales - Contribution margin
 $= \$100,000 - \$60,000 = \$40,000$ **2 marks**

Units sold = TVC/ VC per unit $= \$40,000 / \$0.64 = 62,500$ boxes **2 marks**
 Selling price = TS/T Units $= \$100,000 / 62,500 = \1.60 per box **2 marks**

N = Breakeven units
 $\$1.60N - \$0.64N - \$42,000 = 0$
 $\$0.96N - \$42,000 = 0$
 $N = \$42,000 / \0.96
 $N = 43,750$ boxes X $\$1.6 = \$70,000$ **2 marks Total 10 Marks**

b. Sales mix in units $= \$160 / \$1.6 = 100$ plain popcorn boxes to **1.5 marks**
 $\$600 / \$3 = 200$ candy-coated popcorn boxes. **1.5 marks**

	Plain popcorn	Candy-coated popcorn	
Sales Price	\$1.6	\$3.0	
Variable costs	<u>\$ 0.64</u>	<u>\$0.72</u>	
CM	\$0.96	\$2.28	
Sales mix	<u>1</u>	<u>2</u>	
WACM per basket	\$0.96	+	\$4.56 = \$5.52 = \$1.84 3 marks

BE = FC/ WACM $= \$59,616 / \$5.52 = 10,800$ Baskets **2 marks**

Plain popcorn = $10,800 \times 1 = 10,800$ boxes **1 mark**
 Candy-coated popcorn = $10,800 \times 2 = 21,600$ boxes X $\$3 = \$64,800$ **1 mark**
Total 10 Marks

Total 10 Marks for A + **Total 10 Marks** for B = **Total 20 Marks**

QUESTION IV. 10 POINTS

a. **Total 3 Marks**

Manufacturing Overhead Control	10,000	
Cost of Goods Sold		10,000

b. **Total 7 Marks**

Work-in-process	\$ 40,000	5 %	x \$10,000	= \$500	1 Mark
Finished goods	80,000	10	x \$10,000	= 1,000	1 Mark
Cost of goods sold	<u>680,000</u>	<u>85</u>	x \$10,000	= 8,500	1 Mark
Total	\$800,000	100 %			

Manufacturing Overhead Control	10,000	
Work-in-Process		500
Finished Goods		1,000
Cost of Goods Sold		8,500
		4 Mark

Total 10 Marks

QUESTION V. 15 POINTS

	Trinkets	Widgets	
Direct manufacturing costs:			
Direct labour	\$12,000	\$12,000	
Direct materials	<u>5,200</u>	<u>2,600</u>	
Total direct costs	17,200	14,600	2 Marks each = 4
Indirect manufacturing costs:			
Material handling (\$1.00 x 2,000, x 1,300) =	2,000	1,300	
Machining(\$15.00 x 205, x 300) =	3,075	4,500	
Assembly (\$1.60 x 1,000, x 1,300) =	1,600	2,080	
Inspection (\$2.00 x 100, x 1,200) =	<u>200</u>	<u>2,400</u>	
Total indirect costs	<u>6875</u>	<u>10,280</u>	4 Marks each = 8
Total manufacturing costs	\$24,075	\$24,880	
Unit manufacturing costs	<u>divide</u> 1,000	<u>1,300</u>	
	= \$24.075	= 19.138	1.5 Marks each = 3

Total 15 Marks

QUESTION VI. 20 POINTS

Production Cost Worksheet Cutting Department Weighted-average Method

	Physical units	Direct materials	Conversion
Work in process, beginning	20,000		
Started during period	<u>40,000</u>		
To account for	60,000		
Units transferred out	50,000	50,000	50,000
Work in process ending	<u>10,000</u>	<u>10,000</u>	<u>4,000</u>
Accounted for	60,000	60,000 1 Mark	54,000 1 Mark
Costs	Totals	Direct materials	Conversion
Work in process, beginning	\$15,000	\$12,000	\$ 3,000
Costs added during period	<u>72,000</u>	<u>48,000</u>	<u>24,000</u>
Total costs to account for	\$87,000	\$60,000 1 Mark	\$27,000 1 Mark
Divided by equivalent units		60,000	54,000
Equivalent unit costs	\$1.50	\$1.00 1 Mark	\$0.50 1 Mark
Assignment of costs:			
Transferred out (50,000 x \$1.50)			\$75,000 2 Marks
			<u>Total 8 Marks</u>
Work in process, ending			
Direct materials (10,000 x \$1.00)		\$10,000	
Conversion (10,000 x 0.40 x \$0.50)		2,000	<u>12,000</u>
Costs accounted for			\$87,000

**Production Cost Worksheet
Finishing Department
FIFO Method**

Flow of Production	Phy.Units	D.mat.	Conversion	Trans.-in
Work in process, beginning	20,000			
Started during period	<u>50,000</u>			
To account for	70,000			

Units completed:		2 Marks	2 Marks	0 Marks
Beginning work-in-process	20,000	20,000	5,000	0
Started and completed	30,000	30,000	30,000	30,000
Work in process ending	<u>20,000</u>	<u>0</u>	<u>5,000</u>	<u>20,000</u>
Accounted for	70,000	50,000	40,000	50,000

Costs	Totals	D. mat.	Conversion	Trans.-in
Work in process, beginning	\$ 36,000			
Costs added during period	<u>167,000</u>	\$28,000	\$64,000	\$75,000
Total costs to account for	\$203,000	<u>\$28,000</u>	<u>\$64,000</u>	<u>\$75,000</u>
Divided by equivalent units	<u> </u>	50,000	40,000	50,000
Equivalent unit costs	\$3.66	\$0.56	\$1.60	\$1.50

Assignment of costs:

Work in process, beginning		\$ 36,000	2 Marks
Completion of beginning:			
D. mat. (20,000 x \$0.56)	\$11,200		
Conv. (20,000 x 0.25 x \$1.60)	<u>8,000</u>	<u>19,200</u>	2 Marks
Total beginning inventory		\$ 55,200	
Started and Completed (30,000 x \$3.66)		<u>109,800</u>	2 Marks
Total costs transferred out		\$165,000	
Work in process, ending			
Trans.-in (20,000 x \$1.50)	\$30,000		
Conversion (20,000 x \$1.65 x 0.25)	<u>8,000</u>	<u>38,000</u>	2 Marks
Costs accounted for		\$203,000	

Total 12 Marks

Total 8 Marks + **Total 12 Marks** = **Total 20 Marks**