

Solution!!!!!!! Final Exam Managerial Accounting ADM2341

Student Name_____Student Number_____

Instructions:

1. Answer all questions in this booklet. Booklet is **not** to be removed from the examination room. You may separate the pages but ensure that you put them back together and staple before handing in.
2. Please limit your answer to the space provided. Please indicate if you use the back of a page.
3. The use of standard abbreviations (O/H for Overhead and CM% for Contribution Margin Percentage) is quite acceptable.
4. Questions concerning possible errors only. Make reasonable assumptions where necessary.
5. Language dictionaries are allowed.

	Question	Max Grades
Short Answer	Qs 1 to 9	34
Longer Questions	Q.10	8
	Q.11	8
	Q.12	8
	Q.13	8
	Q.14	10
	Q.15	12
	Q.16	12
	Total	100

Budget about 1.8 minutes per grade.

Statement of Academic Integrity

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Statement to be signed by the student:

I have read the text on academic integrity and I pledge not to have committed or attempted to commit academic fraud in this examination.

Signed: _____

Note: an examination without this signed statement will not be graded and will receive an exam grade of zero.

Number in brackets () is the grade or the question

Short Questions

Q.1(4) The annual results of XYZ Inc. are as follows:

Sales	\$1,000,000
Average operating assets	\$500,000
Operating Income	\$90,000

Required:

1.1 Calculate the return on investment: Break down the components of return on investment into margin and turnover. Why is this additional information important?

$ROI = (\$90,000 / 1,000,000) * (\$1,000,000 / 500,000) = 9\% * 2 = 18\%$ (2)

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Breakdown allows for comparisons of margin and turnover with other similar divisions or companies, provides insight into potential reasons for over or underperformance. (1)

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1.2. Calculate the Residual Income/Economic Value Added if the required rate of return is 20 percent.

$RI = \$90,000 - 20\% * 500,000 = (- \$10,000.)$. (1)

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Q.2 (2)The following costs were incurred in March:

Direct materials	\$19,000
Direct labor	\$14,000
Manufacturing overhead	\$63,000
Selling expenses	\$15,000
Administrative expenses	\$17,000

Required:

Conversion costs during the month totaled:

- i. \$82,000
- ii. \$128,000
- iii. \$33,000
- iv. ✓ \$77,000
- v. None of the above

Q. 3 (2) The following costs were incurred in January:

Direct materials	\$37,000
Direct labor	\$29,000
Manufacturing overhead	\$20,000
Selling expenses	\$12,000
Administrative expenses	\$25,000

Required:

Prime costs during the month totaled:

- i. \$86,000
- ii. ☒ \$66,000
- iii. \$49,000
- iv. \$123,000
- v. None of the above

Q.4 (2) CF Company recently manufactured 9,500 wooden rocking chairs. CF identified the following three material costs in its production process for July: \$95,000 for springs for the rocking mechanism; two springs at a cost of \$10 each are used in each chair; \$2,100 for glue used as needed from one gallon containers; and \$550 for stain used to touch up spots on the chairs.

Required:

The total cost that should have been assigned to **indirect material** for July was:

- i. \$97,650
- ii. \$550
- iii. ☒ \$2,650
- iv. \$2,100
- v. None of the above

Q.5 The following data are for Poitras Company:

	<u>Beginning</u>	<u>Ending</u>
Finished goods inventory	\$30,000	\$40,000
Work-in-process inventory	\$20,000	\$13,000
Raw materials inventory	\$21,000	\$26,000
Purchases of raw materials	\$71,000	
Factory depreciation	\$ 5,000	
Other factory costs	\$10,000	
Direct labour	\$27,000	
Indirect labour	\$ 6,000	
Selling expense	\$12,000	
Over- or underapplied overhead	-0-	

Required:

5.1(2) What is the cost of raw materials used in production?

- a. \$26,000.
- b. \$71,000.
- c. \$76,000.
- d. ✓ \$66,000.
- e. None of the above

5.2 (2) What is the cost of goods manufactured?

- i. \$114,000.
- ii. \$133,000.
- iii. ✓ \$121,000.
- iv. \$138,000.
- v. None of the above

5.3 (2) What is the Cost of Goods Sold?

- i. \$131,000.
- ii. \$ 91,000.
- iii. \$ 81,000.
- iv. ✓ \$111,000.
- v. None of the above

Q.6 (4) Sai Company applies manufacturing overhead costs to its products using a predetermined overhead rate based on direct labour-hours. The following data were extracted from the company's accounting records for Year 6:

	Estimated	Actual
Manufacturing overhead costs	\$50,000	\$54,000
Direct labour-hours	20,000 hours	24,000 hours

Required:
 What was the underapplied or overapplied overhead for the year?

POR = \$50,000/20,000 = \$2.50

Applied = 24,000 *\$2.50 = \$60,000

Overapplied = \$60,000 - \$54,000 = \$6,000

Q.7 (4) Selected data about Pitkin Company's manufacturing operations at two levels of activity are presented below:

Number of Units Produced	10,000	15,000
Total Manufacturing Costs	\$157,000	\$225,000
Direct Material Cost per Unit	\$4	\$4
Direct Labour Cost per Unit	\$6	\$6

Required:
 Using the high-low method, estimate the cost formula for **manufacturing overhead**

	<u>Low</u>	<u>High</u>
Total manufacturing costs	\$157,000	\$225,000
Less:		
Direct materials (\$4 x 10,000 and \$4 x 15,000, respectively)	40,000	60,000
Direct labor (\$6 x 10,000 and \$6 x 15,000, respectively)	<u>60,000</u>	<u>90,000</u>
Manufacturing overhead cost	<u>\$ 57,000</u>	<u>\$ 75,000</u>
	<u>Cost</u>	<u>Activity</u>
High level of activity	\$ 75,000	15,000 units
Low level of activity	<u>57,000</u>	<u>10,000</u>
Change	<u>\$ 18,000</u>	<u>5,000 units</u>

\$18,000 ÷ 5,000 units = \$3.60 per unit variable cost

2 points

Total cost at the high level of activity	\$ 75,000
Less: Variable element (\$3.60 x 15,000 units)	<u>54,000</u>
Fixed cost element	<u>\$ 21,000</u>

Therefore, the cost formula for manufacturing overhead is \$21,000 per period plus \$3.60 per unit produced, or

Y = \$21,000 + \$3.60X

2 points

Q.8. (4)

Thorpe Industries produces chemicals for the swimming pool industry. In one process, 10,000 liters of GSX are processed into 7,000 liters of xenolite and 3,000 liters of bandolide. The cost of the joint process including the GSX is \$17,500. The 3,000 liters of bandolide can be sold at the split off point for \$3,500 or processed further into a product called kitrocode. The sales value of the kitrocode is \$11,000 and the additional processing cost is \$7,900.

Required:

Should the bandolide be sold at the split off point or processed further as kitrocode?

Sell at split off	\$3,500	(1)
Sell after further processing	\$11,000	
-Sep Costs	7,900	
= Net for process further	\$3,100	(2)
So sell at split off	+\$ 400	(1)
Joint cost not relevant		(-2)

Q.9 (6)

The Sitting Duck Company(SDC) makes decoys for hunting. Currently the company sells 6,000 ducks and 12,000 geese per year. The following are the company’s revenues and costs:

Per unit	DUCKS	GEESE
Selling price	\$24	\$12
Variable cost	<u>10</u>	<u>4</u>

Annual fixed costs are \$150,000.

Required:

9.1 If the company wants to earn \$50,000 in profit per year, how many Ducks and how many Geese must it sell at the current sales mix?

9.2 The company believes that the mix will change to 15% Ducks and 85% Geese next year.

Without doing calculations, will the total sales of Ducks and Geese required to earn \$50,000 in profit increase or decrease. Explain very briefly.

9.1 Average CM = 6,000*\$14 + 12,000*\$8 = \$180,000 , \$180,000/18,000 = \$10 (2)

Target sales = (\$150,000 + 50,000)/\$10 = 20,000 units (1)

Ducks = 6/18 or .333333 * 20,000 = 6,666

Geese = 12/18 or .66666 *20,000 = 13,333

(1)

9.2 Target sales will go up because of shift to lower CM Geese, 85% from 67% (2)

Problems:

Q.10 (8)

Roberts Enterprises has budgeted sales in units for the next five months as follows:

June	4,500 units
July	7,100 units
August	5,300 units
September	6,700 units
October	3,700 units

Past experience has shown that the ending inventory for each month must be equal to 10% of the next month's sales in units. The inventory on May 31 contained 410 units. The company needs to prepare a production budget for the second quarter of the year.

Required:

- 10.1 What is the opening inventory in units for September?
- 10.2 What is the total number of units to be produced in July?
- 10.3 What is the desired ending inventory for August?

	June	July	August	September	October
Sales	4,500	7,100	5,300	6,700	3,700
+ EB	710	530	670(2)	370	
- BB	410	710	530	670(2)	
= Production	4,800	6,920(4)	5,440	6,400	

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Q.11. (8)

On March 31, Sterling Enterprises, a merchandising firm, had an inventory of 38,000 units, and it had accounts receivable totalling \$85,000. Sales, in units, have been budgeted as follows for the next four months:

April	60,000
May	75,000
June	90,000

Sterling's board of directors has established a policy to commence in April that the inventory at the end of each month should contain 40% of the units required for the following month's budgeted sales.

The selling price is \$2 per unit. One-third of sales are paid for by customers in the month of the sale; the balance is collected in the following month.

Required:

- 11.1 Prepare a merchandise purchases budget showing how many units should be purchased for each of the months of April and May. (4)
- 11.2 Prepare a schedule of expected cash collections for each of the months of April and May. (4)

SOLUTION

11.1

	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>
Budgeted sales, in units	60,000	75,000	90,000	81,000
Desired ending inventory (40%)	<u>30,000</u>	<u>36,000</u>	<u>32,400</u>	
Total needs	90,000	111,000	122,400	
Less beginning inventory	<u>38,000</u>	<u>30,000</u>	<u>36,000</u>	
Required purchases	<u>52,000</u>	<u>81,000</u>	<u>86,400</u>	

June not required

11.2

	<u>April</u>	<u>May</u>	<u>June</u>
Budgeted sales, at \$2 per unit	\$120,000	\$150,000	\$180,000
March 31 Accounts Receivable	\$85,000		
April sales	40,000	\$ 80,000	
May sales		50,000	\$100,000
June sales			<u>60,000</u>
Total cash collections	<u>\$125,000</u>	<u>\$130,000</u>	<u>\$160,000</u>

June not required.....

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Q. 12 (8) Lido Company's standard and actual costs **per unit** for the most recent period, during which 400 units were actually produced, are given below:

	<u>Standard</u>	<u>Actual</u>
Materials:		
Standard: 2 metres at \$1.50 per m.	\$ 3.00	
Actual: 2.1 metres. at \$1.60 per m.		\$ 3.36
Direct labour:		
Standard: 1.5 hrs. at \$6.00 per hr.	9.00	
Actual: 1.4 hrs. at \$6.50 per hr.		9.10
Variable overhead:		
Standard: 1.5 hrs. at \$3.40 per hr.	5.10	
Actual: 1.4 hrs. at \$3.10 per hr.		<u>4.34</u>
Total unit cost	<u>\$17.10</u>	<u>\$16.80</u>

Required:

From the above information, compute the following variances. Show whether the variance is favourable (F) or unfavourable (U):

- 12.1 Materials price variance
- 12.2 Materials quantity variance
- 12.3 Direct labour rate variance
- 12.4 Direct labour efficiency variance
- 12.5 Variable overhead spending variance
- 12.6 Variable overhead efficiency variance

12.1 Materials price variance = AQ(AP - SP)
 = (2.1 x 400)(\$1.60 - \$1.50)
 = \$84 U **(2)**

12.2 Materials quantity variance = SP(AQ - SQ)
 = \$1.50((2.1 x 400) – (2.0 x 400))
 = \$60 U **(2)**

12.3 Direct labour rate variance = AH(AR - SR)
 = (1.4 x 400)(\$6.50 - \$6.00)
 = \$280 U **(1)**

12.4 Direct labour efficiency variance = SR(AH - SH)
 = \$6.00((1.4 x 400) – (1.5 x 400))
 = \$240 F **(1)**

12.5 Variable overhead spending variance = AH(AR - SR)
 = (1.4 x 400)(\$3.10 - \$3.40)
 = \$168 F **(1)**

12.6 Variable overhead efficiency variance = SR(AH - SH)
 = \$3.40((1.4 x 400) – (1.5 x 400))
 = \$136 F **(1)**

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Required:

- (2)

- (2)

Q.14. (10)

Chef Gourmet Manufacturing has assembled the following data for its two most popular products:

Per unit	Blender	Food processor
Selling Price	\$50.00	\$90.00
Costs per unit:		
Direct material	18	33
Direct labour	12	27
Fixed Manufacturing overhead*	48	96
Demand in total units	20,000	28,000

* Allocated based on \$48 per machine hour. There is no variable overhead

Required:

If 30,000 machine hours are available, how many units of each product should the firm make to maximize the total contribution margin? What would the total contribution margin be?

Per unit	Blender	Food processor	
Selling Price	\$50.00	\$90.00	
- Costs per unit:			
Direct material	18.00	33.00	
Direct labour	12.00	27.00	
CM per unit	\$20.00	\$30.00	
MHs per unit*	1.00	2.00	
CM per MH	\$20.00	\$15.00	(4)
Demand	20,000	28,000	
So produce	20,000	30,00-2000= 10,000/2 = 5,000	(4)
Total CM per product	20,000*\$20 \$400,000	5,000*\$30= \$150,000	
Total CM	\$550,000		(2)

\$48/\$48, \$96/\$48 = 1 and 2

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Q.15 (12)

Mercury Skateboards manufactures skateboards. The firm has a received a special order request form Venus Inc. Venus has offered to purchase 11,000 units. The cost data for the model requested is as follows:

Per unit	Cost
Direct material	\$16.40
Direct labour	4.50
Variable manufacturing overhead	7.50
Fixed manufacturing overhead	12.50

The normal selling price for this board is \$53, but because of the large order, Venus has offered Mercury just \$35.00 per board.

Other information concerning the order:
A modification to the design will reduce direct material cost by \$4.20 for the special order.
A special machine will be required for the order that will cost \$12,200. It will be discarded after the order is completed.
Mercury will allocate \$3,600 of fixed administrative cost to the special order.

Required:
Should the special order be accepted, considering financial analysis only, ie is it profitable and by how much? Show calculations.

SP		\$35.00	
VC DM	16.40 – 4.20	12.20	
DL		4.50	
VOH		7.50	
VC		24.20	
CM		10.80	(4)
CM Total	11,000*\$10.80	\$118,800	(2)
FC Machine		12,200	(2)
FC Allocated	NR	0	(2)
Net		\$106,600	(2)

\$3,600 is not relevant

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Q.16 (12) The Hamilton Division of Canadian Welding Supplies(CWS) produces welding rods. The rods can be sold on the open market for \$150 a pack, or they can be used by the Welland Division of CWS in the production of wheels for cars. The Welland Division currently pays \$148 per pack to an outside supplier. The Hamilton division is currently operating at 80% of its capacity of 4,000 packs of rods per month. Following are average costs per pack at the 4,000 pack level of capacity:

	Average Cost
Direct materials	\$40
Variable supplies	20
Fixed costs	<u>66</u>
Total average cost per pack	<u><u>\$126</u></u>

If the rods are sold on the open market, the shipping cost is \$10 per pack, paid by Hamilton Division. The cost of shipping the rods internally from Hamilton to Welland Division is \$5 per pack, also paid by the Hamilton Division.

Required:

1. What is the best transfer price – or range of transfer prices - for CWS overall if 1,000 packs are transferred to Welland and the Hamilton division is operating at 80% of capacity?
2. Should transfers occur?
3. How much better or worse off is the company if the 1,000 packs of rods are transferred to Welland Division?

$$1. \text{Min TP} = \text{VC}(\text{inside}) + \text{lost CM}(\text{outside})/\text{Units}(\text{inside})$$

$$(\$60 + 5) + [(\$150 - (60 + 10)) * 200^A] / 1000$$

(^ operating at 80% = $.8 * 4,000 = 3,200$ so 800 units of idle capacity, give up 200)

$\$65 + (\$80 \times 200) / 1,000$; $\$65 + \$16,000 / 1,000$; $\$65 + 16 = \81 (6).....

Max TP = \$148 the outside price for Welland (2)

2. So..... $\$81 < TP < \148 Yes (2)

3. Company better off by $1,000 * (\$148 - 81)$; $1,000 * \$67 = \$67,000$ (2)

Extra space as needed

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