

MID TERM EXAMINATION

FALL 2006

PLEASE READ THIS PAGE – IT CONTAINS IMPORTANT INFORMATION

1. This examination will last Three **(3)** hours and consists of Five **(5)** Questions printed on Nine **(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. In front of the booklet place the number associated to the order in which they are done.
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 and calculations 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.
7. When you have finished submit your exam booklet(s) and this questionnaire. Please enumerate your exam booklets.

Question	Topic	Marks
1	Multiple-choice	22.5
2	Activity costing	17.5
3	Job cost and manufacturing cost	20
4	Process costing	20
5	CVP analysis	20
	Total	100

QUESTION 1. (22.5, 15 multiple choice questions 1.5 marks each) 40 minutes

Choose the best answer for each of the following. Write your answer only in the lined booklet that has been provided to you separately.

1. Ed Green Corporation has two divisions; Outdoor Sports and Indoor Sports. The sales mix is 60% for Outdoor Sports and 40% for Indoor Sports. Green incurs \$2,420,000 in fixed costs. The contribution margin ratio for the Outdoor Sports Division is 40%, while for the Indoor Sports Division it is 50%.

The breakeven point in dollars is:

- a. \$985,600.
 - b. \$4,869,565.
 - c. \$4,977,777.
 - d. \$5,500,000.
 - e. None of the above.
2. Which of the following is not a benefit of activity-based costing?
- a. More accurate product costing
 - b. Enhanced control over overhead costs
 - c. Better management decisions
 - d. Less costly to use
 - e. None of the above.
3. Phi Kappa is planning to hold a seminar for students at the University Centre. It has two options:

OPTION 1: Fixed rental cost of \$1,000 and \$12 per person for books

or

OPTION 2: Fixed rental cost of \$3,000 and \$8 per person for books

- Tickets will be \$5 per student. Other items will be donated by recruiters wishing to network with students. Which option will cause the biggest loss if very few students attend?
- a. Option 1
 - b. Option 2
 - c. Both options provide the same amount of risk.
 - d. Neither option has risks.
 - e. None of the above.
4. Cohen Manufacturing is trying to determine the equivalent units for conversion costs with 2,000 units of ending work in process at 80% completion and 14,000 units were started and are 100% complete as to materials. There are no beginning units in the department. The conversion costs occur evenly throughout the entire production period. What are the equivalent units for conversion costs for the current period if the weighted average method is used?
- a. 16,000
 - b. 15,600
 - c. 1,600
 - d. 13,600
 - e. None of the above.

Use the following for number 5 and 6.

Poodle Company manufactures two products, Mini A and Maxi B. Poodle's overhead costs consist of setting up machines, \$800,000; machining, \$1,800,000; and inspecting, \$600,000. Information on the two products is:

	<u>Mini A</u>	<u>Maxi B</u>
Direct labour hours	15,000	25,000
Machine setups	600	400
Machine hours	24,000	26,000
Inspections	800	700

5. Overhead applied to Mini A using traditional costing using direct labour hours is
- \$1,200,000.
 - \$1,536,000.
 - \$1,670,000.
 - \$1,920,000.
 - None of the above.
6. Overhead applied to Mini A using activity-based costing is
- \$1,200,000.
 - \$1,536,000.
 - \$1,664,000.
 - \$1,920,000.
 - None of the above.
7. Halston Company has no beginning work in process; 5,000 units are transferred out and 1,000 units in ending work in process are 25% finished as to conversion costs and fully complete as to materials cost. If materials added and beginning work in process materials cost totals \$18,000, how much is the materials cost per unit if the weighted average method is used?
- \$3.00
 - \$3.43
 - \$3.13
 - There is not enough information provided.
 - None of the above.
8. The following monthly data are available for Wackadoos, Inc. which produces only one product: Selling price per unit, \$42; Unit variable expenses, \$14; Total fixed expenses, \$42,000; Actual sales for the month of June, 4,000 units. How much is the margin of safety for the company for June?
- \$70,000
 - \$105,000
 - \$63,000
 - \$2,500
 - None of the above.

9. What transaction is recorded when direct labour is assigned to jobs?
- A debit to Work in Process Inventory and a credit to Factory Labour
 - A debit to Manufacturing Overhead and a credit to Factory Labour
 - A debit to Factory Labour and a credit to Manufacturing Overhead
 - A debit to Factory Labour and a credit to Work in Process Inventory
 - None of the above.

10. Hooter Manufacturing Company reported the following year-end information:

Beginning work in process inventory	\$23,000
Beginning raw materials inventory	12,000
Ending work in process inventory	25,000
Ending raw materials inventory	10,000
Raw materials purchased	340,000
Direct labour	120,000
Manufacturing overhead	50,000

How much is Hooter Manufacturing's cost of goods manufactured for the year?

- \$342,000
 - \$512,000
 - \$510,000
 - \$514,000
 - None of the above.
11. Wind Mill Company had the following department data:

Work in process, physical units, August 1	6,000
Completed and transferred out physical units	25,000
Work in process, physical units, August 31	9,000

Materials are added at the beginning of the process. What is the total number of equivalent units for materials in August if the weighted average method is used?

- 27,000
 - 30,000
 - 34,000
 - 42,000
 - None of the above.
- Use the following information for questions 12–13.
- | <u>Month</u> | <u>Miles</u> | <u>Total Cost</u> |
|--------------|--------------|-------------------|
| March | 60,000 | \$47,500 |
| April | 70,000 | 51,500 |
| May | 50,000 | 41,500 |
| June | 80,000 | 50,500 |
12. In applying the high-low method, how much is the variable cost per unit?
- \$0.30
 - \$0.335
 - \$0.50
 - Cannot be determined from the information given.
 - None of the above.

- 13.. In applying the high-low method, how much is the total cost for 40,000 miles ?
- \$16,500
 - \$9,000
 - \$38,500
 - \$15,000
 - None of the above.

14. Caltreck Manufacturing Inc.'s accounting records reflect the following inventories:

	<u>Dec. 31, 2005</u>	<u>Dec. 31, 2006</u>
Raw materials inventory	\$100,000	\$ 80,000
Work in process inventory	130,000	145,000
Finished goods inventory	125,000	115,000

During 2006, Caltreck purchased \$950,000 of raw materials, incurred direct labour costs of \$125,000, and incurred manufacturing overhead totalling \$160,000.

How much is raw materials transferred to production during 2006 for Caltreck Manufacturing?

- \$1,240,000
 - \$970,000
 - \$950,000
 - \$930,000
 - None of the above.
15. Cal, Inc. showed the following amounts in its manufacturing overhead account at the end of 2006:

<u>Manufacturing Overhead</u>	
20,000	55,000
16,000	
22,000	

Based on this information, which statement is true?

- No manufacturing overhead has been applied.
- Manufacturing overhead expense will be reported in the operating section of the income statement in the amount of \$3,000.
- Manufacturing overhead has been over applied.
- Manufacturing overhead has been under applied
- None of the above.

QUESTION 2. (17.5 Marks) (35 minutes)

Willow Company produces lawn mowers. One of its plants produces two versions of mowers: a basic model and a deluxe model. The deluxe model has a sturdier frame, a higher-horsepower engine, a wider blade, and mulching capability. At the beginning of the year, the following data was prepared for this plant:

	Basic Model	Deluxe Model
Expected quantity	40,000	20,000
Selling price	180	360
Prime costs	80	160
Machine hours	5,000	5,000
Direct labour hours	10,000	10,000
Engineering support (hours)	1500	4,500
Receiving (orders processed)	250	500
Material handling (number of moves)	2,000	4,000
Purchasing (number of requisitions)	100	200
Maintenance (hours used)	1,000	3,000
Quality inspections (number of inspections)	250	500
Setting up batches (number of set ups)	20	60

Additionally, the following overhead activity costs are reported:

Maintaining equipment	\$ 114,000
Engineering support	120,000
Material handling	20,000
Setting up equipment	96,000
Purchasing material	60,000
Receiving goods	40,000
Quality inspections	30,000
Providing space	<u>20,000</u>
Total	<u>\$500,000</u>
	=====

Overhead activity costs are allocated in proportion to machine hours (an approach that provides a measure of the time the facility is used by each product).

Instructions:

1. Calculate the cost per unit for each product using machine hours to assign all overhead costs. (3.5 marks)
2. Calculate the cost per unit for each product using activity costing.(10 marks)
3. Compare these costs in number 2 with those calculated using functional-based costing in number 1. Which cost is the most accurate? Explain. (4 marks)

QUESTION (3) (20 marks) (35 minutes)

Noller Inc. produces customized Equipment for retailers. John Smith, the controller uses normal costing system to prepare its financial statements. He applies overhead at the rate of \$15 per direct labour hour and closes over-applied or under-applied overhead into cost of goods sold at the end of the year.

The company's inventory accounts at the beginning of the year 2004 included \$89,000 of direct materials in the storage room and \$35,000 of finished goods in the warehouse. At the beginning of 2004, Noller Inc. did not have any work in process, but during the year they started three new Jobs. Actual data and costs for each job incurred during the year 2004 are as follows:

	<u>Special order Job#1</u>	<u>Special Order Job#2</u>	<u>Special Order Job#3</u>
Number of equipments	2 equipments	4 equipments	2 equipments
Direct material costs <u>per</u> equipment	\$150,000	\$86,500	\$45,000
Direct labour hours <u>per</u> equipment	10,000 hours	4,375 hours	1,000 hours
Direct labour costs <u>per</u> equipment	\$100,000	\$66,000	\$10,000

The following costs were incurred during the year 2004:

Administrative expenses	\$ 200 000
Purchases direct materials	\$ 731 000
Property Taxes on factory	\$ 90 000
Administrative office rent	\$ 25 000
Indirect material used	\$ 45 000
Depreciation on factory building	\$125 000
Sales commission expense	\$ 69 000
Depreciation on factory equipment	\$ 60 000
Indirect materials used	\$ 45 000
Insurance on factory and equipment	\$ 40,000
Utilities for factory	\$ 70,000
Indirect labour cost incurred	\$150,000
Factory maintenance	\$ 29,000

In addition, during the year 2004 the following events occurred:

- Both Special orders Job #1 and Job #2 were completed and sold with a 50% mark up.
- Special Order Job # 3 remained in work in process.

Required:

- a) Prepare job-order costs for each job #1, #2, and #3 for 2004. (5 marks)
- b) Prepare Noller Inc.'s formal statement of cost of goods manufactured for 2004. (9 marks)
- c) Prepare Noller's Inc. income statement for 2004. (Assume no income taxes) (6 marks)

QUESTION 4 (20 marks) (35 minutes)

The Lester Change Manufacturing Company paints wood-imported products. The following are the production data for July:

Work in Process—Painting				
July	1	Balance	4,450	
	31	Materials	6,100	July 31 Transferred out
	31	Labour	2,500	
	31	Overhead	1,650	
	31	Balance	?	

Production records show that there were 700 units in the beginning inventory, 30% complete; 1,100 units started; and 1,300 units transferred out. The beginning work in process had materials costs of \$2,900 and conversion costs of \$1,550. The units in ending inventory were 40% complete. Materials are entered at the beginning of the painting process.

Required: using the FIFO method calculate the following:

- (a) How many units are in process at July 31? (2 marks)
- (b) What is the unit materials cost for July? (3 marks)
- (c) What is the unit conversion cost for July? (3 marks)
- (d) What is the total cost of units transferred out in July? (3 marks)
- (e) What is the cost of the July 31 inventory? (3 marks)
- (f) What were the conversion costs per equivalent unit of production last period and this period? (3 marks)
- (g) What was the per-unit conversion cost of the units started last period and completed this period? (3 marks)

Question 5 A (11 marks) (20 minutes)

Lane Company produces and sells an economy line of ski parkas. The budgeted income statement for the coming year is as follows:

Sales	\$450,000
Less: Variable expenses	<u>202,500</u>
Contribution margin	\$247,500
Less: Fixed expenses	<u>90,000</u>
Operating income	\$157,500
Less: Taxes	<u>47,250</u>
Net Income	<u>\$110,250</u>

Required:

1. What is Lane's variable-cost ratio? What is its contribution margin ratio? (2 marks)
2. Suppose Lane's actual sales revenues increase by \$45,000 . By how much will operating income before taxes increase? Give the answer without preparing a new income statement. (2 marks)
3. How much sales revenue must Lane earn in order to breakeven? What is the expected margin of safety in dollars? (2 marks)
4. How much sales revenue must Lane generate to earn an operating income before tax of \$75,000? (2 marks)
5. How much sales revenue must Lane generate to earn an after-tax profit of \$63,000? Prepare a contribution income statement to verify the accuracy of your answer. (3 marks)

Question 5 B (9 marks) (15 minutes)

Parker Pottery produces a line of vases and a line of ceramic figurines. Each line uses the same equipment and labour; hence, there are no traceable fixed costs. Common fixed costs equal \$300,000. Parker's accountant has begun to assess the profitability of the two lines and has gathered the following data for last year:

	Vases	Figurines
Sales	\$ 400 000	\$ 420 000
Unit sales price	\$ 40	\$ 70
Unit variable costs	\$ 30	\$ 42
Unit contribution margin in \$	\$?	\$?
Sales mix	?	?

Required:

1. Calculate the break even points in units . (4.5 marks)
2. Parker Pottery is considering upgrading its factory to improve the quality of its product. If the upgrade (additional fixed cost of \$50 000) is successful, the projected sales of vases will be an additional \$ 200 000 sales and Figurines will be increased by \$140 000. What is the new breakeven point in units for each of the products? What do you recommend? (4.5 marks)

√√ means 1 mark

√ means ½ mark

QUESTION 1

1. D
2. D
3. B
4. D
5. A
6. C
7. A
8. B
9. A
- 10.C
- 11.C
- 12.A
- 13.E
- 14.B
15. D

QUESTION 2

Instruction 1: 3.5 marks

Est OH	500000					
Est Mach hrs	10000		OH rate	\$50.00 per Mach hrs	Basic	Deluxe
Basic	5000x\$50	250000/40000 units	OH		√\$6.25	√\$12.50
Deluxe	5000X50	250000/20000 units	Prime costs		\$80.00	\$160.00
					√\$86.25	√\$172.50

Instruction 2 (10 marks)

1 mark for table or Equation set up

Activity	Driver	Basic Model	Deluxe model	Total costs	Total activity	Cost per activity	Basic	Deluxe
Maintaining equipment	hours used	1000	3000	\$114,000	4000	√\$28.50	\$28,500.00	\$85,500.00
Engineering support	hours	1500	4500	\$120,000	6000	√\$20.00	\$30,000.00	\$90,000.00
Material Handling	number of moves	2000	4000	\$20,000	6000	√\$3.33	\$6,660.00	\$13,320.00
Setting up equipment	number of set up s	20	60	\$96,000	80	√\$1,200.00	\$24,000.00	\$72,000.00
Purchasing material	Number of requisitions	100	200	\$60,000	300	√\$200.00	\$20,000.00	\$40,000.00
Receiving goods	Orders processed	250	500	\$40,000	750	√\$53.33	\$13,325.00	\$26,650.00
Inspection	Number of inspections	250	500	\$30,000	750	√\$40.00	\$10,000.00	\$20,000.00
Providing space	Machine hours	5000	5000	\$20,000	10000	√\$2.00	\$10,000.00	\$10,000.00
							√\$142,485.00	√\$357,470.00
OH cost per product							40,000	20,000
Prime costs							√\$3.56	√\$17.87
							\$80.00	\$160.00
							√\$83.56	√\$177.87

1 mark for table or equation format in calculations

Instruction 3: (4 marks)

Compare 86 vs 83 and 172 vs 178 – not much difference but :

Any two points : 1 mark each

Activity costing provides the most precise allocation

The ABC costs are more accurate (better tracing-closer representation of actual resource consumption).

This shows that the basic model was over costed and the deluxe model under costed when the plant wide overhead rate was used.

Activity costing Leads to better cost pools

and Leads to better control over overhead costs

and to better management decisions

When the manufacturing process changes, activity offers a better allocation

QUESTION 3

Job cost Problem and Manufacturing Statement

A. 5 marks

	Job 1	Job 2	Job 3	Total
Equipments	2	4	2	
DM	√\$300,000	√\$346,000	√\$90,000	\$736,000
DL	√\$200,000	√\$264,000	√\$20,000	\$484,000
OH	√\$300,000	√\$262,500	√\$30,000	\$592,500
	<u>\$800,000</u>	<u>\$872,500</u>	<u>\$140,000</u>	
√	CGS	CGS	WIP	

B. 9 marks

Manufacturing Statement

Dec 31st 2004

Beg WIP		\$0
DM		
Beg Inv.	√89000	
Purchases	√731000	
Goods available	<u>820000</u>	
Less: Ending Inv	√84000	
Cost of materials used	736000	√\$736,000
DL		√√\$484,000
OH		
Total actual OH costs ****	3 MARKS 609000	
Less Under applied OH	√√16500	<u>\$592,500</u>
		√√\$1,812,500
Less: Ending WIP		<u>√-\$140,000</u>
Cost of goods manufactured		√\$1,672,500

****Students should add the undernoted OH costs to determine the actual costs:

3 MARKS OVERALL –MAXIMUM FOR THIS

Property taxes on factory	90000
Indirect materials	45000
Insurance on factory equipment	40000
Utilities for factory	70000
Indirect labour cost incurred	150000
Factory maintenance	29000
Depreciation on factory equipment	60000
Depreciation on factory building	125000

c. 6 MARKS Income Statement

Jan 1 st to Dec 31st 2004

Sales		√√\$2,508,750
Less: Cost of goods sold		
Beg Inv	√35000	
Plus Cost fo goods manufactured	<u>\$1,672,500</u>	
Goods available	1707500	
Less ending inventory	35000	\$1,672,500
Adj: Under applied OH		√√\$16,500
Cost of goods sold		<u>1,689,000</u>
Gross profit		
Expenses		819 750\$
Administrative expenses	√200000	
Administrative office rent	√25000	
Sales commission expenses	√69000	
Net Income		\$525 750

QUESTION 4
A- 2 PTS,
B – G 3PTS each

1-Q	QUANTITIES	Units	2-E	Equivalent Mat added	Conv Added	
	WIP beg (IN)	700				
	Started	1100				
	Total	1800				
	Accounted for (OUT):					
	Transferred out		Added			Added
	1)WIP beg (IN)	700	0%	0	490	70%
	2)Started and completed	600	100%	600	600	100%
	3)WIP end	(A) 500	100%	500	200	40%
	Total	1800		1100	1290	

3-C	COSTS		Mat	Conv	Total
	Costs		√√6100	√√4150	10250
	Eq units	During month costs	√√1100	√√1290	
F	Per unit		(B) √√\$5.5455	(C) √√\$3.2171	\$8.7625
	Accounted for:				
O	WIP				4450
	Started in prod				10250
	Total				14700

4-R	RECONCILIATION			
	Accounted for :			
	Tr out			
	1)WIP at beg	Given		√\$4,450
	+ Added costs to complete	490 units x 3.2171		√\$1,576
	Total costs			√\$6,026
	2) started and completed	600 units x 8.7625		√\$5,258
	Total costs transferred out			(D) √√\$11,284
	3) WIP end	500 units		
	Mat	Mat 500x 5.5455	\$2,773	
	Conv costs	Conv 200x 3.2171	\$643	(E)\$3,416
	Total			*\$14,700

*If students use 2 decimals they have a \$ 4.00 variance (14704 rather than 14700)

- A. $500 \text{ u} = 700 + 1100 - 1300$ 2 marks
- B. $5,55 = \$6100 / 1100 \text{ u}$ 3 marks
- C. $3,22 = \$2,500 + \$1,650 / 1,290 \text{ u}$ 3 marks
- D. $11,284 = 4,450 + (490 \times 3.22 = 1578) + (600 \times (5.55 + 3.22) = 5262)$ 3 marks
- E. July 31st WIP ending \$ 3416 (mat 2773 + 643 conv) √√√
- F. Conversion costs this period, = $\$4,150 / 1290 = 3.2171$ √ √
 Conversion costs prior period $\$1550 / (700 \times .30 \text{ eq units}) = 7.3809$ √
- G. Units started last period and completed this period 600 units with per unit conversion cost
 $(\$3.2171 \times 70\%) + (\$7.3809 \times 30\%) = \$4.466$ (3 marks)
 Or
 $(\$1,550 + \$1,576) / 700 = \$4.466$

QUESTION 5

Part A (11 marks)

1. **2 PTS**

Variable cost ratio: $\$ 202,500 / \$450,000 = .45\checkmark\checkmark$
 Contribution margin : $\$247,500 / \$ 450 000 = .55\checkmark\checkmark$

2. **CM X increase in sales = 55% X \$45,000 = \$24,750 2 PTS**

3. **2 PTS**

Break even revenue = $\$ 90 000 / .55 = \$ 163, 636 \checkmark\checkmark$
 Margin of safety : $\$ 450 000 \text{ less } \$ 163,636 = \$ 286,364 \checkmark\checkmark$

4. **2 PTS**

Revenue = $(\$90 000 + 75 000) / .55\checkmark\checkmark$
 Sales Revenue = $\$ 300,000\checkmark\checkmark$

5. **3 PTS**

Before tax income = $\$ 63 000 / (1-.3) = \$ 90 000\checkmark\checkmark$
 Tax Rate = $\$ 47 250 / \$ 157, 500 = .30 \checkmark\checkmark$
 Revenue = $(\$ 90 000 + \$90 000) / .55 = \$ 327, 273\checkmark\checkmark$

Sales	\$ 327, 273
Variable Costs ($\$ 327, 273 * 45\%$)	<u>\$ 147,272.85</u>
Contribution Margin	\$180,000.15
Fixed Costs	<u>\$90,000</u>
Net Income	\$90,000
Income Tax 30%	<u>\$27,000</u>
Net Income after tax	\$63,000

Part B (9 marks)

1. **4.5 PTS**

Calculate the break even points in UNITS for the company.

Sales mix $\$400,000 / \$40 = 10,000 \text{ units Vases}$
 $\$420,000 / \$70 = 6,000 \text{ units Figurines}$

CM Vases SP \$40 – VC \$30 = \$ 10
 Figurines \$70 - \$42 = \$28 \checkmark

STUDENTS CAN APPROACH THIS QUESTION IN TWO WAYS:

10 000 vases / 16000 overall units = .625
 6000 Figurines / overall units = .375

$(.625 \times \$ 10 \text{ CM per Vase}) + (.375 \times \$ 28.00 \text{ CM per Figurines}) = \16.75

Calculate the break even point in units:

Fixed cost $\$ 300,000 / \$16.75 = 17, 910$
 The question did not stipulate precisely the BE units per product line.
 Students may have added
 $17910 \times .625 = \text{vases} = 11,195$
 $17 910 \times .375 = \text{figurines} = 6,716$

OR

The company sells 5 vases for every 3 figurines

Weighted average contribution margin per unit:

$$\text{CM X sales mix} = \$10 \times 5 + \$28 \times 3 = 134 \text{ per basket}$$

$$\text{Break-even} = \$300,000 \div 134 = 2238.806 \text{ baskets}$$

Determine the number of units to be sold at the breakeven point for EACH product.

$$\text{Vases: } 2238.806 \times 5 = 11194.03 \text{ units} \times \$10 = \mathbf{\$111,940.3}$$

$$\text{Figurines: } 2238.806 \times 3 = 6716.418 \text{ units} \times \$28 = \mathbf{\$188,059.70}$$

$$\text{Total fixed costs} = \mathbf{\$300,000.00}$$

Students may be rounding off to 2 or 3 decimals

Giving a very slight difference

BOTH APPROACHES GIVE IDENTICAL ANSWERS

Question 5- Number 2. 4.5 PTS

Calculate the break even points in UNITS for the company.

$$\begin{aligned} \text{Sales mix } \$400,000 + 200,000 / \$40 &= 15,000 \text{ Vases} \\ \$420,000 + 140,000 / \$70 &= 8,000 \text{ Figurines} \end{aligned}$$

$$\begin{aligned} \text{CM Vases SP } \$40 - \text{VC } \$30 &= \$10 \\ \text{Figurines } \$70 - \$42 &= \$28 \end{aligned}$$

STUDENTS CAN APPROACH THIS QUESTION IN TWO WAYS:

$$\begin{aligned} (15,000 / 23,000) \times \$10.00 + (8,000 / 23,000) \times \$42 &= \\ (.652 \times \$10 + .348 \times \$28) &= \$6.52 + 9.74 = 16.264 \end{aligned}$$

$$\text{Fixed costs } \$300,000 + \text{additional fixed cost } \$50,000 = \$350,000 / \$16.264 = 21,520$$

Here the question specifies breakeven for EACH PRODUCT

$$\begin{aligned} 21,520 \times .652 &= \text{Vases } 14,031 \\ 21,520 \times .348 &= \text{Figurines } 7,489 \end{aligned}$$

OR

The company sells 7.50 vases for every 4 figurines

Weighted average contribution margin per unit:

$$\text{CM X sales mix} = \$10 \times 3.75 + \$28 \times 2 = 93.5 \text{ per basket}$$

$$\text{Break-even} = \$350,000 \div 93.5 = 3743.3155 \text{ baskets}$$

Determine the number of units to be sold at the breakeven point for EACH product.

$$\text{Vases } 3743.3155 \times 3.75 = 14,037.43$$

$$\text{Figurines } 3743.3155 \times 2 = 7486.6$$

$$\text{Vases: } 14,037.43 \text{ units} \times \$10 = \mathbf{\$140,374.30}$$

$$\text{Figurines: } 7486.6 \text{ units} \times \$28 = \mathbf{\$209,624.80}$$

$$\text{Total fixed costs} = \mathbf{\$349,999.10}$$

Students may be rounding off to 2 or 3 decimals .Giving a very slight difference

students can mention various points here, the added FC will increase the number of units to break even, the added investment to be considered would be preferably to have an impact on reducing the VC, or if possible increasing the price slightly. An increase in sales volume does not reduce the break even. Various points are acceptable. ✓

Weighted average contribution margin per unit:



Student Name _____

ID# _____

INSTRUCTIONS

1. ANSWER ALL QUESTIONS IN THE EXAMINATION BOOKLET THAT HAS BEEN PROVIDED TO YOU.
2. BE SURE TO RETURN THE EXAM ALONG WITH THE EXAMINATION BOOKLET AT THE END OF THE EXAM.
3. BE SURE TO PUT YOUR NAME AND STUDENT I.D. NUMBER ON THE EXAM AND THE EXAMINATION BOOKLET.
6. START EACH QUESTION ON A NEW PAGE IN THE EXAMINATION BOOKLET.
7. IT IS VERY IMPORTANT TO WRITE THE NAME OF YOUR INSTRUCTOR AND SECTION LETTER/NUMBER ON YOUR EXAMINATION BOOKLET(S).

Good Luck!

Question 1 (12 Multiple Choice Questions)

(15 marks)

Do not answer on the EXAM; write your answers in the EXAMINATION BOOKLET.

1. Upon which of the following does managerial accounting place considerable weight?
 - A) Generally accepted accounting principles.
 - B) The financial history of the entity.
 - C) Ensuring that all transactions are properly recorded.
 - D) Detailed segment reports about departments, products, and customers.

(1 mark)

2. Selected information about Buehler Corporation's operations at high and at low levels of activity follow:

	<u>Level of activity</u>	
	<u>Low</u>	<u>High</u>
Number of units produced	25,000	30,000
Total manufacturing costs	\$575,000	\$680,000
Direct material cost per unit	\$5	\$5
Direct labor cost per unit	\$6	\$6

Using the high-low method, what is the cost formula for manufacturing overhead?

- A) \$50,000 per period plus \$10 per unit.
- B) \$50,000 per period plus \$21 per unit.
- C) \$50,000 per period plus \$22 per unit.
- D) \$347,000 per period plus \$0.10 per unit.

(2 marks)

3. For the current year, Paxman Company incurred \$150,000 in actual manufacturing overhead cost. The Manufacturing Overhead account showed that overhead was overapplied in the amount of \$6,000 for the year. If the predetermined overhead rate was \$8.00 per direct labour hour, how many hours were worked during the year?
 - A) 17,750 hours.
 - B) 18,000 hours.
 - C) 18,750 hours.
 - D) 19,500 hours.

(1 mark)

4. At a sales level of \$300,000, James Company's gross margin is \$15,000 less than its contribution margin, its net income is \$50,000, and its total selling and administrative expenses are \$120,000. At this sales level, what is the company's contribution margin?
 - A) \$155,000.
 - B) \$170,000.
 - C) \$185,000.
 - D) \$250,000.

(2 marks)

5. Which of the following would be considered a product cost for external financial reporting purposes?
- A) Cost of a warehouse used to store finished goods.
 - B) Cost of guided public tours through the company's facilities.
 - C) Cost of travel necessary to sell the manufactured product.
 - D) Cost of sand spread on the factory floor to absorb oil from manufacturing machines.

(1 mark)

6. The Samuelson Company uses a job-order costing system. The following data were recorded for June:

Job Number	Work in Process Inventory, June 1	Added During June	
		Direct Materials	Direct Labour
475	\$1,000	\$ 400	\$ 200
476	\$ 900	\$ 600	\$ 800
477	\$ 800	\$ 900	\$1,400
478	\$ 600	\$1, 000	\$1, 900

Overhead is charged to production at 70% of the direct materials cost. Jobs 475, 477, and 478 have been delivered to the customer. What was Samuelson's Work in Process inventory balance on June 30?

- A) \$6,450.
- B) \$2,860.
- C) \$2,300.
- D) \$2,720.

(2 marks)

7. In a job-order costing system, when a job remains incomplete at the end of a period, how is the amount of overhead cost that has been applied to that job treated?
- A) It is deducted on the Income Statement as overapplied overhead.
 - B) It is closed out to Cost of Goods Sold.
 - C) It is transferred to Finished Goods.
 - D) It is part of the ending balance of the Work in Process inventory account

(1 mark)

8. What is a cost driver?
- A) It is the largest single category of cost in a company.
 - B) It is a fixed cost that cannot be avoided.
 - C) It is a factor that causes variations in a cost.
 - D) It is an indirect cost that is essential to the business.

(1 mark)

9.	If prime cost=\$50,000, conversion cost=82,000, manufacturing overhead=\$57,000, the costs for direct materials and total manufacturing cost are:	
	Direct materials	Total Manufacturing costs
A)	\$25,000	\$107,000
B)	\$23,000	\$132,000
C)	\$25,000	\$132,000
D)	\$25,000	\$105,000

(1 mark)

10.	Which costs will change with a decrease in activity within the relevant range?
A)	Total fixed costs and total variable costs
B)	Unit variable cost and unit fixed cost
C)	Unit fixed cost and total variable cost
D)	Unit fixed cost and total fixed costs

(1 mark)

11.	Relevant range is a range of output over which:
A)	A practical capacity remains constant
B)	Cost-output relationship remains valid
C)	Fixed costs per unit remain constant
D)	Both B) and C)

(1 mark)

12.	Product costs are expensed when the product is:
A)	Purchased
B)	Manufactured
C)	Inventoried
D)	Sold

(1 mark)

Question 2**(25 marks)**

Keating Company manufactures a product that passes through three departments. In Department C, materials are added at the end of the process. Conversion costs are incurred uniformly throughout the process. During January, Department C received 20,000 units from Department B. The transferred-in cost of the 20,000 units was \$70,350.

The following costs were added by Department C during January:

Direct materials	\$40,635
Direct labour	58,500
Overhead applied	29,400

On January 1, Department C had 4,000 units in inventory; these units were 30% complete with respect to conversion costs. On January 31, 3,000 units were in inventory, one-third complete with respect to conversion costs. The costs associated with the 4,000 units in beginning inventory were as follows:

Transferred-in	\$14,970
Direct labour	7,560
Overhead applied	4,200

Required

Prepare a production report using the weighted average method following the 5 steps:

1. Analysis of the flow of physical units (3 marks)
2. Calculation of equivalent units (6 marks)
3. Computation of unit cost (13 marks)
4. Valuation of goods transferred-out and ending WIP (2 marks)
5. Cost reconciliation (1 mark)

Question 3

(25 marks)

SNC produces fire trucks. The company uses a normal job-order costing system to compute its cost of goods manufactured. The company's policy is to price its job at cost plus 20% markup. On January 1, 2006 there was only one job in process with the following costs:

	Job 315
Direct materials	\$ 3,125
Direct labour	\$15,000
Applied overhead	\$14,250
Total	\$32,375

The following balances were taken from the general ledger of the company as of January 1, 2006:

Direct materials inventory	\$30,000
Finished goods inventory (for Job 314)	\$55,000

During the year 2006, the following events occurred:

Direct materials were purchased on account for \$250,000

Two more jobs were started: Job 316 and Job 317. Direct materials and direct labour costs incurred by each job in process during the year 2006 are as follows:

	Job 315	Job 316	Job 317
Direct materials	\$150,000	\$30,000	\$10,000
Direct labour	\$150,000	\$35,000	\$15,000

The company incurred the following actual factory overhead during the year:

Factory rent	\$90,000
Factory supplies	\$43,000
Indirect labour	\$60,000

Jobs 315 and 316 were completed.

Jobs 314 and 315 were sold.

Required:

1. If the factory overhead costs are applied to each job on the basis of direct labour dollars, what is the total applied overhead for the year 2006? (3 marks)
2. Prepare simple job-order cost sheets for jobs 315, 316 and 317 for the year ended December 31, 2006. (8 marks)
3. Is overhead over-applied or under-applied? By how much? (3 marks)
4. Prepare a schedule of Cost of Goods Sold, identifying both normal and adjusted cost of goods sold, for the year ended December 31, 2006. (7 marks)
5. Compute the selling price of Job 315. (2 marks)
6. Compute the ending balances as of December 31, 2006 for the following accounts: direct materials and work-in-process (2 marks)

Question 4

(20 Marks)

ABC Inc. installed an activity based costing system several years ago. The company manufactures one product in a single facility and has identified five major activity centers relating to the manufacturing overhead.

Activity Centre	Cost driver	Estimated Overhead	Expected Activity
Labour related	Direct labour hours	\$280,000	40,000 DLH
Purchase orders	Number of orders	\$96,000	1,200 orders
Product testing	Number of tests	\$420,000	3,500 tests
Template etching	Number of templates	\$315,000	10,500 templates
General factory	Machine hours	\$810,000	90,000 machine hours

Each unit requires 4 kilograms of direct material at \$75.00 per kilogram, and 60 hours of direct labour at \$20.00 per hour. Each unit also requires the following activities:

- 2 purchase orders
- 1 test
- 15 templates
- 45 machine hours

Required:

1. Compute the overhead rate for each activity center. (5 marks)
2. Compute the product cost per unit using activity-based costing. What would be the selling price if the company charged a 40% mark-up on cost? (7 marks)
3. How would the product cost and the selling price compare to the results obtained in part (2), if the company had used estimated machine hours as the cost driver? (6 marks)
4. Briefly explain why activity-based costing is better than using one activity driver such as machine hours for the whole plant. (2 marks)

Question 5**(15 marks)**

The data below has been taken from the cost records of the Parker Company. The data relate to the manufacturing costs of producing one of its products and number of units produced.

Month	Units Produced	Total Direct Materials Costs	Total Direct Labour Costs	Total Overhead Costs
January	8,000	\$12,000	\$4,000	\$20,000
February	4,500	6,750	2,250	13,000
March	7,000	10,500	3,500	18,500
April	9,000	13,500	4,500	23,500
May	3,750	5,625	1,875	10,500
June	6,000	9,000	3,000	16,500
July	3,000	4,500	1,500	8,500
August	5,000	7,500	2,500	14,500

Required:

a. Using High-Low Point Method, estimate the total monthly fixed manufacturing costs and the variable manufacturing cost per unit. **(5 marks)**

b. Assume that 4,800 units are expected to be produced in the month of September, and then compute the following expected costs for the month of September:

1. Total prime costs. **(2 marks)**
2. Total conversion costs. **(2 marks)**
3. Total manufacturing costs. **(2marks)**
4. Variable manufacturing overhead costs per unit. **(2marks)**
5. Fixed manufacturing overhead costs per unit. **(2marks)**

END of EXAM

Question 2 (25 marks)

	EQUIVALENT UNITS				
	physical units	transferred in	DM	Conversion	
units to account for					
WIP ending balance	3000	3000		1000	
completed	21000	21000	21000	21000	
total	24000	24000	21000	22000	
	3 marks	2 marks	2 marks	2 marks	9 marks
	costs				
cost to account for					
transferred-in	\$70,350	\$70,350			
WIP beginning balance	\$26,730	\$14,970		\$11,760	
manufacturing cost	\$128,535		\$40,635	\$87,900	
total	\$225,615	\$85,320	\$40,635	\$99,660	
	4 marks	2 marks	2 marks	2 marks	10 marks
cost/EU	\$10.02	\$3.56	\$1.94	\$4.53	
		1 mark	1 mark	1 mark	3 marks
COGM	\$210,420	\$74,655	\$40,635	\$95,130	
WIP ending balance	\$15,195	\$10,665	\$0	\$4,530	
total	\$225,615				3 marks

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
 - C) 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
- A) minimizing manufacturing costs.
 - B) materials handling.
 - C) minimizing the number of journal entries related to the manufacturing process.
 - D) materials sorting.
 - E) activities as the fundamental cost objects.
- 12) The logic of an ABC system includes all of the following statements, EXCEPT
- A) a greater level of detailed information concerning costs will help organizations be more efficient.
 - B) a strong cause-and-effect relationship between overhead costs and the cost allocation base is essential.
 - C) activity-specific cost-allocation bases are the drivers of costs in the cost pools.
 - D) the requirement to measure cost-allocation bases of different activities used by different products is essential.
 - E) 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?
- A) unit contribution margin times unit variable cost equals the breakeven number of units
 - B) unit contribution margin times the breakeven number of units equals fixed costs
 - C) unit contribution margin times the breakeven number of units equals total variable costs
 - D) selling price less unit contribution margin equals unit fixed cost for all values below or at the breakeven number of units
 - E) 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:
- A) \$310,000
 - B) \$324,000
 - C) \$296,000
 - D) \$289,000
 - E) 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.

- A) \$1.00
- B) \$0.10
- C) \$0.20
- D) \$1.50
- E) 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

Moira 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>	<u>7,170,000</u>	.05 Mark
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 X 1= 10,800 boxes **1 mark**

Candy-coated popcorn= 10,800 X 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>	<u>1,000</u>	<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

Total 8 Marks

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>	19,200	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>	38,000	2 Marks
Costs accounted for		\$203,000	

Total 12 Marks

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

MID TERM EXAMINATION

Winter 2008

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 (11) 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 best answer.

1. Indirect labour is considered a part of which of the following costs?
 - a) Product cost
 - b) Prime cost
 - c) Period cost
 - d) Nonmanufacturing cost
 - e) All of the above.

2. Which beginning and ending inventories appear on a cost of goods manufactured schedule?
 - a) Raw materials only
 - b) Raw materials and work in process
 - c) Raw materials, work in process, and finished goods
 - d) Work in process only
 - e) Work in process, and finished goods.

3. At the end of the year, Manufacturing Overhead has been over-applied. What occurred to create this situation?
 - a) The company incurred more manufacturing overhead costs than the manufacturing overhead assigned to jobs.
 - b) Estimated manufacturing overhead was less than actual manufacturing overhead costs.
 - c) The company incurred more total job costs than the amount budgeted for the job.
 - d) The actual manufacturing overhead costs were less than the manufacturing overhead assigned to jobs.
 - e) The actual manufacturing overhead costs were more than the manufacturing overhead assigned to jobs.

4. Which one of the following contains sources of costs that will be added to job cost sheets?
 - a) Invoices, time tickets, and the predetermined overhead rate
 - b) Materials requisition slips, time tickets, and the actual overhead costs
 - c) Materials requisition slips, payroll register, and the predetermined overhead rate
 - d) Materials requisition slips, time tickets, and the predetermined overhead rate
 - e) Materials requisition slips, time tickets, and the actual overhead rate

5. Halitosis Company completed job 45 at a cost of \$8,900 and later sold it for \$13,000 cash. Which one of the following is one effect of selling the job?
- a) Debit Accounts Receivable \$8,900
 - b) Credit Finished Goods Inventory \$8,900
 - c) Debit Finished Goods Inventory \$13,000
 - d) Debit Finished Goods Inventory \$8,900
 - e) Credit Work in Process Inventory \$8,900
6. What is unique about the flow of costs in a job order cost system?
- a) Each job is costed separately in a Work in Process subsidiary ledger.
 - b) It involves accumulating material, labour, and manufacturing overhead costs as they are incurred in order to determine the job cost.
 - c) There are no costs remaining in Work in Process at year end.
 - d) Job costs cannot be measured until all overhead costs are determined.
 - e) Job costs cannot be measured until all actual costs are determined.
7. The Wrapping Department's output during the period consists of 10,000 units completed and transferred out, and 600 units in ending work in process that were 60% complete as to materials and conversion costs. Beginning inventory was 800 units that were 40% complete as to materials and conversion costs. Under the FIFO method, what are the equivalent units of production for conversion costs?
- a) 10,210
 - b) 10,040
 - c) 11,010
 - d) 10,450
 - e) None of the above.
8. Chicotti Company has 3,000 units in beginning work in process, 20% complete as to conversion costs, 25,000 units transferred out to finished goods, and 1,000 units in ending work in process 80% complete as to conversion costs. How much are equivalent units for conversion costs if the FIFO method is used?
- a) 27,300
 - b) 25,200
 - c) 23,000
 - d) 24,300
 - e) None of the above.

9. Halston Company has no beginning work in process; 5,000 units are transferred out and 1,000 units in ending work in process are 75% finished as to conversion costs and fully complete as to materials cost. If materials added at the beginning of work in process and materials cost totals \$18,000, how much is the materials cost per unit?
- a) \$3.43
 - b) \$3.13
 - c) \$3.60
 - d) \$3.25
 - e) None of the above.
10. Which of the following items is **not** a characteristic of a process cost system?
- a) The focus is on continually producing similar products.
 - b) The products produced are heterogeneous in nature.
 - c) When the finished product emerges, all units have exactly the same amount of materials, labour, and overhead.
 - d) Once production begins, it continues until the finished product emerges.
 - e) None of the above.
11. Each of the following is a limitation of activity-based costing except that
- a) It can be expensive to use.
 - b) It is more complex than traditional costing.
 - c) More cost pools are used.
 - d) Some arbitrary allocations continue.
 - e) All of the above.
12. Which of the following is a value-added activity?
- a) Engineering design
 - b) Machinery repair
 - c) Inspections
 - d) Inventory storage
 - e) All of the above.
13. Which of the following is **not** a unit-level activity?
- a) Painting
 - b) Sewing
 - c) Assembling
 - d) Purchase ordering
 - e) Cutting

14. Which statement below describes a variable cost?

- a) It varies in total with changes in the level of activity.
- b) It varies inversely in total with changes in the level of activity.
- c) It remains constant in total over different levels of activity.
- d) It varies proportionately per unit with changes in the level of activity.
- e) All of the above

15. Which one of the following is a cost which remains constant in total at various levels of activity within the relevant range?

- a) A mixed cost
- b) A contribution margin
- c) A fixed cost
- d) A variable cost
- e) A step cost

I PT for each question.

- 1. A
- 2. B
- 3. D
- 4. D
- 5. B
- 6. A
- 7. B
- 8. B
- 9. E
- 10. B
- 11. C
- 12. A
- 13. D
- 14. A
- 15. C

QUESTION II. 10 POINTS

Given for X firm (in millions of dollars).

Beginning and ending inventories	0
Sales	\$900
Direct materials used	80
Direct labour cost	300
Factory overhead	?
Selling and administrative expenses	?
Gross profit	120
Net income (no income taxes)	32

Instructions

Calculate the following amounts (**in millions of dollars**) of: **2 Points for each question.**

- a. Cost of goods sold:
- b. Total factory overhead cost:
- c. Total period costs:
- d. Conversion cost:
- e. Cost of goods manufactured:

A. = SALES	\$900	
LESS CG SOLD	780	1 PT
GROSS PROFIT	\$120	
LESS Sell & Ad exp	88	1 PT
Net income	\$ 32	

B. CG sold – prime costs=

$$\text{.5 PT} + \text{.5 Pt} + \text{1 PT}$$

$$\$780 - (\$80 + \$300) = \$400$$

C. = Selling & Ad exp = \$88 **2 PTS**

1 PT + 1 PT

D. CC = DL + FOH = \$300 + \$400 = \$ 700

E. CG Manu = CG sold = \$780 **2 PTS**

QUESTION III. 20 POINTS

Price-Gordon Architectural Consultants Ltd. uses a modified job-order costing system to keep track of project costs. During January 2008, the firm worked on four projects. The following table provides a summary of the cost of materials used and the number of consulting hours worked on each of the four projects in January:

<u>Project Number</u>	<u>Cost of Materials</u>	<u>Consulting Hours Worked</u>
80	\$1200	1240
84	1000	1360
85	2000	1480
86	1500	1750

The records for December showed that 60 hours had been worked and \$300 worth of materials had been used on Project 80.

Projects 80 and 86 were completed in January, and bills were sent to the clients.

Consultants at Price-Gordon billed clients at \$120 per consulting hour. The actual labour cost to the firm (based on salary cost) was \$40 per hour. Overhead is charged to projects based on the consultants' time spent on the project. Total overhead for the current fiscal year, based on expected activity of 10,000 consulting hours, was estimated to be \$300,000. This total overhead cost included a fixed portion of \$84,000, which covered rent, amortization, and so on. Actual overhead for January was \$180,000. Price-Gordon closes over-applied and under-applied overhead to Cost of Goods Sold at month end.

Instructions

- (a) Calculate the product costs for Project 80.

- (b) Calculate the balance in Work in Process as at January 31.

- (c) Prepare the income statement for January 2008, including the appropriate amount of over-applied or under-applied overhead. Other expenses for January were \$32,400.

(a) The product costs for Project 80. **5 PTS**

DM \$1200 .5 PT+ \$300 .5 PT	\$ 1,500
DL (1240 hrs 5 PT + 60 hrs 5 PT) @ \$40 1 PT	\$52,000
FOH 1300 DLHRS(1240 hrs 5 PT + 60 hrs 5 PT) @ 1 PT \$30	<u>\$39,000</u>
Total	\$92,500

(b) The balance in Work in Process as at January 31. **4 PTS**

	Job 84 + Job 85 =	
DM	\$1,000 .5 PT + \$2,000 .5 PT	\$ 3,000
DL	(1,360 .5 PT + 1,480 .5 PT) @ \$40 5 PT	\$113,600
FOH	(1,360 .5 PT + 1,480 .5 PT) @ \$30 5 PT	<u>\$ 85,200</u>
		\$201,800

(c) Prepare the income statement for January 2008, including the appropriate amount of over-applied or under-applied overhead. Other expenses for January were \$32,400. **11 PTS**

Sales Job 80 + Job 86 (1,300 .5 PT + 1,750 .5 PT) @ \$120 1 PT =		\$366,000
Less Cost of service sold (Job 80 + Job 86)		
Job 80	\$ 92,500 1 PT	
Job 86		
DM	\$ 1,500 1 PT	
DL 1750 @ \$40 +	\$70,000 1 PT	
FOH 1750 @ 30	<u>\$52,500</u> 1 PT	
	\$124,000) =	\$216,500
Plus under-applied FOH		
(\$180,000 1 PT - 5,830 DLhr 2 PTS @ \$30 1 PT)	\$ 5,100	<u>\$221,600</u>
Gross Profit		\$144,400
Less other expenses	1 PT	<u>\$ 32,400</u>
Net Income before tax		\$ 112,000

QUESTION IV. 18 POINTS

The following information is for production activities in the refining department of Petro Pure Corporation. All units in work in process (WIP) were costed using the FIFO cost system.

Refining Department	Units	Percentage of Completion	Conversion Costs
WIP, February 1	23,000	70%	\$ 80,500
Units started and cost incurred during February	132,000		773,400
Units completed and transferred to the mixing department	130,000		
WIP, February 28	?	60%	?

Instructions

- (a) What was the conversion cost per equivalent unit of production last period?

- (b) What was the conversion cost per equivalent unit of production this period?

- (c) What was the conversion cost in the work in process inventory account at February 28?

- (d) What was the conversion cost per-unit of the units started last period and completed this period?

- (e) What was the conversion cost in the Units completed and transferred to the mixing department?

(a) The conversion cost per equivalent unit of production last period **4 PTS**

Conversion costs last month **1 PT** \$80,500 /

Equival. unit of production last period 23,000 **1 PT** X 70% **1 PT** = 16,100 EQ

The CC per equivalent unit of production last period = **1 PT** \$5.00

(b) The conversion cost per equivalent unit of production this period **5 PTS**

Total Costs \$773,400 **1 PT** /

Total equivalent units

(BI 23,000 X 30% = **1 PT** 6,900

+ S & TS = **1 PT** 107,000

+ EQ EI 25,000 X 60%) = **1 PT** 15,000
128,900

The conversion cost per equivalent unit of production this period =

Total Costs \$773,400 / 128,900 Total equivalent units = \$6.00 **1 PT**

(c) The conversion cost in the work in process inventory account
at February 28 **2 PTS**

EQ EI 25,000 X 60%) = **1 PT** 15,000 @ **1 PT** \$6 = \$90,000

(d) The conversion cost per-unit of the units started last period and completed this
period **3 PTS**

(70% **.75** @ \$5.00 **.75** + 30% **.75** @ \$6.00 **.75**) = \$5.30

(e) The conversion cost in the Units completed and transferred to the mixing
department **4 PTS**

BI	1 PT	\$ 80,500
To complete BI	.75 PT 6,900 X \$6.00 .75 PT	\$ 41,400
S & TS	.75 PT 107,000 X \$6.00 .75 PT	<u>\$642,000</u>
Total		\$763,900

QUESTION V. 17 POINTS

Stellar Stairs Co. designs and builds factory-made premium wooden staircases for homes. The manufactured staircase components (spindles, risers, hangers, handrails) permit installations of staircases of varying lengths and widths. All are of white oak. The company's budgeted manufacturing overhead costs for the year 2003 were as follows.

<u>Overhead Cost Pools</u>	<u>Amount</u>
Purchasing	\$ 57,000
Handling materials	82,000
Production (cutting, milling, finishing)	210,000
Setting up machines	85,000
Inspecting	90,000
Inventory control (raw materials and finished goods)	126,000
Utilities	200,000
Total budgeted overhead costs	\$850,000

For the last 4 years, Stellar Stairs Co. has been charging overhead to products on the basis of machine hours. For the year 2006, 100,000 machine hours are budgeted. Heather Fugar, owner-manager of Stellar Stairs Co., recently directed her accountant, Lindsay Baker, to implement the activity-based costing system that she has repeatedly proposed. At Heather Fugar's request, Lindsay and the production foreman identify the following cost drivers and their usage for the previously budgeted overhead cost pools.

<u>Overhead Cost Pools</u>	<u>Activity Cost Drivers</u>	<u>Expected Use of Cost Drivers</u>
Purchasing	Number of orders	600
Handling materials	Number of moves	8,000
Production (cutting, milling, finishing)	Direct labour hours	100,000
Setting up machines	Number of setups	1,250
Inspecting	Number of inspections	6,000
Inventory control (raw materials and finished goods)	Number of components	168,000
Utilities	Square feet occupied	100,000

Jason Dion, sales manager, has received an order for 280 staircases from Community Builders, Inc., a large housing development contractor. At Jason's request, Lindsay prepares cost estimates for producing components for 280 staircases so Jason can submit a contract price per staircase to Community Builders. She accumulates the following data for the production of the staircases.

Direct materials	\$128,750
Direct labour	\$112,000
Machine hours	14,500
Direct labour hours	5,000
Number of purchase orders	60
Number of material moves	800
Number of machine setups	100
Number of inspections	450
Number of components	16,000
Number of square feet occupied	8,000

Required:

1. Calculate the predetermined overhead rate using traditional costing with machine hours as the basis.
2. What is the manufacturing cost per stairway under traditional costing?
3. What is the manufacturing cost per stairway under the proposed activity-based costing?

(a) Predetermined overhead rate using machine hours: **2 PTS**

\$850,000 / 100,000 hrs. = **\$8.50** per machine hour **2 PTS**

(b) Manufacturing cost per stair under traditional costing: **4 PTS**

Direct materials	.5 PT	\$128,750
Direct labour	.5 PT	112,000
Overhead (14,500 X \$8.50)	2 PTS	123,250
Total cost of 280 stairs		<u>\$364,000</u>
Cost per stair (\$364,000 / 280)	1 PT	<u>\$1,300</u>

(c) (c) Manufacturing cost per stair under activity-based costing: **11 PTS**

Calculation of Activity-Based Overhead Rate

<u>Activity Cost Pools</u>	<u>Estimated Overhead</u>	<u>Expected Use of Cost Drivers per Activity</u>	=	<u>Activity-Based Overhead Rate</u>
Purchasing	\$ 57,000	600 Orders		.5 PT \$95 per order
Handling materials	82,000	8,000 Moves		.5 PT \$10.25 per move
Production	210,000	100,000 D/L Hours		.5 PT \$2.10 per D/L hour
Setting up machines	85,000	1,250 Setups		.5 PT \$68 per setup
Inspecting	90,000	6,000 Inspections		.5 PT \$15 per inspection
Inventory control	126,000	168,000 Components		.5 PT \$0.75 per component
Utilities	200,000	100,000 Sq. ft.		.5 PT \$2.00 per sq. ft
	<u>\$850,000</u>			

Assignment of Overhead to Order of 280 Stairs

<u>Activity Cost Pools</u>	<u>Expected Use of Cost Drivers</u>	X	<u>Activity-Based Overhead Rate</u>	=	<u>Cost Assigned</u>
Purchasing	60 Orders		\$95.00		.5 PT \$5,700
Handling materials	800 Moves		\$10.25		.5 PT 8,200
Production	5,000 D/L Hours		\$2.10		.5 PT 10,500
Setting up machines	100 Setups		\$68.00		.5 PT 6,800
Inspecting	4500 Inspections		\$15.00		.5 PT 6,750
Inventory control	16,000 Components		\$0.75		.5 PT 12,000
Utilities	80,000 Sq. ft.		\$2.00		.5 PT 16,000
Total overhead assigned					<u>\$65,950</u>

Total manufacturing cost per stair under ABC:

Direct materials	.5 PT \$ 128,750
Direct labour	.5 PT 112,000
Overhead	<u>1 PT 65,950</u>
Total cost of 280 stairs	<u><u>\$ 306,700</u></u>
Total cost per stair (\$306,700 / 280)	<u><u>2 PTS \$1,095.36</u></u>

QUESTION VI-A. 5 POINTS

Grass King manufactures lawn mowers, weed-trimmers, and chainsaws. Its sales mix and contribution margin per unit are as follows:

	Sales Mix	Contribution Margin per Unit
Lawn mowers	30%	\$30
Weed-trimmers	60%	\$20
Chainsaws	10%	\$40

Grass King has fixed costs of \$400,000.

Instructions

Calculate the number of units of each product that Grass King must sell in order to break even under this product mix. **5 PTS**

$$\text{TCM} = \text{Lawn M } .3 \times \$30 + \text{Weed-T } .6 \times \$20 + \text{Chainsaws } .1 \times \$40 = \$25 \quad \mathbf{2 \text{ PTS}}$$

$$\text{BE } \$FC \ 400,000 / \$25 = 16,000 \text{ units} \quad \mathbf{1.5 \text{ PT}}$$

$$\text{Lawn Mowers } 16,000 \times 30\% = 4,800 \text{ units} \quad \mathbf{.5 \text{ PT}}$$

$$\text{Weed-Trimmers } 16,000 \times 60\% = 9,600 \text{ units} \quad \mathbf{.5 \text{ PT}}$$

$$\text{Chainsaws } 16,000 \times 10\% = 1,600 \text{ units} \quad \mathbf{.5 \text{ PT}}$$

QUESTION VI-B. 15 POINTS

Boisclair Company bottles and distributes LO-KAL, a fruit drink. The beverage is sold for \$1.00 per 500-ml bottle to retailers, who charge customers \$1.29 per bottle. Management estimates the following revenues and costs:

Net sales	\$2,500,000	Selling expenses—variable	\$ 90,000
Direct materials	360,000	Selling expenses—fixed	200,000
Direct labour	650,000	Administrative expenses—variable	30,000
Manufacturing overhead—variable	370,000	Administrative expenses—fixed	140,000
Manufacturing overhead— fixed	260,000		

Instructions

- (a) Prepare a CVP income statement for 2007 based on management's estimates.
- (b) Calculate the break-even point in (1) units and (2) dollars.
- (c) Calculate the contribution margin ratio and the margin of safety ratio.
- (d) Determine the sales required to earn a net income of \$240,000 before tax assuming the tax rate is 40%.

(d) **3 PTS**

Required sales
in dollars = $\frac{\text{Fixed Costs} + \text{Target Net Income}}{\text{Contribution Margin Ratio}}$

$$\$2,100,000 = (\$600,000 \text{ 1 PT} + \$240,000 \text{ 1 PT}) / .40 \text{ 1 PT}$$

MID TERM EXAMINATION

Winter 2009

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7. Write all your answers to multiple-choice statements in **IBM Sheet with pencil**.

QUESTION I. 15 POINTS

MULTIPLE CHOICES: Choose the best answer.

1. Which one of the following tasks would not be performed by a management accountant?
 - (a) Being concerned with the impact of cost and volume on profits
 - (b) Strategic cost management
 - (c) Assisting in budget planning
 - (d) Preparing reports primarily for external users

2. Managerial accounting information
 - (a) pertains to the entity as a whole and is highly aggregated.
 - (b) must be prepared according to generally accepted accounting principles.
 - (c) pertains to subunits of the entity and may be very detailed.
 - (d) is prepared only once a year.

3. Variable costs are costs that
 - (a) vary in total directly and proportionately with changes in the activity level.
 - (b) remain the same per unit at every activity level.
 - (c) Neither of the above
 - (d) Both (a) and (b) above

4. Indirect labour is a
 - (a) non-manufacturing cost.
 - (b) raw materials cost.
 - (c) product cost.
 - (d) period cost.

5. In accumulating raw materials costs, companies debit the cost of raw materials purchased in a perpetual inventory system to
 - (a) Raw Materials Purchases.
 - (b) Raw Materials Inventory.
 - (c) Purchases.
 - (d) Work in Process.

6. Manufacturing overhead is under-applied if
 - (a) actual overhead is less than applied.
 - (b) actual overhead is greater than applied.
 - (c) the predetermined rate equals the actual rate.
 - (d) actual overhead equals applied overhead.

7. Indicate which of the following statements is *not* correct.
- (a) Both a job-order and a process cost system track the same three manufacturing cost elements—direct materials, direct labour, and manufacturing overhead.
 - (b) A job-order cost system uses only one work in process account, whereas a process cost system uses multiple work in process accounts.
 - (c) Manufacturing costs are accumulated the same way in a job-order and in a process cost system.
 - (d) Manufacturing costs are assigned the same way in a job-order and in a process cost system.
8. Hollins Company uses the FIFO method to compute equivalent units. It has 2,000 units in beginning work in process, 20% complete in terms of conversion costs, 25,000 units started and completed during the current period, and 3,000 units in ending work in process, 30% complete in terms of conversion costs. All units are 100% complete in terms of materials. Equivalent units for conversion costs are, respectively,
- (a) 26,600.
 - (b) 27,500.
 - (c) 26,200.
 - (d) 29,600.
9. Which of the following items is *not* characteristic of a process cost system?
- (a) Once production begins, it continues until the finished product emerges.
 - (b) The products produced are heterogeneous in nature.
 - (c) The focus is on continually producing relatively uniform products.
 - (d) When the finished product emerges, all units have precisely the same amount of materials, labour, and overhead.
10. Activity-based costing
- (a) is the initial phase of converting to a just-in-time operating environment.
 - (b) can be used only in a job-order costing system.
 - (c) is a two-stage overhead cost allocation system that identifies activity cost pools and cost drivers.
 - (d) uses direct labour as its primary cost driver.
11. Any activity that causes resources to be consumed is called a
- (a) just-in-time activity.
 - (b) facility-level activity.
 - (c) cost driver.
 - (d) non-value-added activity.
12. An activity that has a direct cause-effect relationship with the resources consumed is a(n)
- (a) cost driver.
 - (b) overhead rate.
 - (c) cost pool.
 - (d) product activity.

13. The degree of operating leverage
- (a) can be calculated by dividing total contribution margin by net income.
 - (b) provides a measure of the company's earnings volatility.
 - (c) affects a company's break-even point.
 - (d) All of the above.
14. Croc Catchers calculates its contribution margin to be less than zero. Which statement is true?
- (a) Its fixed costs are less than the variable cost per unit.
 - (b) Its profits are greater than its total costs.
 - (c) The company should sell more units.
 - (d) Its selling price is less than its variable costs.
15. A high degree of operating leverage
- (a) indicates that a company has a larger percentage of variable costs relative to its fixed costs.
 - (b) is computed by dividing fixed costs by contribution margin.
 - (c) exposes a company to greater earnings volatility risk.
 - (d) exposes a company to less earnings volatility risk.

- 1. D
- 2. C
- 3. D
- 4. C
- 5. B
- 6. B
- 7. D
- 8. B
- 9. B
- 10. C
- 11. C
- 12. A
- 13. D
- 14. D
- 15. C

QUESTION II. 20 POINTS

Montreal Inc. uses normal job-order costing to assign costs to products. The company assembles and packages 20 different products according to customer specifications. On October 1, the company had the following balances:

Raw materials	\$ 7,800
Work in process	45,726
Finished goods	23,520

Work in process consisted of the following jobs:

	<u>Job 22</u>	<u>Job 24</u>	<u>Job 25</u>
Direct materials	\$4,200	\$3,190	\$2,800
Direct labour	8,500	7,210	6,500
Applied overhead	5,100	4,326	3,900
Total	<u>\$17,800</u>	<u>\$14,726</u>	<u>\$13,200</u>
Number of units	30	50	35

Finished goods consisted of Job 23, with the following costs:

Direct materials	\$7,200
Direct labour	10,200
Applied overhead	<u>6,120</u>
Total	<u>\$23,520</u>
Number of units	50

Shown below are the direct cost data related to jobs started in October:

	<u>Job 26</u>	<u>Job 27</u>	<u>Job 28</u>	<u>Total</u>
Direct materials	\$4,180	\$3,600	\$1,200	\$ 8,980
Direct labour	9,200	8,340	2,910	20,450
Number of units	40	50	40	

Other information:

1. Direct materials and direct labour added to beginning work in process in October were as follows:

	<u>Job 22</u>	<u>Job 24</u>	<u>Job 25</u>	<u>Total</u>
Direct materials	\$ 950	\$ 410	\$1,200	\$ 2,560
Direct labour	2,000	3,500	4,500	10,000

2. Overhead is applied at a predetermined rate based on the direct labour cost.
3. Actual factory overhead expenses for October were as follows:

Supervisory salaries	\$4,000
Factory rent	2,000
Amortization (machines)	3,000
Indirect labour	8,200
Supplies (factory)	1,100
Selling expenses	8,500
Property tax and insurance	1,250
4. Purchases of direct materials (raw materials) during October amounted to \$8,500. Indirect materials (supplies) are handled in a separate account.
5. Only Job Nos. 27 and 28 are still in process at closing on October 31. Finished goods consisted only of Job No. 25 at month end.
6. Avid writes off any over- and under-applied overhead to Cost of Goods Sold in the month in which it is incurred.

Instructions

- (a) What is the predetermined overhead rate used by Avid to apply overhead to jobs?
- (b) What is the unit cost of Job No. 24 in October?
- (c) What are the October 31 balances for the following inventory accounts?
 1. Raw Materials
 2. Work in Process
 3. Finished Goods
- (d) What is the cost of goods manufactured in October? (You do not have to prepare a **formal** statement.)
- (e) Determine the over- or under-applied overhead for October and prepare the journal entry to dispose of this amount, assuming that over- and under- applied overhead is not prorated.

Solution-2 20 Points

- (a) Using Job 22 as the basis for the calculation,
 Overhead rate = $\$5,100 \div \$8,500 = 60\%$ of the labour cost. **2 Points**

- (b) Unit cost of Job 24: **3 POINTS**

	Direct Materials	Direct Labour	*Applied Overhead	TOTAL
Beginning WIP	\$ 3,190	\$ 7,210	\$ 4,326	\$14,726
Costs added in Oct.	410	3,500	2,100	6,010
Total	\$ 3,600	\$ 10,710	\$ 6,426	20,736
Divide by the number of units	.5PT	.5PT	1PT	÷ 50
Unit cost of Job 24				\$414.72
				1PT

* $\$3,500 \times 60\% = \$2,100$

- (c) (i) Raw Materials Inventory **1.5 PTS**

Beginning balance	\$	7,800
Plus Purchases		8,500
Material available for use	.5PT	16,300
Less: Material used	1 PT	11,540 *
Ending balance	\$	4,760

* Direct materials, Jobs 26, 27, 28	\$	8,980
Direct materials, Jobs 22, 24, 25		2,560
	\$	11,540

- (ii) Work in Process Inventory **3 PTS**

	Job 27	Job 28	TOTAL
Direct materials (given)	\$ 3,600	\$ 1,200	\$ 4,800
Direct labour (given)	8,340	2,910	11,250
Overhead (60% of direct labour)	5,004	1,746	6,750
	\$16,944	\$5,856	\$22,800
	1 PT	1 PT	1 PT

(iii) Finished Goods Inventory **1.5 PTS**

	<u>Job 25</u>	
From beginning WIP	\$.25PT	13,200
Plus: costs added in October		
Direct materials (given)	.25PT	1,200
Direct labour (given)	.25PT	4,500
Overhead (60% of direct labour)	.75 PT	2,700
	<u>\$</u>	<u>21,600</u>

(d) Cost of Goods Manufactured **5 POINTS**

	<u>Direct</u>	<u>Direct</u>	<u>Applied</u>	<u>TOTAL</u>
	Materials	Labour	Overhead	
Job 22	\$ 5,150	\$10,500	\$ 6,300	\$ 21,950 1.25PT
Job 24	3,600	10,710	6,426	20,736 1.25PT
Job 25	4,000	11,000	6,600	21,600 1.25PT
Job 26	4,180	9,200	5,520	18,900 1.25PT
				<u>\$ 83,186</u>

Or

- beginning w.i.p. (17800+14726+13200) = \$ 45,726
- mfg costs
 - Direct material used \$ 11,540
 - Direct labour + 30,450
 - Applied overhead + 18,270 = 60,260
- Total WIP \$105,986
- less ending w.i.p. from part c)ii) (22,800)
cost of goods mfg 83,186

(e) Under- or Over-applied Overhead **4 POINTS**

Supervisory salaries	\$ 4,000
Factory rent	2,000
Amortization (machines)	3,000
Indirect labour	8,200
Factory supplies	1,100
Property tax and insurance	1,250
	<u>19,550</u>
Total overhead incurred 1.5PTS	<u>19,550</u>

Less: Overhead applied ($\$30,450 \times 60\%$)	18,270	
	<u>18,270</u>	
Under-applied overhead	<u>\$ 1,280</u>	
Cost of Goods Sold	\$ 1,280	
Manufacturing Overhead		1,280

1PT

QUESTION III. 20 POINTS

S&R Inc manufactures the nutrient fit-for-life through two manufacturing processes: blending and packaging. All materials are entered at the beginning of each process. On August 1, 2008, inventories consisted of Raw Materials \$5,000; Work in Process—Blending \$0; Work in Process—Packaging total \$8,000 which is \$5,000 for transferred in cost from blending Department, \$1,000 for material costs and \$2,000 for conversion costs; and Finished Goods \$7,500. The beginning inventory Work in Process—Packaging consisted of 500 units, 40% complete as to conversion costs. During August, 9,000 units were started into production in blending, and 8,200 units transferred from blending to packaging at a cost of \$82,000. The units transferred from packaging to finished goods were 8,600 units. The ending inventory Work in Process-Packaging was 50% completed as to conversion costs.

In addition the following transactions were completed:

1. Purchased \$75,000 of raw materials.
2. Issued direct raw materials for production: \$16,800 for blending and \$16,400 for packaging.
3. Incurred factory labour costs of \$22,770.
4. Used direct labour: \$12,230 for blending and \$8,950 for packaging.
5. Incurred \$41,300 of manufacturing overhead, including factory amortization of \$10,000 and the rest paid in cash and on account.
6. Applied manufacturing overhead at the rate of \$50 per machine hour. Machine hours were 900 hours for blending and 300 hours for packaging.

Instructions

Answer the following questions for Packaging Process that is using Weighted –Average method.

1. Prepare a schedule of equivalent units for the August activity
2. Determine the unit cost of items transferred to finished goods.
3. Determine the total costs of all units transferred to finished goods
4. Determine the total costs assigned to ending inventory

Solution 20 POINTS

Quantities	Physical Units	Equivalent Units		Transfer Costs
		Materials Costs	Conversion Costs	
Units to be accounted for				
Work in process, April 1	500			
Transferred from Blending	<u>8,200</u>			
Total units	<u>8,700</u>			
Units accounted for				
Transferred to finished goods	8,600	8,600	8,600	8,600
Work in process, August 31, 50% CC	<u>100</u>	<u>100</u>	<u>50</u>	<u>100</u>
Total units	<u>8,700</u>	<u>8,700</u>	<u>8,650</u>	<u>8,700</u>
	2PTS	2PTS	2PTS	2PTS

Costs	Transfer red	Materials	Conversion Costs	Total
Unit costs				
BI	\$5,000	\$1,000	\$2,000	
Costs in August (a)	<u>\$82,000</u>	<u>\$16,400</u>	<u>\$23,950</u>	
Equivalent units (b)	<u>\$87,000</u>	<u>\$17,400</u>	<u>\$25,950</u>	<u>\$130,350</u>
Unit costs (a) ÷ (b)	<u>8,700</u>	<u>8,700</u>	<u>8,650</u>	
	<u>\$10.00</u>	<u>\$2.00</u>	<u>\$3.00</u>	<u>\$15.00</u>
	2PTS	2PTS	2PTS	

Cost Reconciliation Schedule

Costs accounted for			
Transferred out (8,600 X \$15.00)		3PTS	\$ 129,000
Work in process ENDING 3 PTS			
Transferred in (100 X \$10.00)			\$1,000
Materials (1,00 X \$2.00)			\$ 200
Conversion costs (50 X \$3.00)			<u>150</u>
Total costs			<u>\$130,350</u>

1. Prepare a schedule of equivalent units for the August activity see above **8 POINTS**
2. Determine the unit cost of items transferred to finished goods. \$15 **6 POINTS**
3. Determine the total costs of all units transferred to finished goods \$129,000 **3 POINTS**
4. Determine the total costs assigned to ending inventory \$1,350 **3 POINTS**

QUESTION IV. 20 POINTS

H&L is a public accounting firm that offers two primary services: auditing and tax return preparation. A controversy has developed between the partners of the two service lines as to who is contributing the greater amount to the bottom line. The area of disagreement is the assignment of overhead. The tax partners want overhead assigned on the basis of 40% of direct labour dollars, while the audit partners want to implement activity-based costing. The partners agree to use next year's budgeted data for purposes of analysis and comparison. The following overhead data are collected to develop the comparison:

Activity Cost Pools	Cost Drivers	Estimated Overhead	Expected Use of Cost Drivers	Expected Use of Cost Drivers per Service	
				Audit	Tax
Employee training	Direct labour dollars	\$216,000	\$1,800,000	\$1,000,000	\$800,000
Typing and secretarial	Number of reports/forms	76,200	2,500	600	1,900
Computing	Number of minutes	204,000	60,000	25,000	35,000
Facility rental	Number of employees	142,500	40	22	18
Travel	Per expense reports	<u>127,000</u> \$765,700	Direct	86,000	41,000

Instructions

- (a) Using traditional product costing, as proposed by the tax partners, calculates the total overhead cost assigned to both services (audit and tax) of H&L
- (b)
 1. Using activity-based costing, prepare a schedule that shows the calculations of the activity-based overhead rates (per cost driver).
 2. Prepare a schedule that assigns each activity's overhead cost pool to each service based on the use of the cost drivers.

- (c) Classify each of the activities as a value-added activity or a non-value-added activity.
- (d) Comment on the comparative overhead cost for the two services under both traditional costing and ABC.

Solution 20 POINTS

- (a) Computation of assigned overhead under traditional costing (“direct labour dollars” appears in the first line of the schedule of overhead data): Predetermined overhead rate X direct labour dollars

Overhead assigned to audit: .40 X \$1,000,000 = \$400,000 **1.5 POINTS**
 Overhead assigned to tax: .40 X \$800,000 = \$320,000 **1.5 POINTS**

- (b) (1) Computation of activity-based overhead rate: **1.5 PTS each x 5 = 7.5 POINTS**

Activity Cost Pools	Estimated Overhead	÷	Expected Use of Cost Drivers per Activity	=	Activity-Based Overhead Rates
Employee training	\$216,000		\$1,800,000 DL dollars		\$ 0.12 per DL dollar
Typing and secretarial	76,200		2,500 Reports/forms		\$30.48 per report
Computing	204,000		60,000 Minutes		\$ 3.40 per minute
Facility rental	142,500		40 Employees		\$3,562.50 per emplo
Travel	127,000		Direct		Direct
	<u>\$765,000</u>				

- (2) Assignment of overhead to audit and tax services: **1 PT each x 5 = 5 POINTS**

Activity Cost Pools	Audit			Tax		
	Expected Use of Cost Driver	Activity-Based Overhead Rate	Cost Assigned	Expected Use of Cost Driver	Activity-Based Overhead Rate	Cost Assigned
Employee training	\$1,000,000	\$.12	\$120,000	\$800,000	\$.12	\$ 96,000
Typing and secretarial	600	\$30.48	18,288	1,900	\$30.48	57,912
Computing	25,000	\$3.40	85,000	35,000	\$3.40	119,000
Facility rental	22	\$3,562.50	78,375	18	\$3,562.50	64,125
Travel	86,000	Direct	<u>86,000</u>	41,000	Direct	<u>41,000</u>
Overhead costs assigned			<u>\$387,663</u>			<u>\$378,037</u>

- (c)
- | Activity | Value-Added vs. Non-value-Added |
|------------------------|---------------------------------|
| Employee training | Non-value-added |
| Typing and secretarial | Value-added |
| Computing | Value-added |
| Facility rental | Non-value-added |
| Travel | Non-value-added |

.5 PT each x 5 = 2.5 POINTS

(d) Overhead is assigned to the two service lines as follows: **2 POINTS**

	<u>Audit</u>	<u>Tax</u>
Traditional costing	\$400,000	\$320,000
ABC	<u>387,663</u>	<u>378,037</u>
Difference	<u>\$ 12,337</u>	<u>\$ 58,037</u>

The \$12,337 difference for audits is 3.1% lower under ABC costing, while the \$58,037 difference for tax is 18.1% higher under ABC costing. Clearly, ABC costing should be used to determine the relative profitability of each service.

QUESTION V. 25 POINTS

Part-1 10 MARKS

Vice President for Sales and Marketing Sam Totter is trying to plan for the coming year in terms of production needs to meet the sales demand. He is also trying to determine ways in which the company's profits might be increased in the coming year.

Waterways Inc. markets a simple water control and timer that it mass-produces. During 2008, the company sold 696,000 units at an average selling price of \$4.22 per unit. The variable expenses were \$2,053,200, and the fixed expenses were \$683,338.

Instructions

- (1) What is the product's contribution margin ratio?
- (2) What is the company's break-even point in units and in dollars for this product?
- (3) What is the margin of safety, both in dollars and as a ratio?
- (4) If management wanted to increase its income from this product by 10%, how many additional units would have to be sold to reach this income level?
- (5) If sales increase by 71,090 units and the cost behaviours do not change, how much will income increase on this product?

Part-2 7.5 MARKS

Waterways Inc. has a sales mix of sprinklers, valves, and controllers as follows.

Annual expected sales:

Sale of sprinklers 450,000 units at \$26.50
Sale of valves 1,500,000 units at \$11.20
Sale of controllers 50,000 units at \$42.50

Variable manufacturing cost per unit:

Sprinklers \$13.96
Valves \$7.95
Controllers \$29.75

Fixed manufacturing overhead cost (total) \$760,000

Variable selling and administrative expenses per unit:

Sprinklers \$1.30
Valves \$0.50
Controllers \$3.41

Fixed selling and administrative expenses (total) \$1,600,000

Instructions

- (1) Assuming the sales mix remains the same, Calculate the number of units of each product that Waterways Inc. must sell in order to break even under this product mix.

Part-3 7.5 MARKS

The section of Waterways that produces controllers for the company provided the following information.

Sales for month of February:	4,000
Variable manufacturing cost per unit:	\$ 9.75
Sales price per unit:	\$42.50
Fixed manufacturing overhead cost (per month for controllers):	\$81,000
Variable selling and administrative expenses per unit:	\$3.41
Fixed selling and administrative expenses (per month for controllers):	\$13,122

Instructions

- (1) Using this information for the controllers, determine the degree of operating leverage.
- (2) What does this information suggest if Waterways' cost structure is the same for the company as a whole?
- (3) Assuming that sales revenue from the controllers increases by 25%, use the degree of operating leverage calculated in (1) above to calculate the increase in net income.

PART-1 15 MARKS 2 POINTS EACH QUESTION X 5 = 10 PTS

(1) The contribution margin ratio is 30% ($\$883,920 \div \$2,937,120$):

Waterways Corporation
Contribution Margin Income Statement for Water Control
and Timer
For the Year 2008

		Unit Cost	
Sales (696,000 units)	\$2,937,120	\$4.22	100%
Variable expenses	<u>2,053,200</u>	<u>2.95</u>	70%
Contribution margin	883,920	1.27	30%
Fixed Expenses	<u>683,338</u>		
Net income from product	<u>\$ 200,582</u>		

(2) Break-even point in units = 538,061 units

$$\frac{\text{Fixed expenses}}{\text{Unit CM}} = \frac{\$683,338}{\$1.27} = 538,061 \text{ units (rounded)}$$

Break-even point in sales dollars = \$2,277,793

$$\frac{\text{Fixed expenses}}{\text{CM ratio}} = \frac{\$683,338}{.30} = \$2,277,793 \text{ (rounded)}$$

(3) Margin of safety in dollars = \$659,327

Sales	\$2,937,120
Less: Break-even in dollars	<u>2,277,793</u>
	\$ 659,327

Margin of safety ratio = 22.45%

$$\frac{\text{Margin of safety in dollars}}{\text{Sales}} = \frac{\$659,327}{\$2,937,120} = 22.45\%$$

(4) 10% increase in income = \$ 20,058.20 / \$1.27 = 15,794 additional units

(5) INCREASE IN UNITS 71,090 X CM PER UNIT \$1.27 = \$90,284.30

Part 2 7.5 POINTS

(1) Total units = 450,000 + 1,500,000 + 50,000 = 2,000,000

Sales mix Sprinklers = $\frac{450,000}{2,000,000} = 22.5\%$

Valves = $\frac{1,500,000}{2,000,000} = 75\%$ **.75 PT (.25 EACH)**

Controllers = $\frac{50,000}{2,000,000} = 2.5\%$

	Sprinklers	Valves	Controllers
Sales price	\$ 26.50	\$ 11.20	\$ 42.50
Variable costs			
Manufacturing	13.96	7.95	29.75
Selling & admin.	<u>1.30</u>	<u>0.50</u>	<u>3.41</u>
	<u>15.26</u>	<u>8.45</u>	<u>33.16</u>
Contribution margin	<u>\$ 11.24</u>	<u>\$ 2.75</u>	<u>\$ 9.34</u>
	.75 PT	.75 PT	.75 PT

Weighted-Average Unit Contribution Margin

	Unit CM × Sales Mix % =	Weighted-Avg Unit CM
Sprinklers	\$ 11.24 22.5%	\$ 2.53
Valves	2.75 75.0%	2.06
Controllers	9.34 2.5%	<u>0.23</u>
	1 PT	<u>\$ 4.82</u>

Break-even Point in Units 2 PTS

<u>Fixed Costs</u>	<u>\$2,360,000*</u>		
Weighted Average Unit CM	\$4.82	489,627	units

***(\$760,000 + \$1,600,000)**

22.5% X 489,627 = 110,166 units Sprinklers **.5PT**

75.0 %X 489,627 = 367,220 units Valves **.5PT**

2.5% X 489,627 = 12, 241 units Controllers **.5PT**

Part 3 **7.5 POINTS**

(1) 4 POINTS

	February	
Sales (4,000 x \$42.50)	\$ 170,000	.5PT
Variable costs (4,000 x \$13.16*)	<u>52,640*</u>	1 PT
Contribution margin	117,360	
Fixed costs (\$81,000 + \$13,122)	<u>94,122</u>	1 PT
Net income	<u>\$ 23,238</u>	

*(9.75 + 3.41)

Degree of Operating Leverage

$$\text{Contribution Margin} / \text{Net Income} = \text{Degree of Operating Leverage}$$
$$\$117,360 / \$23,238 = 5.05 \text{ 1.5 PTS}$$

- (2)** Waterways has high fixed costs relative to its variable costs. This results in a high degree of operating leverage. As a consequence, if the market is good and the company's sales increase, its net income will increase very rapidly. Its degree of operating leverage of 5.05 means that a 10% increase in sales will result in a 50.5% (10% × 5.05) increase in net income. However, it also means that if sales decline, its net income will decline very rapidly. A 10% decrease in sales will result in a 50.5% decrease in net income. **1.5 POINTS**

(3) 2 POINTS

Percentage Increase in Net Income

$$\text{Increase in Sales } .25 \times \text{DOL } 5.05 = 1.2625$$

$$\text{Increase in net income } 1.2625 \times \$\$ \underline{23,238} = \underline{\$29,338}$$

MID TERM EXAMINATION

Summer 2009

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 (5) Questions printed on (8) 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 *professor's 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

Select the best answer. 1 mark each

1. Managerial accounting
 - a. is concerned with costing products.
 - b. is governed by generally accepted accounting principles.
 - c. pertains to the entity as a whole and is highly aggregated.
 - d. places emphasis on special-purpose information.
2. In which of the following categories do indirect materials belong?

	Product Cost	Manufacturing Overhead	Period Cost
a.	No	No	Yes
b.	Yes	No	No
c.	Yes	Yes	No
d.	Yes	Yes	Yes

3. Which beginning and ending inventories appear on a cost of goods manufactured schedule?
 - a. Raw materials only
 - b. Raw materials and work in process only
 - c. Raw materials, work in process, and finished goods
 - d. Work in process only
4. Luca Company overapplied manufacturing overhead during 2008. Which one of the following is part of the year end entry to dispose of the overapplied amount assuming the amount is material?
 - a. An increase to Finished Goods
 - b. A decrease to Applied Overhead
 - c. A decrease to Work in Process Inventory
 - d. An increase to Cost of Goods Sold

5. What is the best way to handle manufacturing overhead costs in order to get the most timely job cost information?
 - a. The company should account for only the direct production costs.
 - b. The company should apply overhead using an estimated rate throughout the year.
 - c. The company should add actual manufacturing overhead costs to jobs as soon as the overhead costs are incurred.
 - d. The company should determine an allocation rate as soon as the actual costs are known, and then apply manufacturing overhead to jobs.

6. At the end of the year, Manufacturing Overhead has been overapplied. What occurred to create this situation?
 - a. The company incurred more total job costs than the amount budgeted for the job.
 - b. The actual manufacturing overhead costs were less than the manufacturing overhead assigned to jobs.
 - c. The company incurred more manufacturing overhead costs than the manufacturing overhead assigned to jobs.
 - d. Estimated manufacturing overhead was less than actual manufacturing overhead costs.

7. Which one of the following is a similarity of both a job order and a process cost system?
 - a. They both track direct materials and direct labour, but not manufacturing overhead.
 - b. They both track conversion costs, but not materials.
 - c. They both track the same three manufacturing cost elements – direct materials, direct labour, and manufacturing overhead.
 - d. They both are used for the same type of inventory production items.

8. How are costs assigned in a process cost system?
 - a. To only one work in process account
 - b. To work in process and finished goods inventory
 - c. To work in process, finished goods, and cost of goods sold
 - d. To multiple work in process accounts

9. What is a production cost report used for?
 - a. It is an external report provided to shareholders.
 - b. It shows costs charged to a department and costs accounted for.
 - c. It shows equivalent units of production but not physical units.
 - d. It shows the basis on which overhead is allocated.

10. Which of the following is **not** a benefit of activity-based costing?
- a. More accurate product costing
 - b. Enhanced control over overhead costs
 - c. Better management decisions
 - d. Less costly to use
11. Which of the following is a limitation of activity-based costing?
- a. More cost pools
 - b. Less control over overhead costs
 - c. Poorer management decisions
 - d. Some arbitrary allocations continue
12. Which of the following factors would suggest a switch to activity-based costing?
- a. Product lines similar in volume and manufacturing complexity.
 - b. Overhead costs constitute a significant portion of total costs.
 - c. The manufacturing process has been stable.
 - d. Production managers use data provided by the existing system.
13. What happens to manufacturing costs when a company's activity level decreases?
- a. Costs per unit should remain the same if the company is still in the relevant range.
 - b. Most unit costs will rise.
 - c. All unit costs will remain the same.
 - d. Some costs decrease and others will remain the same.
14. Croc Catchers calculates its contribution margin to be less than zero. Which statement is true?
- a. Its fixed costs are less than the variable cost per unit.
 - b. Its profits are greater than its total costs.
 - c. The company should sell more units.
 - d. Its selling price is less than its variable costs.
15. Which of the following statements is **not** true?
- a. Operating leverage refers to the extent to which a company's net income reacts to a given change in sales.
 - b. Companies that have higher fixed costs relative to variable costs have higher operating leverage.
 - c. When a company's sales revenue is increasing, high operating leverage is a good thing because it means that profits will increase rapidly.
 - d. When a company's sales revenue is decreasing, high operating leverage is a good thing because it means that profits will decrease at a slower pace than revenues decrease.

QUESTION II 20 POINTS

Vargas Corporation's fiscal year ends on November 30. The following accounts are found in its job-order cost accounting system for the first month of the new fiscal year:

Raw Materials Inventory			
Dec. 1	Beginning balance	(a)	
31	Purchases	19,225	
Dec. 31	Ending balance	7,975	
Work in Process Inventory			
Dec. 1	Beginning balance	(b)	Dec. 31
31	Direct materials	(c)	Jobs completed
31	Direct labour	8,800	(e)
31	Overhead	(d)	
Dec. 31	Ending balance	(f)	
Finished Goods Inventory			
Dec. 1	Beginning balance	(g)	Dec. 31
31	Completed jobs	(h)	Cost of goods sold
Dec. 31	Ending balance	(j)	(i)
Factory Labour			
Dec. 31	Factory wages	12,025	Dec. 31
			Wages assigned
			(k)
Manufacturing Overhead			
Dec. 31	Indirect materials	1,900	Dec. 31
31	Indirect labour	(l)	Overhead applied
31	Other overhead	1,245	(m)

Other data:

1. On December 1, two jobs were in process: Job No. 154 and Job No. 155. These jobs had combined direct materials costs of \$9,750 and direct labour costs of \$15,000. Overhead was applied at a rate that was 75% of the direct labour cost.
2. During December, Job Nos. 156, 157, and 158 were started. On December 31, Job No. 158 was unfinished. This job had charges for direct materials of \$3,800 and direct labour of \$4,800, plus manufacturing overhead. All jobs except Job No. 158 were completed in December.
3. On December 1, Job No. 153 was in the finished goods warehouse. It had a total cost of \$5,000. On December 31, Job No. 157 was the only job finished that was not sold. It had a cost of \$4,000.
4. Manufacturing overhead was \$230 overapplied in December.

Instructions

List the letters (a) through (m) and indicate the amount for each letter. Show all calculations.

QUESTION III 20 POINTS

The Allbright BrickWorks, in Winnipeg, Manitoba, manufactures high-quality bricks used in residential and commercial construction. The firm is small but highly automated and typically produces about 300,000 bricks per month. A brick is created in a continuous production operation. In the initial step, the raw material, a mixture of soils and water, is forced into a brick mould moving along a conveyer belt. No other materials are actually required in the manufacture of a brick. Each brick takes about three days to complete. Approximately the last 36 hours on the conveyer belt are spent in an oven that removes moisture from the product. The conveyer belt speed is monitored and controlled by computer. The firm uses a process costing system based on actual costs in three cost pools—direct materials, direct labour, and factory overhead—to assign production costs to output. Cost and production data for October 2005 follow:

Production Data			
Beginning work in process inventory (100% complete as to direct materials; 60% complete as to direct labour; 36% complete as to factory overhead)	2,500 bricks		
Started this period	30,500 bricks		
Ending work in process inventory (100% complete as to direct materials; 50% complete as to direct labour; 40% complete as to factory overhead)	3,000 bricks		
Cost Data			
	Materials	Direct Labour	Overhead
Beginning inventory	\$ 13,300	\$ 4,350	\$ 8,520
Cost in October	122,000	150,000	181,800

Instructions

Prepare a production cost report to determine the cost of bricks transferred to finished goods inventory and the cost of bricks in ending work in process inventory for October 2005. Assume the company uses the FIFO method.

QUESTION IV 20 POINTS

FireOut, Inc. manufactures steel cylinders and nozzles for two models of fire extinguishers: (1) a home fire extinguisher, and (2) a commercial fire extinguisher. The home model is a high-volume (54,000 units), two-litre cylinder that holds 1 kilogram of multi-purpose dry chemical at 480 PSI. The commercial model is a low-volume (10,200 units), four-litre cylinder that holds five kilograms of multi-purpose dry chemical at 390 PSI. Both products require 1.5 hours of direct labour for completion. Therefore, total annual direct labour hours are 96,300 or $[1.5 \text{ hrs} \times (54,000 + 10,200)]$. Expected annual manufacturing overhead is \$1,502,280. Thus, the predetermined overhead rate is \$15.60 ($\$1,502,280 \div 96,300$) per direct labour hour. The direct materials cost per unit is \$18.50 for the home model and \$26.50 for the commercial model. The direct labour cost is \$19 per unit for both the home and the commercial models.

The company's managers identified six activity cost pools and related cost drivers, and accumulated overhead by cost pool as follows.

Activity Cost Pools	Cost Drivers	Estimated Overhead	Expected Use of Cost Drivers	Expected Use of Drivers by Product	
				Home	Commercial
Receiving	Kilograms	\$ 70,350	335,000	215,000	120,000
Forming	Machine hours	150,500	35,000	27,000	8,000
Assembling	Number of parts	390,600	217,000	165,000	52,000
Testing	Number of tests	51,000	25,500	15,500	10,000
Painting	Litres	52,580	5,258	3,680	1,578
Packing and shipping	Kilograms	787,250	335,000	215,000	120,000
		\$1,502,280			

Instructions

- (a) Under traditional product costing, calculate the total unit cost of both products. Prepare a simple schedule that compares the individual costs by product. **5 Marks**
- (b) Calculate the total cost per unit for each product under ABC. **12 Marks**
- (c) Classify each of the activities as a value-added activity or a non-value-added activity. **3 Marks**

QUESTION V-A 18 POINTS

Dias Manufacturing had a bad year in 2005. For the first time in its history, it operated at a loss. The company's income statement showed the following results from selling 80,000 units of product: net sales \$1.6 million; total costs and expenses \$1.74 million; and net loss \$140,000. Costs and expenses consisted of the following:

	Total	Variable	Fixed
Cost of goods sold	\$1,200,000	\$780,000	\$420,000
Selling expenses	420,000	75,000	345,000
Administrative expenses	120,000	45,000	75,000
	\$1,740,000	\$900,000	\$840,000

Management is considering the following independent alternatives for 2006:

1. Increase the unit selling price by 25% with no change in costs and expenses.
2. Change the compensation of salespersons from fixed annual salaries totalling \$200,000 to total salaries of \$40,000 plus a 5% commission on net sales.
3. Purchase new high-tech factory machinery that will change the proportion between variable and fixed costs of goods sold to 50:50.

Instructions

- (a) Calculate the break-even point in dollars for 2005. **3 Marks**
- (b) Calculate the break-even point in dollars under each of the alternative courses of action. **12 Marks (4 marks for each alternative)**
- (c) Which course of action do you recommend? Explain. **3 Marks**

QUESTION V-B 7 POINTS

Grass King manufactures lawn mowers, weed-trimmers, and chainsaws. Its sales mix and contribution margin per unit are as follows:

	Sales Mix	Contribution Margin per Unit
Lawn mowers	30%	\$30
Weed-trimmers	50%	\$20
Chainsaws	20%	\$40

Grass King has fixed costs of \$4.86 million.

Instructions

Calculate the number of units of each product that Grass King must sell in order to earn \$540,000 before tax under this product mix. Grass King's tax rate is 40%.

QUESTION I 15 POINTS

1. D
2. C
3. B
4. C
5. B
6. B
7. C
8. D
9. B
10. D
11. D
12. B
13. D
14. D
15. D

QUESTION II 20 POINTS

- (a) \$5,600 ($\$16,850 + \$7,975 - \$19,225$). **2 PTS**
- (b) \$36,000 [$\$9,750 + \$15,000 + (75\% \times \$15,000)$]. **2 PTS**
- (c) \$14,950 ($\$16,850 - \$1,900$). **2 PTS**
- (d) \$6,600 ($\$8,800 \times 75\%$). **1 PT**
- (e) \$54,150 ($\$36,000 + \$14,950 + \$8,800 + \$6,600 - \$12,200$). **2 PTS**
- (f) \$12,200 [Given in other data-(2)— $\$3,800 + \$4,800 + (75\% \times \$4,800)$]. **1 PT**
- (g) \$5,000 (Given in other data-(3).) **1 PT**
- (h) \$54,150 (See (e) above). **1 PT**
- (i) \$55,150 ($\$5,000 + \$54,150 - \$4,000$). **2 PTS**
- (j) \$4,000 (Given in other data-(3).) **1 PT**
- (k) \$12,025 (Equal to factory labour incurred). **2 PTS**
- (l) \$3,225 ($\$12,025 - \$8,800$). **2 PTS**
- (m) \$6,600 (Same as (d)) or ($\$1,900 + \$3,225 + \$1,245 + \230) **1 PT**

PROBLEM III 20 POINTS

Quantities	Physical Units	Equivalent Units		
		Materials	Labour Costs	Over-head
<u>Units to be accounted for</u>				
Work in process, beginning	2,500			
Started this period	<u>30,500</u>			
Total units	<u>33,000</u>			
<u>Units accounted for</u>				
Work in process, beginning	2,500			
Materials (0%)		0		
Labour (40%)			1,000	
Overhead (64%)				1,600
Started and completed	27,500	27,500	27,500	27,500
Work In process, ending	<u>3,000</u>			
Materials (100%)		<u>3,000</u>		
Labour (50%)			<u>1,500</u>	
Overhead (40%)				<u>1,200</u>
Total units	<u>33,000</u>	<u>30,500</u>	<u>30,000</u>	<u>30,300</u>
	2 PTS	2 PTS	2 PTS	2 PTS
Current period costs	<u>\$453,800</u>	<u>\$122,000</u>	<u>\$150,000</u>	<u>\$181,800</u>
Per unit cost	1 PT <u>\$15</u>	1 PT <u>\$4</u>	1 PT <u>\$5</u>	1 PT <u>\$6</u>

	Total	Materials	Labour Costs	Over- head
<hr/>				
<u>Costs accounted for</u>				
Work in process, beginning 1 PT	\$ 26,170			
Cost to complete beginning WIP 2 PTS	14,600			
Materials (0 x \$4)		\$ --		
Labour (1,000 x \$5)			\$5,000	
Overhead (1,600 x \$6)				\$9,600
Started and completed (27,500 x \$15) 2 PTS	412,500			
Work In process, ending	26,700			
Materials (3,000 x \$4) 1 PT		12,000		
Labour (1,500 x \$5) 1 PT			7,500	
Overhead (1,200 x \$6) 1 PT				7,200
	<u>\$479,970</u>			

PROBLEM IV 20 POINTS

(a) Computation of unit costs—traditional costing.

<u>Manufacturing Costs</u>	<u>Products</u>	
	<u>Home Model</u>	<u>Commercial Model</u>
Direct materials	\$18.50	\$26.50
Direct labour	19.00	19.00
Overhead	<u>23.40*</u>	<u>23.40*</u>
Total unit cost	<u>\$60.90</u>	<u>\$68.90</u>
	2.5 PTS	2.5 PTS

*\$15.60 X 1.5 = \$23.40

(b)

<u>Activity Cost Pool</u>	<u>Estimated Overhead</u> ÷	<u>Expected Use of Cost Drivers</u>	=	<u>Activity-Based Overhead Rate</u>
Receiving	\$ 70,350	335,000 Pounds		\$ 0.21 per pound .5 PT
Forming	150,500	35,000 Machine hours		\$ 4.30 per machine hour .5 PT
Assembling	390,600	217,000 Parts		\$ 1.80 per part .5 PT
Testing	51,000	25,500 Tests		\$ 2.00 per test .5 PT
Painting	52,580	5,258 Litres		\$10.00 per litre .5 PT
Packing and shipping	<u>787,250</u>	335,000 Kilograms		\$ 2.35 per kilogram .5 PT
	<u>\$1,502,280</u>			

<u>Activity Cost Pool</u>	<u>Home Model</u>			<u>Commercial Model</u>		
	<u>Expected Use of Drivers</u>	<u>Activity-Based Overhead Rates</u>	<u>Expected Cost Assigned</u>	<u>Expected Use of Drivers</u>	<u>Activity-Based Overhead Rates</u>	<u>Expected Cost Assigned</u>
Receiving	215,000	\$.21	\$ 45,150	120,000	\$.21	\$ 25,200
Forming	27,000	\$ 4.30	116,100	8,000	\$ 4.30	34,400
Assembling	165,000	\$ 1.80	297,000	52,000	\$ 1.80	93,600
Testing	15,500	\$ 2.00	31,000	10,000	\$ 2.00	20,000
Painting	3,680	\$10.00	36,800	1,578	\$10.00	15,780
Packing and shipping	215,000	\$ 2.35	<u>505,250</u>	120,000	\$ 2.35	<u>282,000</u>
Total costs assigned (a)			<u>\$1,031,300</u>			<u>\$470,980</u>
Units produced (b)			<u>54,000</u>			<u>10,200</u>
Overhead cost per unit [(a) ÷ (b)]			<u>\$19.10</u>			<u>\$46.17</u>

.5 PT FOR EACH COST DRIVER = 3 PTS HM + 3 PTS CM

<u>ABC Manufacturing Costs</u>	<u>Home Model</u>	<u>Commercial Model</u>
Direct materials	\$18.50	\$26.50
Direct labour	19.00	19.00
Overhead	19.10	46.17
Total cost per unit	<u>\$56.60</u>	<u>\$91.67</u>
	<u>1.5 PTS</u>	<u>1.5 PTS</u>

(c) <u>Activity</u>	<u>Value- vs. Non-value-Added</u>
Receiving .5 PT	Non-value-added
Forming .5 PT	Value added
Assembling .5 PT	Value-added
Testing .5 PT	Non-value-added
Painting .5 PT	Value-added
Packing & shippg.5 PT	Value-added

PROBLEM V-A 18 POINTS

(a) Sales were \$1,600,000
variable expenses were \$ 900,000,
contribution margin was \$ 700,000
CM ratio = \$ 700,000 / \$1,600,000 = 43.75%. **2PTS**

Fixed expenses were \$840,000.

The break-even point in dollars is: **1PT**

$$\frac{\$840,000}{.4375} = \$1,920,000$$

(b) 1. The effect of this alternative is to increase

The selling price per unit to \$25 (\$20 X 125%). **1PT**

Total sales = \$2,000,000 (80,000 X \$25). **1PT**

contribution margin changes to 55% [(\$2,000,000 – \$900,000) ÷ \$2,000,000]. The new break-even point is: **2PTS**

$$\frac{\$840,000}{.55} = \$1,527,273 \text{ (rounded)}$$

2. The effects of this alternative are:

(1) fixed costs decrease by \$160,000,

(2) variable costs increase by \$80,000 (\$1,600,000 X 5%), **1PT**

(3) total fixed costs become \$680,000 (\$840,000 – \$160,000), **1PT**

contribution margin becomes 38.75% [(\$1,600,000 – \$900,000 – \$80,000) ÷ \$1,600,000]. **2PTS**

The new break-even point is:

$$\frac{\$680,000}{.3875} = \$1,754,839 \text{ (rounded)}$$

3. The effects of this alternative are:

(1) variable and fixed cost of goods sold become \$600,000 each,

(2) total variable costs become \$720,000 (\$600,000 + \$75,000 + \$45,000), **1PT**

(3) total FC are \$1,020,000 (\$600,000 + \$345,000 + \$75,000) **1PT**

contribution margin ratio becomes 55% [(\$1,600,000 – \$720,000) ÷ \$1,600,000]. **2PTS**

The new break-even point is:

$$\frac{\$1,020,000}{.55} = \$1,854,545 \text{ (rounded)}$$

(c) Alternative 1 is the recommended course of action using break-even analysis because it has the lowest break-even point. **3PTS**

PROBLEM V-B 7 POINTS

Weighted-average contribution margin per unit =
 $(30\% \times \$30) + (50\% \times \$20) + (20\% \times \$40) = \27 **3 PTS**

Total sales in units = **1PT** $(\$4,860,000 + \$540,000) \div \$27 = 200,000$ units

Lawn mowers: $200,000 \times 30\% = 60,000$ units **1PT**

Weed-trimmers: $200,000 \times 50\% = 100,000$ units **1PT**

Chain saws: $200,000 \times 20\% = 40,000$ units **1PT**

COMM 305 & ACCO 240

MID TERM EXAMINATION - FALL 2011

PLEASE READ THIS PAGE – IT CONTAINS IMPORTANT INFORMATION

- Do not forget to write your class section, name and student ID number on your lined booklet.
- This examination will last Three (3) hours and consists of Five (5) Questions printed on (9) pages including this page. Make sure your copy of the exam is complete before starting.
- You may answer the questions in any order. In front of the booklet place the number associated to the order in which they are done. Your answers may be written in pencil or ink.
- Read the Questions carefully and budget your time carefully. Show details of all work and calculations in order to benefit from part marks, Attempt all Questions.
- 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.
- When you have finished, submit your lined answer booklet(s) and **keep exam questions**. Please enumerate your exam booklets.

Question	Topic	Marks
Q-1	Multiple Choice	15
Q-2	Chapters 2	23
Q-3	Chapters 3	19
Q-4	Chapter 4	24
Q-5	Chapter 5	19
	TOTAL	100

QUESTION I. 15 POINTS

Multiple Choice Please Select the Best Answer: (1.5 Points each)

1. Fixed costs per unit
 - a. Vary inversely with changes in volume
 - b. Change regardless of changes in volume
 - c. Will not change over the relevant range
 - d. Increase with an increase in volume

2. Which of the follow is not an assumption when estimating a cost function over the relevant range of activity?
 - a. Mixed costs will change in total
 - b. Mixed costs will change per unit
 - c. Variable costs will be constant in total
 - d. Fixed costs will be constant in total.

3. For which of the following products would a job costing system be appropriate?
 - a. Brewery, where each brand is a produced in a separate batch process
 - b. Jewelry store that manufactures and sells handcrafted jewelry
 - c. Cement kiln, where a single identical type of cement product is manufactured
 - d. Chemical plant, where each polymer is produced in a separate continuous process

4. When overhead is underapplied
 - a. Cost of goods sold is understated
 - b. Work in process inventory is overstated
 - c. Gross profit is understated
 - d. Finished goods inventory is overstated

5. The denominator in an overhead allocation rate for normal costing is
 - a. Actual overhead costs
 - b. Estimated activity level
 - c. Estimated overhead costs
 - d. Actual activity level

6. A costing system that determines an average cost for all units of product in a particular time period is a
 - a. Job costing system
 - b. Batch costing system
 - c. Process costing system
 - d. Direct costing system

7. Production costs during the current period are kept separate from that of the previous period in the
 - a. FIFO method
 - b. Job costing method
 - c. Just-in-time method
 - d. Weighted average method

8. Because the weighted average and FIFO methods treat beginning inventory differently, if a firm has beginning inventory in a process costing system and the FIFO method is used, it will
 - a. Always have a higher number of equivalent units of production for conversion costs than weighted the average method
 - b. Always have a lower number of equivalent units of production for conversion costs than the weighted average method
 - c. Always have a higher cost per equivalent unit than the weighted average method for materials
 - d. Always have a lower cost per equivalent unit than the weighted average method for conversion costs

9. ABC systems are similar to traditional costing systems in the way they
 - a. Allocate direct costs to cost objects
 - b. Define cost allocation bases
 - c. Trace direct costs to cost objects
 - d. Trace indirect costs to activities

10. ABC systems differ from traditional systems in that ABC systems
 - a. Trace direct costs to cost objects
 - b. Use multiple cost pools and cost drivers to allocate direct costs
 - c. Use multiple cost pools and cost drivers to allocate overhead costs
 - d. Assign costs only to units of product

1.5 MARK FOR EACH QUESTION

- 1. A**
- 2. C**
- 3. B**
- 4. A**
- 5. B**
- 6. C**
- 7. A**
- 8. B**
- 9. C**
- 10. C**

QUESTION II. 23 POINTS

You were provided with the following information.

The balances in the applicable inventory accounts at the beginning of the month were:

Raw materials inventory	\$38,000
Work in process inventory	\$52,900

During the month, the following activities took place.

1. Raw materials of \$185,400 were purchased on account.
2. \$40,000 of indirect raw materials was used in the actual production and the rest of the raw materials amount was for direct materials. The balance remaining in the raw materials account was \$52,700.
3. Actual cost for wages and salaries was \$70,000. 60% of this was considered overhead; the balance 40% was direct labour costs.
4. Utility costs during the month totalled \$13,600, of which 75% related to the plant operations. The plant was operational for a total of 580 machine hours during the month.
5. Depreciation on assets totalled \$22,400. 80% of these assets were used in the manufacturing operations.
6. Prepaid property tax amounting to \$4,280 and prepaid insurance amounting to \$5,000 were used during the month for the plant operations.
7. Other expenditures during the month were: Factory supplies, \$16,800; security services for the plant, \$10,000; janitorial services for the plant, \$9,800.
8. Ending work in process was valued at \$42,000.
9. Selling costs were \$2,300

In addition, you thought it might be helpful for cost-cutting measures to predict what manufacturing overhead would be in the following months. But first you need to determine the appropriate activity base. You thought there could be two possibilities: direct labour costs or the number of machine hours of operation.

From historical data you retrieved the following information:

	<u>Direct Labour Costs</u>	<u>Machine Hours of Operation</u>	<u>Manufacturing Overhead</u>
January	\$26,000	500	\$145,000
February	24,000	520	148,000
March	30,000	700	170,000
April	32,000	690	176,000
May	27,000	650	160,000
June	25,500	625	155,000

Instructions

1. From the information provided above calculate the following:
 - (a) Total direct costs of production (3 Points)
 - (b) Prime costs of production (1 Point)
 - (c) Conversion costs of production (3 Points)
 - (d) Total costs of goods manufactured (4 Points)
 - (e) Period costs (3 Points)
2. Using the high-low method, determine based on data in the chart above which activity base would be the best predictor of manufacturing overhead for this month. (9 Points)

(a) Direct costs of production (3 Points)

Direct materials:

Raw materials inventory, beginning	.25 MARK	\$38,000
Raw material purchases	.25 MARK	<u>185,400</u>
Total raw materials available for use		223,400
1.1 Less: Raw materials inventory, ending	.5 MARK	52,700
1.2 Less: indirect materials	1 MARK	<u>40,000</u>
Direct materials used		\$130,700
Direct labour (wages and salaries \$70,000 X 40%)	1 MARK	<u>28,000</u>
Direct costs of production (3 Points)		<u>\$158,700</u>

(b) Prime costs of production (DM + DL) = \$158,700
(1 Point)

(c) Conversion costs of production (3 Points)
(DL + MOH)

Direct Labour \$28,000 .75 MARK + MOH \$156,000 2.25 MARK =
\$184,000

Manufacturing overhead .25 EACH ACCOUNT

Indirect material	.25 MARK	\$40,000
Indirect labour	.25 MARK	42,000
Depreciation—plant equipment	.25 MARK	17,920
Plant supplies used	.25 MARK	16,800

Plant utilities .25 MARK	10,200
Insurance—plant .25 MARK	5,000
Property tax—plant .25 MARK	4,280
Security services .25 MARK	10,000
Janitorial services .25 MARK	<u>9,800</u>
	<u>156,000</u>

(d) Total costs of goods manufactured (4 Points)

Beginning Work in Process	\$52,900 1.25 MARK	
Total manufacturing costs(DM \$130,700+ DL \$28,000 + MOH \$156,000) 1.5 MARKS		<u>314,700</u>
Total cost of work in process		367,600
Less: Work in process, ending 1.25 MARK		<u>42,000</u>
		<u>\$325,600</u>

(e) Period costs (3 Point)
= Selling Expenses \$2,300 1 MARK
Administrative Expenses

Depreciation on assets totalled \$22,400. 20% of these assets were used in the NON-manufacturing operations. **1 MARK \$4,480**

Utility costs during the month totalled \$13,600, of which 25% related to the NON- plant operations
1 MARK \$3,400
TOTAL \$10,180

(2) Using the high-low method, determine based on data in the chart above which activity base would be better for predicting manufacturing overhead. (9 Points)

Direct labour Costs (X): (2 Points)

$$(\$176,000 - \$148,000) \div (\$32,000 - \$24,000) = 3.50/\text{DLC } \mathbf{1 \text{ MARK}}$$

	<u>Activity Level</u>	
	<u>High</u>	<u>Low</u>
Total cost	\$176,000	\$148,000
Less: Variable costs		
32,000 × 3.5	112,000	
24,000 × 3.5		84,000
Total fixed costs 1 MARK	<u>\$ 64,000</u>	<u>\$ 64,000</u>

The cost formula is: \$64,000 + 3.50X.

Machine Hours of Operation: (2 Points)

$$(\$170,000 - \$145,000) \div (700 - 500) = \$125/\text{MH } \mathbf{1 \text{ MARK}}$$

	<u>Activity Level</u>	
	<u>High</u>	<u>Low</u>
Total cost	\$170,000	\$145,000
Less: Variable costs		
700 × \$125	87,500	
500 × \$125		62,500
Total fixed costs 1 MARK	<u>\$ 82,500</u>	<u>\$ 82,500</u>

The cost formula is: \$82,500 + \$125X.

If we substitute the actual values of the activity bases from the current month we would get the following estimates:

Direct Labour Costs: \$64,000 + (3.5 × \$28,000) = \$162,000 **(1 Point)**

Hours of operation: \$82,500 + (\$125 × 580) = \$155,000 **(1 Point)**

As the actual manufacturing overhead was \$156,000 for the month, Machine hours of operation would be the better choice as an activity base for predicting manufacturing overhead. (3 Points)

QUESTION III. 19 POINTS

Pine Products Company uses a job-order cost system. For a number of months there has been an ongoing disagreement between the sales department and the production department concerning a special-order product, TC-1. TC-1 is a seasonal product that is manufactured and sold in batches of 2,000 units. Each batch is sold at cost plus a mark-up of 30%.

The sales department is unhappy because fluctuating unit production costs significantly affect selling prices. Sales personnel complain that this has caused excessive customer complaints and the loss of considerable orders for TC-1.

The production department maintains that each job order must be fully costed on the basis of the costs incurred during the period in which the goods are produced. Production personnel maintain that the only real solution to the problem is for the sales department to increase sales in the slack periods.

The president of the company, asks you as the company accountant to collect quarterly data for the past year on TC-1. From the cost accounting system, you accumulate the following production quantity and cost data:

Costs	Quarter			
	1	2	3	4
Direct materials	\$150,000	\$330,000	\$120,000	\$300,000
Direct labour	75,000	165,000	60,000	150,000
Manufacturing overhead	<u>128,000</u>	<u>192,500</u>	<u>100,000</u>	<u>145,000</u>
Total	<u>\$353,000</u>	<u>\$687,500</u>	<u>\$280,000</u>	<u>\$595,000</u>
Production in batches	5	11	4	10
Unit cost (per batch)	\$ 70,600	\$ 62,500	\$ 70,000	\$ 59,500

Instructions

- Determine what manufacturing cost element is responsible for the fluctuating unit costs. Why? (4 Points)
- Provide a recommended solution to the problem of fluctuating unit cost. (7 Points)
- Restate the quarterly data on the basis of your recommended solution. (8 Points)

(a) (4 Marks)

The manufacturing cost element that is responsible for the fluctuating unit costs is manufacturing overhead **1 MARK**. Manufacturing overhead is being included as incurred rather than being applied on a predetermined basis. Direct materials and direct labour are not the cause as they have the same unit cost per batch in each quarter. **(3 Points)**

(b)(7 MARKS)

The solution is to apply overhead using a predetermined overhead rate based on a relevant basis of production activity. **2 MARKS**

Based on actual overhead incurred and using batches of product TC-1 as the activity base, the overhead rate is \$18,850 per batch [(\$128,000 + \$192,500 + \$100,000 + \$145,000) = (\$565,500 ÷ 30)].

OR

Another approach would be to use direct labour cost as the relevant basis to apply overhead on a predetermined basis.

For example, a rate of 1.2567/DLC of direct labour cost (\$565,500 ÷ \$450,000) could be used

OR

a rate of .6283/DMC (\$565,500 ÷ \$900,000). Either approach will provide the same result. **(5 Points)**

(c) The quarterly results using a predetermined overhead rate based on batches produced are as follows:

Costs	Quarter			
	1	2	3	4
Direct materials	\$150,000	\$330,000	\$120,000	\$300,000
Direct labour	75,000	165,000	60,000	150,000
MOH applied (\$18,850 × batches)	94,250	207,350	75,400	188,500
Total	\$319,250	\$702,350	\$255,400	\$638,500
Production in batches	<u>5</u>	<u>11</u>	<u>4</u>	<u>10</u>
Unit cost (per batch) 2	<u>\$63,850</u>	<u>\$63,850</u>	<u>\$63,850</u>	<u>\$63,850</u>

2 MARKS FOR EACH

(Note: The unit cost of a batch remains the same in each quarter. Both sales and production should be pleased with this solution to fluctuating unit costs.) (8 Points) or as below

Costs	Quarter			
	1	2	3	4
Direct materials	\$150,000	\$330,000	\$120,000	\$300,000
Direct labour	75,000	165,000	60,000	150,000
MOH applied (\$1.25666 × DLC batches)	<u>94,250</u>	<u>207,350</u>	<u>75,400</u>	<u>188,500</u>
Total	<u>\$319,250</u>	<u>\$702,350</u>	<u>\$255,400</u>	<u>\$638,500</u>
Production in batches	<u>5</u>	<u>11</u>	<u>4</u>	<u>10</u>
Unit cost (per batch)	<u>\$63,850</u>	<u>\$63,850</u>	<u>\$63,850</u>	<u>\$63,850</u>

(Note: The unit cost of a batch remains the same in each quarter. Both sales and production should be pleased with this solution to fluctuating unit costs.)

Costs	Quarter			
	1	2	3	4
Direct materials	\$150,000	\$330,000	\$120,000	\$300,000
Direct labour	75,000	165,000	60,000	150,000
MOH applied (\$.68233 × DMC)	<u>94,250</u>	<u>207,350</u>	<u>75,400</u>	<u>188,500</u>
Total	<u>\$319,250</u>	<u>\$702,350</u>	<u>\$255,400</u>	<u>\$638,500</u>
Production in batches	<u>5</u>	<u>11</u>	<u>4</u>	<u>10</u>
Unit cost (per batch)	<u>\$63,850</u>	<u>\$63,850</u>	<u>\$63,850</u>	<u>\$63,850</u>

(Note: The unit cost of a batch remains the same in each quarter. Both sales and production should be pleased with this solution to fluctuating unit costs.)

QUESTION IV. 24 POINTS

The following information is available for the processing of the piping in the moulding department (the starting department) for the month of July. One metre of piping is considered to be one unit.

Beginning work in process:

Units in process	40,000
Stage of completion for materials	100%
Stage of completion for labour and overhead	70%

Costs in beginning work in process inventory

Materials	\$138,360	
Labour	27,564	
Overhead	13,782	\$179,706

Units started into production in July	62,000
Units completed and transferred out in July	60,000

Costs added to production during July:

Materials	\$218,640	
Labour	49,698	
Overhead	24,156	\$292,494

Ending work in process:

Units in process	42,000
Stage of completion for materials	100%
Stage of completion for labour and overhead	40%

Instructions

- Using the weighted-average method, prepare a production cost report for the piping in the moulding department for the month of July. (16 Points)
- Show the equivalent units for materials and conversion costs if the piping in the moulding department used the FIFO method instead of weighted-average. (8 Points)

The piping in the moulding department—**Production Report**
For the month of July (16 Points)

Quantities	Physical Units	Equivalent Units	
		Materials	Conversion
Units to be accounted for:			
Work in process (Material 100%, Conversion 70%)	40,000		
Started into production	<u>62,000</u>		
Total units	<u>102,000</u>		
Units accounted for:			
Completed and transferred out 1 MARK EACH	60,000	60,000	60,000
Ending work in process (Material 100%, Conversion 40%) 1 MARK EACH	<u>42,000</u>	<u>42,000</u>	<u>16,800</u>
Total EQU units (a) (TOTAL 3 + 3 = MARKS)	<u>102,000</u>	<u>102,000</u>	<u>76,800</u>

Costs	Materials	Conversion	Total
Unit costs:			
Beginning work in process	\$138,360	\$41,346	
Costs added to production during the month	<u>218,640</u>	<u>73,854</u>	
Total costs (b)	<u>\$357,000</u>	<u>\$115,200</u>	
(B) / (A) 2 MARKS EACH (4 MARKS)	\$3.50	\$1.50	\$5.00
Costs to be accounted for:			
Beginning work in process			\$179,706
Costs added to production during the month			<u>\$292,494</u>
Total costs			<u>\$472,200</u>
Costs Accounted for:			
Completed and transferred out (60,000 × \$5.00) 2 MARKS			\$300,000
Ending work in process			
Material (42,000 × \$3.50) 2 MARKS	\$147,000		
Conversion (16,800 × \$1.50) 2 MARKS		<u>\$25,200</u>	
	<u>\$147,000</u>	<u>\$25,200</u>	<u>\$172,200</u>
Total costs (TOTAL 4 + 6 = 10 MARKS)			<u>\$472,200</u>

***(b) Equivalent Units — FIFO Method(9 Points)**

Quantities	Physical Units	Equivalent Units	
		Materials	Conversion
<u>Units to be accounted for:</u>			
Work in process (Material 100%, Conversion 70%)	40,000		
Started into production	<u>62,000</u>		
Total units	<u>102,000</u>		
<u>Units accounted for:</u>			
Completion of beginning work in process	40,000	0	12,000
Started and completed	20,000	20,000	20,000
Ending work in process (Material 100%, Conversion 40%)	<u>42,000</u>	<u>42,000</u>	<u>16,800</u>
Total units (a)	<u>102,000</u>	<u>62,000</u>	<u>48,800</u>

1 MARK EACH X 9 = TOTAL 9 MARKS

QUESTION V. 19 POINTS

Stellar Stairs Co. designs and builds factory-made premium wooden stairs for homes. The manufactured stair components (spindles, risers, hangers, hand rails) permit installation of stairs of varying lengths and widths. All are made of white oak wood. The company's budgeted manufacturing overhead costs for 2012 are as follows:

Overhead Cost Pools	Amount
Purchasing	\$ 60,000
Handling materials	80,000
Production (cutting)	250,000
Setting up machines	70,000
Inspecting	90,000
Total budget overhead costs	\$550,000

For the last four years, Stellar Stairs Co. has been charging overhead to products on the basis of direct labour hours. For 2012, it has budgeted 250,000 direct labour hours.

The owner-manager of Stellar Stairs Co. recently directed the accountant to implement the activity-based costing system that has been proposed. The accountant and the production foreperson identify the following cost drivers and their usage for the previously budgeted overhead cost pools.

Activity Cost Pools	Cost Drivers	Expected Use of Cost Drivers
Purchasing	Number of orders	600
Handling materials	Number of moves	16,000
Production (cutting)	Direct labour hours	250,000
Setting up machines	Number of set-ups	350
Inspecting	Number of inspections	6,000

The sales manager has received an order for 280 stairs from Community Builders, Inc., a large housing development contractor. The accountant prepares cost estimates for producing components for 280 stairways so the sales manager can submit a contract price per stair to Community Builders. The Accountant accumulates the following data for the production of 280 stairways:

Direct materials	\$158,250
Direct labour	112,000
Machine hours	5,000
Direct labour hours	14,500
Number of purchase orders	60
Number of material moves	800
Number of machine set-ups	50
Number of inspections	450

Instructions

- (a) Calculate the predetermined overhead rate using traditional costing with direct labour hours as the basis. (2 Points)
- (b) What is the manufacturing cost per stairway under traditional costing? (Round to the nearest cent) (4 Points)
- (c) What is the manufacturing cost per stairway under the proposed activity-based costing? (Round to the nearest cent) Prepare all of the necessary schedules.) (10 Points)
- (d) Which of the two costing systems is preferable in pricing decisions and why? (3 Points)

(a) Predetermined overhead rate using direct labour hours:
 $\$550,000 \div 100,000 \text{ hours} = \5.50 per DLH **2 MARKS**

(b) Manufacturing cost per stair under traditional costing **(4 MARKS)**

Direct materials 1 MARK	\$158,250
Direct labour 1 MARK	112,000
Overhead (14,500 × \$5.5) 1 MARK	<u>79,750</u>
Total cost of 280 stairs.....	<u>\$350,000</u>
Cost per stair ($\$350,000 \div 280$) 1 MARK	<u>\$1,250</u>

(c) Manufacturing cost per stair under activity-based costing: **(10 MARKS)**

Determine activity-based overhead rates: **(0.75 MARK EACH)**

- Purchasing: $\$60,000 \div 600 = \100 per order
- Handling materials: $\$80,000 \div 16,000 = \5 per move
- Production: $\$250,000 \div 250,000 = \1.00 per direct labour hour
- Setting-up: $\$70,000 \div 350 = \200 per set-up
- Inspecting: $\$90,000 \div 6,000 = \15 per inspection

Assign overhead to the order **(0.75 MARK EACH)**

Purchasing (\$100 × 60 orders)	\$6,000
Handling materials (\$5 × 800 moves)	4,000
Production (\$1.00 × 14,500 direct labour hrs)	14,500
Setting-up (\$200 × 50 set-ups)	10,000
Inspecting (\$15 × 450 inspections)	<u>6,750</u>
Total overhead applied to this order	<u>\$41,250</u>

Total manufacturing cost per stair under ABC:

Direct materials .5 MARK	\$ 158,250
Direct labour .5 MARK	112,000
Overhead .5 MARK	<u>41,250</u>

Total cost of 280 stairs.....	<u>\$ 311,500</u>
Total cost per stair ($\$311,500 \div 280$) 1 MARK	<u>\$1,112.50</u>
TOTAL (7.5 + 2.5 MARKS) = 10 MARKS	

(d) **3 MARKS**

Activity-based costing is the preferred costing system for setting prices because the FOH costs are more accurately reflected. The greater accuracy is a result of differentiate between unit based level such as production (cutting) and non-unit based batch such as purchasing, handling, setting-up, and inspection for multiple, more relevant activity cost drivers under ABC than the single cost driver used with the traditional volume-based system.

COMM 305 & ACCO 240

MID TERM EXAMINATION – WINTER 2012

PLEASE READ THIS PAGE – IT CONTAINS IMPORTANT INFORMATION

- Do not forget to write your class section, name and student ID number on your lined booklet.
- This examination will last Three (3) hours and consists of Four (4) Questions printed on (9) pages including this page. Make sure your copy of the exam is complete before starting.
- You may answer the questions in any order. In front of the booklet place the number associated to the order in which they are done. Your answers may be written in pencil or ink.
- Read the Questions carefully and budget your time carefully. Show details of all work and calculations in order to benefit from part marks, Attempt all Questions.
- 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.
- When you have finished, submit your lined answer booklet(s) and **keep exam questions**. Please enumerate your exam booklets.
- Answer multiple choice questions in IBM sheet provided and also in your lined answer booklet.

Question	Topic	Marks
Q-1	Multiple Choice	37.5
Q-2	Chapters 3	21.0
Q-3	Chapter 4	20.0
Q-4	Chapter 5	21.5
	TOTAL	100.0

QUESTION I. 37.5 MARKS

Multiple Choice Please Select the Best Answer: (1.5 Points each)

1. Managerial accounting:
 - a. Is governed by generally accepted accounting principle
 - b. Emphasizes special-purpose information
 - c. Pertains to the entity as a whole and is highly aggregated
 - d. Is limited to cost data

2. Which of the following is not one of the categories in *Standards of Ethical Conduct for Practitioners of Management Accounting and Financial Management*?
 - a. Confidentiality
 - b. Competence
 - c. Integrity
 - d. Independence.

3. Variable costs are costs that:
 - a. Vary in total directly and proportionately with changes in the activity level
 - b. Remain the same per unit at every activity level
 - c. Neither of the above
 - d. Both a) and b) above

4. Which beginning and ending inventories appear on a cost of goods manufactured schedule?
 - a. Raw materials only
 - b. Raw materials and work in process only
 - c. Raw materials, work in process, and finished goods
 - d. Work in process only

5. Into which one of the following accounts would the work of factory employees, that can be physically and directly associated with converting raw materials into finished goods, be categorized?
 - a. Direct labour
 - b. Indirect labour
 - c. Manufacturing overhead
 - d. Indirect materials

6. Manufacturing overhead can be categorized as:
 - a. A prime cost and a period cost.
 - b. A conversion cost and a period cost.
 - c. A prime cost and a product cost.
 - d. A conversion cost and a product cost.

7. In High-Low method, what does the slope represent?
 - a. The rate at which the X Independent variable changes as a result of the Y dependent variable
 - b. The rate at which the Y dependent variable changes as a result of the X independent variable
 - c. The rate at which the Y dependent variable changes as a result of the fixed cost component
 - d. The rate at which the X independent variable changes as a result of changes in the Y dependent variable

8. Which of the following more closely describes job-order and process accounting differences?
 - a. Job-order costing is best used when there are more material costs than labour costs involved.
 - b. Process costing assigns costs to departments while job-order costing assigns costs to jobs.
 - c. Process costing emphasizes the application of overheads more than job-order costing.
 - d. Job-order costing emphasizes the application of overheads more than process costing.

9. What is the best way to handle manufacturing overhead costs in order to get the most timely job cost information?
 - a. The company should account for only the direct production costs.
 - b. The company should apply overhead using an estimated rate throughout the year.
 - c. The company should add actual manufacturing overhead costs to jobs as soon as the overhead costs are incurred.
 - d. The company should determine an allocation rate as soon as the actual costs are known, and then apply manufacturing overhead to jobs

10. Which one of the following is *never* part of recording the issuance of raw materials in a job order cost system?
 - a. Debit Work in Process Inventory
 - b. Debit Finished Goods Inventory
 - c. Debit Manufacturing Overhead
 - d. Credit Raw Materials Inventory

11. Which one of the following is part of recording the issuance of raw materials in a job order cost system?
 - a. Credit Work in Process Inventory
 - b. Credit Finished Goods Inventory
 - c. Credit Manufacturing Overhead
 - d. Credit Raw Materials Inventory

12. If a company has under-applied overhead at the end of the accounting period, how is it accounted for?
- No entry occurs.
 - It is transferred to finished goods with the other job costs.
 - It is debited to cost of goods sold.
 - It is credited to cost of goods sold.
13. A company incurred more manufacturing overhead than the amount it applied to its jobs during the year. What entry must be made at the end of the year to allocate the remaining overhead if *not* material in amount?
- Debit Cost of Goods Sold and credit Manufacturing Overhead
 - Credit Work in Process Inventory and debit Cost of Goods Sold
 - Debit Manufacturing Overhead and credit Work in Process Inventory
 - Debit Work in Process Inventory and credit Manufacturing Overhead
14. Which one of the following is true concerning immaterial under-applied overhead at year end?
- It is subtracted from Cost of Goods Sold.
 - It is debited to Cost of Goods Sold.
 - It is reported as an inventory account in the balance sheet.
 - It is added to the Manufacturing Overhead account.
15. Which of the following statements about the work in process account is true?
- Both job order cost and process cost systems use only one work in process account.
 - Both job order cost and process cost systems use several work in process accounts.
 - Job order cost systems use several work in process accounts, but process cost systems use only one.
 - Job order cost systems use only one work in process account, but process cost systems use several.
16. A product requires processing in two departments, Department 22 and then Department 23, before it is completed. What happens to costs transferred out of Department 22?
- They are debited to Finished Goods Inventory.
 - They are transferred to Cost of Goods Sold.
 - They are debited to Work in Process—Department 23.
 - They are credited to Manufacturing Overhead.
17. Why is it necessary to calculate equivalent units of production in a department?
- A physical count of units is impossible.
 - A company may transfer numerous batches out during the year.
 - The physical units in the department are always 100% complete.
 - Some units worked on in the department are not fully complete.

18. What situation is created if there are no units in process at the beginning of the period?
- The company must be using a job order cost system.
 - The units to be accounted for will equal the units transferred out plus the units in process at the end of the period.
 - The units started into production will equal the number of units transferred out.
 - Equivalent units of production for materials and conversion costs will be the same.
19. Snapps, Inc. uses a process cost system with a weighted average method. What amount will always be the same as the number of units to be accounted for in a department?
- Number of units started or transferred into the department
 - Number of equivalent units for conversion costs
 - Ending inventory plus the units started or transferred into the department
 - Units in the beginning inventory plus the units started or transferred into the department
20. Harms Company enters materials at beginning of the process. On January 1, there was no beginning work in process, but there were 100 units in ending work in process inventory. To what is the 'number of units completed' equal?
- The same as the number of units started
 - The number of units started less 100
 - The number of units started plus 100
 - The same as the number of equivalent units
21. Which best describes the flow of overhead costs in an activity-based costing system?
- Overhead costs - direct labour cost or hours - products
 - Overhead costs - products
 - Overhead costs - activity cost pools - cost drivers - products
 - Overhead costs - machine hours - products
22. In companies where there is good reason to change from a traditionally-based costing system to an activity-based costing system, management might expect:
- Products or services with high volumes will have higher overhead costs.
 - Products or services with high volumes will have lowered overhead costs.
 - Products or services with low volumes will have lowered overhead costs.
 - Products or services with high volumes are generally costed accurately.
23. When using a single cost driver to allocate overhead costs, the amount of overhead costs that are applied is
- Usually greater for low-volume products than for high-volume products.

- b. Usually greater for high-volume products than for low-volume products.
- c. Usually equal for both low and high-volume products.
- d. Sometimes greater for higher-volume products, and sometimes greater for low-volume products.

24. Each of the following is a limitation of activity-based costing *except* that

- a. It can be expensive to use.
- b. It is more complex than traditional costing.
- c. More cost pools are used.
- d. Some arbitrary allocations continue.

25. What might be a reason to *not* change from a traditionally-based costing system to an activity-based costing system?

- a. Products or services are similar in volume and activity
- b. Support services are spread evenly throughout the company's activities
- c. Overhead is a low component of the overall cost
- d. All of the above are valid reasons.

QUESTION II. 21 MARKS

Spivey Company's fiscal year ends on June 30. The following accounts are found in its job-order cost accounting system for the first month of the new fiscal year:

Raw Materials Inventory			
July 1 Beginning balance	\$19,000	July 31 Requisitions	\$(A)
31 Purchases	90,400		
July 31 Ending balance	(B)		
Work in Process Inventory			
July 1 Beginning balance	\$(C)	July 31 Jobs completed	\$(F)
31 Direct materials	70,000		
31 Direct labour	(D)		
31 Overhead	(E)		
July 31 Ending balance	(G)		
Finished Goods Inventory			
July 1 Beginning balance	\$(H)	July 31 Cost of goods sold	\$(J)
31 Completed jobs	(I)		
July 31 Ending balance	(K)		
Factory Labour			
July 31 Factory wages	\$(L)	July 31 Wages assigned	\$(M)
Manufacturing Overhead			
July 31 Indirect materials	\$ 8,900	July 31 Overhead applied	\$104,000
31 Indirect labour	16,000		
31 Other overhead	(N)		

Other data:

- On July 1, two jobs were in process: Job No. 4085 and Job No. 4086, with costs of \$19,000 and \$8,200 respectively.
- During July, Job Nos. 4087, 4088, and 4089 were started. On July 31, only Job No. 4089 was unfinished. This job had charges for direct materials of \$2,000 and direct labour of \$1,500, plus manufacturing overhead. Manufacturing overhead was applied at the rate of 130% of direct labour cost.
- On July 1, Job No. 4084, costing \$135,000, was in the finished goods warehouse. On July 31, Job No. 4088, costing \$143,000, was in finished goods.
- Overhead was \$3,000 under-applied in July.

Instructions

List the letters (a) through (n) and indicate the amount pertaining to each letter.
Show computations.

QUESTION III. 20 MARKS

Toronto Timers Inc.'s costing system uses two cost categories: direct materials and conversion costs. Each of its products must go through the assembly department and the testing department. Direct materials are added at the beginning of production. Conversion costs are allocated evenly throughout production. Data for the assembly department for January 2012 are as follows:

Production Data—Units

Work in process, beginning inventory (50% complete in terms of conversion costs)	800 units
Units started during January	1,200 units
Work in process, ending inventory (60% complete in terms of conversion costs)	400 units

Cost Data

Work in process, beginning inventory costs		
Direct materials	\$	200,000
Conversion costs		200,000
Direct materials costs added during January		300,000
Conversion costs added during January		720,000

Instructions

- Determine the cost per equivalent unit for work in process **beginning inventory**. 4 Marks
- Determine the costs of completed and transferred out units during January 2012 and the costs of Work in process ending inventory at January 31, 2012 of the assembly department. (Toronto timers Inc.is using weighted average method). 12 Marks
- If Toronto timers Inc uses FIFO method instead of weighted average method, do you think the average cost per equivalent unit during January 2012 will be different or not and why? (hint, do not prepare any cost report) 4 Marks

QUESTION IV. 21.5 MARKS

Kitchen Company designs and builds upscale kitchen cabinets for luxury homes. Its budgeted manufacturing overhead costs for 2012 are as follows:

Overhead Cost Pools	Amount
Handling materials	\$ 184,000
Production (cutting, milling, finishing)	500,000
Setting up machines	156,000
Inspecting	160,000
Total budgeted overhead costs	<u>\$1,000,000</u>

For the last three years, Kitchen Company has been charging overhead to products on the basis of material costs. For 2012, material costs are budgeted for \$1,250,000.

Ben Chen, the owner-manager, recently directed his accountant, John Kandy, to implement the activity-based costing system he has repeatedly proposed. At Ben's request, John and the production foreman identify the following cost drivers and their usage for the 2012 budgeted overhead cost pools:

Activity Cost Pools	Activity Cost Drivers	Expected Use of Cost Drivers
Handling materials	Number of moves	8,000
Production (cutting, milling, finishing)	Direct labour hours	100,000
Setting up machines	Number of set-ups	1,200
Inspecting	Number of inspections	5,000

Sara Sosa, the sales manager, has received an order for 50 kitchen cabinet arrangements from Bitty Builders, a housing development contractor. At Sara's request, John prepares cost estimates for producing components for 50 cabinet arrangements so Sara can submit a contract price per kitchen arrangement to Bitty Builders. He accumulates the following data for the production of 50 kitchen cabinet arrangements:

Direct materials	\$180,000
Direct labour	\$200,000
Machine hours	15,000
Direct labour hours	12,000
Number of material moves	800
Number of machine set-ups	100
Number of inspections	450

Instructions

- Compute the predetermined overhead rate using traditional costing with material costs as the basis.
- What is the manufacturing cost per complete kitchen cabinet arrangement under traditional costing?
- What is the manufacturing cost per kitchen cabinet arrangement under the proposed activity-based costing? (Prepare all of the necessary schedules.)
- Which of the two costing systems is preferable in pricing decisions and why?

QUESTION I 37.5 MARKS

- | | |
|-----|---|
| 1. | B |
| 2. | D |
| 3. | D |
| 4. | B |
| 5. | A |
| 6. | D |
| 7. | B |
| 8. | B |
| 9. | B |
| 10. | B |
| 11. | D |
| 12. | C |
| 13. | A |
| 14. | B |
| 15. | D |
| 16. | C |
| 17. | D |
| 18. | B |
| 19. | D |
| 20. | B |
| 21. | C |
| 22. | B |
| 23. | B |
| 24. | C |
| 25. | D |

QUESTION II 21. MARKS

- (a) \$78,900 $(\$70,000 + \$8,900)$. **1.5 MARKS**
- (b) \$30,500 $[(\$19,000 + \$90,400) - \$78,900]$ (See (a)). **1.5 MARKS**
- (c) \$27,200 (Given in other data— $\$19,000 + \$8,200$). **1.5 MARK**
- (d) \$80,000 $(\$104,000 \text{ manufacturing overhead applied} \div 130\%)$.
1.5 MARKS
- (e) \$104,000 (Manufacturing overhead applied). **1.5 MARK**
- (f) \$275,750 $[\$27,200 + \$70,000 + \$80,000 + \$104,000 - \$5,450]$ (See (g)).
1.5 MARKS
- (g) \$5,450 $[\$2,000 + \$1,500 + (\$1,500 \times 130\%)]$. **1.5 MARKS**
- (h) \$135,000 (Given in other data). **1.5 MARKS**
- (i) \$275,750 (Same as (f)). **1.5 MARKS**
- (j) \$267,750 $[\$135,000 + \$275,750 - \$143,000]$ (Given in other data).
1.5 MARKS
- (k) \$143,000 (Given in other data). **1.5 MARKS**
- (l) \$96,000 $[\$80,000]$ (See (d)) + \$16,000]. **1.5 MARKS**
- (m) \$96,000 (Same as (l)). **1.5 MARKS**
- (n) \$82,100 $[\$104,000 + \$3,000]$ (Given in other data) – \$8,900 – \$16,000]. **1.5 MARKS**

QUESTION III 20. MARKS

(a) Unit cost for beginning work in process inventory:

Direct material cost per unit:

Total material cost \$200,000

÷ Equivalent units (800 × 100%) 800

\$250.00

Conversion cost per unit:

2 MARKS

Total conversion cost \$200,000

÷ Equivalent units (800 × 50%) 400

\$500.00

Total unit cost for beginning inventory \$750.00

2 MARKS

Quantities	Physical Units (Step 1)	Equivalent Units	
		Materials	Conversion Costs
		(Step 2)	
Units to be accounted for			
Work in process, January 1 50% Con	800		
Started into production	<u>1,200</u>		
Total units	<u>2,000</u>		
Units accounted for			
Transferred out	1,600	1,600	1,600
Work in process, January 31 60% cov	<u>400</u>	<u>400</u>	<u>240</u>
Total equivalent units	<u>2,000</u>	<u>2,000</u>	<u>1,840</u>
		2 MARKS	2 MARKS

<u>Costs</u>	<u>Materials</u>	<u>Conversion Costs</u>	<u>Total</u>
Unit costs (Step 3)			
BWIP	200,000	200,000	\$ 400,000
Costs in January	<u>\$ 300,000</u>	<u>\$720,000</u>	<u>\$1,020,000</u>
Equivalent units	(a) <u>\$500,000</u>	<u>\$920,000</u>	<u>\$1,420,000</u>
Unit costs (a) ÷ (b)	(b) <u>2,000</u>	<u>1,840</u>	
	<u>\$250</u>	<u>\$500</u>	<u>\$750</u>
	2,5 MARKS	2.5 MARKS	

Cost Reconciliation Schedule (Step 4)

Costs accounted for			
Transferred out (1,600 × \$750) 1.5 MARKS			\$1,200,000
Work in process, January 31			
Materials (400 × \$250)		\$100,000	
Conversion costs (240 × 500) 1.5 MARKS		<u>120,000</u>	<u>220,000</u>
Total costs			<u>\$1,420,000</u>

(C) The answer will not be different because the cost per equivalent unit at January 1 (LAST PERIOD) \$750 is the same as the cost per equivalent unit during January 2012 \$750. 4 MARKS

QUESTION IV 21.5. MARKS

(a) Predetermined overhead rate using direct labour hours:

$\$1,000,000 \div 1,250,000$ material costs = \$0.80 per material costs **2 MARKS**

(b) Manufacturing cost per complete kitchen cabinet arrangement under traditional costing **(4 MARKS)**

Direct materials 1 MARK	\$ 180,000
Direct labour 1 MARK	200,000
Overhead (\$180,000 × \$0.80) 1 MARK	<u>144,000</u>
Total cost of 50 Kitchen cabinets	<u>\$524,000</u>
 Cost per stair (\$524,000 ÷ 50) 1 MARK	 <u>\$10,480</u>

(c) Manufacturing cost per complete kitchen cabinet arrangement under activity-based costing: **(11.5 MARKS)**

Determine activity-based overhead rates: (1 MARK EACH)

Handling materials: $\$184,000 \div 8,000 = \23 per move

Production: $\$500,000 \div 100,000 = \5 per direct labour hour

Setting-up: $\$156,000 \div 1,200 = \130 per set-up

Inspecting: $\$160,000 \div 5,000 = \32 per inspection

Assign overhead to the order (1 MARK EACH)

Handling materials (\$23 × 800 moves)	18,400
Production (\$5 × 12,000 direct labour hrs)	60,000
Setting-up (\$130 × 100 set-ups)	13,000
Inspecting (\$32 × 450 inspections)	<u>14,400</u>
Total overhead applied to this order	<u>\$105,800</u>

Total manufacturing cost per kitchen cabinet under ABC:

Direct materials .75 MARK	\$ 180,000
Direct labour .75 MARK	200,000
Overhead .75 MARK	<u>105.800</u>
Total cost of 50 Kitchen Cabinets	<u>\$ 485,800</u>

Total cost per Kitchen Cabinet ($\$485,800 \div 50$) **1.25 MARK** **\$9,716**

(d) **4 MARKS**

Activity-based costing is the preferred costing system for setting prices because the FOH costs are more accurately reflected. The greater accuracy is a result of differentiate between unit based level **(1.5 MARKS)** such as production (cutting) and non-unit based batch level **(1.5 MARKS)** such as handling, setting-up, and inspection for multiple, more relevant activity cost drivers under ABC than the single cost driver used with the traditional unit volume-based system. **(1 MARKS)**

**CONCORDIA UNIVERSITY
DEPARTMENT OF ACCOUNTANCY
JOHN MOLSON SCHOOL OF BUSINESS**

**MANAGERIAL ACCOUNTING
COMM 305 & ACCO 240
ALL SECTIONS**

FINAL EXAMINATION

FALL 2006

PLEASE READ THIS PAGE – IT CONTAINS IMPORTANT INFORMATION

1. This examination will last Three (3) hours and consists of Five (5) Questions printed on Nine (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. In front of the booklet place the number associated to the order in which they are done.
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 and calculations 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.
7. When you have finished submit your exam booklet(s) and this questionnaire. Please enumerate your exam booklets.

Question	Topic	Minutes	Marks
1	Multiple-choice	2 minutes per MC	37.5
2	Manufacturing Statement	30 minutes	15
3	Cash Budget	40 minutes	15
4	Budget Variance Analysis	40 minutes	18
5	Incremental and Relevant analysis	40 minutes	15
	Total	180 minutes	100

QUESTION 1. (37, 25 multiple choice questions 1.5 marks each) (2 minutes per MC)

Choose the best answer for each of the following. Write your answer only in the lined booklet that has been provided to you separately.

Use the following information for items 1-3:

The Colin Division of Mochrie Company sells its product for \$30 per unit. Variable costs per unit are: manufacturing, \$12; and selling and administrative, \$2. Fixed costs are: \$200,000 manufacturing overhead, and \$50,000 selling and administrative. There was no beginning inventory at 1/1/05. Expected sales for next year is 40,000 units. Ryan Stiles, the manager of the Colin Division, is under pressure to improve the performance of the Division. As he plans for next year, he has to decide whether to produce 40,000 units or 50,000 units.

1. What would the manufacturing cost per unit be under variable costing for each alternative?

	<u>40,000 units</u>	<u>50,000 units</u>
a.	\$12.00	\$12.00
b.	\$14.00	\$14.00
c.	\$16.00	\$17.00
d.	\$17.00	\$16.00
e.	None of the above	

2. What would the net income be under absorption costing for each alternative?

	<u>40,000 units</u>	<u>50,000 units</u>
a.	\$390,000	\$390,000
b.	\$390,000	\$430,000
c.	\$390,000	\$440,000
d.	\$430,000	\$390,000
e.	None of the above	

3. What would the net income be under variable costing for each alternative?

	<u>40,000 units</u>	<u>50,000 units</u>
a.	\$390,000	\$390,000
b.	\$390,000	\$430,000
c.	\$390,000	\$440,000
d.	\$430,000	\$390,000
e.	None of the above	

4. What information is found on the direct materials budget?

- I. How many units of direct materials should be purchased?
 - II. How much is the cost of direct materials to be purchased?
- a. I only
 - b. II only
 - c. Both I and II
 - d. Neither I nor II
 - e. None of the above

Use the following information for questions 5-6.

The Wood Division of Fir Products, Inc. manufactures wood moldings and sells them externally for \$100. Its variable cost is \$40 per unit, and its fixed cost per unit is \$14. Fir's president wants the Wood Division to transfer 5,000 units to another company division at a price of \$54.

5. Assuming the Wood Division has available capacity of 5,000 units, the minimum transfer price it should accept is
 - a. \$14.
 - b. \$40.
 - c. \$54.
 - d. \$100.
 - e. None of the above.

6. Assuming the Wood Division does **not** have any available capacity, the minimum transfer price it should accept is
 - a. \$14.
 - b. \$40.
 - c. \$54.
 - d. \$100
 - e. None of the above.

7. Drive, Inc. determined its estimated production for the month are 300,000 units. Each unit requires 2 kilograms of material. The beginning direct materials are 1% of the current months expected needs. Ending inventory desired is 7,500 kilograms. How much are estimated direct materials purchases in kilograms?
 - a. 601,500 kilograms
 - b. 607,500 kilograms
 - c. 301,500 kilograms
 - d. 598,500 kilograms
 - e. None of the above

8. A company has a process that results in 4,000 kilograms of Product X that can be sold for \$7 per kilogram. An alternative would be to process Product X further at a cost of \$4,000 and then sell it for \$12 per kilogram. Should management sell Product X now or should Product X be processed further and then sold?
 - a. Process further, the company will be better off by \$44,000.
 - b. Sell now, the company will be better off by \$44,000.
 - c. Process further, the company will be better off by \$1,000.
 - d. Sell now, the company will be better off by \$16,000.
 - e. None of the above

9. Roasted Toasters prepared a 2006 budget for 40,000 units of product. Actual production in 2006 was 45,000 units. To be most useful, what amounts should a performance report for this company compare?
- The actual results for 45,000 units with the original budget for 40,000 units
 - The actual results for 45,000 units with a new budget for 45,000 units
 - The actual results for 45,000 units with last year's actual results for 47,000 units
 - It doesn't matter. All of these choices are equally useful.
 - None of the above
10. The direct materials budget shows:
- | | |
|---------------------------------|------------------|
| Desired ending direct materials | 2,000 kilograms |
| Materials purchased | 51,400 kilograms |
| Beginning inventory on hand | 1,200 kilograms |
- How much are the total direct materials needed for production?
- 50,600 kilograms
 - 52,600 kilograms
 - 52,200 kilograms
 - 51,400 kilograms
 - None of the above
11. Management of the Catering Company would like the Food Division to transfer 10,000 cans of its final product to the Restaurant Division for \$80. The Food Division sells the product to customers for \$140 per unit. The Food Division's variable cost per unit is \$60 and its fixed cost per unit is \$20. The Food Division is currently operating at full capacity. What is the minimum transfer price the Food Division should accept?
- \$20
 - \$60
 - \$80
 - \$140
 - None of the above
12. Which cost is not charged to the product under variable costing?
- direct materials.
 - direct labour.
 - variable manufacturing overhead.
 - fixed manufacturing overhead
 - None of the above

13. In cost-plus pricing, the target selling price is calculated as
- variable cost per unit + desired ROI per unit.
 - fixed cost per unit + desired ROI per unit.
 - total unit cost + desired ROI per unit.
 - variable cost per unit + fixed manufacturing cost per unit + desired ROI per unit.
 - None of the above
14. The cost to produce Part A was \$10 per unit in 2006. During 2007, it has increased to \$11 per unit. In 2007, Supplier Company has offered to supply Part A for \$9 per unit. For the make-or-buy decision,
- incremental revenues are \$2 per unit.
 - incremental costs are \$1 per unit.
 - net relevant costs are \$1 per unit.
 - differential costs are \$2 per unit.
 - None of the above
15. Specik, Inc. is considering the following alternatives:
- | | <u>Alternative 1</u> | <u>Alternative 2</u> |
|----------------|----------------------|----------------------|
| Revenues | \$120,000 | \$120,000 |
| Variable costs | 60,000 | 70,000 |
| Fixed costs | 35,000 | 39,000 |
- Which of the following are relevant in choosing between the alternatives?
- Variable costs
 - Revenues
 - Fixed costs
 - Variable costs and fixed costs
 - None of the above
16. If sales equals production in the long run,
- absorption costing income will exceed variable costing income.
 - absorption costing income will equal variable costing income.
 - variable costing income will exceed absorption costing income.
 - absorption costing income may be greater than, equal to, or less than variable costing income depending on the situation.
 - All of the above

17. When production exceeds sales,
- A) Ending inventory under variable costing will exceed ending inventory under absorption costing
 - B) Ending inventory under absorption costing will exceed ending inventory under variable costing.
 - C) Ending inventory under absorption costing will be equal to ending inventory under variable costing.
 - D) Ending inventory under absorption costing may exceed, be equal to, or be less than ending inventory under variable costing.
 - E) All of the above
18. Physical units are 40,000. Total conversion costs are \$197,500. There are 1,000 units in ending inventory which are 50% complete as to conversion costs. How much are conversion costs per unit if the weighted average method is used?
- A) \$5.00
 - B) \$4.93
 - C) \$9.88
 - D) \$4.82
 - E) None of the above
19. Merck Pharmaceuticals is evaluating its Vioxx division, an investment centre. The division has a \$45,000 controllable margin and \$300,000 of sales. How much will Merck's average operating assets be when its return on investment is 10%?
- a. \$450,000
 - b. \$495,000
 - c. \$300,000
 - d. \$255,000
 - e. None of the above
20. Which one of the following measures is frequently used to evaluate the performance of the manager of an investment centre, but **not** profit centres?
- a. The amount of profit generated
 - b. The percentage increase in profit over the previous year
 - c. Controllable margin
 - d. The rate of return on funds invested in the centre
 - e. All of the above
21. The following information is available for Aggie Auto Sales:
- | | |
|--------------------------|-----------|
| Average operating assets | \$800,000 |
| Controllable margin | 80,000 |
| Contribution margin | 200,000 |
| Minimum rate of return | 8% |
- How much is Aggie Auto's residual income?
- a. \$136,000
 - b. \$720,000
 - c. \$16,000
 - d. \$64,000
 - E) None of the above

22. Safety Seats Company recorded operating data for its shoe division for the year. The company's desired return is 5%.

Sales	\$500,000
Contribution margin	100,000
Total direct fixed costs	60,000
Average total operating assets	200,000

- Which one of the following reflects the controllable margin for the year?
- a. 20%
 - b. 50%
 - c. \$30,000
 - d. \$40,000
 - E) None of the above
23. The difference between overhead budgeted and overhead applied is the
- a. budget variance.
 - b. controllable variance.
 - c. total overhead variance.
 - d. volume variance.
 - e. None of the above
24. The difference between actual overhead costs and overhead costs applied is the
- a. budget variance.
 - b. controllable variance.
 - c. total overhead variance.
 - d. volume variance.
 - E) None of the above
25. Each of the following may cause an unfavourable controllable variance **except**
- a. higher than expected use of indirect materials.
 - b. greater than expected use of indirect labour.
 - c. increases in indirect manufacturing costs.
 - d. inefficient use of direct labour.
 - E) None of the above

QUESTION 2. Manufacturing Statement (15 Marks) (30 minutes)

XYZ Company, reports the following data for the month of June.

	June 1	June 30
Direct materials	\$ 70,000	\$ 40,000
Work-in-progress	\$160,000	\$120,000
Finished goods	\$ 210,000	\$200,000

The following information is available for the month of June.

Direct materials purchases were \$100,000.

Direct costs of production were \$ 210,000.

Variable costs of production were \$ 260,000.

Indirect costs of production were \$150,000.

Selling and administrative costs were \$240,000.

REQUIRED: SHOW YOUR COMPUTATIONS. (1.5 mark each)

1. What were the total costs of production?
2. What was the cost of materials used?
3. What was the cost of direct labour?
4. What was the cost of variable overhead?
5. What was fixed manufacturing overhead?
6. What was cost of goods manufactured?
7. What was cost of goods sold?
8. What were conversion costs?
9. What were prime costs?
10. What were period costs?

QUESTION 3. Cash Budget (15 Marks) (40 minutes)

Ryan Richards, controller for Grange Retailers, has assembled the following data to assist in the preparation of a cash budget for July and August 2005. As at July 1st the company has a beginning cash balance of \$ 13 500:

Sales:

May (actual)	\$100,000
June (actual)	120,000
July (estimated)	170,000
August (estimated)	100,000
September (estimated)	135,000
October (estimated)	110,000

The company's gross margin is 20%.

Each month, 30 percent of sales are collected in cash and 70 percent are on credit. The collection pattern for credit sales is 20 percent in the month of sale, 50 percent in the following month, and 30 percent in the second month following the sale.

The records for purchases and beginning inventory for June 1st and projected figures for the coming quarter:

	June	July	August	September
Cost of sales	\$96,000	136,000	80,000	108,000
Desired end Inv	<u>68,000</u>	?(a)	?(d)	<u>44,000</u>
Total requirements	164,000	? (b)	? 134,000	152,000
Less beg. Inventory	<u>80,000</u>	<u>36,000</u>	? (e)	<u>54,000</u>
Purchases	84,000	? (c)	? (f)	98,000

The desired ending inventory is 50% of the next months cost of sales. Inventory purchases are paid for in the month following the purchase and no discounts are taken.

The under noted expenses are incurred each month and are paid in the same month.

Salaries and wages	10,000
Depreciation on plant and equipment	4,000
Utilities	1,000
Other expenses	1,700

Additional information:

- A new truck for \$ 120,000 will be bought and paid for in July and an old truck will be disposed in the same month for cash proceeds of \$ 22,000.
- Common shares were sold for \$ 100,000 and cash was received in August 2005.
- Property taxes of \$15,000 are to be paid 50% in July and 50% in August 2005.
- Advertising fees of \$12,000 were paid 50% in July and 50% in August 2005.
- Dividends for \$ 3,000 are to be paid in August 2005.
- The company has a policy of maintaining a minimum cash balance of \$10,000. If necessary, it will borrow to meet its short-term needs. All borrowing is done at the beginning of the month. All payments on principal and interest are made at the end of a month. The annual interest rate is 9 percent. The bank will finance exact amounts needed. If there is excess cash the borrowed funds can be repaid.

Instructions:

- a) Provide your answers for the purchases table indicating letters a to f.(6 marks)
- b) Prepare a schedule for cash collections for JULY and AUGUST only . (9 marks)

QUESTION 4. Budget variance analysis (18 marks) (40 minutes)

Stephen Roget, a financial analyst for Croton Industries, Inc., has been given information with respect to standard cost variances for one of the plants. These variances are given below.

Materials quantity variance	\$ 7,000 favourable
Labour rate variance	4,000 favourable
Labour efficiency variance	12,000 unfavourable
Factory overhead spending variance.	3,000 favourable
Factory overhead efficiency variance.	6,000 unfavourable
Factory overhead volume variance	50,000 favourable

He has determined that the company has manufactured 50,000 units of product with standard costs as follows:

Direct materials	\$ 700,000
* Direct labour	300,000
Variable factory overhead	150,000
Fixed factory overhead	250,000

Total standard cost	\$ 1,400,000
	=====

* Standard labour time per product unit is 30 minutes.

The actual fixed factory overhead was equal to the master budgeted fixed factory overhead. Roget would like to use the variances to develop some of the cost data for the fiscal period.

REQUIRED: SHOW YOUR COMPUTATIONS. (2 marks each)

1. How many units of product should be manufactured at the master budget capacity?
2. Determine the total fixed factory overhead for the master budget.
3. How many direct labour hours should have been used to manufacture 50,000 units of product?
4. How many direct labour hours were used?
5. What were the total actual costs of direct labour?
6. What were the total standard costs of the direct materials used in production?
7. What was the actual variable factory overhead cost?
8. What was the budget variable factory overhead for actual time used to manufacture the 50,000 units of product?
9. What was the budget variable factory overhead for the required time to manufacture the 50,000 units of product?

QUESTION 5. (15 marks) Incremental and relevant analysis (40 minutes)

Collen Aerospace has a five-year contract to supply Bombardier with four specific spare parts for its fleet of airplanes. The following table provides information on selling prices, costs, and the number of units of each part that the company needs to produce annually according to the contract with Bombardier :

	A10	A20	A30	A40
Sales	\$1,500,000	\$875,000	\$450,000	\$2,400,000
Variables costs	1,235,000	425,000	187,000	1,875,000
Contribution margin	\$ 265,000	\$450,000	\$263,000	\$ 525,000
Production in units	1,000	250	750	600
Machine hours/unit	2	4	1.5	3

Fixed overhead costs amount to \$820,000 and are allocated based on the number of units produced. The company has a maximum annual capacity of 6,000 machine hours.

Instructions

- (a) If Collen Aerospace could manufacture only one of the four parts, which spare part should it produce, based on the contribution margin? Explain why. (4 Marks)
- (b) Canadian Airline wants to buy 200 units of part A10 at 125% of the price currently paid by Bombardier. Assume that for any of the four parts, Collen Aerospace has to supply Bombardier with at least 90% of the number of units specified in the contract. Should Collen Aerospace accept the order for 200 units of part A10? Show all your calculations (6 Marks)
- (c) A new technology is available that costs \$2.5 million and would increase Collen Aero Space 's annual capacity by 15%. Should the company purchase the new technology? Assume that the technology has an estimated life of four years and that Collen Aerospace can sell, at the same prices paid by Bombardier, all the units it can produce of any of the four parts. Show all your calculations. (5 Marks)

SOLUTION QUESTION 1. (22.5, 15 multiple choice questions 1.5 marks each)

1	A
2	B
3	A
4	C
5	B
6	D
7	A
8	E
9	B
10	A
11	D
12	D
13	C
14	D
15	D

- 16. b
- 17. b
- 18. a
- 19. a
- 20. d
- 21. c
- 22. d
- 23. d
- 24. c
- 25. d

✓ = ½ marks

SOLUTION QUESTION 2. Manufacturing Statement (15 Marks)

STUDENTS CAN SHOW THEIR CALCULATIONS IN VARIOUS WAYS INCLUDING EQUATIONS

Direct Material

Beg Inv. DM \$ 70,000✓	
Purchases <u>\$100,000</u> ✓	
RM available \$ 170,000	
End Inv. <u>\$40,000</u>	
DM used \$ 130,000✓	\$ 130,000 (2)
Direct Labour	\$ 80,000 ✓ (3)
(210,000✓-130,000✓)	
Variable OH (260,000✓-130,000-80,000)	✓✓\$50,000 (4)
Fixed OH	<u>\$ 100 000 (5)</u>
Total costs of production	✓\$ 360 000 (1)
(direct✓ \$210 000+indirect ✓\$150 000 =360 000)	
Beginning work in progress	\$✓ 160 000
Less Ending Work in progress	✓ <u>(\$ 120,000)</u>
Cost of goods manufactured	✓\$ 400 000 (6)

Beg Inv	\$ 210,000✓
Plus C G Man	<u>\$ 400,000</u>
Good available	\$ 610,000
Less end inv	<u>\$ 200,000</u> ✓
Cost of goods sold	\$ 410,000 (7) ✓

Marks **1.5** each broken down

- Total costs of production: $210\ 000\checkmark + 150\ 000\checkmark = \$360\ 000\checkmark$
- Cost of materials used \$ 130,000
- Cost of direct labour \$ 80,000
- Cost of variable overhead \$ 50,000
- Fixed manufacturing overhead
 $60\ 000\checkmark - 50\ 000 - 80\ 000 - 130\ 000 - 160\ 000 = \$100\ 000\checkmark\checkmark$
- Cost of goods manufactured \$ 400 000✓✓✓
- Cost of goods sold: \$410 000
- Conversion costs $80\ 000\checkmark + 50\ 000\checkmark + 100\ 000\checkmark = \$ 230\ 000$
- Prime costs: $130\ 000\checkmark + 80\ 000\checkmark = 210\ 000\checkmark$
- Period costs: \$ 240,000 selling and administrative 1.5 marks

SOLUTION QUESTION 3. Cash Budget (22 marks)

Solution: (3 marks)

½ mark each A TO F

	June	July	August	September
Cost of sales	\$96,000	136,000	80,000	108,000
Desired end. Inven.	<u>36,000</u>	40,000 (a)	54,000 (d)	<u>44,000</u>
Total requirements	132,000	152,000(b)	134,000	152,000
Less beg. Inventory	<u>80,000</u>	<u>36,000</u>	40,000 (e)	<u>54,000</u>
Purchases	<u>84,000</u>	116,000(c)	94,000 (f)	<u>98,000</u>
	=====	=====	=====	=====

Cash Collections (4 marks)

½ mark each

	July	August
Cash sales	\$ 51 000√	\$ 30 000√
Credit sales		
Month of sale	\$ 34 000√	\$ 20 000√
Month following sale	\$ 60 000√	\$ 85 000√
Second month following sale	<u>\$ 30 000√</u>	<u>\$ 36 000√</u>
	\$ 175 000	\$ 171 000

THE STUDENTS ARE NOT PENALISED FOR THE ORDER NOR THE SUB HEADINGS

Maximum 15 marks

**Grange Retailers
Cash Budget[√]
For the months ending July and August 2005**

	July	August
Beg cash	√13,500	√10,000
<u>Cash from operations</u>		
Inflow		
Collections from customers	√175,000	√171,000
Disbursements		
Purchases	√ (84,000)	√ (116,000)
Salaries and wages	√ (10,000)	√ (10,000)
Utilities	√ (1,000)	√ (1,000)
Other	√ (1,700)	√ (1,700)
Property taxes	√ (7,500)	√ (7,500)
Advertising expenses	√ (6,000)	√ (6,000)
<u>Cash from Investments</u>		
Inflow		
Sale of vehicle	√22,000	
Outflow		
Acquired new truck	√ (120,000)	
<u>Cash from Financing</u>		
Inflow		
Issue of shares		√100,000
Outflow		
Paid dividends		√ (3,000)
Excess or deficiency	√ (19,700)	√135,800
Minimum cash required	√10,000	√10,000
Financing needed	√29,700	
Repayments		√√ (29,700)
Interest		√ ** (223)
Cash balance	√10,000	√105,877

If students include depreciation deduct 1 mark

**Interest : 29700 x 1/12x .09

SOLUTION QUESTION 4. Budget Variance Analysis (18 Marks)

DM

Actual x Actual -----	Actual x Standard -----	Standard X Standard -----
	\$693,000	\$700,000
-----	-----	-----
PV	EV	
-----	-----	
	\$7,000 (F)	

DL

Actual x Actual -----	Actual x Standard -----	Standard X Standard -----
\$308,000	\$312,000	\$300,000
-----	-----	-----
PV	EV	
-----	-----	
\$4,000 (F)	\$12,000 (U)	
-----	-----	
	\$8,000 (U)	

VOH

Actual -----	Actual x Standard -----	APPLIED -----
\$153,000	\$156,000	\$150,000
-----	-----	-----
SPV	EV	
-----	-----	
\$3,000 (F)	\$6,000 (U)	
-----	-----	
	\$3,000 (U)	

FOH

Actual -----	Budgeted -----	Applied -----
	\$200,000	\$250,000
-----	-----	-----
-----	-----	
0	\$50,000 (F)	

2 marks each. Partial marks can be allotted.

1. Standard fixed overhead per unit = $\$250,000 \div 50,000 = \5
 Therefore master budget capacity = $\$50,000 \div \$5 =$
 Actual production 50,000 - 10,000 = 40,000 units
 Or $250,000 - 50,000 = 200,000 / 5$ Master Bud / $\$5 = 40,000$ **Units. (2 marks)**
2. Total for the master budget = $\$250,000 - \$50,000 = \$200,000$ **(2 marks)**
3. D hrs should have been used to manufacture 50,000 units
 $= 50,000 \times 5\text{hrs} = 25,000$ hrs. **(2 marks)**
4. Total DLhrs used = $\$300,000 \div 25,000$ bhrs. =
 $\$12$ standard direct labour hour,
 Therefore, DLhrs used = $\$312,000 \div \$12 = 26,000$ hrs. **(2 marks)**
5. Total actual costs of DL = $\$312,000 - \$4,000 = \$308,000$ **(2 marks)**
6. Total s. costs of DM used = $\$700,000 - \$7,000 = \$693,000$ **(2 marks)**
7. The actual VOH costs = $\$150,000 + \$6,000 - \$3,000 = \$153,000$ **(2 marks)**
8. The budget variable factory overhead for actual time
 Used = $\$150,000 + \$6,000 = \$156,000$ **(2 marks)**
9. The budget variable factory overhead for the required time = $\$150,000$ **(2 marks)**

SOLUTION QUESTION 5 – Incremental and Relevant analysis**A. 5 Marks**

(a)	A10	A20	A30	A40
Total CM	\$265,000	\$450,000	\$263,000	\$525,000
# of units	1,000	250	750	600
CM per unit (½ mark)	\$265.00	\$1,800.00	\$350.67	\$875.00
MH per unit	2.0	4.0	1.5	3.0
CM per MH ((½ mark)	\$132.50	\$ 450.00	\$233.78	\$291.67

Collen Aerospace should produce only A20, because it has the highest contribution margin per constrained resource (machine hours). **1 Mark**

B 8 marks

(b) Total machine hours available	6,000
Machine hours required for	
Polaris units of A10 (200 x 2)	<u>400</u>
Machine hours left for Bombardier	5,600
Supply 90% of contract*	<u>5,333</u>
Balance remaining	267
Used to top up 90% on contract	
Less: (10% x 250 x 4) for A20	<u>100</u>
Balance remaining	167
Number of MH per unit for A40	<u>3</u>
Number of additional A40 (rounded)	<u>55</u>

2 marks

* $[(1,000 \times 2) + (250 \times 4) + (750 \times 1.5) + (600 \times 3)] \times 90\%$

Opportunity cost of selling to Polaris:

A10 (10% x 1,000 x \$265)	\$26,500	1 Mark
A30 (10% x 750 x \$350.67)	\$26,300	1 Mark
A40 ((10% x 600) - 55) x \$875)	<u>\$ 4,375</u>	2 Marks
	\$57,175	

Contribution margin from new order

200 units x [\$265 + (\$1,500 x 25%)]	<u>\$128,000</u>	2 Marks
If Sharp Aerospace takes the new order they will earn	<u><u>\$70,825</u></u>	

C 8.5 marks

(c) New capacity: 6,000 x 115%	1.5 Mark	6900
Required for contract		
(1,000 x 2) + (250 x 4) + (750 x 1.5) + (600 x 3)	2 Marks	<u>5,925</u>
Hours left to produce A20 (highest CM per unit)		975
MH required to produce one unit of A20		<u>4</u>
Number of A20 units that could be produced	2 Marks	243.75
at \$1,800 per unit		<u>\$1,800</u>
Additional contribution earned		\$438750
over 4 years life of the new technology		<u>4</u>
Total contribution margin from additional sales	2 Marks	\$1,755,000
Cost of the new technology		<u>2,500,000</u>
		<u><u>\$ 745,000</u></u>

Collen Aerospace should not buy the new technology because its purchase cost is \$745,0000 more than the additional contribution margin they would earn. **1 Mark**

SOLUTION QUESTION 1. (37.5 marks, 25 multiple choice questions 1.5 marks each)

1	A
2	B
3	A
4	C
5	B
6	D
7	A
8	E
9	B
10	A
11	D
12	D
13	C
14	D
15	D
16	B
17	B
18	A
19	A
20	D
21	C
22	D
23	D
24	C
25	D

✓ = ½ marks

SOLUTION QUESTION 2. Manufacturing Statement (15 Marks)

STUDENTS CAN SHOW THEIR CALCULATIONS IN VARIOUS WAYS INCLUDING EQUATIONS

Direct Material

Beg Inv. DM \$ 70,000✓	
Purchases <u>\$100,000✓</u>	
RM available \$ 170,000	
End Inv. <u>\$40,000</u>	
DM used \$ 130,000✓	\$ 130,000 (2)
Direct Labour	\$ 80,000 ✓ (3)
(210,000✓-130,000✓)	
Variable OH (260,000✓-130,000-80,000)	✓✓\$50,000 (4)
Fixed OH	<u>\$ 100 000 (5)</u>
Total costs of production	✓\$ 360 000 (1)
(direct✓ \$210 000+indirect ✓\$150 000 =360 000)	
Beginning work in progress	\$✓ 160 000
Less Ending Work in progress	✓ <u>(\$ 120,000)</u>
Cost of goods manufactured	✓\$ 400 000 (6)

Beg Inv	\$ 210,000✓
Plus C G Man	<u>\$ 400,000</u>
Good available	\$ 610,000
Less end inv	<u>\$ 200,000✓</u>
Cost of goods sold	\$ 410,000 (7) ✓

Marks **1.5** each broken down

- Total costs of production: $210\ 000\checkmark + 150\ 000\checkmark = \$360\ 000\checkmark$
- Cost of materials used \$ 130,000
- Cost of direct labour \$ 80,000
- Cost of variable overhead \$ 50,000
- Fixed manufacturing overhead
 $60\ 000\checkmark - 50\ 000 - 80\ 000 - 130\ 000 - 160\ 000 = \$100\ 000\checkmark\checkmark$
- Cost of goods manufactured \$ 400 000✓✓✓
- Cost of goods sold: \$410 000
- Conversion costs $80\ 000\checkmark + 50\ 000\checkmark + 100\ 000\checkmark = \$ 230\ 000$
- Prime costs: $130\ 000\checkmark + 80\ 000\checkmark = 210\ 000\checkmark$
- Period costs: \$ 240,000 selling and administrative 1.5 marks

SOLUTION QUESTION 3. Cash Budget (14.5 marks)

Solution: (6 marks)

½ marks each A TO L

	June	July	August	September
Cost of sales	\$96,000	136,000	80,000	108,000(j)
Desired end. Inven.	68,000 (a)	40,000 (c)	54,000 (g)	44,000
Total requirements	164,000(b)	176,000(d)	134,000(h)	152,000 (k)
Less beg. Inventory	80,000	68,000 (e)	40,000	54,000 (l)
Purchases	84,000	108,000(f)	94,000 (i)	98,000
	=====	=====	=====	=====

Sales:

May (actual)	\$100,000
June (actual)	120,000
July (estimated)	170,000
August (estimated)	100,000
September (estimated)	135,000
October (estimated)	110,000

Cash Collections (maximum **8.5** marks)

Each month, 30 percent of sales are collected in cash and 70 percent are on credit. The collection pattern for credit sales is 20 percent in the month of sale, 50 percent in the month following the sale, and 30 percent in the second month following the sale.

.6 mark EACH – MAXIMUM 8.5 MARKS

Sales	100000	120000	170000	100000	135000
	May	June	July	Aug	Sept
Cash sales 30%	.3*100 000=30 000	.3*120 000= 36 000	.3*170 000= 51 000 July	.3*100 000= 30 000 Aug	.3*135 000= 40 500 Sept
Month of sale 20%	.2*70000 =14 000	.2*84000= 16 800	.2*119 000= 23 800 July	.2*70 000= 14 000 Aug	.2*94 500 = 18 900 Sept
Month following sale 50%		.5*70 000= 35 000	.5*84 000= 42 000 June	.5*119 000= 59 500 July	.5* 70 000= 35 000 Aug
2 nd month following sale 30%			.30*70 000 = 21 000 May	.3*84000= 25 200 June	.3* 119000= 35 700 July
Total			137 800	128 700	130 100

SOLUTION QUESTION 4. Budget Variance Analysis (18 Marks)

DM

Actual x Actual ----- -----	Actual x Standard ----- -----	Standard X Standard ----- -----
	\$693,000	\$700,000
PV	EV	
----- ----- -----		
	\$7,000 (F)	

DL

Actual x Actual ----- -----	Actual x Standard ----- -----	Standard X Standard ----- -----
\$308,000	\$312,000	\$300,000
PV	EV	
----- ----- -----		
\$4,000 (F)	\$12,000 (U)	
----- ----- -----		
	\$8,000 (U)	

VOH

Actual ----- -----	Actual x Standard ----- -----	APPLIED ----- -----
\$153,000	\$156,000	\$150,000
SPV	EV	
----- ----- -----		
\$3,000 (F)	\$6,000 (U)	
----- ----- -----		
	\$3,000 (U)	

FOH

Actual ----- -----	Budgeted ----- -----	Applied ----- -----
	\$200,000	\$250,000
----- ----- -----		
0	\$50,000 (F)	

2 marks each. Partial marks can be allotted.

1. Standard fixed overhead per unit = $\$250,000 \div 50,000 = \5
 Therefore master budget capacity = $\$50,000 \div \$5 = 10,000$ units less than
 Actual production $50,000 - 10,000 = 40,000$ units
 Or $250,000 - 50,000 = 200,000 / 5$ Master Bud / $\$5 = 40,000$ Units. (2 marks)
2. Total for the master budget = $\$250,000 - \$50,000 = \$200,000$ (2 marks)
3. DL hrs should have been used to manufacture 50,000 units
 $= 50,000 \times 5\text{hrs} = 25,000$ hrs. (2 marks)
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7. The actual VOH costs = $\$150,000 + \$6,000 - \$3,000 = \$153,000$ (2 marks)
8. The budget variable factory overhead for actual time
 Used = $\$150,000 + \$6,000 = \$156,000$ (2 marks)
9. The budget variable factory overhead for the required time = $\$150,000$ (2 marks)

SOLUTION QUESTION 5 – Incremental and Relevant analysis**A. Maximum 4 Marks**

(a)	A10	A20	A30	A40
Total CM	\$265,000	\$450,000	\$263,000	\$525,000
# of units	1,000	250	750	600
CM per unit (½ mark)	\$265.00	\$1,800.00	\$350.67	\$875.00
MH per unit	2.0	4.0	1.5	3.0
CM per MH (½ mark)	\$132.50	\$ 450.00	\$233.78	\$291.67

Collen Aerospace should produce only A20, because it has the highest contribution margin per constrained resource (machine hours). ½ **Mark**

B 6 marks

(b) Total machine hours available	6,000
Machine hours required for	
Polaris units of A10 (200 x 2)	<u>400</u>
Machine hours left for Bombardier	5,600
Supply 90% of contract*	<u>5,333</u>
Balance remaining	267
Used to top up 90% on contract	
Less: (10% x 250 x 4) for A20	<u>100</u>
Balance remaining	167
Number of MH per unit for A40	<u>3</u>
Number of additional A40 (rounded)	<u>55</u>

1 mark

*[(1,000 X 2) + (250 X 4) (750 X 1.5) + (600 X 3)] X 90%

Opportunity cost of selling to Polaris:

A10 (10% x 1,000 x \$265)	\$26,500	1 Mark
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A40 ((10% x 600) - 55) x \$875)	<u>\$ 4,375</u>	1 Mark
	\$57,175	

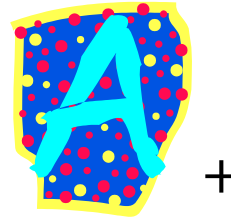
Contribution margin from new order

200 units x [\$265 + (\$1,500 x 25%)]	<u>\$128,000</u>	2 Mark
If Sharp Aerospace takes the new order they will earn	<u><u>\$70,825</u></u>	

C 5 marks

(c) New capacity: 6,000 x 115%	1 Mark	6900
Required for contract		
(1,000 x 2) + (250 x 4) + (750 x 1.5) + (600 x 3)	1 Mark	<u>5,925</u>
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Number of A20 units that could be produced	1 Mark	243.75
at \$1,800 per unit		<u>\$1,800</u>
Additional contribution earned		\$438750
over 4 years life of the new technology		<u>4</u>
Total contribution margin from additional sales	1 Mark	\$1,755,000
Cost of the new technology		<u>2,500,000</u>
		<u><u>\$ 745,000</u></u>

Collen Aerospace should not buy the new technology because its purchase cost is \$745,000 more than the additional contribution margin they would earn. **1 Mark**



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CONCORDIA UNIVERSITY

Course: Managerial Accounting,
No.: COMM 305 & ACCO. 240 Sections: All
Examination: Alternate Final
Date: June, 2006
No. of Pages: 9 including the cover page
Material Allowed: Non-programmable calculators and dictionaries
Special Instructions: Answer all multiple choice questions in the Answer Sheet form no. 4521
Return the exam questions with your answers.

Student Name: _____

Student ID No.: _____

Section: _____

Instructor: _____

QUESTION I. 22.5 POINTS

SELECT THE BEST ANSWER: 1.5 POINTS EACH QUESTION.

1. A responsibility centre that incurs costs (and expenses) and generates revenues is classified as a(n)
 - a. cost centre.
 - b. revenue centre.
 - c. profit centre.
 - d. investment centre.
 - e. none of the above

2. The most useful measure for evaluating a manager's performance in controlling revenues and costs in a profit centre is
 - a. contribution margin.
 - b. contribution net income.
 - c. contribution gross profit.
 - d. controllable margin.
 - e. none of the above

3. Pentecost Corporation desires to earn target net income of \$40,000. If the selling price per unit is \$30, unit variable cost is \$24, and total fixed costs are \$160,000, the number of units that the company must sell to earn its target net income is
 - a. 13,333.
 - b. 33,333.
 - c. 20,000.
 - d. 26,667.
 - e. none of the above

4. Juniper, Inc. sells a single product with a contribution margin of \$12 per unit and fixed costs of \$74,400 and sales for the current year of \$100,000. How much is Juniper's break-even point?
 - a. 4,600 units
 - b. 5,600 units
 - c. 6,200 units
 - d. 2,133 units
 - e. none of the above

5. Guerry Company applies overhead on the basis of machine hours. Given the following data, calculate overhead applied and the under- or over-application of overhead for the period:

Estimated annual overhead cost	\$600,000
Actual annual overhead cost	\$575,000
Estimated machine hours	150,000
Actual machine hours	140,000

 - a. \$560,000 applied and \$15,000 under-applied
 - b. \$600,000 applied and \$15,000 over-applied
 - c. \$560,000 applied and \$15,000 over-applied
 - d. \$575,000 applied and neither under- nor over-applied
 - e. none of the above

6. Given the following information for Satoko Company: Sales \$1,000,000; Controllable Margin \$150,000; Average Operating Assets \$500,000. The company's ROI is:
- | | |
|----------------------|--------|
| a. 60% | b. 50% |
| c. 15% | d. 30% |
| e. none of the above | |
7. The starting point of a master budget is the preparation of the:
- | | |
|-----------------------|----------------------------|
| a. cash budget. | b. sales budget. |
| c. production budget. | d. budgeted balance sheet. |
| e. none of the above | |

Use the following information for questions 8 and 9.

Thorton Company estimates its sales at 80,000 units in the first quarter and that sales will increase by 8,000 units each quarter over the year. The company wants an ending inventory of finished goods equal to 25% of the sales of the following quarter. Each unit sells for \$25. 40% of the sales are for cash. 70% of the credit customers pay within the quarter. The remainder is received in the quarter following sale.

8. Cash collections for the **second** quarter are budgeted at
- | | |
|----------------------|-----------------|
| a. \$1,356,000. | b. \$1,968,000. |
| c. \$2,364,000. | d. \$2,164,000. |
| e. none of the above | |
9. Production in units for the **third** quarter should be budgeted at
- | | |
|----------------------|------------|
| a. 98,000. | b. 92,000. |
| c. 122,000. | d. 96,000. |
| e. none of the above | |
10. Rebel Company incurs the following costs in producing 50,000 units of product:
- | | |
|---------------------------------|-----------|
| Direct materials | \$150,000 |
| Direct labour | 100,000 |
| Variable manufacturing overhead | 125,000 |
| Fixed manufacturing overhead | 450,000 |
- An outside supplier has offered to supply the 50,000 units at \$10.50 each. All of Rebel's related variable costs would be eliminated, but only \$300,000 of the fixed costs would be eliminated if the offer is accepted. Acceptance will result in a
- | | |
|-------------------------|-----------------------|
| a. saving of \$300,000. | b. loss of \$150,000. |
| c. saving of \$150,000. | d. loss of \$300,000. |
| e. none of the above | |

11. Finish Company has a production process where two products result from a joint processing procedure; both can be sold immediately or processed further. Given the following additional per unit information, determine which of the products should be processed further.

<u>Product</u>	<u>Allocated Joint Cost</u>	<u>Selling Price</u>	<u>Additional Processing Cost</u>	<u>New Selling Price</u>
A	\$100	\$200	\$180	\$400
B	60	100	50	160

- A
 - B
 - Both
 - Neither
12. A flexible budget
- is also called a static budget.
 - can be considered a series of related static budgets.
 - can be prepared for sales or production budgets, but not for an operating expense budget.
 - typically uses an activity index different from that used in developing the predetermined overhead rate.
 - none of the above

Consider the following data: For Q. 13 to Q. 15

Friben, Inc. is a management consulting firm specializing in pension plans. Its billing rate to clients is \$120 per hour and variable costs average \$80 per hour. Fixed costs are \$24,000 per month. Income taxes are 20%

13. If variable costs increase by 15%, and management increases its billing rate by 8%, what is the effect on the breakeven point, in billable hours?
- it increases the breakeven point.
 - the Breakeven point will not change.
 - it decreases the breakeven point.
 - the Breakeven point will remain constant within the relevant range.
 - cannot be determined from the data given.
14. If variable costs increase by 15%, and management increases its billing rate by 15%, what is the effect on the breakeven point, in billable dollars?
- it increases the breakeven point.
 - the Breakeven point will not change.
 - it decreases the breakeven point.
 - the Breakeven point will remain constant within the relevant range
 - cannot be determined from the data given.

15. If fixed costs increase by 15%, and management increases its billing rate by 5%, what is the effect on the breakeven point, in billable hours?
- A. it increases the breakeven point.
 - B. the Breakeven point will not change.
 - C. it decreases the breakeven point.
 - D the Breakeven point will remain constant within the relevant range.
 - E. cannot be determined from the data given.

Question 2 (10 marks)

Canadian Paper Inc. produces table napkins and facial tissues. The manufacturing process is highly mechanized. Both products are produced by the same machinery by using different settings. For the coming period, 200,000 machine hours are available. Management is trying to decide on the quantities of each product to produce. The following data are available (for table napkins, one unit is one package of napkins; for facial tissue, one unit is one box of tissue):

	Napkins	Tissue
Machine hours per unit	1.00	.50
Unit selling price	\$2.50	\$3.00
Unit variable cost	\$1.50	\$2.25

The company can sell no more than 150,000 packages of napkins and 300,000 boxes of tissue.

Required:

1. Determine the number of packages of napkins and the number of boxes of tissue the company should produce. **(6 Marks)**
2. Compute the corresponding profit assuming that total fixed costs are \$125,000. **(4 Marks)**

Question 3 (10 marks)

Conan Company produces sporting equipment. In 2005, the first year of operations, Conan produced 25,000 units and sold 18,000 units. In 2007, the production and sales results were exactly reversed. In each year, selling price was \$100, variable manufacturing costs were \$40 per unit, variable selling expenses were \$8 per unit, fixed manufacturing costs were \$540,000, and fixed administrative expenses were \$200,000.

Required:

- (a) Calculate net income under variable costing for each year. **4 marks**
- (b) Calculate net income under absorption costing for each year. **4 marks**
- (c) Reconcile the differences each year in income from operations under the two costing approaches **2 marks**

Question 4 (16 marks)

Delta Manufacturing Company uses a standard cost system in accounting for the cost of its main product. The following standards have been established for the direct manufacturing costs per unit:

Direct materials (1 kg at \$5/kg)	\$5.00 per unit
Direct labours (2 hrs at \$4/hr.)	\$8.00 per unit

Budgeted overhead for the month of April (based on expected activity of 4,000 direct labour hours) is as follows:

Variable overhead	\$19,000
Fixed overhead	<u>8,000</u>
Total overhead	\$27,000

Results for the month of April are as follows:

Units produced	2,100
Direct materials used (2,500 kg)	\$11,000
Direct labours (4,320 hrs)	18,144
Variable overhead	21,410
Fixed overhead	8,125
Total costs	\$58,679

There was no beginning or ending work in process inventory.

Required:

Calculate the following:

1. Direct materials price, usage and total variances **(4 Marks)**
2. Labour price, usage and total variances **(4 Marks)**
3. Variable overhead spending, efficiency and total variances **(4 Marks)**
4. Fixed overhead spending and volume variances **(4 Marks)**

Question 5 (10 marks)

A nursery has 3 divisions: the Western Division, the Central Division and the Eastern Division. All three grow and sell plants for gardens. Recently, the Central Division has acquired a facility that manufactures plastic pots. The pots can be sold both externally and internally. Company policy permits manager to decide whether to buy or sell internally. Each manager is evaluated based on both ROI and EVA.

The Western Division has been buying its plastic pots in lots of 100 from several vendors. The average price paid is \$75 per box of 100 pots. However, the recent acquisition makes the manager of the Western Division wonder whether a more favourable price can be arranged. She approaches the manager of the Central Division with a request to transfer 3,500 boxes at \$70 per box.

The cost and revenue of a box of 100 pots is as follows:

Direct materials	\$35
Direct Labour	8
Variable overhead	10
Fixed overhead (\$200,000/20,000 boxes)	<u>10</u>
Total unit cost	\$63
Selling price	\$75
Production capacity	20,000 boxes

Required:

1. Suppose the pot facility is producing at capacity and can sell its entire production to outside customers. How should the manager respond to the request for a lower transfer price? **(4 Marks)**
2. Assume that the pot facility is currently selling 16,000 boxes. What are the minimum and maximum transfer prices? Should the manager transfer at \$70 per box? **(4 Marks)**
3. Suppose that the company's policy is to make all transfers at full cost plus 20 percent. Should the transfer occur? Explain why or why not? **(2 Marks)**

Question 6 (16 marks)

Axia Inc. manufactures two electronic products, widgets and gadgets, and has a capacity of 1,000 machine hours. Prices for each product are as follows:

	Widget	Gadget
Selling price	\$200	\$280
Variable costs		
Direct materials	\$25	\$30
Direct labour costs	\$6	\$10
Applied overhead manufacturing costs	\$30	\$44
Fixed overhead	\$50	\$70

Variable overhead manufacturing costs are applied at a rate of \$40 per machine hour.

Bromont Inc., a potential client, has offered \$240 per unit to Axia for a special order of 250 units. These 250 units would incur the following production costs and time:

Direct materials	\$7,000
Direct labour costs	\$2,000
Machine hours	200

Required:

1. Assume that Axia has enough excess capacity to produce the special order. Calculate the total contribution margin if the special order from Bromont was accepted. **(6 marks)**
2. Assume that Axia is actually operating at 95% of capacity. Determine, whether Axia should produce the units for the special order instead of widget or gadget units. Show your calculations. **(8 marks)**
3. Assume that Axia is actually operating at 95% capacity, and additional machines can be rented at a cost of \$33,000 to produce Bromont's special order. If the special order is accepted, calculate its effects on Axia's profit. Show your calculations. **(2 marks)**

Question 7 (15.5 marks)

Salem Company reported the following information for 2006:

	September	October	November	December	January
Budgeted sales	\$280,000	\$300,000	\$320,000	\$360,000	\$200,000
Budgeted purchases	\$90,000	\$120,000	\$128,000	\$144,000	\$88,000

- All sales are on credit.
- Customer amounts on account are collected 60% in the month of sale and 40% in the following month.

- Cost of goods sold is 40% of sales.
- Salem purchases and pays for merchandise 70% in the month of acquisition and 30% in the following month.
- Accounts payable is used only for inventory acquisitions.

Required:

1. How much cash will Salem receive during November? **(5.5 Marks)**
2. How much is the budgeted balance for Accounts Receivable at November 30, 2006?
(5 Marks)
3. How much is the budgeted balance for Accounts Payable at November 30, 2006?
(5 Marks)

Question 7 (15.5 marks)

	Sept	Oct	Nov	Dec	Jan	
budgeted sales	\$280,000	\$300,000	\$320,000	\$360,000	\$200,000	
budgeted purchases	\$90,000	\$120,000	\$128,000	\$144,000	\$88,000	
sales collection in Nov						
Oct sales		\$180,000	\$120,000			
		2 marks	2.5 marks			4.5
Nov sales			\$192,000	\$128,000		
			2 marks	2.5 marks		4.5
total			\$312,000			
			2 marks			2
payment of purchases						
Oct purchases		\$84,000	\$36,000			
Nov purchases			\$89,600	\$38,400		
			2 marks	2.5 marks		4.5
total			\$125,600			



CONCORDIA UNIVERSITY

Course: Managerial Accounting,
No.: Comm. 305 & Acco. 240 Sections All
Examination: Final
Date: April 18, 2008
No. of Pages: 9 including the cover page
Material Allowed: Non-programmable calculators and dictionaries
Special Instructions: Return the exam questions with your answers.

Student Name: _____

Student Id. No.: _____

Section: _____

Instructor: _____

QUESTION-1 16 POINTS

The condensed income statement for Montreal Inc for 2007 is as follows:

Montreal Inc
Income Statement
Year Ended December 31, 2007

Sales (200,000 units)		\$1,200,000
Cost of goods sold		<u>800,000</u>
Gross profit		400,000
Operating expenses		
Selling	\$320,000	
Administrative	<u>160,000</u>	<u>480,000</u>
Net loss		(\$480,000)

A cost behaviour analysis indicates that 75% of the cost of goods sold is variable, 50% of the selling expenses are variable, and 25% of the administrative expenses are variable.

Instructions (Round to nearest unit, dollar, and percentage, where necessary. Use the CVP income statement format in calculating profits.)

- (a) Calculate the break-even point in total sales dollars and in units for 2007.
- (b) The CFO has proposed a plan to get the company “out of the red” and improve its profitability. She feels that the quality of the product could be substantially improved by spending \$0.55 more per unit on better raw materials. The CFO estimates that sales volume will increase by 30% but the selling price per unit could be increased to only \$6.50 because of competitive pressures. What effect would the CFO's plan have on the profits and the break-even point in dollars of the Montreal Inc?
- (c) Following its review of a recent marketing research report the CEO believes that sales volume can be increased by 50% if extensive advertising and promotional campaigns are undertaken. He therefore proposed the following plan as an alternative to CFO's: (1) increase variable selling expenses to \$0.85 per unit, (2) lower the selling price per unit by \$0.20, and (3) increase fixed selling expenses by \$20,000. If these changes were made, what effect would the CEO's plan have on the profits and the break-even point in dollars of the Montreal Inc?
- (d) Which plan should be accepted? Explain your answer.

SOLUTION QUESTION-1 16 POINTS

(a) **5 PTS**

Selling price per unit ($\$1,200,000 \div 200,000$) $\$6.00$ **.5 PT**

Costs	Variable Portion	Fixed Portion	Total
Cost of goods sold	\$600,000	\$200,000	\$ 800,000
Selling	160,000	160,000	320,000
Administrative	<u>40,000</u>	<u>120,000</u>	<u>160,000</u>
Total	.75 PT <u>\$800,000</u>	.75 PT <u>\$480,000</u>	<u>\$1,280,000</u>

Variable costs per unit are:

Cost of goods sold	$(\$600,000 \div 200,000)$.5 PT	\$3.00
Selling	$(\$160,000 \div 200,000)$.5 PT	.80
Administrative expenses	$(\$ 40,000 \div 200,000)$.5 PT	<u>.20</u>
Total		<u>\$4.00</u>

Break-even point in units = Fixed costs \div CM per unit

$$240,000 = \$480,000 \div \$2 \text{ ..5 PT}$$

Break-even point in dollars = $240,000 \times \$6 = \$1,440,000$ **.5 PT**

(b) **5 PTS**

Variable unit cost of goods sold = \$3.55 = (\$3.00 + \$0.55) **.5 PT**

Sales volume = 260,000 units (200,000 X 130%) **.5 PT**

Net income computation:

Sales

Total sales = 260,000 X \$6.50 = \$1,690,000 **.25 PT** \$1,690,000

Variable costs

Cost of goods sold..... \$923,000

(260,000 X \$3.55) **.25 PT**

Selling expenses..... 208,000

(260,000 X \$0.80) **.25 PT**

Administrative expenses

(260,000 X \$0.20) **.25 PT** 52,000

Total variable costs 1,183,000

Contribution margin.....**.25 PT** 507,000

Fixed costs

Cost of goods sold..... \$200,000

Selling expenses..... 160,000

Administrative expenses 120,000

Total fixed costs **.75 PT** 480,000

Net income **.25 PT** \$ 27,000

Break-even point in units is:

$$\$6.50Q = \$4.55Q + \$480,000$$

$$\$1.95Q = \$480,000$$

$$Q = 246,154 \text{ units (rounded)}$$

Break-even sales dollars are:

$$246,154 \times \$6.50 = \$1,600,000 \text{ **.75 PT**}$$

CFO's plan would increase the break-even sales

$$\text{by } \$160,000 = (\$1,600,000 - \$1,440,000) \text{ **1 PT**}$$

(c) **5 PTS**

Sales [300,000* X (\$6.00 – \$0.20)] 1 PT		\$1,740,000
*New sales volume = 300,000 (200,000 x 150%)		
Variable costs		
Cost of goods sold .25 PT	\$900,000	
(300,000 X \$3.00)		
Selling expenses (300,000 X \$0.85) .5 PT	255,000	
Administrative expenses		
(300,000 X \$0.20) .25 PT	<u>60,000</u>	
Total variable costs		<u>1,215,000</u>
Contribution margin .25 PT		525,000
Fixed costs		
Cost of goods sold .25 PT	\$200,000	
Selling expenses .5 PT	180,000	
(\$160,000 + \$20,000)		
Administrative expenses .25 PT	<u>120,000</u>	
Total fixed costs		<u>500,000</u>
Net income25 PT	<u>\$ 25,000</u>

Break-even point in units is:

$$\$5.80Q = \$4.05Q + \$500,000$$

$$\$1.75Q = \$500,000$$

$$Q = 285,714 \text{ units (rounded)}$$

Break-even sales dollars are:

$$285,714 \times \$5.80 = \$1,657,141 \text{ (rounded) } **.75 PT**$$

CEO's plan would increase the break-even sales by \$217,141

(\$1,657,141 – \$1,440,000) **1 PT**

(d) CFO's plan should be accepted. It produces a higher net income and a lower break-even point than CEO's plan. **1 PT**

TOTAL PTS = 16

QUESTION-2-A 10 POINTS

Quebec Company is considering the purchase of a new machine. The purchase price of the new machine is \$125,000, freight charges are estimated to be \$4,000, and installation costs are expected to be \$6,000. The salvage value of the new equipment is expected to be zero after a useful life of four years. The current equipment could be kept and used for an additional four years even if the new machine is not purchased. At that time, the salvage value of the current equipment would be zero. If the new machine is purchased now, the current machine would have to be scrapped. Quebec's accountant, Shaida Fang, has accumulated the following data for the current and new machine:

1. With the current machine, Quebec Company can sell 12,000 units of product annually at a per unit selling price of \$100. If the new machine is purchased, the number of units produced and sold would increase by 20%, and the selling price per unit would remain the same.
2. The new machine would operate faster than the old machine, and would be more efficient in its usage of materials. The current machine has a gross profit rate is 25% of sales, whereas the gross profit rate would be 30% of sales with the new machine.
3. Annual selling expenses are \$180,000 with the current machine. Because the new machine would produce a greater number of units to be sold, annual selling expenses are expected to increase by 10% if the new machine is purchased.
4. Annual administrative expenses are \$100,000 with the current machine, and \$113,000 with the new machine.
5. The current book value of the current machine is \$36,000. Quebec Company uses straight-line amortization.

Instructions

Prepare an incremental analysis for the four years that shows whether Quebec Company should keep the current machine or buy the new one. (Ignore income tax effects.)

SOLUTION QUESTION-2-A 10 POINTS

	<u>Retain Old Machine</u>		<u>Purchase New Machine</u>		<u>Net Income Increase (Decrease)</u>
Sales	<u>\$4,800,000</u>	(1)	<u>\$5,760,000</u>	(2)	<u>\$960,000</u>
Costs and expenses					
Cost of goods sold	3,600,000	(3)	4,032,000	(4)	(432,000)
Selling expenses .5 PT EACH	720,000		792,000		(72,000)
Administrative expe. .5 PT EACH	400,000		452,000		(52,000)
Purchase price	—		<u>135,000</u>	(5)	<u>(135,000)</u>
Total costs and expenses	<u>4,720,000</u>		<u>5,411,000</u>		<u>(691,000)</u>
Net income	<u>\$ 80,000</u>		<u>\$ 349,000</u>		<u>\$269,000</u>

- (1) $12,000 \times \$100 \times 4 \text{ years} = \$4,800,000$. **1 PT**
 (2) $\$4,800,000 \times 120\% = \$5,760,000$. **1 PT**
 (3) $\$4,800,000 \times (100\% - 25\%) = \$3,600,000$. **2 PTS**
 (4) $\$5,760,000 \times (100\% - 30\%) = \$4,032,000$. **2 PTS**
 (5) $\$125,000 + \$4,000 + \$6,000 = \$135,000$. **1 PT**

The new machine should be purchased. The incremental analysis shows that total net income will increase from \$80,000 to \$349,000 over the four years with the new machine. **1 PT**

QUESTION-2-B 10 POINTS

Canada Company operates a small factory in which it manufactures two products: A and B. Production and sales results for last year were as follows:

Products	<u>A</u>	<u>B</u>
Units sold	8,000	20,000
Selling price per unit	\$95	\$78
Variable costs per unit	50	45
Fixed costs per unit	22	22

For purposes of simplicity, the firm averages total fixed costs over the total number of units of A and B produced and sold.

The research department has developed a new product (C) as a potential replacement for product B. Market studies show that Canada Company could sell 11,000 units of C next year at a price of \$120; the variable costs per unit of C are \$42. The introduction of product C will lead to a 10% increase in demand for product A and the discontinuation of product B. If the company does not introduce the new product, it expects next year's results to be same as last year's.

Instructions

Should Canada Company introduce product C next year? Explain why or why not. Show calculations to support your decision.

SOLUTION QUESTION-2-B 10 POINTS

Fixed costs = $\$22 \times (8,000 + 20,000) = \$616,000$ **2 PTS**

Company profit with Products A and B:

	A	B	Total
Units sold	8,000	20,000	
Sales Revenue 1.5 PTS	\$760,000	\$1,560,000	\$ 2,320,000
Less: variable costs 1.5 PTS	400,000	900,000	\$ 1,300,000
Contribution margin	\$360,000	\$ 660,000	1,020,000
Less: fixed costs			616,000
Net Profit			\$ 404,000

Company profit with Products A and C:

	A	C	Total
Units sold	8,800*	11,000	
Sales Revenue 1.5 PTS	\$836,000	\$1,320,000	\$2,156,000
Less: variable costs 1.5 PTS	440,000	462,000	902,000
Contribution margin	\$396,000	\$ 858,000	1,254,000
Less: fixed costs			616,000
Net Profit			\$ 638,000

*Product A sales increase by 10%, (8,000 x 110%)

Assuming fixed costs do not change, **Canada** Company should replace Product B with Product C. The contribution given up by dropping Product B is more than covered by the increased contribution margin from Product A, and the total from Product C $[(\$396,000 + \$858,000) - (\$360,000 + \$660,000)] = \$234,000$. **2 PTS**

QUESTION-3- 16 POINTS

The Sales Vice-President of Kirkland Corporation has received the following income statement for November, which was prepared based on a variable-costing system. The firm has just adopted variable costing for its internal reporting:

Kirkland Corporation
Income Statement
For the Month of November
(in thousands)

Sales	\$2,400
Less variable cost of goods sold	<u>1,200</u>
Contribution margin	<u>1,200</u>
Less fixed manufacturing costs at budget	<u>600</u>
Gross margin	<u>600</u>
Less fixed selling and administrative costs	<u>400</u>
Net income before taxes	\$200

The controller attached the following notes to the statements:

1. The unit sales price for November averaged \$24.
2. The unit manufacturing costs for the month were as follows:

Variable Costs	\$12
Fixed costs applied	<u>\$ 4</u>
Total costs	\$16

3. The applied fixed manufacturing unit cost is a predetermined rate based on a monthly production of 150,000 units.
4. The variable costs per unit have been stable all year.
5. Production for November was 45,000 units in excess of sales.
6. The inventory at November 30 was 80,000 units.

Instructions

- (a) The Sales Vice-President is not comfortable with the variable-costing system and wonders what the net income would have been under the absorption-costing system that was used in the past.
1. Present the November income statement based on an absorption-costing system.
 2. Reconcile and explain the difference between the variable-costing and absorption-costing net income figures.
- (b) Explain the features of variable-cost income measurement that should be attractive to the Sales Vice-President.

SOLUTION QUESTION-3- 16 POINTS

(a) (1) <u>Determination of beginning inventory:</u>	
Sales = \$2,400,000 ÷ \$24 per unit =	100,000
Plus ending inventory	<u>80,000</u>
Goods available for sale	180,000
Goods manufactured (100,000 + 45,000)	<u>145,000</u>
Finished goods, beginning inventory 2 PTS	<u>35,000</u>

Cost of goods sold:*

Beginning finished goods inventory	
(35,000 x \$16) 1 PTS	\$ 560,000
Plus: cost of goods manufactured 3 PTS	
Variable Costs	
(145,000 x \$12) 1,740,000	
Fixed Costs	<u>600,000</u>
	<u>\$2,340,000</u>

Cost of goods available for sale 1 PT	<u>2,900,000</u>
Less: ending inventory	
(80,000 x \$16) 1 PT	<u>1,280,000</u>
Cost of goods sold	<u>\$1,620,000</u>

Kirkland Corporation
Absorption Costing Income Statement
for the month ended November 30, 2005

Sales in units	<u>100,000</u>
Sales (\$24 per unit) 1 PT	\$2,400,000
Cost of goods sold * SEE ABOVE	<u>1,620,000</u>
Gross Profit 1 PT	780,000
Less: Selling and Administrative 1 PT	<u>400,000</u>
Net Income 1 PT	\$380,000

(2) Reconciliation of net income: **2 PTS**

Variable costing net income	\$200,000
Plus: FMOH deferred in ending inventory (80,000 x \$4)	320,000
Less: FMOH released in beginning inventory (35,000 x \$4)	<u>(140,000)</u>
Absorption costing net income	<u>\$380,000</u>

- (b) Variable cost statements are consistent with cost-volume-profit analysis, making it easier to compare planned and actual results. In addition, variable cost income becomes a function of sales only; it is not affected by changes in inventory levels. **2 PTS**

QUESTION-4- 15 POINTS

Ontario Manufacturing (OM) is a division of Worldwide Communications, Inc. OM produces pagers and other personal communication devices. These devices are sold internally to other worldwide divisions, as well as to other communication companies. OM was recently approached by the manager of the Personal Communications division to make a special pager designed to receive signals from anywhere in the world. Personal Communications has requested that OM produce 10,000 units of this special pager. Relevant data pertaining for a standard pager currently manufactured and sold by OM are as follows:

Selling price of standard pager	\$95
Variable cost of standard pager	50
Additional variable costs of special pager	35

Instructions

For each of the following **independent situations**, calculate the minimum transfer price, and discuss whether the internal transfer should take place or whether Personal Communications division should purchase the pager externally.

- (a) Personal Communications has offered to pay OM \$105 per pager. OM has no available capacity. OM would have to give up sales of 10,000 standard pagers to existing customers in order to meet the request of Personal Communications.
- (b) Personal communications has offered to pay OM \$150 per pager. OM has no available capacity. OM would have to give up sales of 16,000 standard pagers to existing customers in order to meet the request of Personal Communications.
- (c) Personal communications has offered to pay OM \$80 per pager. OM has available capacity.

SOLUTION QUESTION-4- 15 POINTS

- (a) Assuming no available capacity, and that the number of new units produced would be equal to the number of standard units forgone, variable cost of the special pager would be \$85 (\$50 + \$35) **1.5 PTS** and the opportunity cost would be \$45 (\$95 – \$50) **1.5 PTS**. Therefore, the minimum transfer price would be \$130 (\$85 + \$45) **1 PT**. Since this is higher than the \$105 transfer price, the Ontario Manufacturing Division should reject the offer.
- (b) Assuming no available capacity and that in order to produce the 10,000 special pagers, 16,000 standard pagers would be forgone, the minimum variable cost would be (\$50 + \$35) or \$85 and the opportunity cost would be:

$$\frac{\text{Total contribution margin on standard pagers}}{\text{Number of special pagers}} = \frac{(\$95 - \$50) \times 16,000}{10,000} = \$72 \text{ **5PTS**}$$

Therefore, the minimum transfer price would be \$157 [(\$50 + \$35) + \$72] **2 PTS**. Since **the \$157** transfer price being offered **is LESS** than the minimum transfer price **of \$150**, the OM Division should **REJECT the offer**.

- (c) Assuming that the OM Division has available capacity, variable cost would be \$85 (\$50 + \$35) **1 PT** and the opportunity cost would be zero. Therefore, the minimum transfer price would be \$85 (\$85 + \$0). **2 PTS** Since the \$80 transfer price being offered less than the \$85 minimum transfer price, the offer should be rejected **1 PT**.

QUESTION-5- 15 POINTS

Eagle Ltd. is trying to decide whether it is going to need to take a loan in January to buy a new microcomputer system. The microcomputer will cost \$10,800.

The President has collected the following information about her operations as at December 31:

1. Balances of selected general ledger accounts:

Cash	\$2,120
Accounts payable	6,667

2. Sales history and forecast (unit selling price, \$10):

October	(actual)	\$43,000
November	(actual)	35,000
December	(actual)	40,000
January	(forecast)	50,000

3. All sales are on credit. Fifty percent of a month's sales are collected one month after the sale; 45% are collected two months after the sale; and 5% are uncollectible.
4. Cash payments for purchases are as follows: two-thirds in the month of purchase; one-third in the month after the purchases.
5. Inventory is purchased as required. Accounts payable as shown above relate solely to inventory purchases. Inventory costs \$5 per unit.
6. Other expenses are all paid in cash as required, average about 30% of the sales dollar amount. Amortization is part of these expenses and costs \$3,000 per month.
7. Eagle Ltd. Keeps minimum cash balance of \$1,000.

Instructions

Prepare a cash budget for January, indicating whether Eagle Ltd. will need a loan to finance its computer acquisition.

Solution **QUESTION-5- 15 POINTS**

Cash Collections:

From January	\$ -
From December (50% x \$40,000)	20,000
From November (45% x \$35,000)	<u>15,750</u>
Total collections 3 PTS	<u>\$35,750</u>

Cash disbursements for purchases:

From December (Accounts payable)	\$ 6,667
For January: $(\$50,000 \div \$10) \times \$5 \times 2/3$	<u>16,667</u>
Cash disbursements 3 PTS	<u>\$23,334</u>

Other cash disbursements:

Total expenses (30% x \$50,000)	\$15,000
Less: non-cash item--Amortization	<u>3,000</u>
Cash disbursements 3 PTS	<u>\$12,000</u>

**HOWE LTD.
Cash Budget
For the month ended January 31**

Beginning cash balance 2 PTS	\$ 2,120
Plus: cash receipts	<u>35,750</u>
Total cash available 1PT	37,870
Less: cash disbursements	
Purchases	\$23,334
Other	<u>12,000</u>
Ending cash balance 1PT	<u><u>35,334</u></u> <u>\$2,536</u>

Eagle Ltd. must maintain a minimum cash balance of \$1,000. They have \$1,536 (\$2,536 - \$1,000) available for purchasing the computer. It will need to take out a loan of \$9,264 (\$10,800 - \$1,536) in order to make the purchase. **2 PTS**

QUESTION-6- 18 POINTS

Alberta Manufacturing Company uses a standard cost system in accounting for the cost of its main product. The following standards have been established for the direct manufacturing costs per unit:

Direct materials (1 kg at \$5/kg)	\$5.00 per unit
Direct labour (2 hrs. at \$4/hr.)	\$8.00 per unit

Budgeted overhead for the month of April (based on expected activity of 4,000 direct labour hours) is as follows:

Variable overhead	\$19,000
Fixed overhead	<u>8,000</u>
Total overhead	\$27,000

The company calculates budgeted overhead rates based on expected activity. Results for the month of April are as follows:

Units produced	2,100
Direct materials used (2,500 kg)	\$11,000
Direct labour (4,320 hrs.)	18,144
Variable overhead	21,410
Fixed overhead	<u>8,125</u>
Total costs	\$58,679

There was no beginning or ending work in process inventory.

Instructions: Calculate the following:

- (a) Direct materials price, usage, and total budget variances
- (b) Direct labour price, usage, and total budget variances
- (c) Variable overhead spending, quantity, and total budget variances
- (d) Fixed overhead spending, volume variances, and total budget variances
- (e) Total overhead budget variances

SOLUTION QUESTION-6- 18 POINTS

- (a)** Direct materials price variance = $AQ \times (AP - SP)$
 $AP = \$11,000 \div 2,500 = \4.40 per kg
Price variance = $2,500 \times (\$4.40 - \$5.00) = \$1,500F$ **1 PT**

Direct materials usage variance = $SP \times (AQ - SQ)$
 $SQ = 2,100 \times 1 \text{ kg} = 2,100 \text{ kg}$
Usage variance = $\$5.00 \times (2,500 - 2,100) = \$2,000U$ **1 PT**

Material Budget variance = $\$1,500F + \$2,000U = \$500U$ **1 PT**

- (b)** Labour rate variance = $AH \times (AR - SR)$
 $AR = \$18,144 \div 4,320 = \4.20 per hour
Rate variance = $4,320 \times (\$4.20 - \$4.00) = \$864U$ **1 PT**

Labour efficiency variance = $SR \times (AH - SH)$
 $SH = 2,100 \times 2 \text{ hours per unit} = 4,200$
Efficiency variance = $\$4.00 \times (4,320 - 4,200) = \$480U$ **1 PT**

Labour budget variance = $\$864U + \$480U = \$1,344U$ **1 PT**

- (c)** Variable spending variance = actual overhead – $(AQ \times SR)$
 $VOH \text{ rate} = \$19,000 \div 4,000 = \4.75 per hour
Spending variance = $\$21,410 - (4,320 \times \$4.75) = \$890U$ **2 PTS**

Variable efficiency variance = $SR \times (AH - SH)$
 $= \$4.75 \times (4,320 - 4,200) = \$570U$ **2 PTS**

Total variable budget variance = $\$890U + \$570U = \$1,460U$ **1 PT**

- (d)** Fixed overhead spending variance = actual – budget
 $= \$8,125 - \$8,000 = \$125U$ **1 PT**

Fixed overhead volume variance = $M \text{ Budget} - (SH \times SR)$
 $SR = \$8,000 \div 4,000 = \2.00
 $= \$8,000 - (4,200 \times \$2.00) = \$400F$ **2 PTS**

Total Fixed budget variance = Fixed overhead spending variance = $\$125U$ **1 PTS**

- (e)** Total overhead budget variances = $\$1,460U + \$125U = \$1,585$ **3 PTS**



CONCORDIA UNIVERSITY

Course: **Managerial Accounting,**
No.: **Comm. 305 & Acco. 240 Sections All**
Examination: **Final**
Date: **June 18, 2009**
No. of Pages: **7 including the cover page**
Material Allowed: **Non-programmable calculators and dictionaries**
Special Instructions: **Return the exam questions with your answers.**

Student Name: _____

Student Id. No.: _____

Section: _____

Instructor: _____

PROBLEM I 15 MARKS

Steel Shop Co. manufactures three types of computer desks. The income statement for the three products and the whole company is shown below:

	Product A	Product B	Product C	Total
Sales	<u>\$50,000</u>	<u>\$60,000</u>	<u>\$65,000</u>	<u>\$175,000</u>
Variable costs	25,000	40,000	60,000	125,000
Fixed costs	<u>16,000</u>	<u>12,000</u>	<u>8,000</u>	<u>36,000</u>
Total costs	<u>41,000</u>	<u>52,000</u>	<u>68,000</u>	<u>161,000</u>
Operating income	<u>\$ 9,000</u>	<u>\$ 8,000</u>	<u>\$ (3,000)</u>	<u>\$ 14,000</u>

The company produces 1,000 units of each product. The company's capacity is 9,000 labour hours. The labour for each product is four hours for Product A, three hours for Product B, and two hours for Product C. Fixed costs are allocated based on labour hours.

Instructions

- (a) If the current production levels are maintained, should the company eliminate Product C? Explain your reasoning. 3 marks
- (b) If the company can sell unlimited quantities of any of the three products, which product should be produced? 4 marks
- (c) Suppose the company can sell unlimited quantities of any of the three products. If a customer wanted to purchase 500 units of Product C, what would the minimum sale price per unit be for this order? 4 marks
- (d) The company has a contract that requires it to supply 500 units of each product to a customer. The total market demand for a single product is limited to 1,500 units. How many units of each product should the company manufacture to maximize its total contribution margin? 4 marks

PROBLEM II 15 MARKS

Tecko manufactures an electronic component for a high-end computer. The company currently sells 50,000 units a year at a price of \$180 per unit. These units are produced using a machine that was purchased five years ago at a cost of \$1.2 million. It currently has a book value of \$600,000; however, due to its specialized nature, it has a market value today of only \$70,000. The machine, which is expected to last another five years, will have no salvage value. The costs to produce an electronic component are as follows:

Direct materials	\$ 15.00
Direct labour (4 hours × \$30.00/hour)	120.00
Variable overhead (4 hours × \$2.40/hour)	9.60
Total variable costs per unit	<u>\$144.60</u>

The company expects the following changes for next year:

- *The unit selling price will increase by 10 percent.
- *Direct labour rates will increase by 15 percent.
- *Sales are expected to increase to 52,000 units (within the capacity of present facilities) and remain at that level.

Management is currently considering the replacement of the company's old machine with a new one that would cost \$2.5 million and produce 52,000 units per year for five years. The new machine is expected to last five years and to have a salvage value of \$107,375 (straight-line amortization is used). By using the new machine, management expects to cut direct labour hours to 3.5 hours per unit, but the company will have to hire an operator for the machine at \$90,000 per year.

Instructions

- Determine whether or not the company should purchase the new machine. 7 marks
- How many units would the company have to sell to earn annual profits of \$268,950 (after taxes) if it were to purchase the new machine? The company tax rate is 40%. 4 marks
- Assuming that sales revenue under the new machine increases by 25%, use the degree of operating leverage to calculate the increase in net income. 4 marks

PROBLEM III 20 MARKS

Andrew was hired in January 2005 to manage the home products division of Advanced Techno. As part of his employment contract, he was told that he would get an extra a bonus of 5% of the amount by which the division's profits exceeds the previous year's profits.

Soon after coming on board, Andrew met with his plant managers and explained that he wanted the plants to be run at full capacity. Previously, the plant had employed just-in-time inventory practices and had consequently produced units only as they were needed. Andrew stated that under the previous management the company had missed out on too many sales opportunities because it did not have enough inventories on hand. Because the previous management had employed just-in-time inventory practices, when Andrew came on board there was virtually no beginning inventory. The selling price and variable cost per unit remained the same from 2007 to 2008. Additional information follows:

	2007	2008
Units produced	20,000	25,000
Units sold	20,000	20,000
Selling price per unit	\$270	\$270
Variable costs per unit		
Direct materials	\$80	\$80
Direct labour	40	40
Variable overhead	35	35
Variable Selling expenses	30	30
Fixed manufacturing overhead (total)	\$1,000,000	\$1,000,000
Fixed selling and administrative expenses (total)	\$300,000	\$300,000

Instructions

- (a) Calculate Andrew's 2008 bonus based on the net income in 2008 using the absorption-costing method. (Hint prepare income statement for 2007 and 2008) (10 marks).

- (b) Recalculate Andrew's 2008 bonus under variable-costing method (10 marks).

PROBLEM IV 15 MARKS

Doc's Auto Body has budgeted the costs of the following repair time and parts activities for 2009:

	<u>Repair Time Activity</u>	<u>Parts Activity</u>
Shop employees' wages and benefits	\$111,000	\$ 0
Parts manager's salary and benefits	0	26,600
Office employee's salary and benefits	21,000	12,000
Cost of parts used	0	200,000
Overhead (supplies, amortization, advertising, utilities)	<u>24,600</u>	<u>15,000</u>
Total budgeted costs	\$156,600	\$253,600

Doc's budgets 6,000 hours of repair time in 2009. A profit margin of \$7 per labour hour will be added to the hourly rate for repairs, and a 50% profit markup will be added to the cost of parts used.

On January 10, 2009, Doc's is asked to submit a price quotation for the repair of a 2007 Chevrolet Blazer that was damaged in a head-on collision. Doc's Auto estimates that this repair will consume 61 hours of labour and \$4,200 in parts.

Instructions

- (a) Calculate the labour rate to be charged to customers by Doc's Auto Body for 2009.
3 Marks
- (b) Calculate the parts mark-up percentage to be added to the cost of parts used by Doc's Auto Body for 2009. (Round to three decimal places.) 6 Marks
- (c) Prepare a time and parts price quotation for the repair of the 2007 Chevrolet Blazer.
6 Marks

PROBLEM V 15 MARKS

O & Y Inc. is preparing its annual budgets for the year ending December 31, 2008. Accounting assistants provide the following data:

	Product LN 35	Product LN 40
Sales budget:		
Expected volume in units	350,000	180,000
Unit selling price	\$20.00	\$30.00
Production budget:		
Desired ending finished goods units	30,000	25,000
Beginning finished goods units	20,000	15,000
Direct materials budget:		
Direct materials per unit (kilograms)	2	3
Desired kilograms of ending direct materials	50,000	20,000
Beginning kilograms of direct materials	40,000	10,000
Cost per kilogram	\$2.00	\$3.00
Direct labour budget:		
Direct labour time per unit (hours)	0.5	0.75
Direct labour rate per hour	\$10.00	\$10.00
Budgeted income statement:		
Total unit cost	\$10.00	\$20.00

An accounting assistant has prepared the detailed manufacturing overhead budget and the selling and administrative expenses budget. The latter shows selling expenses of \$560,000 for product LN 35 and \$440,000 for product LN 40, and administrative expenses of \$420,000 for product LN 35 and \$380,000 for product LN 40. Income taxes are expected to be 30%.

Instructions

Prepare the following budgets for the year. Show data for each product. Quarterly budgets should not be prepared.

- (a)** Production 5 Marks
- (b)** Direct materials 6 marks
- (c)** Direct labour 4 Marks

PROBLEM VI 20 MARKS

Montreal Manufacturing Company uses a standard cost system in accounting for the cost of its main product. The following standards have been established for the direct manufacturing costs per unit:

Direct materials (1 kg at \$5/kg) \$5.00 per unit
Direct labour (2 hrs. at \$4/hr.) \$8.00 per unit

Budgeted overhead for the month of April (based on expected activity of 4,000 direct labour hours) is as follows:

Variable overhead	\$19,000
Fixed overhead	<u>8,000</u>
Total overhead	\$27,000

Overhead is applied based on labour hours. The average activity per month is 5,000 direct labour hours. The company calculates overhead rates based on average activity. Results for the month of April are as follows:

Units produced	2,100
Direct materials used (2,500 kg)	\$11,000
Direct labour (4,320 hrs.)	18,144
Variable overhead	21,410
Fixed overhead	<u>8,125</u>
Total costs	\$58,679

There was no beginning or ending work in process inventory.

Instructions

Calculate the following: 4 Marks Each

- (a) Direct materials price, usage, and budget variances
- (b) Labour price, usage, and budget variances
- (c) Variable overhead spending, quantity, and budget variances
- (d) Fixed overhead spending and volume variances
- (e) The overhead controllable variance

PROBLEM I 15 MARKS

(a)	A	B	C	Total
Sales	\$50,000	\$60,000	\$65,000	\$175,000
Variable costs	25,000	40,000	60,000	125,000
CM	\$25,000	\$20,000	\$ 5,000	\$ 50,000

Product C should not be eliminated because it is contributing \$5,000 towards fixed costs and profit. **3 PTS**

(b)	A 1 PT	B 1 PT	C 1 PT
Total CM	\$25,000	\$20,000	\$5,000
Units produced	1,000	1,000	1,000
CM per unit	\$25.00	\$20.00	\$5.00
DLH per product	4	3	2
CM per DLH	\$6.25	\$6.67	\$2.50

The company should produce product B because it has the highest contribution margin per constrained resource (direct labour hours). **1 PT**

- (c) If the company could sell unlimited quantities of any of the three products, they would only sell Product B, as this product has the highest CM per DLH. To produce C they would have to cut down on production of B.

Opportunity cost of producing C:

500 units x 2 hours per unit = 1,000 DLH required **1 PT**

1,000 hours taken away from B: 1,000 x \$6.67 = \$6,670 **1 PT**

\$6,670 ÷ 500 units = \$13.34 per unit

The minimum selling price would be the variable costs per unit plus opportunity cost = $(\$60,000 \div 1,000) + \$13.34 = \$73.34$ **2 PTS**

(d)	<u>A</u>	<u>B</u>	<u>C</u>
CM per DLH	\$6.25	\$6.67	\$2.50
Production sequence	(2)	(1)	(3)
DLH per unit	4	3	2
Hours available		9,000	
First produce 500 units of each			
500 x (4 + 3 + 2)		<u>(4,500)</u>	
Hours remaining		4,500	
Produce 1,000 units of B		<u>(3,000)</u>	
Hours left for A		1,500	
Produce 375 units of A		<u>(1,500)</u>	
Hours remaining		<u><u>-</u></u>	

They should produce 875 units of A (500 + 375); **1.5 PTS**
1,500 units of B (500 + 1,000); **1.5 PTS**
and 500 units of C. **1 PT**

PROBLEM II 15 MARKS

	Next Year Old Machine	Next Year New Machine
(a) Selling price per unit	\$198.00	\$198.00 (10% increase)
Variable costs:		
Direct materials	15.00	15.00
Direct labour	138.00	120.75 (4 hrs x \$34.50)
Variable overhead	9.60	8.40 (3.5 hrs x \$2.40)
Total variable costs:	\$162.60	\$ 144.15
	1.5 PTS	1.5 PTS
CM per unit	\$ 35.40	\$ 53.85
Units to be produced	52,000	52,000
Total annual CM	\$1,840,800	\$2,800,200

	Keep Old Machine	Buy New Machine
Total CM earned (5 yrs) .5PT	\$9,204,000	\$14,001,000 .5PT
New machine .5PT		(2,500,000)
Salvage of old machine .5PT		70,000
Salvage of new machine .5PT		107,375
New operator .5PT		(450,000)
Net gain	\$9,204,000	\$11,228,375

The company should purchase the new machine.
They will increase their profits by \$2,024,375 over 5 years. 1 PT

Or

VC for the old machine \$162.60 – VC for the new machine \$144.15 =
Net saving in the operating cost per unit \$18.45 2PTS

for 52,000 units for 5 years = \$4,797,000 – cash flow out [(2,500,000) +
(450,000)] + salvage value for the old and the new [\$70,000 + \$107,375] =
They will increase their profits by \$2,024,375 over 5 years. 5PTS

(b) How many units would the company have to sell to earn annual profits of \$268,950 (after taxes) if it were to purchase the new machine? The company tax rate is 40%.

Net income before tax = $\$268,950 / .6 = \$448,250$ **1PT**

Cost of the operator .5PT	90,000
Amortization $(\$2,500,000 - \$107,375) \div 5$ years 1.5PTS	<u>478,525</u>
Total new fixed costs	<u><u>\$568,525</u></u>

Sales in units to target income = $(\$568,525 + \$448,250) / \text{CM } \$53.85 = 18,882$ units **1PT**

(c) Assuming that sales revenue under the new machine increases by 25%, use the degree of operating leverage to calculate the increase in net income.

Total annual CM	\$2,800,200
Total annual fixed costs	<u>\$568,525</u>
Net income	<u>\$2,231,675</u> 2PTS

The degree of operating leverage = $\$2,800,200 / \$2,231,675 = 1.2547525$ **1PT**

The increase in net income = $1.2547525 \times .25 \times \$2,231,675 = \$700,050$ **1PT**

PROBLEM III 20 PTS

(a) Per unit manufacturing costs:	2007	2008
Direct material	\$ 80.00	\$80.00
Direct labour	40.00	40.00
Variable manufacturing overhead	35.00	35.00
Total variable unit cost	155.00	155.00
Plus: fixed manufacturing overhead		
(\$1,000,000 ÷ 20,000 units)	50.00	
Plus: fixed manufacturing overhead		
(\$1,000,000 ÷ 25,000 units)		40.00
	1.5 PTS	1.5 PTS
	\$205.00 S	195.00

Cost of goods sold: 2007

Beginning finished goods inventory	\$ -
Plus: cost of goods manufactured	
(20,000 x \$205)	4,100,000
Cost of goods available for sale	4,100,000
Less: ending inventory	
	0
Cost of goods sold	\$4,100,000

Cost of goods sold: 2008

Beginning finished goods inventory	\$ 0
Plus: cost of goods manufactured	
(25,000 x \$195.00)	\$4,875,000
Cost of goods available for sale	4,875,000
Less: ending inventory	
[(25,000 - 20,000) x 195.00]	975,000
Cost of goods sold	\$3,900,000

**HOME PRODUCTS DIVISION OF ADVANCED TECHNO.
Absorption Costing Income Statement
for the years ended December 31**

	<u>2007</u>	<u>2008</u>
Sales in units	<u>20,000</u>	<u>20,000</u>
Sales (\$270 per unit) 1PT EACH	\$5,400,000	\$5,400,000
Cost of goods sold: 1PTS EACH	<u>4,100,000</u>	<u>3,900,000</u>
Gross Profit	1,300,000	1,500,000
Less: selling and administrative expenses [F\$300,000+ V 20,000 X \$30] 1PT EACH	<u>900,000</u>	<u>900,000</u>
Net income	\$ <u>400,000</u>	\$ <u>600,000</u>

- (a) The division's net income increased by \$200,000 (\$600,000 – \$400,000). Thus Scott's bonus would be 5% X \$200,000 = \$10,000. **1PT**

(b) **HOME PRODUCTS DIVISION OF ADVANCED TECHNO.
Variable Costing Income Statement
for the years ended December 31**

	<u>2007</u>	<u>2008</u>
Sales in units	<u>20,000</u>	<u>20,000</u>
Sales (\$270 per unit)	\$5,400,000	\$5,400,000
Variable costs:		
Cost of goods sold (\$155)	3,100,000	3,100,000
Selling (\$30)	<u>600,000</u>	<u>600,000</u>
Total variable costs	<u>3,700,000</u>	<u>3,700,000</u>
Contribution margin 2.5 PTS EACH	1,700,000	1,700,000
Less: Fixed costs		
Manufacturing overhead	1,000,000	1,000,000
Selling	<u>300,000</u>	<u>300,000</u>
Total fixed costs 1PT EACH	<u>1,300,000</u>	<u>1,300,000</u>
Net Income	\$ <u>400,000</u>	\$ <u>400,000</u>

In 2007 the number of units produced and sold was equal. When this occurs variable costing and absorption costing provide the same results. Thus, in 2007 net income under variable costing would have been \$400,000. In 2008 units produced exceeded units sold by 5,000 units. However, net income under variable costing is not impacted by the number of units produced. Since the number of units sold did not change from 2007 to 2008, and the selling price, variable cost per unit, and total fixed costs didn't change, the division's net income in 2008 would equal its 2007 income of \$400,000.

In part (b) it was determined that the division's net income would have been \$400,000 in 2008 under variable costing. Since this is the same as 2007 net income, Scott would not receive a bonus. 3 PTS

PROBLEM IV 15 MARKS

(a) Computation of time charge rate

	<u>Total Cost</u>	÷	<u>Total Hours</u>	=	<u>Per Hour Charge</u>
Hourly labour rate for repairs:					
Total charges 2 PTS	\$156,600		6,000	=	\$26.10
Profit margin 1 PT					<u>7.00</u>
Rate charged per hour of labour					<u>\$33.10</u>

(b) Computation of material loading charge

	<u>Material Loading Charges</u>	÷	<u>Total Invoice Cost, Parts and Materials</u>	=	<u>Material Loading Percentage</u>
Total material charges	\$253,600				
Less: invoice cost	<u>200,000</u>				
Material loading charge 3 PTS	<u>\$53,600</u>	÷	\$200,000	=	26.8%
Profit margin 2 PTS					<u>50.0%</u>
Material loading percentage 1 PT					<u>76.8%</u>

(c) Price quotation for time and material

Doc's AUTO BODY SHOP
Time and Material Price Quotation
January 10, 2008

Job: 2007 Chevrolet Blazer

Labour charges: 61 hours @ \$33.10 2 PTS		\$2,019.10
Material charges:		
Cost of parts and materials 1 PT	\$4,200.00	
Material loading charge (76.8% X \$4,200) 2PTS	<u>3,225.60</u>	<u>7,425.60</u>
Total price of labour and material		1 PT <u>\$9,444.70</u>

PROBLEM V 15 MARKS

(a)

**O & Y INC.
Production Budget
For the Year Ending December 31, 2005**

	<u>LN 35</u>	<u>LN 40</u>	<u>Total</u>
Expected unit sales	350,000	180,000	
Add: Desired ending finished goods units	<u>30,000</u>	<u>25,000</u>	
Total required units	380,000	205,000	
Less: Beginning finished goods units	<u>20,000</u>	<u>15,000</u>	
Required production units.....	2.5 PTS	2.5 PTS	
	<u>360,000</u>	<u>190,000</u>	<u>550,000</u>

(b)

**O & Y INC.
Direct Materials Budget
For the Year Ending December 31, 2005**

	<u>LN 35</u>	<u>LN 40</u>	<u>Total</u>
Units to be produced	360,000	190,000	
Direct materials per unit.....	<u>X 2</u>	<u>X 3</u>	
Total kilograms needed for production	720,000	570,000	
Add: Desired ending direct materials (kilograms).....	<u>50,000</u>	<u>20,000</u>	
Total materials required	770,000	590,000	
Less: Beginning direct materials (kilograms).....	<u>40,000</u>	<u>10,000</u>	
Direct materials purchases	730,000	580,000	
Cost per kilogram	<u>X \$2</u>	<u>X \$3</u>	
Total cost of direct materials purchases	3 PTS	3 PTS	
	<u>\$1,460,000</u>	<u>\$1,740,000</u>	<u>\$3,200,000</u>

(c)

O & Y INC.
Direct Labour Budget
For the Year Ending December 31, 2005

	<u>LN 35</u>	<u>LN 40</u>	<u>Total</u>
Units to be produced	360,000	190,000	
Direct labour time (hours) per unit	<u>X .5</u>	<u>X .75</u>	
Total required direct labour hours	180,000	142,500	
Direct labour cost per hour	<u>X \$10</u>	<u>X \$10</u>	
Total direct labour cost	<u>\$1,800,000</u>	<u>\$1,425,000</u>	<u>\$3,225,000</u>
	2 PTS	2 PTS	

PROBLEM VI 20 PTS

**(a) Direct materials price variance = $AQ \times (AP - SP)$
AP = $\$11,000 \div 2,500 = \4.40 per kg
Price variance = $2,500 \times (\$4.40 - \$5.00) = \$1,500F$ **1.5 PTS****

**Direct materials usage variance = $SP \times (AQ - SQ)$
SQ = $2,100 \times 1 \text{ kg} = 2,100 \text{ kg}$
Usage variance = $\$5.00 \times (2,500 - 2,100) = \$2,000U$ **1.5 PTS****

**Material Budget variance = $\$1,500F + \$2,000U = \$500U$, OR
= $(2,500 \times \$4.40) - (2,100 \times \$5.00)$ **1 PT****

**(b) Labour rate variance = $AH \times (AR - SR)$
AR = $\$18,144 \div 4,320 = \4.20 per hour
Rate variance = $4,320 \times (\$4.20 - \$4.00) = \$864U$ **1.5 PTS****

**Labour efficiency variance = $SR \times (AH - SH)$
SH = $2,100 \times 2 \text{ hours per unit} = 4,200$
Efficiency variance = $\$4.00 \times (4,320 - 4,200) = \$480U$ **1.5 PTS****

Labour budget variance = $\$864U + \$480U = \$1,344U$ **1 PT**

**(c) Variable spending variance = actual overhead - $(AQ \times SR)$
VOH rate = $\$19,000 \div 4,000 = \4.75 per hour
Spending variance = $\$21,410 - (4,320 \times \$4.75) = \$890U$ **1.5 PTS****

**Variable efficiency variance = $SR \times (AH - SH)$
= $\$4.75 \times (4,320 - 4,200) = \$570U$ **1.5 PTS****

Total variable budget variance = $\$890U + \$570U = \$1,460U$ **1 PT**

**(d) Fixed overhead spending variance = actual - budget
= $\$8,125 - \$8,000 = \$125U$ **1.5 PTS****

**Fixed overhead volume variance = Budget - $(SH \times SR)$
SR = $\$8,000 \div 5,000 = \1.60
= $\$8,000 - (4,200 \times \$1.60) = \$1,280U$ **2.5 PTS****

**(e) The overhead controllable variance =
Total variable budget variance + Fixed overhead spending variance
= \$890U + \$570U = \$1,460U + \$125U = \$1,585U 4 PTS = 1 PT FOR EACH #**



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CONCORDIA UNIVERSITY

Course: **Managerial Accounting,**
No.: **Comm. 305 & Acco. 240 Sections All**
Examination: **Final**
Date: **April 17, 2009**
No. of Pages: **7 including the cover page**
Material Allowed: **Non-programmable calculators and dictionaries**
Special Instructions: **Return the exam questions with your answers.**

Student Name: _____

Student Id. No.: _____

Section: _____

Instructor: _____

QUESTION I 20 POINTS

Part-A – 10 Points

The management of York Manufacturing Company has asked for your assistance in deciding whether to continue manufacturing a part or to buy it from an outside supplier. The part, called Vera, is a component of York's finished product.

An analysis of the accounting records and the production data revealed the following information for the year ending December 31, 2008:

1. The machinery department produced 35,000 units of Vera.
2. Each Vera unit requires 10 minutes to produce. Three people in the machinery department work full-time (2,000 hours per year each) producing Vera. Each person is paid \$12 per hour.
3. The cost of materials per Vera unit is \$2.20.
4. Manufacturing costs directly applicable to the production of Vera are as follows: indirect labour, \$6,000; utilities, \$1,500; small tools, \$1,800; property taxes and insurance, \$1,000. All of the costs will be eliminated if Vera is purchased.
5. The lowest price for a Vera from an outside supplier is \$4 per unit. Freight charges would be \$0.50 per unit, and a part-time receiving clerk at \$8,500 per year would be required.
6. If Vera is purchased, the excess space that becomes available will be used to store York's finished product. Currently, York rents storage space at approximately \$0.80 per unit stored per year. Approximately 5,000 units per year are stored in the rented space.

Instructions

- (a) Prepare an incremental analysis for the make-or-buy decision. Should York Manufacturing Company make or buy the part? Why?
- (b) Prepare an incremental analysis, assuming the released facilities (freed-up space) can be used to produce \$12,000 of net income in addition to the savings on the rental of storage space. What decision should now be made?
- (c) What non-financial factors should be considered in the decision?

Part-B – 10 Points

Brookfield Co. manufactures four different products. Because the quality of its products is high, the demand for the products is more than the company can produce.

Based on the enquiries made by current and potential customers, you have estimated the following for the coming year:

Product	Estimated Demand in Units	Selling Price per Unit	Direct Materials Cost per Unit	Direct Labour Cost per Unit
A	8,000	\$ 50	\$ 5	\$ 5
B	24,000	60	10	9
C	20,000	150	25	30
D	30,000	100	15	20

The following information is also available:

1. The direct labour rate is \$15 per hour and the factory has a capacity of 80,000 hours. For the next year, Brookfield Co. is unable to expand this capacity.
2. Brookfield Co. is unwilling to increase its selling prices.
3. Apart from direct materials and direct labour, the only other variable expense is variable overhead. The variable overhead is 50% of the direct labour cost.
4. Fixed manufacturing overhead is estimated to be \$1 million for the coming year. Fixed marketing and administrative expenses are estimated to be \$750,000 for the coming year.

Instructions

Which products and how many units of each should Brookfield Co. produce in the coming year in order to maximize its operating income?

QUESTION II 20 POINTS

Speedy Corp. is a manufacturer of specialty in-line skates. The operating results for 2008 follow:

Units produced	20,000	pairs
Units sold	18,000	pairs
Selling price	\$200	per pair

Production information:

Direct materials	\$1,000,000
Direct labour	750,000
Variable manufacturing overhead	450,000
Fixed manufacturing overhead	800,000
Variable selling and admini.	180,000
Fixed selling and admini.	200,000

There was no beginning finished goods inventory.

Instructions

- (a)** Prepare an absorption-costing income statement.
- (b)** Prepare a variable-costing income statement.
- (c)** Reconcile the net incomes under absorption costing and variable costing.
- (d)** Calculate the break-even point in sales units (pairs of skates) under the current cost structure.
- (e)** Using the current cost structure for Speedy Corp, determine the degree of operating leverage.
- (f)** Assuming that sales revenue from the skates increases by 25%, use the degree of operating leverage calculated in **(e)** above to calculate the increase in net income.

QUESTION III 20 POINTS

PART A

Kirkland Metal Corporation has two divisions. The Fabrication Division transfers partially completed components to the Assembly Division at a predetermined transfer price. The Fabrication Division's standard variable production cost per unit is \$300. The division has no excess capacity, and it could sell all of its components to outside buyers at \$380 per unit.

Required:

- a) Determine an appropriate transfer price for the Fabrication Division.
- b) How would the transfer price change if the Fabrication Division had excess capacity?

Now assume that the transfer price has been set at \$374, which is the Fabrication Division's full cost plus a 10% mark-up. Fabrication Division's full cost of a component is \$340 which includes fixed overhead applied at the rate of \$400,000 of budgeted fixed overhead costs on budgeted annual production of 10,000 units.. The Assembly Division has a special offer for its product of \$435. The Assembly Division incurs variable costs of \$100 in addition to the transfer price for the Fabrication Division's components. Both divisions currently have excess capacity.

Required:

- c) What is the Assembly Division's manager likely to do regarding acceptance or rejection of the special offer? Why?
- d) Is this decision in the best interests of the company as a whole? Why?
- e) How could the situation be remedied using the transfer price?

PART B

Division A has been selling 500 units of a subassembly to division B at \$3,000 each and 500 units to outsiders for \$3,500 each. Division A plans to increase the price to outsiders to \$4,200 and to Division B by a proportionate amount. The cost per unit of producing the subassembly is \$900 variable and \$1,500 fixed. If Division B purchases the part outside of the firm, Division A's facilities will be idle to this extent; however, one-third of the fixed manufacturing costs will be eliminated (all of this is out-of-pocket).

Required:

What is the most that Division B should be permitted to pay for the part if it is not purchased from Division A? Show all work.

QUESTION IV 20 POINTS

Solid State sells electronic products. The controller is responsible for preparing the master budget and has accumulated the information below for the months of January, February, and March.

Balances at January 1 are expected to be as follows:

Cash	\$	5,500
Accounts receivable		416,100
Inventories		309,400
Accounts payable		133,055

The budget is to be based on the following assumptions:

1. Each month's sales are billed on the last day of the month.
2. Customers are allowed a 3% discount if their payment is made within 10 days after the billing date. Receivables are booked at gross.
3. Sixty percent of the billings are collected within the discount period; 25% are collected by the end of the month after the date of sale; 9% are collected by the end of the second month after the date of sale; and 6% prove uncollectible.
4. Fifty-four percent of all purchases of material and the selling, general, and administrative expenses are paid in the month purchased. The remainder is paid in the following month. Each month's units of ending inventory are equal to 130% of the next month's units of sales.
5. The cost of each unit of inventory is \$20.
6. Selling, general, and administrative expenses, of which \$2,000 is for amortization, are equal to 15% of the current month's sales.
7. Actual and projected sales are as follows:

Month	Sales	Units
November (actual)	\$354,000	11,800
December(actual)	363,000	12,100
January (projected)	357,000	11,900
February (projected)	342,000	11,400
March (projected)	360,000	12,000
April (projected)	366,000	12,200

Instructions

- (a) What are the budgeted cash disbursements during the month of February?
- (b) What are the budgeted cash collections during the month of January?
- (c) What is the budgeted number of units of inventory to be purchased during the month of March?

QUESTION V. 20 POINTS

Montreal Manufacturing Company uses a standard cost accounting system. In 2008, 33,000 units were produced. Each unit took several kilograms of direct materials and one hour and twenty minutes standard hours of direct labour at a standard hourly rate of \$12. Montreal Manufacturing Company uses direct labour hours as an activity driver for factory overhead and normal capacity was 42,000 direct labour hours. Fixed overhead budget was equal to actual overhead cost. During the year, 132,000 kilograms of raw materials were purchased at \$0.90 per kilogram. Materials used were equivalent to materials purchased during the year.

Instructions

- (a) If the materials price variance was \$3,960 unfavourable, what was the standard materials price per kilogram?
- (b) If the materials quantity variance was \$2,871 favourable, what was the standard materials quantity per unit?
- (c) What were the standard hours allowed for the units produced?
- (d) If the labour quantity variance was \$8,400 unfavourable, what were the actual direct labour hours worked?
- (e) If the labour price variance was \$4,470 favourable, what was the actual rate per hour?
- (f) If total budgeted manufacturing overhead was \$327,600 at normal capacity, what was the predetermined overhead rate?
- (g) What was the standard cost per unit of product?
- (h) How much overhead was applied to production during the year?
- (i) If the fixed overhead rate was \$2.50 per direct labour hour, what was the overhead volume variance?
- (j) If the overhead controllable variance was \$3,000 favourable, what were the total variable overhead costs incurred?
- (k) What were the total costs assigned to finished goods?

QUESTION I 20 POINTS Part-A – 10 Points

**Each number under
make & buy = 0.5 X 10 =
5 PTS**

	Make*	Buy*	Net Income Increase (Decrease)
Direct material (35,000 X \$2.20)	\$ 77,000	\$ 0	\$ 77,000
Direct labour (2,000 X 3 X \$12)	72,000	0	72,000
Manufacturing costs			
Indirect labour	6,000	0	6,000
Utilities	1,500	0	1,500
Small tools	1,800	0	1,800
Property taxes & insurance	1,000	0	1,000
Purchase price (35,000 X \$4)	0	140,000	(140,000)
Receiving	0	8,500	(8,500)
Freight (35,000 X \$.50)	0	17,500	(17,500)
Storage (5,000 X \$.80)	<u>4,000</u>	<u>0</u>	<u>4,000</u>
Total annual cost	<u>\$163,300</u>	<u>\$166,000</u>	<u>\$ (2,700)</u>

Decision: Continue to make the part. The cost to make the part and rent storage space for the finished product is \$163,300, while the cost to buy the part and use the excess space for storage is \$166,000. Hence, continuing to make the part will result in an annual cost savings of \$2,700.

**(b) Each number under
make & buy = 1 X 3 =
3 PTS**

	Make*	Buy*	Net Income Increase (Decrease)
Total annual cost	\$163,300	\$166,000	\$ (2,700)
Opportunity cost	<u>12,000</u>	<u>0</u>	<u>12,000</u>
Total cost	<u>\$175,300</u>	<u>\$166,000</u>	<u>\$ 9,300</u>

Decision: Buy the part since that will result in a \$9,300 increase in net income.

(c) Non-financial factors include: (1) the adverse effect on employees if the part is purchased, (2) how long the supplier will be able to satisfy the Manufacturing Company's quality control standards at the quoted price per unit, and (3) whether the supplier will deliver the units when they are needed. 2 PTS

QUESTION I 20 POINTS Part-B – 10 Points

<u>Per Unit:</u>	A	B	C	D
Selling price	\$50.00	\$60.00	\$150.00	\$100.00
Variable costs				
Direct materials	\$ 5.00	\$10.00	\$ 25.00	\$ 15.00
Direct labour	5.00	9.00	30.00	20.00
Variable overhead	2.50	4.50	15.00	10.00
Total variable costs	\$12.50	\$23.50	\$ 70.00	\$ 45.00
Contribution margin (a)	\$37.50	\$36.50	\$80.00	\$55.00
Direct labour hours:				
Labour cost per unit	\$5.00	\$ 9.00	\$30.00	\$20.00
Labour cost per hour	\$15.00	\$15.00	\$15.00	\$15.00
Labour hours (b)	0.33	0.60	2.00	1.33
Contribution margin				
per unit of constrained				
resource (DLH)				
(a) ÷ (b)	\$112.50	\$60.83	\$40.00	\$41.25
Production sequence	(1)	(2)	(4)	(3)

1.5 PTS 1.5 PTS 1.5 PTS 1.5 PTS

	A	B	C	D
Total estimated				
demand (units)	8,000	24,000	20,000	30,000
DLH per unit	0.33	0.60	2.00	1.33
Total hours needed	2,667	14,400	40,000	40,000

Products and unit amounts to maximize income:

Produce A (8,000 units)	2,667	1 PT
Produce B (24,000 units)	14,400	1 PT
Produce D (30,000 units)	40,000	1 PT
Produce C (11,467 units)	22,933	1 PT
Total hours available	80,000	

TOTAL = (1.5PTS X 4)+ (1PT X 4) = 10 PTS

QUESTION II 20 POINTS

(a) Unit product costs:	Absorption	Variable
Direct materials	<u>\$1,000,000</u>	<u>\$1,000,000</u>
Direct labour	750,000	750,000
Variable manufacturing overhead	450,000	450,000
Fixed manufacturing overhead	<u>800,000</u>	<u>0</u>
	<u>\$3,000,000</u>	<u>\$2,200,000</u>
Cost per unit (20,000 units)	\$150.00	\$110.00
	2 PTS	2PTS

Speedy Corp
Absorption Costing Income Statement
Month ended December 31, 2008

	<u>3 PTS</u>
Sales (18,000 x \$200)	\$3,600,000
Cost of goods sold:	
Finished goods, beginning inventory	\$ --
Cost of goods manufactured (20,000 x \$150)	3,000,000
Finished goods, ending inventory	
(2,000 x \$150)	<u>300,000</u>
Gross profit	900,000
Marketing Expenses (\$180,000 + \$200,000)	<u>380,000</u>
Operating income	<u>\$ 520,000</u>

(b)

Speedy Corp
Variable Costing Income Statement
Month ended December 31, 2008

4 PTS

Sales		\$3,600,000
Less: Variable costs:		
Cost of sales (18,000 x \$110)	\$ 1,980,000	
Marketing (18,000 x \$10)	<u>180,000</u>	<u>2,160,000</u>
Contribution margin		1,440,000
Less: Fixed costs: Overhead	800,000	
	Marketing	<u>200,000</u>
		<u>1,000,000</u>
Operating income (loss)		<u>\$ 440,000</u>

2 PTS

(c) Variable costing net income	\$440,000
Less: Fixed manufacturing overhead deferred to	
closing inventory (2,000 x \$40)	<u>80,000</u>
Absorption costing net income	<u>\$520,000</u>

(d) Break-even (BE) point: $SP(X) - VC(X) = FC$
 $\$200(X) - (\$110X + \$10X) = \$800,000 + \$200,000$
 $\$80X = \$1,000,000$

$X = 12,500$ units **2 PTS**

(e) $DOL = CM / NI = \$1,440,000 / \$440,000 = 3.273$ **1.5 PTS**

(f) Percentage Increase in Net Income

Increase in Sales $.25 \times DOL 3.273 = 0.818182$ **1.5 PTS**

Increase in net income $0.818182 \times \$ 440,000 = \underline{\underline{\$360,000}}$ **2 PTS**

QUESTION III 20 POINTS

PART A

A) \$380 **2 PTS**

B) \$300 **2 PTS**

4 PTS

C) Assembly Division

S/P \$435

V/C 100

Transfer-in 374

C/M \$(39), thus the Assembly Division will not accept the special order based on this transfer price.

4 PTS

D) Kirkland Metal, corporate point of view:

S/P \$435

V/C-asm 100

V/C-fabr 300 (\$340 - \$40), (\$400,000/10,000)

C/M \$ 35, thus it is best from a corporate viewpoint for the Assembly Division to accept this special order.

2 PTS

E) The maximum possible price would be \$335 in order to be acceptable to the Assembly Division although it would produce a C/M of zero for each unit sold by them. The minimum possible price to the Fabrication Division would be \$300 which is their variable cost per unit, and since they have excess capacity there would be no lost sales and thus no lost contribution margin. Notwithstanding this, should they want some profit then a negotiated price between these two values would seem to be appropriate, and would be goal congruent for both divisions as well as for Kirkland Metal Corporation as a whole.

PART B 6 PTS

The most that Division B should pay for the part from outside would be equivalent to the relevant cost saved of having to produce the product within the Division A.

Avoidable fixed manufacturing costs would be:

$$\$1,500 * 1,000 \text{ units} = \$1,500,000$$

$$\text{Saved by outsource} \quad \underline{\quad .33333}$$

$$\text{Avoidable FMOH} \quad \$500,000$$

$$\text{Units transferred} \quad \underline{\quad 500}$$

$$\text{FMOH per unit on transfers} \quad \$1,000 \text{ per unit } \underline{4 \text{ PTS}}$$

$$\text{Variable cost} \quad \underline{\quad 900 \text{ per unit } 2 \text{ PTS}}$$

$$\text{Maximum to pay externally} \quad \underline{\$1,900 \text{ per unit } 6 \text{ PTS}} \text{ (It is the total)}$$

QUESTION IV 20 POINTS

(a) Cash disbursements for February

Required inventory:

	Jan	Feb	Mar
Sales	11,900	11,400	12,000
Desired ending inventory ¹	<u>14,820</u>	<u>15,600</u>	<u>15,860</u>
Total required	26,720	27,000	27,860
Less: beginning inventory ²	<u>15,470</u>	<u>14,820</u>	<u>15,600</u>
Total purchases required (units)	11,250	12,180	12,260
Per unit cost	<u>\$ 20.00</u>	<u>\$ 20.00</u>	<u>\$ 20.00</u>
Total purchases required	<u>\$225,000</u>	<u>\$243,600</u>	<u>\$245,200</u>
	<u>3 PTS</u>	<u>3 PTS</u>	<u>3 PTS</u>

¹ 130% of next month's inventory

² 130% of current month's inventory

	February
Cash disbursements for inventory--	
from January ($\$225,000 \times (100\% - 54\%)$)	\$ 103,500
for February ($\$243,600 \times 54\%$)	131,544
Cash disbursements for other expenses--	
from January ($(\$357,000 \times 15\%) - \$2,000$) x 46%	23,713
for February ($(\$342,000 \times 15\%) - \$2,000$) x 54%	<u>26,622</u>
Total disbursements for February	<u>\$ 285,379</u>

(b) Cash receipts for January

From December:

 Within the discount period: ($\$363,000 \times 60\% \times 97\%$) \$211,266

 After the discount period: ($\$363,000 \times 25\%$) 90,750

From November: ($354,000 \times 9\%$) 31,860

Total cash receipts 4 PTS \$333,876

(c) The units to be purchased in March are 12,260 as shown in Part (a) on the previous page. 2 PTS

QUESTION V 20 POINTS

(a) **1.5 PTS**

$\$3,960 \div 132,000 = \0.03 ; $\$0.90 - \$0.03 = \$0.87$ standard materials price per kg.

OR

$132,000 \times \$0.90 = \$118,800$; $\$118,800 - \$3,960 = \$114,840$; $\$114,840 \div 132,000 = \0.87 .

(b) **1.5 PTS**

$\$2,871 \div \$0.87 = 3,300$ kgs; $132,000 + 3,300 = 135,300$ standard quantity for 33,000 units = 4.1 kgs ($135,300 \div 33,000$) per unit.

OR

$\$114,840 + \$2,871 = \$117,711$; $\$117,711 \div \$0.87 = 135,300$; $135,300 \div 33,000 = 4.1$ kgs per unit.

(c) **1.5 PTS**

Standard hours allowed are 44,000 ($33,000 \times 1\frac{1}{3}$).

(d) **1.5 PTS**

$\$8,400 \div \$12 = 700$ hours over standard; 44,000 standard hours + 700 hours = 44,700 actual hours worked.

OR

$44,000 \times \$12 = 528,000$; $\$528,000 + \$8,400 = \$536,400$; $\$536,400 \div \$12 = 44,700$ actual hours worked.

(e) **1.5 PTS**

$\$4,470 \div 44,700 = \0.10 ; $\$12.00 - \$0.10 = \$11.90$ actual rate per hour.

(f) **1.5 PTS**

$\$327,600 \div 42,000 = \7.80 per direct labour hour.

(g) **3 PTS**

Direct materials 4.1 kgs x \$0.87 = \$ 3.567

direct labour $1\frac{1}{3}$ x \$12.00 = \$16.00

manufacturing overhead $1\frac{1}{3}$ x \$7.80 = \$10.40

\$29.97 standard cost per unit.

(h) **2 PTS**

$44,000 \times \$7.80 = \$343,200$ overhead applied.

(i) **2 PTS**

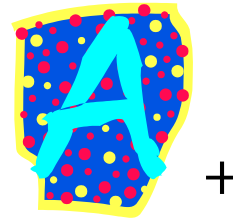
Standard hours allowed (44,000) – normal capacity hours (42,000) = 2,000 hours; $2,000 \times \$2.50 = \$5,000$ overhead volume variance F.

(j) **2 PTS**

Total overhead rate \$7.80 less FOH rate \$2.50 = \$5.30 VOH rate; $\$5.30 \times 44,000$ standard hours allowed = \$233,200 budgeted VOH costs; $\$233,200 - \$3,000 = \$230,200$ VOH costs incurred.

(k) **2 PTS**

$\$29.967$ per unit [see (g)] $\times 33,000 = \$988,911$ or direct materials \$117,711 + direct labour \$528,000 + overhead applied \$343,200 = \$988,911.



CONCORDIA UNIVERSITY

Course: **Managerial Accounting,**

No.: **COMM 305 ALL SECTIONS & ACCO 240**

Examination: **Final**

Date: **DECEMBER 8, 2010**

No. of Pages: **11 Pages including the cover page**

Material Allowed: **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.**

Special Instructions: **Answer all multiple choice questions in the Answer Sheet**
IBM Form no. 4521

Return the exam questions with your answers.
The Answer Sheet IBM Form no. 4521 & answer booklet

Student Name: _____

Student ID No.: _____

Section: _____

Instructor: _____

Please read the questions carefully and budget your time carefully.
Show details of all your work in the lined examination answer booklet
Write all your final answers in IBM Sheet with pencil.

QUESTION I-A. 7.5 POINTS

Use the following information to calculate and answer the next 3 questions. (SHOW YOUR WORK)

Taylor Enterprises sells its product for \$40 per unit. Taylor recently received a special order from a customer for 20,000 units. Production costs per unit for regular sales are:

Direct materials	\$ 6
Direct labour	14
Manufacturing overhead (2/3 variable)	12

1. Suppose the special order price is \$600,000 for all 20,000 units, and assume that Taylor has sufficient capacity to fill the special order. Should it be accepted?
 - a. Yes, because profits will increase by \$120,000
 - b. No, because profits will decrease by \$200,000
 - c. No, because profits will decrease by \$40,000
 - d. Yes, because profits will increase by \$40,000**
 - e. None of the above

Total Variable cost per unit = \$ 6 + 14 + 8 = \$28 X 20,000 units = \$560,000 – special order price is \$600,000 = **profit \$40,000**

2. Suppose that Taylor would like to earn \$50,000 on this order and assume that there is sufficient capacity to fill the special order. What price per unit should Taylor charge for the special order?
 - a. \$34.50
 - b. \$42.50
 - c. \$30.50**
 - d. \$26.50
 - e. None of the above

Total Variable costs for 20,000 units = \$560,000 + to earn \$50,000 on this order / 20,000 = **\$30.50**

3. Suppose that the special order price is \$600,000 for all 20,000 units, but there is not sufficient capacity to fill the order; 8,000 units of regular business will be replaced by the special order if it is accepted. Should Taylor accept the special order? And why?
 - a. No, because profits will decrease by \$56,000**
 - b. Yes, because profits will increase by \$40,000
 - c. No, because profits will decrease by \$24,000
 - d. No, because profits will decrease by \$280,000
 - e. None of the above

Total Variable cost per unit = \$ 6 + 14 + 8 = \$28 – SELLING PRICE \$40 = \$12 OPPORTUNITY COST FOR 8,000 UNITS = \$ 96,000 + TVC \$560,000 = \$656,000 – SP \$600,000 = **LOSS \$56,000**

QUESTION I-B. 5 POINTS

Use the following information to calculate and answer the next 2 questions. (SHOW YOUR WORK)

Loso Co. made and sold 100,000 of its only product in 2009 for \$15 each. Loso's costs per unit for 2009 follow:

Direct materials	\$ 5.00
Direct labour	2.00
Variable manufacturing overhead	1.00
Fixed manufacturing overhead	1.50
Variable selling & administrative costs	0.80
Fixed selling & administrative costs	<u>0.50</u>
Total	<u>\$10.80</u>

In 2010, Loso expects to produce and sell 80,000 units. The selling price and variable costs per unit will remain unchanged, as will total fixed costs. Early in 2010, a new customer approaches Loso and requests a one-time special order for 30,000 units.

4. Suppose the special order will incur only half the regular variable selling & administrative costs and will require the rental of a special grinding machine for \$15,000. Assume the capacity of Loso is 120,000 units per year. What is the minimum price per unit for the special order that Loso should accept?
- \$9.00
 - \$8.90**
 - \$11.00
 - \$10.90
 - None of the above

$$VC \text{ PER UNIT} = \$5 + 2 + 1 + \$0.40 = \$8.40 + \text{Rental } \$15,000 / 30,000 = \mathbf{\$8.90}$$

5. Suppose the special order will incur only half the regular variable selling & administrative costs and will require the rental of a special grinding machine for \$15,000. Assume the capacity of Loso is 100,000 units per year. What is the minimum price per unit for the special order that Loso should accept?
- \$10.97**
 - \$15.10
 - \$11.10
 - \$15.50
 - None of the above

$$VC \text{ PER UNIT} = \$5 + 2 + 1 + \$0.40 = \$8.40 + \text{Rental } \$15,000 / 30,000 = \$8.90 + \text{Opportunity Costs} = [10,000 (\$15 \text{ SP} - VC \$8.8) / 30,000] = \$10.96666 = \mathbf{\$10.97}$$

QUESTION I-C. 7.5 POINTS

Use the following information to calculate and answer the next 3 questions. (SHOW YOUR WORK)

Clark, Inc. makes 3 products, B, C, and D. Clark only has 110 machine hours available each week. Contribution margin, machine hour requirements, and weekly customer demand information is as follows:

	<u>B</u>	<u>C</u>	<u>D</u>
Contribution margin per unit	\$8	\$4	\$7
Machine hours required per unit	0.6	0.4	0.2
Weekly customer demand	200	600	100

6. In what order should the products be produced?

- a. B, C, D
- b. C, D, B
- c. D, B, C**
- d. B, D, C
- e. None of the above

	<u>B</u>	<u>C</u>	<u>D</u>
Contribution margin per unit	\$8	\$4	\$7
Machine hours required per unit	0.6	0.4	0.2
CM PER LR	\$13.333	\$10	\$35
D B C			

7. How many units of each product should be produced?

- a. 200 Bs, 0 Cs, and 100 Ds
- b. 150 Bs, 0 Cs, and 100 Ds**
- c. 0 Bs, 600 Cs, and 0 Ds
- d. 200 Bs, 100 Cs, and 100 Ds
- e. None of the above

$$110 \text{ TOTAL HOURS AVA D } 100 \times .2 = 20 \text{ HRS } - 110 \text{ HRS} = 90 / .6 \quad B = 150$$

B 150 UNITS + C 0 UNITS + D 100 UNITS

8. What is the maximum amount that Clark would be willing to pay, above the normal cost, for one more machine hour per week?

- a. \$10.00
- b. \$13.33**
- c. \$35.00
- d. \$0.00
- e. None of the above

ANY EXTRA UNIT COME FROM B MARKET BECAUSE Weekly customer demand is 200 we fill 150 units.

QUESTION II-A. 5 POINTS

Use the following information to calculate and answer the next 2 questions. (SHOW YOUR WORK)

The Machining Division has a capacity of 2,000 units. Its sales and cost data are:

Selling price per unit	\$100
Variable manufacturing costs per unit	\$25
Variable administrative costs per unit	\$5
Total fixed manufacturing overhead	\$20,000
Total fixed administrative costs	\$5,000

9. The Machining Division is currently selling 1,900 units to outside customers, and the Assembly Division wants to purchase 300 units from Machining. If the transaction takes place, the variable administrative costs per unit on the units transferred to Assembly will be \$2/unit, not \$5/unit. What should be the transfer price?

a. \$73.67

b. \$76.67

c. \$97.00

d. \$100.00

e. None of the above

Variable Costs per unit is $\$25 + 2 = \27 to fill the order we need to replace 200 units from our outside customers opportunity costs = $(SP \$100 - VC \$30) 200 \text{ units} = \$14,000/300 \$46.67$

So TP = \$ 27 + \$ 46.67 = 73.67

10. If the Assembly Division is currently buying from an outside supplier at \$98 per unit, what will be the effect on overall company profits if internal sales take place at the optimum transfer price?

a. \$7,000 increase

b. \$7,300 increase

c. \$300 increase

d. There is no effect

e. None of the above

Saving = $(\$98 - \$73.67) 300 \text{ units} = \$7,300 \text{ increase}$

QUESTION II-B. 5 POINTS

Use the following information to calculate and answer the next 2 questions. (SHOW YOUR WORK)

The National Division of Roboto Company is buying 10,000 widgets from an outside supplier at \$30 per unit. Roboto's Overseas Division, which is producing and selling at full capacity (12,000 units), has the following sales and cost structure:

Sales price per unit	\$45.00
Variable cost per unit	22.50
Fixed cost (at capacity) per unit	15.00

11. If the National Division buys its 10,000 widgets from the Overseas Division, the transfer price should be

a. \$45.00

b. \$30.00

c. \$22.50

d. \$37.50

e. None of the above

At full capacity = SP \$45

12. If the Overseas Division meets the outside supplier's price and sells the 10,000 widgets to National, the effect on overall company profits will be

- a. \$ 75,000 higher
- b. **\$150,000 lower**
- c. \$300,000 lower
- d. \$225,000 lower
- e. None of the above

$$\text{SP } \$45 - \$30 = \$15 \text{ loss at } 10,000 = \$150,000$$

QUESTION II-C. 10 POINTS

Use the following information to calculate and answer the next 4 questions. (SHOW YOUR WORK)

Teresa's Taco Co. had the following results during the most recent year: Sales \$500,000; Residual income \$5,000; total asset (investment) turnover 2.5; and a required rate of return of 15%.

13. The total assets were

- a. \$1,250,000
- b. \$75,000
- c. \$170,000
- d. **\$200,000**
- e. None of the above

$$\text{total asset (investment) turnover } 2.5 = \text{sales} / \text{TA} = \$500,000 / 2.5 = \mathbf{\$200,000}$$

14. The operating (pretax) income was

- a. \$30,500
- b. \$192,500
- c. **\$35,000**
- d. \$16,250
- e. None of the above

$$\text{OI} - \text{required rate of return of } 15\% \times \text{TA } \$200,000 = \text{Residual income } \$5,000; = \mathbf{\$35,000}$$

15. The return on assets was

- a. 15.4%
- b. 21.67%
- c. 15.25%
- d. **17.5%**
- e. None of the above

$$\text{ROA} = \text{OI} / \text{TA} = \$35,000 / \$200,000 = \mathbf{17.5\%}$$

16. The profit margin was

- a. **7%**
- b. 6.1%
- c. 38.5%
- d. 3.25%
- e. None of the above

$$\text{PM} = \text{OI} / \text{SALES} = 35,000 / \$500,000 = 7\%$$

QUESTION III. 17.5 POINTS

Use the following information to calculate and answer the next 7 questions. (SHOW YOUR WORK)

	January	February	March	April
Sales	\$26,400	\$23,100	\$33,000	\$25,000
Production in units	990	1,440	1,710	1,200

Sales are 30% cash and 70% on account, and 60% of credit sales are collected in the month of the sale. In the month after the sale, 30% of credit sales are collected. The remainder is collected two months after the sale. It takes 4 pounds of direct material to produce a finished unit, and direct materials cost \$5 per pound. All direct materials purchases are on account, and are paid as follows: 40% in the month of the purchase, 50% the following month, and 10% in the second month following the purchase. Ending direct materials inventory for each month is 40% of the next month's production needs. January's beginning materials inventory is 1,080 pounds. Suppose that both accounts receivable and accounts payable are zero at the beginning of January.

17. Total cash sales for the January – March quarter are
- a. \$69,135
 - b. \$62,700
 - c. \$24,750**
 - d. \$49,500
 - e. None of the above

Total cash sales for the January – March = Total SALES X 30% = \$82,500 X .3 = **\$24,750**

18. The accounts receivable balance at the end of March is
- a. \$9,240
 - b. \$17,325
 - c. \$15,477
 - d. \$10,857**
 - e. None of the above

FEB 10% + MAR 40% = \$16,170 x .10 + \$23,100 x .40 = \$10,857

OR LONG ANALYSIS

Total credit sales – collections = Ending Balance

	J	F	M	A	M
Sales	\$26,400	\$23,100	\$33,000		
Credit sales 70%	\$18,480	\$16,170	\$23,100		
Collections					
January cs	\$ 11,088	\$ 5,544	\$ 1,848		
February cs		\$9702	\$ 4,841	\$1,617	
March cs			\$13,860	\$ 6,930	\$2,310
A/R ENDING BLANCE =					

19. The ending direct materials inventory for March is
- a. 1,920 pounds**
 - b. 6,960 pounds
 - c. 2,736 pounds
 - d. 6,120 pounds
 - e. None of the above

	J	F	M	A
Production in units	990	1,440	1,710	1,200
Each unit needs	4	4	4	4
TR	3,960	5,760	6,840	4,800
EI 40%	<u>2,304</u>	<u>2,736</u>	1,920	
TN	6,264	8,496	8,760	
- BI	<u>1,080</u>	<u>2,304</u>	<u>2,736</u>	
TP	5,184	6,192	6,024	
Cost per Unit \$	\$5	\$5	\$5	
T-COSTS	\$25,920	30,960	30,120	

20. Material purchases for February are

- a. 8,496 pounds
- b. 6,192 pounds**
- c. 5,868 pounds
- d. 5,328 pounds
- e. None of the above

21. Cash payments on account for February are

- a. \$30,960
- b. \$12,384
- c. \$30,120
- d. \$25,344**
- e. None of the above

$$J \quad \quad \quad F$$

$$J \ 50\% + F \ 40\% = \$25,920 \ 50\% + 30,960 \ 40\% = \mathbf{\$25,344}$$

22. The ending balance in accounts payable for March is

- a. \$30,120
- b. \$65,832
- c. \$18,072
- d. \$21,168**
- e. None of the above

$$A/P = F \ 10\% + M \ 60\% = 30,960 \ 10\% + 30,120 \ 60\% = \mathbf{\$21,168}$$

23. The net change in cash for the period January – March is

- a. \$4,500 decrease
- b. \$5,811 decrease
- c. \$5,811 increase**
- d. \$1,222 decrease
- e. None of the above

Ending Cash balance in March = (T sales – EB a/r) – (T Purchases – EB a/p)

$$T \text{ Sales} = \$26,400 + \$23,100 + \$33,000 = \$82,500 - A/R \mathbf{\$10,857} = \mathbf{\$71,643}$$

$$T - P - COSTS = \$25,920 + 30,960 + 30,120 = \$87,000 - EB A/P \mathbf{\$21,168} = \mathbf{\$65,832}$$

$$\mathbf{Cash \ increase} \quad \quad \quad \mathbf{\$ \ 5,811}$$

QUESTION IV-A. 7.5 POINTS

Use the following information to calculate and answer the next 3 questions. (SHOW YOUR WORK)

Bella, Inc. has operated for 2 years. During that time it produced 1,000 units in year 1 and 800 in year 2, while sales were 800 units in year 1 and 900 in year 2. Variable production costs were \$8 per unit during both years. The company uses last-in, first-out (LIFO) for inventory costing. The absorption costing income statements for these 2 years were:

	Year 1		Year 2
Sales	\$16,000		\$18,000
Less cost of goods sold:			
Beginning inventory	\$ 0		\$ 2,200
Product costs	11,000		9,400
Ending inventory	<u>(2,200)</u>	<u>8,800</u>	<u>(1,100)</u>
Gross profit	7,200		7,500
Less operating expenses:			
Variable	1,200		1,350
Fixed	<u>5,000</u>	<u>6,200</u>	<u>5,000</u>
Operating income	<u>\$ 1,000</u>		<u>\$ 1,150</u>

24. Cost of goods sold for year 1 using variable costing would be

a. \$6,400

b. \$8,800

c. \$8,000

d. \$7,600

e. None of the above

Variable production costs \$8 per unit X # of unit sold 800 units = **\$6,400**

25. Ending inventory for year 2 using variable costing would be

a. \$2,200

b. \$1,100

c. \$1,175

d. \$800

e. None of the above

EI 100 units X \$8 = **\$800**

26. Operating income for year 2 using variable costing would be

a. \$1,000

b. \$1,600

c. \$2,050

d. \$1,450

e. None of the above

FMC per unit (\$11 - \$8) = \$3 X change in Inventory 100 units decrease = \$300 + NI Abso. \$1,150 = \$1,450

QUESTION IV-B. 10 POINTS

Use the following information to calculate and answer the next 4 questions. (SHOW YOUR WORK)

Baylor, Inc. just finished its second year of operations. In the first year it produced 1,000 units and sold 400. The second year resulted in the same production level, but sales were 1,200 units. The variable costing income statements for both years are shown below:

	<u>Year 1</u>	<u>Year 2</u>
Sales	\$ 40,000	\$120,000
Variable cost of goods sold	\$22,000	\$66,000
Variable selling and administration	<u>800</u>	<u>2,400</u>
Contribution margin	22,800	68,400
	17,200	51,600
Fixed manufacturing overhead	30,000	30,000
Fixed selling and administration	<u>15,000</u>	<u>15,000</u>
Operating income	<u>45,000</u>	<u>45,000</u>
	<u>\$(27,800)</u>	<u>\$ 6,600</u>

27. The total product costs during year 1 using absorption would be

- a. \$67,000
- b. \$73,000
- c. \$82,000
- d. \$85,000**
- e. None of the above

$$\text{TVMC} + \text{TFMC} = \$22,000 / 400 \text{ units} + \$30,000 = \mathbf{\$85,000}$$

28. The operating income for year 1 using absorption costing would be

- a. \$6,000
- b. \$(9,000)
- c. \$(9,800)**
- d. \$600
- e. None of the above

$$\text{FMC per unit} \times 600 = \$18,000 + (27,800) = \mathbf{(\$9,800) \text{ loss}}$$

29. The ending inventory for year 2 using absorption costing would be

- a. \$51,000
- b. \$34,000**
- c. \$22,000
- d. \$17,000

$$400 \text{ units} \times \text{cost per unit } \$85 = \mathbf{\$34,000}$$

30. The operating income for year 2 using absorption costing would be

- a. \$(9,800)
- b. \$600**
- c. \$(9,000)
- d. \$6,000
- e. None of the above

$$\text{FMC per unit} \times 200 = \$6,000 - 6,600 = \mathbf{\$600}$$

QUESTION V. 25 POINTS

Use the following information to calculate and answer the next 10 questions. (SHOW YOUR WORK)

Mason, Inc. uses a standard costing system. Overhead costs are allocated based on direct labour hours. The standard variable manufacturing overhead and fixed manufacturing overhead rates are \$1 and \$5 per direct labour hour, respectively. Data relevant for the current period include:

Direct materials purchased	50,000 lbs. @ \$12 per lb.
Direct materials used	50,000 lbs.
Standard quantity of direct materials for actual production	45,000 lbs.
Direct materials standard price	\$13 per lb.
Direct labour costs incurred	75,000 hours @ \$12 per hour
Standard direct labour hours for actual production	78,000 hours
Standard direct labour cost per hour	\$11 per hour
Variable manufacturing overhead costs incurred	\$77,070
Fixed manufacturing overhead costs incurred	\$381,920
Fixed manufacturing overhead budget	\$400,000

31. The direct materials price variance is

- a. \$15,000 Unfavourable
- b. \$15,000 Favourable
- c. \$50,000 Favourable**
- d. \$50,000 Unfavourable
- e. None of the above

$$\begin{aligned} \text{TADMC } 50,000 \times \$12 &= \$600,000 & 50,000 \text{ lbs} \times \text{SP } \$13 &= \$650,000 & \text{FB } 45,000 \times \$13 &= \$585,000 \\ \$600,000 - \$650,000 &= \mathbf{\$50,000 \text{ Favourable}} \end{aligned}$$

32. The direct materials efficiency (quantity) variance is

- a. \$60,000 Favourable
- b. \$60,000 Unfavourable
- c. \$65,000 Favourable
- d. \$65,000 Unfavourable**
- e. None of the above

$$= \$650,000 - \$585,000 = \mathbf{\$65,000 \text{ Unfavourable}}$$

33. The direct labour price variance is

- a. \$30,000 Favourable
- b. \$30,000 Unfavourable
- c. \$75,000 Unfavourable**
- d. \$78,000 Unfavourable
- e. None of the above

$$\begin{aligned} \text{TADLC } 75,000 \text{ hrs} \times \$12 &= \$900,000 & 75,000 \text{ hrs} \times \text{SR } \$11 &= \$825,000 & \text{FB } 78,000 \times \$11 &= \$858,000 \\ \$900,000 - \$825,000 &= \mathbf{\$75,000 \text{ Unfavourable}} \end{aligned}$$

34. The direct labour efficiency (quantity) variance is

a. \$33,000 Favourable

b. \$33,000 Unfavourable

c. \$75,000 Unfavourable

d. \$42,000 Unfavourable

e. None of the above

$=\$825,000 - \text{FB } 78,000 \times \$11 = \mathbf{\$33,000 \text{ Favourable}}$

35. The variable overhead spending variance is

a. \$930 Favourable

b. \$2,070 Unfavourable

c. \$33,000 Unfavourable

d. \$33,000 favourable

e. None of the above

$\text{TASP } \$77,070 - 75,000 \text{ hrs} \times \$1 = \mathbf{\$2,070 \text{ Unfavourable}}$

36. The variable overhead efficiency variance is

a. \$930 Favourable

b. \$2,070 Unfavourable

c. \$3,000 Unfavourable

d. \$3,000 Favourable

e. None of the above

$75,000 \text{ hrs} \times \$1 - 78,000 \text{ hrs} \times \$1 = \mathbf{\$3,000 \text{ Favourable}}$

37. The fixed overhead budget (spending) variance is

a. \$8,080 Favourable

b. \$18,080 Favourable

c. \$10,000 Unfavourable

d. \$33,000 Unfavourable

e. None of the above

Fixed manufacturing overhead costs incurred \$381,920

Fixed manufacturing overhead budget \$400,000

\$18,080 Favourable

38. The fixed overhead production volume variance is

a. \$8,080 Favourable

b. \$18,080 Favourable

c. \$10,000 Unfavourable

d. \$33,000 Unfavourable

e. None of the above

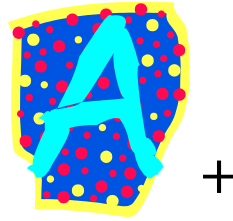
Fixed manufacturing overhead budget \$400,000

FB 78,000 hrs X \$5 \$390,000

\$10,000 Unfavourable

Answers

1. D
2. C
3. A
4. B
5. A
6. C
7. B
8. B
9. A
10. B
11. A
12. B
13. D
14. C
15. D
16. A
17. C
18. D
19. A
20. B
21. D
22. D
23. C
24. A
25. D
26. D
27. D
28. C
29. B
30. B
31. C
32. D
33. C
34. A
35. B
36. D
37. B
38. C
39. C
40. A



CONCORDIA UNIVERSITY

Course: Managerial Accounting,
No.: COMM 305 ALL SECTIONS & ACCO 240
Examination: Final
Date: April 10, 2011
No. of Pages: 11 Pages including the cover page
Material Allowed: 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.
Special Instructions: Answer all multiple choice questions in the Answer Sheet
IBM Form no. 4521
Return the exam questions with your answers.
The Answer Sheet IBM Form no. 4521 & answer booklet

Student Name: _____

Student ID No.: _____

Section: _____

Instructor: _____

Please read the questions carefully and budget your time carefully.

Show details of all your work in the lined examination answer booklet

Write all your final answers in the Answer Sheet provided with the exam page 12.

QUESTION I. 15 POINTS

Use the following information to calculate and answer the next 6 questions. (SHOW YOUR WORK)

Labrador Company produces a single product. It sold 75,000 units last year with the following results:

Sales		\$1,875,000
Variable costs	\$750,000	
Fixed costs	<u>300,000</u>	<u>1,050,000</u>
Net income before taxes		825,000
Income taxes (45%)		<u>371,250</u>
Net income		<u>\$ 453,750</u>

In an attempt to improve its product, Labrador is considering replacing a component part in its product that has a cost of \$5 per unit with a new and better part costing \$10 per unit during the coming year. A new machine would also be needed to increase plant capacity. The machine would cost \$90,000, with a useful life of six years and no salvage value. The company uses straight-line amortization on all plant assets.

1. Labrador's break-even point in units last year was =20,000 units → $\$300k/\15 per unit
2. Product's units that Labrador would have to sell in the past year to earn \$247,500 in net income after taxes are 50,000 → $\$247,500/.55 = \$450,000; \$450,000+300,000/\$15 = 50,000 \text{ units}$
3. If it holds the sales price constant and makes the suggested changes, Labrador's break-even point in units in the coming year will be $31,500 \text{ units} \rightarrow (\$300,000 + 90,000/6)/10 = 31,500 \text{ units}$
4. If it holds the sales price constant and makes the suggested changes, Labrador have to sell to make the same net income before taxes as last year will be 114,000 units → $\$825,000+315,000\text{above}/10= 114,000 \text{ units}$
5. If Labrador wishes to maintain the same contribution margin ratio, selling price per unit of product must it charge next year to cover the increased materials costs will be \$37.5 → $C/M \text{ ratio is } 60\%, \text{ thus } V/C = 40\%, \text{ new } V/C = \$15 \text{ so } S/P = \$15/.4 = 37.50 \text{ new } S/P$
6. The effect on the company's net income before tax if the sales increased by 10% last year will be Do not prepare income statement. \$112,500 increase = DOL X increase of sales X net income OR $\rightarrow \text{sales units} = 75000 * 1.1 = 82,500 (\$15) - 300,000 = 937.5K, \text{ was } 825K, \text{ thus increase by } 112.5K$

QUESTION II-A. 7.5 POINTS

Use the following information to calculate and answer the next 3 questions. (SHOW YOUR WORK)

Taylor Enterprises sells its product for \$40 per unit. It currently produces 100,000 units per year, operating at normal capacity, which is about 80% of full capacity. Taylor recently received a special order from a customer for 20,000 units. Production costs per unit for regular sales are direct materials \$ 6, direct labour \$14, and manufacturing overhead \$12. The \$12 for manufacturing overhead is based on \$400,000 of annual fixed manufacturing overhead that is allocated using the normal capacity.

7. Suppose the special order price is \$520,000 for all 20,000 units, and assume that Taylor has sufficient capacity to fill the special order. Should it be accepted or not and how much the effect on the net income?

No, because profits will decrease by \$40,000
 Variable overhead = \$12 - \$400,000/100,000 = \$8

Total Variable cost per unit = \$ 6 + 14 + 8 = \$28 X 20,000 units = \$560,000 – special order price is \$520,000 = loss \$40,000

8. Suppose that Taylor would like to earn \$40,000 on this order and assume that there is sufficient capacity to fill the special order. What price per unit should Taylor charge for the special order?

Total Variable costs for 20,000 units = \$560,000 + to earn \$40,000 on this order / 20,000 = **\$30**

9. Suppose that the special order price is \$650,000 for all 20,000 units, but there is not sufficient capacity to fill the order; 10,000 units of regular business will be replaced by the special order if it is accepted. Should Taylor accept the special order or not how much the effect on the net income?

Total Variable cost per unit = \$ 6 + 14 + 8 = \$28 – SELLING PRICE \$40 = \$12 OPPORTUNITY COST FOR 10,000 UNITS = \$ 120,000 + TVC \$560,000 = \$680,000 – SP \$650,000 = **LOSS \$30,000**

QUESTION II-B. 7.5 POINTS

Use the following information to calculate and answer the next 3 questions. (SHOW YOUR WORK)

X&Y, Inc. makes 3 products, A, B, and C. X&Y, Inc only has 150 machine hours available each week. Contribution margin, machine hour requirements, and weekly customer demand information is as follows:

	<u>A</u>	<u>B</u>	<u>C</u>
Contribution margin per unit	\$8	\$4	\$7
Machine hours required per unit	0.8	0.2	0.2
Weekly customer demand	400	600	500

10. In what order should the products be produced?

	<u>A</u>	<u>B</u>	<u>C</u>
Contribution margin per unit	\$8	\$4	\$7
Machine hours required per unit	0.8	0.2	0.2
CM PER HR	\$10	\$20	\$35

C B A →

11. How many units of each product should be produced?

150 TOTAL HOURS AVA D 500 X .2= 100 HRS -150 HRS = 50 /.6 B = 250

B 250 UNITS + A 0 UNITS + C 500 UNITS

→ C- 500 units * 0.2 hrs = 100 hrs, balance of 50 hrs,
→ B- 50hr/.2 = 250 units, balance 0 hrs.

12. What is the maximum amount that Clark would be willing to pay, above the normal cost, for one more machine hour per week?

ANY EXTRA UNIT COME FROM B MARKET BECAUSE Weekly customer demand is 600 we filled 250 units. CM \$20

QUESTION III-A. 5 POINTS

Use the following information to calculate and answer the next 2 questions. (SHOW YOUR WORK)

The Machining Division has a capacity of 2,000 units. Its sales and cost data are:

Selling price per unit	\$80
Variable manufacturing costs per unit	\$25
Variable selling costs per unit	\$5
Total fixed manufacturing overhead	\$200,000

13. The Machining Division is currently selling 1,800 units to outside customers, and the Assembly Division wants to purchase 400 units from Machining. If the transaction takes place, the variable selling costs per unit on the units transferred to Assembly will be \$0/unit, not \$5/unit. What should be the transfer price in order not to affect its' current profit?

Variable Costs per unit is \$ 25 = \$25 to fill the order we need to replace 200 units from our outside customers
opportunity costs = (SP \$80 – VC \$30) 200 units = \$10,000/400 = \$25

So TP = \$ 25 + \$ 25 = \$50

14. If the Assembly Division is currently buying from an outside supplier at \$75 per unit, what will be the effect on overall company profits if internal sales for 400 units take place at the optimum transfer price?

Saving = (\$75 -\$50) 400 units = \$10,000 increase

QUESTION III-B. 5 POINTS

Use the following information to calculate and answer the next 2 questions. (SHOW YOUR WORK)

The National Division of Roboto Company is buying 10,000 widgets from an outside supplier at \$50 per unit. Roboto's Overseas Division, which is producing and selling at full capacity (15,000 units), has the following sales and cost structure:

Sales price per unit	\$65.00
Variable cost per unit	45.00
Fixed cost (at capacity) per unit	10.00

15. If the National Division buys its 4,000 widgets from the Overseas Division, the transfer price should be

At full capacity =SP \$65

16. If the Overseas Division meets the outside supplier's price and sells the 4,000 widgets to National, the effect on overall company profits will be

SP \$65 - \$50 = \$15 loss at 4,000 = \$60,000loss

QUESTION III-C. 5 POINTS

Use the following information to calculate and answer the next 2 questions. (SHOW YOUR WORK)

High Sound Corporation manufactures car stereos. It is a division of Quality Motors, which manufactures vehicles. High Sound sells car stereos to Quality Motors, as well as to other vehicle manufacturers and retail stores. The following information is available for High Sound's standard unit car stereos costs: variable cost per unit \$35; fixed cost per unit \$25; and selling price to outside customers \$90. Quality Motors currently purchases a standard unit car stereos from an outside supplier for \$80. Because of quality concerns and to ensure a reliable supply, the top management of Quality Motors has ordered High Sound to provide 20,000 units per year at a transfer price of \$40 per unit. High Sound is already operating at full capacity. High Sound can avoid \$5 per unit of variable costs

17. What is the minimum transfer price that High Sound should accept? **$\$90 - \$5 = \$85$**
18. What is the potential loss to the corporation as a whole because of this forced transfer price at \$40? **$= 20,000 [(\$85 - \$40) - (\$80 - \$40)] = \$100,000$**

QUESTION IV. 17.5 POINTS

Use the following information to calculate and answer the next 7 questions. (SHOW YOUR WORK)

	January	February	March	April
Sales	\$30,000	\$40,000	\$50,000	\$25,000
Production in units	1,000	1,500	2,000	2,500

Sales are 40% cash and 60% on account, and 60% of credit sales are collected in the month of the sale. In the month after the sale, 40% of credit sales are collected. It takes 4 KG of direct material to produce a finished unit, and direct materials cost \$5 per KG. All direct materials purchases are on account, and are paid as follows: 40% in the month of the purchase, 60% the following month. Ending direct materials inventory for each month is 40% of the next month's production needs. January's beginning materials inventory is 1,080 Kg. Suppose that both accounts receivable and accounts payable are zero at the beginning of January.

19. Total cash sales for the January – March quarter are
 Total cash sales for the January – March = Total SALES X 40% = \$120,000 X .40 = **\$48,000**
20. The accounts receivable balance at the end of March is

MAR sales 60% = \$50,000 x .60 X .4 = \$12,000

OR LONG ANALYSIS

Total credit sales – collections = Ending Balance

	J	F	M	A
Sales	\$30,000	\$40,000	\$50,000	
Credit sales 60%	\$18,000	\$24,000	\$30,000	
Collections				
January cs	\$ 10,800	\$ 7,200		
February cs		\$14,400	\$ 9,600	
March cs			\$18,000	\$ 12,000
A/R ENDING BLANCE = \$12,000				

21. The ending direct materials inventory for March is =4,000 KG

	J	F	M	A
Production in units	1,000	1,500	2,000	2,500
Each unit needs	4	4	4	4
TR	4,000	6,000	8,000	10,000
EI 40%	<u>2,400</u>	<u>3,200</u>	4,000	
	6,400	9,200	12,000	
- BI	<u>1,080</u>	<u>2,400</u>	<u>3,200</u>	
TP	5,320	6,800	8,800	
Cost per Unit \$	<u>\$5</u>	<u>\$5</u>	<u>\$5</u>	
T-COSTS	\$26,600	34,000	44,000	

TN 6.400

22. Material purchases costs for February are = **\$34,000**

23. Cash payments on account for February are

$$J \quad \quad \quad F$$

$$J \ 60\% \ + \ F \ 40\% = \$26,600 \times 60\% \ + \ 34,000 \times 40\% = \mathbf{\$29,560}$$

24. The ending balance in accounts payable for March is

$$A/P = M \ 60\% = 44,000 \times 60\% = \mathbf{\$26,400}$$

25. The net change in cash for the period January – March is

Ending Cash balance in March = (T sales – EB a/r) – (T Purchases – EB a/p)

$$T \text{ Sales} = \$30,000 + \$40,000 + \$50,000 = \$120,000 - A/R \ \$12,000 = \mathbf{\$ 108,000}$$

$$T - P - COSTS = \$26,600 + 34,000 + 44,000 = \$104,600 - EB A/P \ \mathbf{\$26,400} = \mathbf{\$ 78,200}$$

$$\mathbf{Cash \ increase} \quad \quad \mathbf{\$ 29,800}$$

QUESTION V-A. 7.5 POINTS

Use the following information to calculate and answer the next 3 questions. (SHOW YOUR WORK)

Bella, Inc. has operated for 2 years. During that time it produced 3,000 units in year 1 and 2,400 in year 2, while sales were 2,400 units in year 1 and 2,700 in year 2. Variable production costs were \$8 per unit during both years. The company uses last-in, first-out (LIFO) for inventory costing. The absorption costing income statements for these 2 years were:

	Year 1	Year 2
Sales	\$48,000	\$54,000
Less cost of goods sold:		
Beginning inventory	\$ 0	\$ 6,600
Product costs	33,000	28,200
Ending inventory	<u>(6,600)</u>	<u>(3,300)</u>
Gross profit	<u>26,400</u>	<u>31,500</u>
Gross profit	21,600	22,500
Less operating expenses(S&A):		
Variable	3,600	4,050
Fixed	<u>5,000</u>	<u>5,000</u>
Operating income	<u>8,600</u>	<u>9,050</u>
	<u>\$ 13,000</u>	<u>\$ 13,450</u>

26. Cost of goods sold for year 1 using variable costing would be

$$\text{Variable production costs } \$8 \text{ per unit} \times \# \text{ of unit sold } 2400 \text{ units} = \mathbf{\$19,200}$$

27. Ending inventory for year 2 using variable costing would be

$$\text{EI } 300 \text{ units} \times \$8 = \mathbf{\$2,400}$$

28. Operating income for year 2 using variable costing would be

$$\text{FMC per unit } (\$11 - \$8) = \$3 \times \text{change in Inventory } 300 \text{ units decrease} = \$900 + \text{NI Abso. } \$13,450 = \mathbf{\$14,350}$$

OR knowing that FMOH = 3,000*\$3 = \$9,000; so income per variable costing would be
 2700units (20-8-1.50)=28,350 C/M – 9,000 FMOH-1500FSell = \$14,350

QUESTION V-B. 10 POINTS

Use the following information to calculate and answer the next 4 questions. (SHOW YOUR WORK)

Baylor, Inc. just finished its second year of operations. In the first year it produced 3,000 units and sold 1200. The second year resulted in the same production level, but sales were 3,600 units. The variable costing income statements for both years are shown below:

	Year 1	Year 2
Sales	\$ 60,000	\$180,000
Variable cost of goods sold	\$28,800	\$86,400
Variable selling and administration	<u>1,800</u>	<u>5,400</u>
Contribution margin	<u>30,600</u>	<u>91,800</u>
Contribution margin	29,400	88,200
Fixed manufacturing overhead	15,000	15,000
Fixed selling and administration	<u>10,000</u>	<u>10,000</u>
Operating income	<u>25,000</u>	<u>25,000</u>
	<u>\$4,400</u>	<u>\$ 63,200</u>

29. The total product costs during year 1 using absorption would be

$$\text{TVMC} + \text{TFMC} = 3,000 \times (\$28,800 / 1,200 \text{ units}) + \$15,000 = \mathbf{\$87,000}$$

30. The operating income for year 1 using absorption costing would be

$$\text{FMC per unit } (\$5) \times 1,800 = \$9,000 + \$4,400 = \mathbf{\$13,400} \text{ (or see below a)}$$

31. The ending inventory for year 2 using absorption costing would be
 1200 units X cost per unit \$29 = **\$34,800**
32. The operating income for year 2 using absorption costing would be
 FMC per unit (\$5)X 600 = \$3,000 – 63,200 = **\$60,200** (or see below b)

a) Sales	60,000	b) Sales	180,000
COGS (1200*29)	<u>34,800</u>	COGS(3600*29)	<u>104,400</u>
G/M	25,200	G/M	75,600
S&A	<u>11,800</u>	S&A	<u>15,400</u>
N/I	13,400	N/I	60,200

QUESTION VI. 25 POINTS

Use the following information to calculate and answer the next 10 questions. (SHOW YOUR WORK)

You have given the following information for a firm that has only been in business for one year. The firm is able to buy a new type of biodegradable plastic at a fixed price of \$100 per roll. The plastic is then cut and sealed to make garbage bags. Fixed factory overhead is estimated to be \$125,000 per year. During this past year, 8,000 cartons of garbage bags were produced, which represents 80% of the activity volume. You have the following information:

Rolls of plastic used	8,500
Variable overhead incurred	\$70,000
Roll of plastic price variance	\$0
Overhead efficiency variance	\$7,500 U
Fixed overhead spending (budget) variance	\$5,000F
Standard costs per carton of garbage bags:	
Labour costs @ \$10 per hour	\$20
Rolls of plastic	1 roll
Total overhead	\$20

Instructions

Compute the following:

33. Standard direct labour hours allowed for units produced are
8,000 produced at 2 hours = 16,000 DLHR
34. Total costs of fixed overhead applied are = $\$12.5 \times 8,000 = \$100,000$
35. Variable overhead spending variance is = $\$70,000 - \$67,500 = \$2,500 \text{ U}$ (see below)
36. Actual number of direct labour hours incurred are = Overhead efficiency variance $\$7,500 \text{ U} =$
Standard rate of VOH (Actual DL – Standard DLH allowed)
(TOH \$10 per hour – fixed overhead per \$6.25) X (Actual DL – 16,000 DLhrs)
 $\$7,500 \text{ U} = \$3.75 (\text{actual DL} - 16,000) = \text{Actual DL hrs} = 67,500 / 3.75 = 18,000 \text{ hrs}$ (OR see below)
37. Labour efficiency variance is = $\$10(18,000 - 16,000) = 20,000 \text{ U}$
38. Materials quantity variance is = $\$100(8,500 - (1 \times 8,000)) = 50,000 \text{ U}$
39. Fixed overhead volume variance is = $(10,000 - 8,000) \$12.5 = \$25,000 \text{ U}$
40. Manufacturing overhead controllable variance is = total variable overhead variance + fixed overhead budget variance = VOH sp $\$2,500 \text{ U} + \text{VOH ev } \$7,500 \text{ U} + \text{FOH budget } \$5,000 \text{ F} = 5,000 \text{ U}$

Variable overhead calculation

AQ	AQ	SQ	
AP	SP	SP	
	18000DLH	16,000DLH	
\$70,000	@3.75/DLH	@3.75*/DLH	*3.75 = \$10 – 6.25(FMOH)
\$70,000	\$67,500	\$60,000	
		\$7,500U eff (given)	
	\$2,500U spend		

The activity volume is \$125,000 per year and 8,000 units produced at 80% capacity = full capacity = 10,000 units or 20,000 DLHr

Predetermined fixed overhead rate is → $\text{expected FMOH} / \text{expected DLH} = \$125,000 / 20,000 \text{ DLH} = \6.25 per DLH

1. **20,000 units**→
2. **50,000**→
3. **31,500 units**→
4. **114,000 units**→
5. **\$37.5**→
6. **\$112,500 increase**
7. **\$40,000**
8. **\$30**
9. **LOSS \$30,000**
10. **C B A**→
11. **B 250 + A 0 + C 500**
12. **CM \$20**
13. **\$50**
14. **\$10,000 increase**
15. **SP \$65**
16. **\$60,000 loss**
17. **\$85**
18. **100,000**
19. **\$48,000**
20. **\$12,000**

- 21. 4,000 KG**
- 22. \$34,000**
- 23. \$29,560**
- 24. \$26,400**
- 25. Cash increase \$ 29,800**
- 26. \$19,200**
- 27. \$2,400**
- 28. \$14,350**
- 29. \$87,000**
- 30. \$13,400**
- 31. \$34,800**
- 32. \$60,200**
- 33. 16,000 DLHR**
- 34. \$100,000**
- 35. \$2,500 U**
- 36. 18,000 hrs**
- 37. \$20,000 U**
- 38. \$50,000U**
- 39. \$25,000 U**
- 40. 5,000 U**



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CONCORDIA UNIVERSITY

Course: **Managerial Accounting,**
No.: **Comm. 305 all sections & Acco. 240**
Examination: **Final**
Date: **December 8, 2011**
No. of Pages: **(8) pages including the cover page**
Material Allowed: **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.**
Special Instructions: **Return the exam questions with your answers.**

Student Name: _____

Student ID No.: _____

Section: _____

Instructor: _____

**Please read all questions and budget your time carefully.
Answer all Questions**

QUESTION I. 16 MARKS

Part 1. 10 MARKS

Vice-President of Sales and Marketing, Madison Tremblay, is trying to plan for the coming year in terms of production needs to meet the forecasted sales. The board of directors is very supportive of any initiatives that will lead to increase profits for the company in the upcoming year.

Instructions

(a) The company markets a simple water controller and timer that it mass produces. During 2011, the company sold 696,000 units at an average selling price of \$5 per unit. The variable expenses were \$2,088,000, and the fixed expenses were \$683,338.

1. What is the company's break-even point in units and in dollars for this product? (3 Marks)
2. If management wanted to increase income from this product by 10%, how many additional units would the company have to sell to reach this income level? (2 Marks)
3. If sales increase by 71,090 units and the cost behaviours do not change, how much will income increase on this product? (2 Marks)
4. Using the degree of operating leverage method, calculate the effect on the company's net income before tax if the sales had increased by 10%? (3 Marks)

Part 2. 6 MARKS

CXB has a sales mix of sprinklers, valves, and controllers as follows:

Annual expected sales:

Sale of sprinklers	450,000 units at \$27.00
Sale of valves	1,687,500 units at \$12.00
Sale of controllers	112,500 units at \$43.00

Variable manufacturing cost per unit

Sprinklers	\$14.00
Valves	\$8.00
Controllers	\$30.00

Variable selling and admin. expenses per unit:

Sprinklers	\$3.00
Valves	\$1.00
Controllers	\$4.00

Fixed manufacturing overhead cost (total) \$900,000

Fixed selling and administrative expenses (total) \$1,450,000

Instructions

(a) Using the annual expected sales for these products, determine the weighted-average unit contribution margin for these three products. (3 Marks)

(b) Assuming the sales mix remains the same, what is the break-even point in units for CXB and how many units of each product would be produced at break-even points? (3 Marks)

QUESTION II. 16 MARKS

Part 1. 8 MARKS

Montreal Corporation packages some of its products into sets for do-it-yourself (DIY) installations. The smaller set that sells for \$149 has variable costs of \$89, while the larger set sells for \$249 with variable costs of \$159. Fixed costs are assigned at a rate of \$6 per machine hour.

It takes 20 minutes of machining time to produce and package the smaller set. The larger set is more complicated and requires 90 minutes of production time. The machines operate for two shifts of eight hours each day for 30 days per month. Maintenance and set-ups are handled outside of these times.

Analysis of the current market trends reveals that monthly demand for the smaller set would not exceed 675 units, while Montreal Corporation could sell as many of the larger ones as it can produce.

Instructions

Given the information above, determine the best use of these machine hours. **(8 Marks)**

Part 2. 8 MARKS

Montreal Corporation mass produces a special clip that is used to install the irrigation pipes. Because of a limited supply of the raw material used in the manufacturing process, very few other companies can manufacture this clip. These units normally sell for \$3.95 per unit. Montreal Corporation sells about 35,000 of the units each year.

A company in British Columbia that has been unable to secure enough material to produce the volume of units demanded by its customers has offered to pay \$2.60 each for 15,000 units. This is just \$0.30 above the **total** variable cost per unit. In addition, to complete production of this special order it would require temporarily adding another shift to the production line, which in turn would increase variable manufacturing costs by \$0.30 per unit for the special order. However, because the special order units are going to one company, Montreal Corporation would save in variable selling costs for this special order per unit that would be \$0.15 per unit instead of \$0.65 per unit.

An Alberta company has also asked for a special order. It is willing to pay \$3.20 per unit but only needs 2,000 units. Montreal Corporation could manufacture this order without adding an extra shift and Montreal Corporation would save in variable selling costs for this special order per unit that would be \$0.15 per unit instead of \$0.65 per unit.

Currently Montreal Corporation has enough raw materials to produce 50,000 units.

Instructions

- (a) What are the consequences of Montreal Corporation agreeing to provide the 15,000 units to the B.C. Company? Would this be a wise special order to accept? Should Montreal Corporation accept the special order from the Alberta Company? **(4 Marks)**
- (b) What would be the consequences if Montreal Corporation accepts either or both special orders and neither Alberta Company nor B. C. Company are willing to accept fewer units than they have asked for? **(4 Marks)**

QUESTION III. 16 MARKS

During its first year of operations, Kima Corp. experienced the following:

Units manufactured	70,000
Units sold	60,000
Product costs:	
Variable Costs	
Direct materials	\$5.00/unit
Direct labour	3.50/unit
Variable overhead	2.00/unit
Fixed	\$315,000
Selling and Administrative:	
Variable	\$1.60/unit
Fixed	\$140,000

Instructions: Compute the following:

1. What are the total production costs under the throughput costing approach? **2 Marks**
2. What is the cost of goods sold under absorption costing approach? **3 Marks**
3. What is the cost of ending inventory under Variable costing approach? **3 Marks**
4. What will be the operating income under the variable costing method as compared to the absorption costing method? **3 Marks**
5. What will be the operating income under the absorption costing method as compared to the throughput costing method? **5 Marks**

QUESTION IV. 16 MARKS

Part 1. 8 MARKS

Toronto Corporation uses time and material pricing when it bids on drainage projects. Budgeted data for 2011 for installation division are as follows.

**Toronto Corporation
Installation Division
Budgeted Costs for Drainage Projects for 2011**

	Time Charges	Material Loading Charges
Labour wages (5,760 hours)	\$241,920	
Supervisor's salary		\$ 60,000
Clerical and accountant wages	63,360	4,000
Drainage supplies manager		40,000
Overhead	<u>51,840</u>	<u>21,000</u>
Total	<u>\$357,120</u>	<u>\$125,000</u>

Toronto Corporation desires a \$13 profit margin per hour of labour and 15% profit on materials. Materials are transferred in from the manufacturing division. The total estimated invoice cost of materials in 2011 will be \$625,000.

Instructions

- (a) Calculate the rate per hour of labour. **2 Marks**
- (b) Calculate the material loading charge percentage. **2 Marks**
- (c) Toronto Corporation has been asked to quote on a project to upgrade the drainage for a large city multi-use park. The drainage manager estimates that it will take about a month to complete the project and require 480 hours of labour and \$80,000 of materials. Calculate the total estimated bid price for the park project. **4 Marks**

Part 2. 8 MARKS

XYZ Corporation produces a simple water control and timer set. To produce these units, the company incurred variable expenses of \$2,053,200 and fixed expenses of \$683,338.

During 2011 it sold 696,000 units at an average selling price of \$4.22 per unit. This was the combination of selling 346,000 units on the market for \$5.50 each, and transferring 350,000 units to the installation division at variable cost. Top management had directed the use of this transfer price. Capacity for this unit was 736,000 units.

Recently, Ryan Smith, the plant manager, was approached by a new customer who offered to pay \$5.00 per unit for 60,000 units. Ryan, thinking about his bonus that was based on the department's

operating income, readily accepted the order. Now he had to break the news to Lee Williams, the Service vice-president in charge of installations. In order to fill the new order, Ryan would have to reduce the installation division supplies because he was not prepared to give up the margin he would receive from the outside sales. He suggested that Lee could purchase what he needed on the outside market to cover the difference at \$5.50 per unit.

Instructions

- (a) If Ryan was to accept the order, what would be the impact on:
1. the plant, **2 Marks**
 2. the installation division, and **2 Marks**
 3. the company as a whole? **2 Marks**
- (b) What do you think would be the best course of action in this situation? Explain. **2 Marks**

QUESTION V. 18 MARKS

Gold Company has the following balances at December 31, 2010: Cash \$6,000; accounts receivable \$34,000 (\$10,000 from November and \$24,000 from December); merchandise inventory \$40,000; and accounts payable \$20,000 (for merchandise purchases only). Budgeted sales follow:

January	\$ 50,000
February	90,000
March	60,000
April	100,000

Other data:

- * Sales are 40% cash, 50% collected during the following month, and 10% collected during the second month after sale. A 3% cash discount is given on cash sales
- * Cost of goods sold is 40% of sales
- * Merchandise ending inventory must be 140% of the next month's cost of sales
- * Purchases are paid 70% in month of purchase and 30% in the following month
- * The selling and administrative cost function is: $\$6,000 + \$0.2 \times \text{sales}$. This includes \$1,000 for depreciation
- * All costs are paid in the month incurred
- * Minimum cash balance requirement is \$6,000 and any loans or repayments are made in \$1,000 amounts.

Instructions: Answer the following questions

1. What will be the budgeted cost of merchandise purchases for February? **2 Marks**
2. What will be the ending merchandise inventory for March? **2 Marks**
3. What will be the cash disbursements for merchandise purchases in March? **3 Marks**
4. What will be the ending balance in accounts payable for March? **2 Marks**
5. What will be accounts receivable balance at the end of March? **3 Marks**
6. What will be Cash receipts for April? **2 Marks**
7. What will be the ending cash balance for January? **4 Marks**

QUESTION VI. 18 MARKS

At the end of June the manager of the B.C. manufacturing plant was provided with the following variance analysis report.

	<u>Budget</u>	<u>Actual</u>	<u>Variance</u>	<u>Favourable/ Unfavourable</u>
Production in units	338,000	344,475	6,475	F
Production costs:				
Direct material	\$ 557,700	\$ 571,484	\$ (13,784)	U
Direct labour	1,521,000	1,572,185	(51,185)	U
Variable overhead costs	126,750	132,488	(5,738)	U
Fixed overhead costs	195,195	192,612	2,583	F
Total production costs	<u>\$2,400,645</u>	<u>\$2,468,769</u>	<u>\$(68,124)</u>	U

The manager immediately called the production supervisor, demanding an explanation for the large unfavourable variance for the quarter. The production supervisor was puzzled. He thought the cost-cutting measures they had incorporated were beginning to work. He certainly wasn't expecting such a large discrepancy.

The budget that was used to establish the standard rates as follows:

	<u>Volume</u>	<u>Cost</u>
Direct material	1.10 kg per unit	\$1.50 per kg
Direct labour	0.25 hour per unit	\$18.00 per hour
Predetermined overhead rate:		
Variable	1.00 direct labour hour	\$1.50 per hour
Fixed	1.00 direct labour hour	\$2.31 per hour

Other relevant information:

1. A total of 375,000 kg of direct materials was purchased during the quarter at a cost of \$1.58 per kilogram.
2. A total of 361,699 kg of direct materials was used in production to manufacture 344,475 units.
3. Payroll recorded 88,325 direct labour hours at an average cost of \$17.80 per hour.

Instructions

Do you agree with the plant manager that the production supervisor performed poorly, as might be indicated by the large unfavourable variance? Explain fully. Include in your response calculations of all production variances for direct materials, direct labour, variable overhead, and fixed overhead.

QUESTION I. 16 MARKS

Part 1: 10 MARKS

- (a) (1) What is the company's break-even point in units and in dollars for this product?

**Contribution Margin Income Statement for Water Control and Timer
For the Year 2011**

		Unit Cost	
Sales (696,000 units)	\$3,480,000	\$5.00	100%
Variable expenses	<u>2,088,000</u>	<u>3.00</u>	<u>60%</u>
Contribution margin	1,392,000	2.00	40%
Fixed Expenses	<u>683,338</u>		
Operating income from product	<u>\$ 708,662</u>		

- (1) Break-even point in units = 341,669 units

CM = SP \$5 – VC \$2,088,000 / 696,000 = \$2 **0.5 mark**

CMR = \$2/\$5 = 40% **0.5 mark**

Fixed expenses \$683,338 ÷ Unit CM \$2 = 341,669 units **1 Mark**

Break-even point in dollars = \$1,708,345

Fixed expenses \$683,338 ÷ CM ratio 0.40 = \$1,708,345 **1 Mark**

- (2) Company would have to sell an additional 35,433 Units.

10% increase in operating income = 0.10 × \$708,662 = \$70,866.20

Required increase in contribution margin = \$\$\$70,866.20

Required increase in unit sales = \$\$\$70,866.20 ÷ \$2 = 35,433 Units (rounded) **(2 marks)**

- (3) The operating income is above the break-even point, so every dollar increases in contribution margin means a dollar increase in income.

Since additional sales of 71,090 units will contribute 71,090 × \$2 = \$142,180 margin, operating income will also increase by \$142,180.

(2 marks)

- (4) DOL = CM / NI = \$1,392,000 / \$ 708,662 = 1.96427 **1 mark**

Sales had increased by 10% X \$ 708,662 NI X DOL 1.96427 = \$139,200 Increased in Net Income **2 marks**

Part 2: 6 MARKS

- (a) 1. Total units = 450,000 + 1,687,500 + 112,500 = 2,250,000

Sprinklers: 450,000 ÷ 2,250,000 = 20% **0.25 mark**

Valves: 1,687,500 ÷ 2,250,000 = 75% **0.25 mark**

Controllers: 112,500 ÷ 2,250,000 = 5% **0.25 mark**

2.

Sprinklers	Valves	Controllers
------------	--------	-------------

Sale Price	\$27.00	\$12.00	\$43.00
Variable costs			
Manufacturing	\$14.00	\$ 8.00	\$30.00
Selling & Admin	<u>3.00</u>	<u>1.00</u>	<u>4.00</u>
Total variable costs	<u>\$17.00</u>	<u>\$9.00</u>	<u>\$34.00</u>
	0.25 mark	0.25 mark	0.25 mark
Contribution margin	<u><u>\$10.00</u></u>	<u><u>\$3.00</u></u>	<u><u>\$9.00</u></u>

Weighted-Average Unit Contribution Margin

	<u>Unit CM</u>	<u>Mix %</u>	<u>WA Unit CM</u>
Sprinklers	\$10.00	20%	0.50 mark \$2.00
Valves	\$3.00	75%	0.50 mark \$2.25
Controllers	\$9.00	5%	0.50 mark \$0.45
			<u><u>\$4.70</u></u>

(b) Break-even point in units: $(\$900,000 + \$1,450,000) \div \$4.70 = 500,000$ units **(1.5 mark)**

Sprinklers 500,000 X 20% =	0.50 mark	100,000	Units
Valves 500,000 X 75% =	0.50 mark	375,000	Units
Controllers 500,000 X 5% =	0.50 mark	25,000	

QUESTION II. 16 MARKS

Part 1: 8 MARKS

First determine the contribution margin per minute for both products:

	Small	Large
Selling Price	\$149.00	\$249.00
Variable costs	<u>89.00</u>	<u>159.00</u>
CM per unit	0.5 Mark <u>\$60.00</u>	0.50 Mark <u>\$90.00</u>
Machine min per unit	20	90
CM per machine minute	\$3.00 1 Mark	\$ 1.00 1 Mark

Montreal Corporation should focus their efforts on the small sets because they receive \$3.00 more per machine minute from small sets greater than from the large sets \$1.00.

Machine time available in minutes:

$$16 \text{ hours/day} \times 60 \text{ minutes/hour} \times 30 \text{ days} = 28,800 \text{ minutes } \mathbf{1 \text{ Mark}}$$

Montreal Corporation will produce only what they can sell: 675 small sets which take 13,500 (675 × 20) machine minutes. **1 Mark**

The remaining 15,300 minutes (28,800 – 13,500) **1 Mark**
will be used to produce 170 (15,300 ÷ 90) large sets. **2 Mark**

Part 2: 8 MARKS

(a) Contribution margin per unit would be \$0.50 for B.C. Company

Price	\$2.60	0.25 Mark
VC	\$2.30	0.25 Mark
Additional VC	\$0.30	0.25 Mark
Saving S &A	<u>\$0.50</u>	0.25 Mark
CM	\$0.50	

Montreal Corporation would increase its profits by \$7,500 (15,000 × \$0.5). **.5 Mark**

Alberta offer contribution margin per unit would be \$1.40

Price	\$3.20	0.25 Mark
VC	\$2.30	0.25 Mark
Saving S &A	<u>\$0.50</u>	0.25 Mark
CM	\$1.40	

Montreal Corporation would increase profits by \$2,800 (2,000 X 1.40). **.5 Mark**

This special order would produce less profit, therefore should be rejected and accepting British Columbia. **1.25 Mark**

(b) Montreal Corporation cannot accept both special orders without replacing 2,000 units from the regular sales because they are limited by their raw materials to producing a total of 50,000 units **1 Mark**

QUESTION IV. 16

Part 1: 8 MARKS

(a) Labour rate per hour:

Total labour costs	\$357,120
Total number of hours	5,760
	<u>1 Mark \$62</u>
Plus: margin on labour	<u>1 Mark 13</u>
Rate charged per labour hour	<u><u>\$75</u></u>

(b) Material loading charge:

Total loading costs	\$125,000 ÷
Invoice cost for materials	\$625,000
	<u>1 Mark 20.00%</u>
Plus: profit margin	<u>1 Mark 15.00%</u>
Material loading percentage	<u><u>35.00%</u></u>

(c)

Toronto Corporation
Time and Materials Price Quote for
Multi-use City Park

Labour (480 hours × \$75.00)	1.5 Mark	\$36,000
Material charges:		
Invoice cost of materials	1 Mark	\$80,000
Material loading charge (35% × \$80,000)	1.5 Mark	<u>28,000</u>
		<u>108,000</u>
Total bid price for city park		<u><u>\$144,000</u></u>

Part 2: 8 MARKS

(1) Selling price	\$5.00
Less: variable cost (\$2,053,200 ÷ 696,000 units)	<u>2.95</u>
Per unit CM	<u><u>\$2.05</u></u>

The contribution margin that Ryan receives from the transfer of 350,000 units to the installation division is zero, so by selling to the outside customer he would be increasing

his department income by **1 Mark** \$123,000 ($\$2.05 \times 60,000$ units) as a result of reducing the installation division order by 20,000 units.

(2)	Purchase price (market)	5.50
	Less: internal transfer price cost	<u>2.95</u>
	Difference 1 Mark	<u><u>2.55</u></u>

On the other hand, the installation division would show a decrease in operating income because they would be paying \$5.50 each for units that previously were being transferred for \$2.95. This would be an extra cost of **1 Mark** \$51,000 ($\$2.55 \times 20,000$ units).

(3)	Increase from outside sale (60,000 units)	\$123,000
	Decrease from outside purchase	<u>51,000</u>
	Difference 2 Mark	<u><u>\$72,000</u></u>

If Ryan were to accept the offer, XYZ Corporation would increase the operating income by \$72,000.

- (b) If managers are compensated based on operating income, they should have authority to make their own decisions about what prices to sell for their products and who they sell to. In this case, it appears that Ryan did not have a choice. It might be wise for him to consider approaching top management to see if they could allow him to negotiate a price with Lee so they will both benefit from the internal transfer. Currently it is not profitable for Lee to purchase his supplies on the market so that Ryan can sell at the higher price. **2 Mark**

QUESTION V-18 MARKS

	J	F	M	A
	\$50,000	\$90,000	\$60,000	\$100,000
	<u>40%</u>	<u>40%</u>	<u>40%</u>	<u>40%</u>
	\$20,000	\$36,000	\$24,000	40,000
EI 140%	<u>\$50,400</u>	<u>\$33,600</u>	<u>\$56,000</u>	
	\$70,400	\$69,600	\$80,000	
BI	<u>\$40,000</u>	<u>\$50,400</u>	<u>\$33,600</u>	
Purchase	\$30,400	\$19,200	\$46,400	

1. What will be the budgeted cost of merchandise purchases for February? **2 Marks** $\$90,000 \times 40\% = \$36,000$
2. What will be the merchandise inventory balance on March 31?
2 Marks $140\% \times \$40,000 = \$56,000$
3. What will be the cash disbursements in March for merchandise purchases? **3 Marks** as follows
 $\$19,200 \times .3$ **1.5 Mark** + $\$46,400 \times .7$ **1.5 Mark** = $\$38,240$
4. What will be the balance in accounts payable on March 31? **2 Marks**
 $\$46,400 \times .3 = \$13,920$
5. What will be the accounts receivable balance on March 31? **3 Marks** as follows
 $\$60,000 \times .6$ **1.5 Mark** + $\$90,000 \times .1$ **1.5 Mark** = $\$45,000$
6. What will be cash receipts for April? **2 Marks** as follows
 $\$100,000 \times .4 \times .97$ **1 Mark** + $\$60,000 \times .5$ **0.5 Mark** + $\$90,000 \times .1$ **0.5 Mark** = $\$77,800$
7. What will be the cash balance on January 31? **4 Marks** as follows

BB	\$ 6,000 0.25 Mark
AR (\$10,000Nov + \$20,000)	\$30,000 1 Mark
Cash sales (\$50,000 X40%X.97)	<u>\$19,400</u> 0.50 Mark
Total receipts =	\$55,400
AP	\$20,000 0.25 Mark
Payment for purchase 70%	\$21,280 .50 Mark
S & AD (\$6,000 + .2X50,000 -\$1,000)	<u>\$15,000</u> 1 Mark
Total payment	\$56,280
Deficit	(\$ 880)
Borrow	<u>\$ 7,000</u> 0.50 Mark
Ending Balance	\$ 6,120

Therefore, the company should borrow \$7,000 and will have an ending balance in January of \$6,120.

QUESTION VI. 18 MARKS

Direct Material

Material Price Variance

	Actual Quantity Purchase	×	Actual Price	–	Actual Quantity Purchase	×	Standard Price
Direct Material							
Purchases (kg)	(375,000	×	\$1.58)	–	(375,000	×	\$1.50)
			\$592,500	–			\$562,500
			375,000		X \$0.08		
							\$30,000 1.5 Mark
							Unfavourable

Material Quantity Variance

	Actual Quantity used	×	Standard Price	–	Standard Quantity allow*	×	Standard Price
Direct Material							
Usage (kg)	(361,699	×	\$1.50)	–	(378,923	×	\$1.50)
			\$542,549	–			\$568,385
							\$25,836 F 1.5 Mark

*Standard quantity = Actual units produced × material allowed per unit
= (344,475 × 1.1 kg per unit)

Labour Price Variance

	Actual Hours	×	Actual Rate	–	Actual Hours	×	Standard Rate
Direct Labour							
	(88,325	×	\$17.80)	–	(88,325	×	\$18.00)
			\$1,572,185	–			\$1,589,850
							\$17,665 F 1.5 Mark

Labour Quantity Variance

	Actual Quantity	×	Standard Price	–	Standard Quantity*	×	Standard Price
Direct Labour	(88,325	×	\$18.00)	–	(86,119	×	\$18.00)
	\$1,589,850			–	\$1,550,142		
	\$39,708U 1.5 Mark						

*Standard quantity = Actual units produced × labour hours allowed per unit
 = (344,475 × 0.25 hours per unit)
 = 86,119 (rounded)

Variable overhead Spending Variance

	Actual Costs	–	Actual Hours	×	Standard Rate
VOH		–	(88,325	×	\$1.50)
	\$132,488	–			\$132,488
	\$0 1.5 Mark				

Variable overhead Efficiency Variance

	Actual Quantity	×	Standard Price	–	Standard Quantity*	×	Standard Price
	(88,325	×	\$1.50)	–	(86,119	×	\$1.50)
	\$132,488			–	\$129,178		
	\$3,310 U 1.5 Mark						

*Standard quantity = Actual units produced × labour hours allowed per unit

$$= (344,475 \times 0.25 \text{ hours per unit}) = 86,119 \text{ (rounded)}$$

Fixed overhead Spending Variance

	Actual	-	Master Budget
FOH			
			(338,000 × 0.25 × \$2.31)
	\$192,612	-	\$195,195
	\$2,583 F 2 Marks		

Fixed overhead Production Volume Variance

	Standard Quantity	×	Standard Price	-	Standard Quantity*	×	Standard Price
	(84,500		\$2.31)	-	(86,119		\$2.31)
			\$195,195	-			\$198,935
	\$3,740 F 2 Marks						

*Standard quantity = Actual units produced × labour hours allowed = (344,475 × 0.25 hours per unit) = 86,119 (rounded)

Explanations why the production supervisor was puzzled

- Variance analysis must be calculated based on the **flexible budget** for 1 Mark 344,475 units not on the master budget for 338,000 units as follows:

		Variance		Total
DM	PV	\$30,000U		
	QV	<u>\$25,836F</u>		\$ 4,164U 0.50 Marks
DL	RV	\$17,665F		
	QV	<u>\$39,708U</u>		\$22,043U 0.50 Marks
VOH	SPV	\$0		
	EV	<u>\$3,310U</u>		\$ 3,310U 0.50 Marks
FOH	SPV	\$ 2,583F		
	PVV	<u>\$ 3,740F</u>		\$ 6,323F 0.50 Marks
Total		FBV		\$23,194U

Interpretation:

2 Mark Labour quantity variance \$39,708U is responsible for the overall unfavourable variance of \$23,194. Therefore, the actual labour hours used should be investigated.



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CONCORDIA UNIVERSITY

Course: Managerial Accounting,
No.: COMM 305 ALL SECTIONS & ACCO 240
Examination: Final
Date: April 12, 2012
No. of Pages: () pages including the cover page
Material Allowed: 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.
Special Instructions: Answer multiple choice questions in IBM Sheet provided and also in your lined answer booklet.
Return the exam questions with your lined answer booklet and IBM Sheet.

Student Name: _____

Student ID No.: _____

Section: _____

Instructor: _____

Please read all questions and budget your time carefully.

Answer all questions

QUESTION I. 45 MARKS

Please select the best answer:

Use the following information for the next 2 questions.

The XYZ Co. has the following unit and sales mix data:

	<u>AAA</u>	<u>BBB</u>	<u>Total</u>
Unit sales price	\$5.00	\$4.00	
Unit contribution margin	0.75	1.20	
Sales mix in dollars (%)	80%	20%	
Fixed costs			\$108,000
Target profit before tax			21,600

- How many units of BBB product must be sold at the breakeven point?
 - 75,000
 - 33,000
 - 30,000**
 - 55,000
 - None of the above
- How many units in of AAA product must be sold to earn the target profit before tax of \$21,600 for the company?
 - 720,000
 - 576,000
 - 115,200**
 - 108,000
 - None of the above
- The cost function for Liao Company is: $\text{Total Costs} = \$800 + 0.375 \times \text{Revenue}$. If Liao expects after-tax income of \$600 and the tax rate is 40%, what is the firm's margin of safety?
 - \$3,680
 - \$2,400
 - \$2,880
 - \$1,600**
 - None of the above
- The Nunn Co. produces a single product. Its cost structure is:

	<u>Fixed Cost</u>	<u>Variable Cost Per Unit</u>
Manufacturing costs	\$35,000	\$15
Non-manufacturing costs	60,000	10

If the firm sells 5,000 units per period, what price should be charged to earn \$35,000 operating (pretax) income?

- a. \$44
 - b. \$45
 - c. \$50
 - d. \$51**
 - e. None of the above
5. Steiner Manufacturer's contribution margin is \$200, after-tax income is \$96, and the tax rate is 40%. What are the fixed costs?
- a. \$60
 - b. \$50
 - c. \$40**
 - d. \$33
 - e. None of the above
6. Smith Co. has a contribution margin ratio of 40% and a breakeven point of \$200,000 in sales. If the firm reports net income of \$50,000 after taxes of 50%, what were total sales for the year?
- a. \$450,000**
 - b. \$466,667
 - c. \$500,000
 - d. \$700,000
 - e. None of the above
7. If the total contribution margin decreases and fixed costs do not change, operating (pretax) income
- a. Decreases by an equal amount**
 - b. Increases by an equal amount
 - c. Does not change
 - d. Increases by some other amount
 - e. None of the above
8. When sales are \$1,000, the contribution margin is \$600 and an operating (pretax) loss of \$60 occurs. What is the breakeven point in dollars?
- a. \$ 833
 - b. \$1,100**
 - c. \$1,167
 - d. \$1,750
 - e. None of the above

Use the following information for the next 2 questions.

Ruben, Inc. is a management consulting firm specializing in pension plans. Its billing rate to clients is \$120 per hour, and variable costs average \$80 per hour. Fixed costs are \$24,000 per month.

9. If variable costs increase by 10% and management increases its billing rate by 8%, what is the effect on the breakeven point, in billable hours?
- a. It increases the breakeven point
 - b. The breakeven point will not change
 - c. It decreases the breakeven point**

- d. Cannot be determined
 - e. None of the above
10. If fixed costs increase by 10% and management increases its billing rate by 10%, what is the effect on the breakeven point, in billable hours?
- a. It increases the breakeven point
 - b. The breakeven point will not change
 - c. It decreases the breakeven point**
 - d. Cannot be determined
 - e. None of the above
11. Wagner Corporation can manufacture 490,000 tennis rackets a year at a variable cost of \$15 per racket and fixed costs of \$500,000. Wagner budgeted that it can sell 400,000 at \$25 each. An additional order of 100,000 was received, but at a discount of 35% from the regular price. If Wagner accepts the special order, operating pretax income will
- a. Decrease by \$100,000
 - b. Increase by \$125,000
 - c. Increase by \$25,000
 - d. Increase by \$37,500**
 - e. None of the above
12. PRO Shops has a capacity of 45,000 units, and is currently producing and selling 40,000 at \$25 a unit. The present cost structure, on a per unit basis, is:

Direct material	\$10
Direct labor	5
Variable overhead	3
Fixed overhead	4

An order for 7,000 units has been received from a Japanese company at a price of \$20 per unit. If the order is accepted, profit will

- a. Decrease by \$2,000
 - b. Increase by \$14,000
 - c. Increase by \$7,000
 - d. Increase by \$4,000**
 - e. None of the above
13. The managers of Adamson Apple Co. are considering dropping one of their product lines. The product line typically has the following revenue and costs:

Sales	\$100,000
Variable costs	<u>80,000</u>
Contribution margin	20,000
Fixed costs	<u>25,000</u>
Operating loss	<u>\$ (5,000)</u>

If the product line is discontinued, \$4,000 of the fixed costs would be avoided. Also, the freed-up capacity would generate \$4,000 of additional contribution margin from the expansion of other product lines. If Adamson discontinues the product line, the effect on overall income will be

- a. \$12,000 decrease**

- b. \$8,000 decrease
 - c. \$9,000 increase
 - d. \$3,000 increase
 - e. None of the above
14. N.G., Inc. currently buys 9,000 subcomponents from an outside supplier at \$10 each. The company has excess capacity, which it sublets to another company for \$20,000 per year. If the company were to use the idle capacity to produce the subcomponent internally, it would incur variable production costs of \$6 per unit, and it would hire a new supervisor for \$15,000 per year. What is the advantage or disadvantage (in dollars) if N.G. makes the subcomponent instead of continuing to buy outside and subletting the excess capacity?
- a. \$6,000 disadvantage
 - b. \$21,000 disadvantage
 - c. \$1,000 advantage**
 - d. \$21,000 advantage
 - e. None of the above
15. In an outsourcing decision, fixed costs are
- a. Never relevant
 - b. Relevant if they are greater than associated opportunity costs
 - c. Relevant if the company is operating outside the relevant range
 - d. Relevant if they can be avoided through outsourcing**
 - e. fixed costs are sunk costs.

Use the following information for the next 2 questions.

Amsat Company has equipment that is in high demand, but has a limited amount of time available. The equipment can be used to produce a number of different products. The following data are available:

Product	Unit Price	Unit Variable	Units
		Cost	Per Hour
L	\$400	\$200	8
M	300	150	22
N	600	250	8
O	200	100	20

16. Which product should be emphasized first?
- a. L
 - b. M**
 - c. N
 - d. O
 - e. cannot be determined
17. Which product should be emphasized last?
- a. L**
 - b. M
 - c. N
 - d. O
 - e. cannot be determined

Use the following data for the next 2 questions:

Growe Company manufactures sewing machines and requires 30,000 units of a component that is used in the manufacturing process. If Growe buys the part from Zigler Brothers, the plant will be idle. 55% of the fixed overhead \$300,000, will continue if Growe Company buys the part. The cost to buy the part from Zigler is \$46. The unit cost to make the part is:

Direct materials	\$12
Direct labor	20
Variable overhead	12
Average fixed overhead	<u>10</u>
Total	<u>\$54</u>

18. Relevant costs to make the part are

- a. \$1,320,000
- b. \$1,380,000
- c. \$1,455,000**
- d. \$1,485,000
- e. None of the above

19. Which alternative is more profitable and by what amount?

- a. Buy, \$150,000
- b. Make, \$150,000
- c. Buy, \$75,000**
- d. Make, \$75,000
- e. None of the above

20. Hillary Corporation has its own cafeteria with the following annual costs:

Food	\$200,000
Labor	150,000
Overhead	<u>220,000</u>
Total	<u>\$575,000</u>

The overhead is 40% fixed. Of the fixed overhead, \$50,000 is the salary of the cafeteria supervisor. The remainder of the fixed overhead has been allocated from total company overhead. Assuming the cafeteria supervisor will remain and that Hillary will continue to pay her salary, the maximum cost Hillary is willing to pay an outside firm to replace the cafeteria services is

- a. \$575,000
- b. \$350,000
- c. \$438,000
- d. \$482,000**
- e. None of the above

21. A company segment with an ROI of 30% has an income of \$84,000. The company's required rate of return on segment investments is 18%. The segment's residual income is

- a. \$50,400
- b. \$25,200
- c. \$26,712
- d. \$33,600**

- e. None of the above
22. Division A of a firm produces a single product, which is sold only to Division B. Division A has a total investment of \$1,000,000, while Division B has a total investment of \$2,000,000. Division A annually sells 100,000 units of its product to Division B for \$5 per unit and earns \$150,000 in operating income. Division B currently earns \$250,000. If Division A raises its selling price to \$6 per unit and nothing else changes,
- Division A's ROI will increase to 20%
 - The firm's overall ROI will rise
 - The firm's overall ROI will fall
 - The firm's overall ROI will remain unchanged**
 - cannot be determined
23. The Mukilteo Division of Snohomish Corp. produces and sells a product to outside and internal customers. Per-unit data collected from its operations include:
- | | |
|---------------------|-------|
| Outside sales price | \$640 |
| Direct materials | 105 |
| Direct labor | 250 |
| Fixed overhead | 180 |
- If Mukilteo has excess capacity available to meet an internal order, what transfer price should be set?
- \$625
 - \$355**
 - \$430
 - \$285
 - cannot be determined
24. The National Division of Roboto Company is buying 10,000 widgets from an outside supplier at \$30 per unit. Roboto's Overseas Division, which is producing and selling at full capacity (12,000 units), has the following sales and cost structure:
- | | |
|-----------------------------------|---------|
| Sales price per unit | \$45.00 |
| Variable cost per unit | 22.50 |
| Fixed cost (at capacity) per unit | 15.00 |
- If the Overseas Division meets the outside supplier's price and sells the 10,000 widgets to National, the effect on overall company profits will be
- \$ 75,000 higher
 - \$150,000 lower**
 - \$300,000 higher
 - \$225,000 lower
 - None of the above
25. Which of the following responsibility centers can be evaluated using residual income?
- Cost centers
 - Profit centers
 - Revenue centers
 - Investment centers**
 - Overhead center

26. The Shannon Division of the Wasson Widget Co. requires a 12% rate of return. During a recent year Shannon had a net income of \$400,000 and a residual income of \$250,000. What was its ROI?
- 32%**
 - 15%
 - 12%
 - 26%
 - cannot be determined
27. An organization's required rate of return is 13%. The ROI of Divisions A and B, respectively, is 10% and 15%. Each Division is considering a project that will have a 12% rate of return. If residual income is used to evaluate divisions, which of the following statements is true?
- Both divisions will accept the project
 - Both divisions will reject the project**
 - Division A will accept, and Division B will reject, the project
 - Division A will reject, and Division B will accept, the project
 - cannot be determined
28. In the variable (contribution) pricing approach, the mark-up percentage covers the
- Desired ROI only.
 - Desired ROI and fixed costs.**
 - Desired ROI and selling and administrative expenses.
 - Fixed costs only.
 - Variable costs only.
29. In the absorption cost pricing approach, the mark-up percentage covers the
- desired ROI only.
 - desired ROI and selling and administrative expenses.**
 - desired ROI and fixed costs.
 - selling and administrative expenses only.
 - fixed costs only.
30. The first step in the absorption cost pricing approach is to calculate the
- desired ROI per unit.
 - mark-up percentage.
 - target selling price.
 - unit manufacturing cost.**
 - unit variable costs

QUESTION I. 1.5 MARKS FOR EACH QUESTION.

PLEASE BE SURE YOU TRANSFER THE RIGHT ANSWER TO IBM KEY SHEET

- C**
- C**
- D**

4. D
5. C
6. A
7. A
8. B
9. C
10. C
11. D
12. D
13. A
14. C
15. D
16. B
17. A
18. C
19. C
20. D
21. D
22. D
23. B
24. B
25. D
26. A
27. B
28. B
29. B
30. D

QUESTION II. 18 MARKS

Toronto Inc., budgets sales for its first four months of operation as follows:

	October	November	December	January
Credit sales	\$100,000	\$150,000	\$200,000	\$320,000
Cash sales	40,000	60,000	80,000	100,000
Total Sales	\$140,000	\$210,000	\$280,000	\$420,000

Inventory on October 1 is \$40,000. Subsequent beginning inventories should be 40% of that month's cost of goods sold. Goods are priced at 140% of their cost. 50% of purchases are paid for in the month of purchase; the balance is paid in the following month. It is expected that 50% of credit sales will be collected in the month following sale, 30% in the second month following the sale, and the balance the third month. A 5% discount is given if payment is received in the month following sale.

Instructions: Answer the following questions

WARNING (carrying errors): If student uses wrong answer in any to compute the value for other question but he or she uses the right information, please grant the full marks to prevent double penalty.

1. What will be the budgeted cost of merchandise purchases for October? **3 Marks**

$$\text{BI } \$40,000 + \text{Purchase} - \text{EI} = \text{COGS}$$

$$\text{BI } \$40,000 + \text{P} - \text{EI } \$60,000 \text{ 1 mark} = \$100,000 \text{ 1 mark}$$

$$\text{P} = \$120,000 \text{ 1 mark}$$

2. What will be the budgeted cost of goods sold for November? **2 Marks**

$$\text{Nov sales } \$210,000 / 1.4 = \$150,000 \text{ 2 marks}$$

3. What will be the budgeted cash disbursements for November? **2 Marks**

November Purchase

$$\text{BI } \$60,000 + \text{Purchase} - \text{EI} = \text{COGS } \$150,000$$

$$\text{BI } \$60,000 + \text{P} - \$80,000 = \text{COGS } \$150,000$$

$$\text{P} = \$170,000$$

The budgeted cash disbursements for November

$$\text{October Purchase } \$120,000 \times 50\% + \text{1 mark } 50\% \text{ November Purchase } \$170,000 \text{ 1 mark} = \$145,000$$

4. What will be the budgeted cash receipts for November? **3 Marks**

October cash receipts + November cash receipts

October credits sales X 50% X 95% + November cash sales

\$100,000 X 50% X 95% 2 marks + \$60,000 1 mark = \$107,500

5. What will be the ending merchandise inventory for December? **2 Marks**

It is the beginning inventory of January = Sales \$420,000 / 1.4 X 40% = \$120,000 2 marks

6. What will be the ending balance in accounts payable for November? **2 Marks**

November Purchase \$170,000 X 50% = \$85,000 2 marks

7. What will be accounts receivable balance at the end of December? **4 Marks**

Total sales – cash receipts =

\$140,000 + \$210,000 + \$280,000 2 marks = \$630,000 – (Oct cash receipts \$120,000 + Nov cash receipts \$135,000 + Dec cash receipts \$80,000) 2 marks = \$295,000

QUESTION III. 18 MARKS

Montreal Enterprises produces birdhouses. In 2011, it began the year with no beginning inventory. During the year, it produced 10,000 birdhouses and sold 8,000 for \$40 per house. Variable manufacturing costs were \$12 per house produced (direct material \$5, direct labour \$4, and variable overhead \$3); variable selling and administrative expenses were \$5 per unit sold; fixed manufacturing costs were \$70,000 in total and \$7 per unit; fixed selling and administrative costs were \$20,000.

Instructions

- (a) Prepare an income statement using absorption costing for year 2011. **4 Marks**
- (b) Show a calculation that explains the difference in net income under absorption costing and variable costing. **2 Marks**
- (c) Show a calculation that explains the difference in net income under variable costing and throughput costing. **2 Marks**
- (d) Suppose the accountant for Montreal Enterprises used normal costing rather than actual costing to calculate the cost of goods sold and ending inventory under absorption costing, and fixed manufacturing overhead is \$70,000, based on budgeted volume of 14,000 units and the company expensed the volume variance to the cost of goods sold.
 - (i) Prepare an income statement using absorption costing for year 2011 based on normal costing rather than actual costing. **6 Marks**
 - (ii) Reconcile the absorption normal costing net income to those calculated in part (a) **2 Marks**
 - (iii) Reconcile the absorption normal costing net income to the variable costing net income. **2 Marks**

(a)

TAYLOR ENTERPRISES
Income Statement
Year Ended 2011
Absorption Costing

Sales (8,000 units @ \$40)	1 mark	\$320,000
Cost of goods sold [8,000 units × (\$12+ \$7)]	1 mark	<u>152,000</u>
Gross profit		168,000
Variable selling and administrative expenses (8,000 @ \$5)	\$40,000 1 mark	
Fixed selling and administrative expenses	1 mark	<u>20,000 60,000</u>
Net income		<u>\$108,000</u>

(b) Net income under variable costing = Abso NI \$108,000 – (2,000 X \$7) **2 marks** = \$94,000

The difference in net income of \$14,000 can be explained by the 2,000-unit difference between the number of units sold (8,000) versus the number of units produced (10,000). Under absorption costing, the company defers \$7 per unit of fixed manufacturing costs in the 2,000 units of ending

inventory. This represents the total difference of \$14,000 (\$7 X 2,000 units) between the net income under variable costing (\$94,000) and under absorption costing (\$108,000).

- (c) Net income under throughput costing = Vari NI \$94,000 – (2,000 X \$7) = \$80,000 **2 marks**
 The difference in net income of \$14,000 can be explained by the 2,000-unit difference between the number of units sold (8,000) versus the number of units produced (10,000). Under variable costing, the company defers \$4 per unit of direct labour and \$3 variable manufacturing overhead costs in the 2,000 units of ending inventory. This represents the total difference of \$14,000 (\$7 X 2,000 units) between the net income under variable costing (\$94,000) and under throughput costing \$80,000.
- (d) - i The company policy is to use the budgeted volume of 14,000 units to allocate the fixed overhead rate rather than the actual production volume of 10,000 units. Predetermined rate = \$70,000 fixed overhead / 14,000 budgeted production volume = \$5 **1 mark**

Based on this rate, the absorption product cost per unit is as follows:

Direct materials	\$ 5
Direct labour	4
Variable overhead	3
Fixed overhead predetermined rate	<u>5</u>
Total product cost per unit	<u>\$17</u>

TAYLOR ENTERPRISES
Income Statement
Year Ended 2011
Absorption Costing Normal costing

Sales (8,000 units @\$40)	0.50 mark	\$320,000
Less Cost of goods sold [8,000 units @\$17]	1 mark	136,000
Less unfavourable volume variance [\$5 (14,000 units - 10,000 units)]	2 marks	<u>20,000</u>
Gross profit		\$164,000
Variable selling and administrative expenses (8,000@ \$5)	0.75 mark	\$40,000
Fixed selling and administrative expenses	0.75 mark	<u>20,000</u> 60,000
Net income	6 Marks	<u>\$ 104,000</u>

- (d) -ii We can reconcile the absorption normal costing net income to the absorption actual costing net income as follows:

Absorption costing actual costing net income		\$108,000
Less ending inventory fixed manufacturing overhead (2,000 X (\$7-\$5))		<u>4,000</u> 2 marks
Normal costing net income	2 Marks	<u>\$ 104,000</u>

(d) -iii We can reconcile the absorption normal costing net income to the variable costing net income as follows:

Absorption costing net income		\$104,000
Less ending inventory fixed manufacturing overhead (2,000 X \$5)		<u>10,000</u>
Variable costing net income	2 Marks	<u>\$ 94,000</u>

TAYLOR ENTERPRISES
Income Statement
Year Ended 2011
Variable Costing

Sales (8,000 units @ \$40)		\$320,000
Variable cost of goods sold (8,000 @ \$12)	\$96,000	
Variable selling and adm. expenses (8,000 @ \$5)	<u>40,000</u>	<u>\$136,000</u>
Contribution margin		\$184,000
Fixed manufacturing overhead	\$70,000	
Fixed selling and administrative expenses	<u>20,000</u>	<u>90,000</u>
Net income		<u>\$ 94,000</u>

QUESTION IV. 19 MARKS

Montreal Manufacturing Company uses a standard cost system in accounting for the cost of its main product. The following standards have been established for the direct manufacturing costs per unit:

Direct materials (2 kg at \$7.5/kg)	\$15.00 per unit
Direct labour (3 hrs. at \$12/hr.)	\$36.00 per unit

Budgeted overhead for the month of April (based on expected activity of 9,000 direct labour hours) is as follows:

Variable overhead	\$29,250
Fixed overhead	19,500
Total overhead	<u>\$48,750</u>

Overhead is applied based on labour hours. The average activity per month is 9,750 direct labour hours. The company computes fixed overhead rates based on average activity. Results for the month of April are as follows:

Units produced	3,150
Direct materials used (6,500 kg)	\$44,850
Direct labour (9,500 hrs.)	116,375
Variable overhead	28,500
Fixed overhead	20,000
Total costs	<u>\$209,725</u>

There was no beginning or ending work in process inventory.

Instructions

Compute the following:

- (a) Direct materials price, usage, and budget variances **3 Marks**
- (b) Labour price, usage, and budget variances **3 Marks**
- (c) Variable overhead spending, quantity, and budget variances **3 Marks**
- (d) Fixed overhead spending and volume variances **6 Marks**
- (e) Total overhead controllable variances **2 Marks**
- (f) Under or over applied overhead **2 Marks**

\$44,850	$6,500 \times \$7.5 = \mathbf{\$48,750}$	$3,150 \times 2 \times \$7.5 = \mathbf{\$47,250}$
	$\$3,900$ F PV 1 MARK	$\$1,500$ UN Usage V 1 MARK

(a) Total material budget variance = $\$3,900$ F + $\$1,500$ U = $\$2,400$ F **1 MARK**

\$116,375	$9,500 \times \$12 = \mathbf{\$114,000}$	$3,150 \times 3 \times \$12 = \mathbf{\$113,400}$
	$\$2,375$ UN-F PV 1 MARK	600 UN-F Usage V 1 MARK

(b) Total Labour budget variance = $\$2,375$ UN-F PV + $\$600$ UN-F = $\$2,975$ UN **1 MARK**

(C) Variable overhead rate per hour = **Variable overhead $\$29,500$ / $9,000$ hours = $\$3.25$**
1 MARK

\$28,500	$9,500 \times \$3.25 = \mathbf{\$30,875}$	$3,150 \times 3 \times \$3.25 = \mathbf{\$30,712.50}$
	$\$2,375$ F SPV 0.5 MARK	$\$162.50$ UN-F Usage V 1 MARK

(c) Total variable OVERHEAD budget variance = $\$2,375$ F + $\$162.50$ UN-F = $\$2,212.50$ F
0.5 MARK

(d) Fixed overhead rate per hour = **Fixed overhead $\$19,500$ / $9,750$ hours = $\$2$** **2 MARKS**

\$20,000	$\mathbf{\$19,500 = 9,750 \times \$2}$	$3,150 \times 3 \times \$2 = \mathbf{\$18,900}$
	$\$500$ UN-F SPV 1 MARK	$\$600$ UN-F PV 2 MARKS

(d) Total Fixed overhead variance = $\$500$ U + $\$600$ U = $\$1,100$ UN-F **1 MARK**

WARNING (carrying errors): If student uses wrong answer in (c) or (d) above to compute the value of (e) or (f) but he or she uses the right information, please grant the full marks for (e) or (f) to prevent double penalty.

- (e) **Total overhead controllable variances** = \$2,375 F + \$162.50 UN-F = \$2,212.50 F + \$500 UN-F SPV = **\$1,712.50 2 MARKS**
- (f) **Over-applied overhead** = \$1,712.50 + \$600 UN-F PV = **\$1,112.50 or**
Actual Overhead \$48,500 – Applied Overhead 49,612.50 = \$1,112.50 Over-applied 2 MARKS



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CONCORDIA UNIVERSITY

Course: **Managerial Accounting,**
No.: **COMM 305 ALL SECTIONS & ACCO 240**
Examination: **Final**
Date: **June 14, 2012**
No. of Pages: **(11) pages including the cover page**
Material Allowed: **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.**
Special Instructions: **Answer multiple choice questions in IBM Sheet provided and also in your lined answer booklet.**

Return the exam questions with your lined answer booklet and IBM Sheet.

Student Name: _____

Student ID No.: _____

Section: _____

Instructor: _____

**Please read all questions and budget your time carefully.
Answer all questions**

QUESTION I. 30 MARKS

Please select the best answer:

1. Gift Gallery sold 2,000 Zooglars during 2012. Information is provided concerning the Zooglar product:

Sales	\$ 60,000
Variable costs	24,000
Fixed costs	<u>10,000</u>
Net income	<u>\$ 26,000</u>

If Gift Gallery sells 30 more units, by how much will its profit increase?

- a. \$18
 - b. \$540**
 - c. \$390
 - d. \$900
 - e. None of the above
2. Tykee Company has the following data:
- Variable costs are 75% of the unit selling price. The contribution margin per unit is \$400. The fixed costs are \$600,000.
- Which of the following expresses the break-even point in DOLLARS?
- a. $.25 \times 600,000 = X$
 - b. $600,000 \div .75 = X$
 - c. $(\$600,000 \div \$400) \times .75 = X$
 - d. $\$600,000 \div .25 = X$**
 - e. None of the above
3. If M&H Ltd. has a margin of safety of \$100,000, which of the following statements is correct?
- a. Sales can increase by \$100,000 before M&H have an operating loss.
 - b. Fixed costs can increase by \$100,000 before M&H have an operating loss.**
 - c. Sales can decrease by \$50,000 and fixed costs can increase by \$40,000 before M&H have an operating loss.
 - d. Sales can increase by \$50,000, and fixed costs can decrease by \$50,000 before M&H have an operating loss.

4. Sulingo, Inc. calculated how many units it needed in order to earn net income totalling \$67,750 after tax for the month. What calculation did Sulingo perform?
- [Variable costs + (\$67,750/1-tax rate)] ÷ contribution margin ratio
 - [Fixed costs + (\$67,750/1+tax rate)] ÷ contribution margin ratio
 - [Fixed costs + (\$67,750/1-tax rate)] ÷ contribution margin per unit**
 - [Variable costs + (\$67,750/tax rate)] ÷ contribution margin per unit
5. Sample, Inc. determined its unit variable cost increased by 15%. Which one of the following will *not* increase as a direct result?
- Total costs
 - Total variable costs
 - Contribution margin**
 - The break-even point

6. The XYZ Co. has the following unit and sales mix data:

	<u>AAA</u>	<u>BBB</u>	<u>Total</u>
Unit sales price	\$5.00	\$4.00	
Unit contribution margin	0.75	1.20	
Sales mix in dollars (%)	60%	40%	
Fixed costs			\$105,000
Target profit before tax			21,600

How many units of BBB product must be sold at the breakeven point?

- 75,000
 - 33,000
 - 30,000
 - 50,000**
 - None of the above
7. The cost function for Liao Company is: Total Costs = \$600+ 0.375 × Revenue. If Liao expects after-tax income of \$900 and the tax rate is 40%, what is the firm's margin of safety?
- \$4,560
 - \$960
 - \$3,360
 - \$2,400**
 - None of the above
8. Which is not true concerning sales mix?
- Sales mix is the relative percentage in which each product is sold when a company sells more than one product.
 - Sales mix is important to managers because different products often have substantially different contribution margins.
 - Sales mix does not affect break-even analysis.**
 - The computation of weighted-average unit contribution margin is useful in sales mix analysis.

9. Which of the following statements is *not* true?
- Operating leverage refers to the extent to which a company's net income reacts to a given change in sales.
 - Companies that have higher fixed costs relative to variable costs have higher operating leverage.
 - When a company's sales revenue is increasing, high operating leverage is a good thing because it means that profits will increase rapidly.
 - When a company's sales revenue is decreasing, high operating leverage is a good thing because it means that profits will decrease at a slower pace than revenues decrease.
10. When a company decides to change its cost structure to reduce variable costs by increasing fixed costs, it recognizes that:
- Its contribution margin will increase yet may result in less profits in high sales years.
 - Its contribution margin will decrease yet may result in less profits in high sales years.
 - Its contribution margin will increase yet may result in higher profits in high sales years.
 - Its contribution margin will decrease yet may result in higher profits in high sales years.
11. North Division has the following information:
- | | |
|-------------------|-----------|
| Sales | \$600,000 |
| Variable expenses | 320,000 |
| Fixed expenses | 410,000 |
- If this division is eliminated the fixed expenses will be allocated to the company's other divisions. What is the incremental effect on net income if the division is dropped?
- \$130,000 increase
 - \$410,000 decrease
 - \$280,000 decrease
 - \$190,000 increase
 - None of the above
12. Peters, Inc. produces chocolate chip cookies. Costs for producing one batch appear below:
- | | |
|-------------------|---------|
| Direct materials | \$ 8.00 |
| Direct labour | 3.00 |
| Variable overhead | 1.00 |
| Fixed overhead | 4.00 |
- An outside supplier has offered to produce the cookies for \$14 per batch. If Peters decides to buy instead of make the cookies, what is the maximum price it would pay?
- \$16.00
 - \$12.00
 - \$13.60
 - \$14.40
 - None of the above
13. Which of the following statements about incremental analysis is true?
- It cannot be used if more than two alternatives are available.
 - It considers only cost factors, not revenue.

- c. Its focus is on the past activities.
- d. It only considers factors that are different for each alternative, and only those factors that will occur in the future.

14. Wishnell Toys can make 5,000 toy robots with the following costs:

Direct Materials	\$74,000
Direct Labour	30,000
Variable Overhead	23,000
Fixed Overhead	15,000

The company can purchase the 5,000 robots externally for \$145,000. The avoidable fixed costs are \$15,000 if the units are purchased externally. What is the cost savings if the company makes the robots?

- a. \$18,000
 - b. \$15,000
 - c. \$5,000
 - d. \$3,000
 - e. None of the above
15. Wagner Corporation can manufacture 480,000 tennis rackets a year at a variable cost of \$15 per racket and fixed costs of \$500,000. Wagner budgeted that it can sell 400,000 at \$25 each. An additional order of 100,000 was received, but at a discount of 35% from the regular price. If Wagner accepts the special order, operating pretax income will
- a. Decrease by \$50,000
 - b. Increase by \$125,000
 - c. Increase by \$25,000
 - d. Increase by \$37,500
 - e. None of the above
16. PRO Shops has a capacity of 50,000 units, and is currently producing and selling 40,000 at \$25 a unit. The present cost structure, on a per unit basis, is:
- | | |
|-------------------|------|
| Direct material | \$10 |
| Direct labour | 5 |
| Variable overhead | 3 |
| Fixed overhead | 4 |
- An order for 7,000 units has been received from a Japanese company at a price of \$20 per unit. If the order is accepted, profit will
- a. Decrease by \$2,000
 - b. Increase by \$14,000
 - c. Increase by \$7,000
 - d. Increase by \$4,000
 - e. None of the above
17. A company segment with an ROI of 30% has an income of \$84,000. The company's required rate of return on segment investments is 20%. The segment's residual income is
- a. \$50,400
 - b. \$25,200

- c. \$26,712
 - d. \$33,600
 - e. None of the above
18. Division A of a firm produces a single product, which is sold only to Division B. Division A has a total investment of \$1,000,000, while Division B has a total investment of \$2,000,000. Division A annually sells 100,000 units of its product to Division B for \$5 per unit and earns \$150,000 in operating income. Division B currently earns \$250,000. If Division A raises its selling price to \$6 per unit and nothing else changes,
- a. Division A's ROI will increase to 20%
 - b. The firm's overall ROI will rise
 - c. The firm's overall ROI will fall
 - d. The firm's overall ROI will remain unchanged
19. An organization's required rate of return is 10%. The ROI of Divisions A and B, respectively, is 10% and 15%. Each Division is considering a project that will have a 12% rate of return. If residual income is used to evaluate divisions, which of the following statements is true?
- a. Both divisions will accept the project
 - b. Both divisions will reject the project
 - c. Division A will accept, and Division B will reject, the project
 - d. Division A will reject, and Division B will accept, the project
 - e. cannot be determined
20. In the absorption cost pricing approach, the mark-up percentage covers the
- a. desired ROI only.
 - b. desired ROI and selling and administrative expenses.
 - c. desired ROI and fixed costs.
 - d. selling and administrative expenses only.

QUESTION II. 20 MARKS

Montreal Enterprises produces birdhouses. In 2011, it began the year with no beginning inventory. During the year, it produced 12,000 birdhouses and sold 10,000 for \$50 per house. Variable manufacturing costs were \$15 per house produced (direct material \$5, direct labour \$4, and variable overhead \$6); variable selling and administrative expenses were \$5 per unit sold; fixed manufacturing costs were \$120,000 in total and; fixed selling and administrative costs were \$20,000.

Instructions

- (a) Prepare an income statement using absorption costing for year 2011. **5 Marks**
- (b) Show a calculation that explains the difference in net income under absorption costing and variable costing. **2 Marks**
- (c) Show a calculation that explains the difference in net income under variable costing and throughput costing. **2 Marks**
- (d) Suppose the accountant for Montreal Enterprises used normal costing rather than actual costing to calculate the cost of goods sold and ending inventory under absorption costing, and fixed manufacturing overhead is \$120,000, based on budgeted volume of 15,000 units and the company expenses the volume variance to the cost of goods sold.
- (i) Prepare an income statement using absorption costing for year 2011 based on normal costing rather than actual costing. **7 Marks**
- (ii) Reconcile the absorption normal costing net income to those calculated in part (a) **2 Marks**
- (iii) Reconcile the absorption normal costing net income to the variable costing net income. **2 Marks**

(a)

TAYLOR ENTERPRISES
Income Statement
Year Ended 2011
Absorption Costing

Sales (10,000 units @ \$50)	1 mark	\$500,000
Cost of goods sold [10,000 units × (\$15+ \$10)]	2 mark	<u>250,000</u>
Gross profit		250,000
Variable selling and administrative expenses (10,000 @ \$5)	\$50,000 1 mark	
Fixed selling and administrative expenses	1 mark	<u>20,000</u> <u>70,000</u>
Net income		<u><u>\$180,000</u></u>

(b) Net income under variable costing = Abso NI \$180,000 – (2,000 X \$10) **2 marks** = \$160,000

The difference in net income of \$20,000 can be explained by the 2,000-unit difference between the number of units sold (10,000) versus the number of units produced (12,000). Under absorption costing, the company defers \$10 per unit of fixed manufacturing costs in the 2,000 units of ending inventory. This represents the total difference of \$20,000 (\$10 X 2,000 units) between the net income under variable costing (\$160,000) and under absorption costing (\$180,000).

(c) Net income under throughput costing = Vari NI \$160,000 – (2,000 X \$10) = \$140,000 **2 marks**

The difference in net income of \$20,000 can be explained by the 2,000-unit difference between the number of units sold (10,000) versus the number of units produced (12,000). Under variable costing, the company defers \$4 per unit of direct labour and \$6 variable manufacturing overhead costs in the 2,000 units of ending inventory. This represents the total difference of \$20,000 (\$10 X 2,000 units) between the net income under variable costing (\$160,000) and under throughput costing \$140,000.

(d) - i The company policy is to use the budgeted volume of 15,000 units to allocate the fixed overhead rate rather than the actual production volume of 12,000 units. Predetermined rate = \$120,000 fixed overhead / 15,000 budgeted production volume = \$8 **1 mark**

Based on this rate, the absorption product cost per unit is as follows:

Direct materials	\$ 5
Direct labour	4
Variable overhead	6
Fixed overhead predetermined rate	<u>8</u>
Total product cost per unit	<u>\$23</u>

TAYLOR ENTERPRISES
Income Statement
Year Ended 2011
Absorption Costing Normal costing

Sales (10,000 units @\$50)	0.50 mark	\$500,000
Less Cost of goods sold [10,000 units @\$23]	2 mark	230,000
Less unfavourable volume variance [\$8 (15,000 units - 12,000 units)]	2 marks	<u>24,000</u>
Gross profit		\$246,000
Variable selling and administrative expenses (10,000@ \$5)	.75 mark	\$50,000
Fixed selling and administrative expenses	0.75 mark	<u>20,000</u> 70,000
Net income	<i>6 Marks</i>	<u>\$ 176,000</u>

(d) -ii We can reconcile the absorption normal costing net income to the absorption actual costing net income as follows:

Absorption costing actual costing net income		\$180,000
Less ending inventory fixed manufacturing overhead (2,000 X (\$10-\$8))		<u>4,000</u> 2 marks
Normal costing net income	<i>2 Marks</i>	<u>\$ 176,000</u>

(d) -iii We can reconcile the absorption normal costing net income to the variable costing net income as follows: **2 marks**

Absorption costing net income		\$176,000
Less ending inventory fixed manufacturing overhead (2,000 X \$8)		<u>16,000</u>
Variable costing net income	<i>2 Marks</i>	<u>\$160,000</u>

TAYLOR ENTERPRISES
Income Statement
Year Ended 2011
Variable Costing

Sales (10,000 units @ \$50)		\$500,000
Variable cost of goods sold (10,000 @ \$15)	\$150,000	
Variable selling and adm. expenses (10,000 @ \$5)	<u>50,000</u>	\$200,000
Contribution margin		\$300,000
Fixed manufacturing overhead	\$120,000	
Fixed selling and administrative expenses	<u>20,000</u>	140,000
Net income		<u>\$ 160,00</u>

QUESTION III. 12 MARKS

The Furniture Division of Kelowna Woodcraft purchases lumber, which it uses to fabricate tables, chairs and other quality wood furniture. Most of the lumber is purchased from the South-shore Mill, also a division of Kelowna Woodcraft. Both the Furniture Division and South-shore Mill are profit centres.

The Furniture Division proposes to produce a new Danish-designed chair that will sell for \$92. The manager is exploring the possibility of purchasing the required lumber from the South-shore Mill. Production of 800 chairs is planned, using capacity in the Furniture Division that is currently idle.

The Furniture Division can purchase the lumber from an outside supplier, Okanagan Lumber, for \$62. Kelowna Woodcraft has a policy that internal transfers are priced at fully allocated cost.

Assume the following costs for the production of one chair and the lumber required for the chair:

<u>South shore Mill</u>		<u>Furniture Division</u>	
Variable cost	\$48	Variable costs:	
Allocated fixed cost	<u>22</u>	Lumber from South shore Mill	\$70
Fully allocated cost	<u>\$70</u>	Furniture Division variable costs:	
		Manufacturing	\$21
		Selling	<u>6</u>
		Total cost	<u>\$97</u>

Required:

- Assume that South-shore Mill has idle capacity and therefore would incur no additional fixed costs to produce the required lumber. Would the Furniture Division manager buy the lumber for the chair from the South-shore Mill, given the existing transfer pricing policy? What would be the maximum price the Furniture Division could pay for the wood on these chairs? What would be the minimum transfer price possible from the South-shore Mill under their current capacity situation? **4 Marks**
- Would Kelowna Woodcraft as a whole benefit from the transfer if the Furniture Division decides to buy from South-shore Mill? Show all computations. **4 Marks**
- Assume that there is no idle capacity at the South-shore Mill and the lumber required for one chair can be sold to outside customers for \$70. Would the company as a whole benefit if the manager decides to buy? Show all computations. **4 Marks**

(a) No, the Furniture division would not purchase the lumber at all since they would only pay the equivalent to what they could source it at externally, ie: \$62. Hence, the \$70 transfer price from South-shore is too high. **1 MARK**

Also, as profit centre, they would make \$3 per chair by using the external source (92-27-62). **1 MARK**

The maximum price they could pay would be \$62 Market price **1 MARK**

The minimum price South-shore Mill should charge would be their variable cost, or \$48, since they have excess capacity. **1 MARK**

(b) Kelowna combined:

$(\$92 - \$21 - \$6 - \$48) = \$17$ per unit, for 800 units = \$13,600 profit

Yes, with South-shore Division providing wood within their excess capacity the overall profits would increase by \$13,600. **4 MARKS**

(c) Kelowna combined:

With transfer- $(\$92 - \$21 - \$6 - \$48) = \$17$ per unit, for 800 units = \$13,600 **1 MARK**

Without transfer- $(\$70 - 48) = \22 per unit, for 800 units = \$17,600 **1.5 MARKS**
 $(\$92 - \$21 - \$6 - \$62) = \$3$ per unit, for 800 units = \$2,400 **1.5 MARKS**
\$20,000

No, it would not benefit the company overall for the transfer to take place.

QUESTION III. 18 MARKS

Weltin Industrial Gas Corporation supplies acetylene and other compressed gases to industry. Data regarding the store's operations follow:

- A. Sales are budgeted at \$390,000 for November, \$370,000 for December, and \$380,000 for January.
- B. Collections are expected to be 90% in the month of sale, 5% in the month following the sale, and 5% uncollectible.
- C. The cost of goods sold is 60% of sales.
- D. The company purchases 70% of its merchandise in the month prior to the month of sale and 30% in the month of sale. Payment for merchandise is made in the month following the purchase.
- E. Other monthly expenses to be paid in cash are \$21,800.
- F. Monthly depreciation is \$18,000.
- G. Ignore taxes.
- H. Statement of financial position at October 31 for Weltin Industrial Gas Corporation as follows:

Statement of Financial Position
October 31

Assets	
Cash	\$ 25,000
Accounts receivable (net of allowance for uncollectible accounts)	71,000
Inventory	163,800
Property, plant and equipment (net of \$504,000 accumulated depreciation)	<u>1,088,000</u>
Total assets	<u>\$1,347,800</u>
Liabilities and Stockholders' Equity	
Accounts payable	\$ 232,000
Common stock	700,000
Retained earnings.....	<u>415,800</u>
Total liabilities and stockholders' equity ..	<u>\$1,347,800</u>

Instructions

- A. Prepare a Schedule of Expected Cash Collections for November and December. **4 Marks**
- B. Prepare a Merchandise Purchases Budget for November and December. **4 Marks**
- C. What will be the ending balance in accounts payable for December? **2 Marks**
- D. What will be accounts receivable balance at the end of December? **2 Marks**
- E. Prepare Cash Budgets for November and December. **6 Marks**

A. Total Marks 4, 1 mark for each red number

	<u>November</u>	<u>December</u>
Sales	<u>\$390,000</u>	<u>\$370,000</u>
Schedule of Expected Cash Collections:		
Account Receivable	\$ 71,000	
November sales (390,000 X .90) & .05	\$351,000	\$ 19,500
December Sales (\$370,000 X .90)		<u>\$333,000</u>
Total cash collections	<u>\$422,000</u>	<u>\$352,500</u>
	2 MARKS	2 MARKS

B. Total Marks 4, 1 mark for each red number

	<u>November</u>	<u>December</u>
Cost of Goods sold	<u>\$234,000</u>	<u>\$222,000</u>
Merchandise Purchases Budget:		
November sales	\$ 70,200	
December Sales	\$155,400	\$ 66,600
January Sales		<u>\$159,600</u>
Total Purchases	<u>\$225,600</u>	<u>\$226,200</u>
	2 MARKS	2 MARKS

(c) The ending balance in accounts payable for December = \$226,200 **2 MARKS**

(d) The accounts receivable balance at the end of December = \$370,000 X .10 = \$37,000 **1 MARK**

\$37,000 X 5% uncollectible = \$18,500 **1 MARK**

(e) Total Marks 6, .50 mark each red number except disbursements for merchandise 1.5 marks each

	<u>November</u>	<u>December</u>
B balance of Cash 0.50 MK each red number	\$ 25,000	\$193,200
Cash receipts:	<u>\$422,000</u>	<u>\$352,500</u>
Cash available	<u>\$447,000</u>	<u>\$545,700</u>
Cash disbursements:		
Disbursements for merchandise 1.5 MK each	\$232,000	\$225,600
Other monthly expenses 0.50 MK each red number	<u>\$ 21,800</u>	<u>\$ 21,800</u>
Total cash disbursements	\$253,800	\$247,400
Excess (deficiency) of cash	<u>\$193,200</u>	<u>\$298,300</u>

QUESTION V. 20 MARKS

Manlow Company makes a pasta sauce for the restaurant industry. The standard cost for one tub of sauce is as follows:

Manufacturing Cost Elements	Standard		
	Quantity	Price	Cost
Direct materials	6 litre	\$ 0.90	\$ 5.40
Direct labour	0.5 hours	\$ 12.00	6.00
Manufacturing overhead	0.5 hours	\$ 4.80	<u>2.40</u>
			<u>\$ 13.80</u>

During the month, the following transactions occurred in manufacturing 10,000 tubs of sauce:

1. A total of 58,000 litres of materials were purchased at \$1.00 per litre.
2. All the materials purchased were used to produce the 10,000 tubs of sauce.
3. A total of 4,900 direct labour hours were worked at a total labour cost of \$56,350.
4. The variable manufacturing overhead incurred was \$15,000 and the fixed overhead incurred was \$10,400.

The manufacturing overhead rate of \$4.80 is based on a normal capacity of 5,200 direct labour hours. The total budget at this capacity is \$10,400 fixed and \$14,560 variable.

Instructions

Calculate the following:

- (a) Direct materials price, usage, and budget variances **3 Marks**
- (b) Labour price, usage, and budget variances **3 Marks**
- (c) Variable overhead spending, quantity, and budget variances **3 Marks**
- (d) Fixed overhead spending and volume variances **5 Marks**
- (e) Total overhead controllable variances **2 Marks**
- (f) Under or over applied overhead **2 Marks**
- (g) Total manufacturing cost variance **2 Marks**

\$58,000	$58,000 \times \$0.90 =$	\$52,200	$10,000 \times 6 \times \$0.90 =$	\$54,000
	\$5,800 UN PV		\$1,800 F Usage	

(a) Total material budget variance = \$5,800 UNF + \$1,800 F = \$4,000 UN **1 MARK**

\$56,350	$4,900 \times \$12 =$	\$58,800	$10,000 \times .5 \times \$12 =$	\$60,000
	\$2,450 F PV		\$1,200 F Usage V	

(b) Total Labour budget variance = \$2,450 F PV + \$1,200 F = \$3,650 **1 MARK**

(c) Variable overhead rate per hour = **Variable overhead \$14,560 / 5,200 hours = \$2.80**
1 MARK

\$15,000	$4,900 \times \$2.80 =$	\$13,720	$10,000 \times 0.5 \times \$2.80 =$	\$14,000
	\$1,280 UN SPV		\$280 F Usage V	

Total variable OVERHEAD budget variance = \$1,280 UN + \$280 F = \$1,000 UN **0.5 MARK**

(d) **Fixed** overhead rate per hour = **Fixed overhead \$10,400 / 5,200 hours = \$2** **2 MARKS**

\$10,400	$\$10,400 = 5,200 \times \2		$10,000 \times .5 \times \$2 =$	\$10,000
	\$0 SPV		\$400 UN-PVV	

Total Fixed overhead variance = \$0 + \$400 U = \$400 UN **0.5 MARK**

WARNING (carrying errors): If student uses wrong answer in (c) or (d) above to compute the value of (e) or (f) but he or she uses the right information, please grant the full marks for (e) or (f) to prevent double penalty.

(e) **Total overhead controllable variances** = Total OVERHEAD budget variance = \$1,280UN + \$280 F = \$1,000 UN + 0 FOH = \$1,000 UN

(f) **Over-applied overhead** = Actual Overhead \$25,400 – Applied Overhead 24,000 = \$1,400 Under-applied **2 Marks**

(g) **Total manufacturing cost variance**

	<u>Actual costs incurred</u>	<u>Standard cost</u>
Direct materials .25 mark each red number	\$ 58,000	\$ 54,000
Direct labour	56,350	60,000
Variable Manufacturing overhead	15,000	14,000
Fixed manufacturing overhead	<u>10,400</u>	<u>10,000</u>
	<u>139,750</u>	<u>\$138,000</u>
Total variance		\$ 1,750 U