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CONCORDIA UNIVERSITY

Course: Managerial Accounting,
No.: Comm. 305 & Accto. 240 Sections All
Examination: Final
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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**

(a)

	<u>Make*</u>	<u>Buy*</u>	<u>Net Income Increase (Decrease)</u>
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**

	<u>Make*</u>	<u>Buy*</u>	<u>Net Income Increase (Decrease)</u>
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>	<u>2,700,000</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: $SP(X) - VC(X) = FC$
 $\$200(X) - (\$110X + \$10X) = \$800,000 + \$200,000$
 $\$80X = \$1,000,000$

$X = 12,500 \text{ units}$ **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 X DOL 3.273 = 0.818182 **1.5 PTS**

Increase in net income $0.818182 \times \$440,000 = \$360,000$ **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-assm 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:

$$\text{\$1,500} * 1,000 \text{ units} = \text{\$1,500,000}$$

$$\text{Saved by outsource} \quad \underline{\hspace{1cm} .33333}$$

$$\text{Avoidable FMOH} \quad \text{\$500,000}$$

$$\text{Units transferred} \quad \underline{\hspace{1cm} 500}$$

$$\text{FMOH per unit on transfers} \quad \text{\$1,000 per unit} \quad \text{4 PTS}$$

$$\text{Variable cost} \quad \underline{\hspace{1cm} 900 \text{ per unit}} \quad \text{2 PTS}$$

$$\text{Maximum to pay externally} \quad \underline{\text{\$1,900 per unit}} \quad \text{6 PTS (It is the total)}$$

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 x (100% - 54%))	\$ 103,500
for February (\$243,600 x 54%)	131,544
Cash disbursements for other expenses--	
from January ((\$357,000 x 15%) - \$2,000) x 46%	23,713
for February ((\$342,000 x 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 \times $\$0.87 =$ \$ 3.567

direct labour $1\frac{1}{3} \times \$12.00 =$ \$16.00

manufacturing overhead $1\frac{1}{3} \times \$7.80 =$ \$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.