

# Solution   Final Exam   Managerial Accounting   Winter 2009 ADM2341 All Sections

STUDENT NAME: .....

STUDENT NUMBER: .....

Section	Time	Professor	Check <input checked="" type="checkbox"/> your section
M	Mon–Wed: 16:00-17:30,14:30-16:00	Rhonda Pyper	
N	Tues-Thurs: 10:00 - 11:30, 830-10:00	Ronald Eden	
P	Mon-Wed: 13:00-14:30,11:30-13:00	Ronald Eden	
Q	Tues: 13:00-14:30, 11:30-13:00	Brian Conheady	
R	Wed: 19:00 - 22:00	Rob Collier	

**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. Budget your time wisely. Please do **not** ask the invigilators questions. Make reasonable assumptions where necessary.
5. Language dictionaries are allowed.

	Question	Max Grades
Short Answer	Qs 1 to 10	45
Exercises and Problems	Q.11	10
	Q.12	15
	Q.13	10
	Q.14	10
	Q.15	10
	Total	100

Budget about 1.8 minutes per grade.

**Statement of Academic Integrity**

The School of Management does not condone academic fraud, an act by a student that may result in a false academic evaluation of that student or of another student. Without limiting the generality of this definition, academic fraud occurs when a student commits any of the following offences: plagiarism or cheating of any kind, use of books, notes, mathematical tables, dictionaries or other study aid unless an explicit written note to the contrary appears on the exam, to have in his/her possession cameras, radios (radios with head sets), tape recorders, pagers, cell phones, or any other communication device which has not been previously authorized in writing.

**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 points for the question

Short Questions

Q. 1 (2) The following data pertain to activity and costs for two months:

	<u>October</u>	<u>November</u>
Activity level in units	5,000	10,000
Variable costs	\$10,000	?
Fixed costs	30,000	?
Mixed costs	<u>20,000</u>	<u>?</u>
Total costs	<u>\$60,000</u>	<u>\$75,000</u>

**Required:** Assuming that these activity levels are within the relevant range, what were the mixed costs for November?

Solution: \$25,000 = [\$75,000 – (\$10,000/5,000 x 10,000) - \$30,000].....

0 or 2 points.....

Q.2 (3) 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.

Solution

	<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 .....

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.....

1 point for VC, 1 point for FC, 1 point for TC .....

**Q.3 (5)** Jessep Corporation has a standard cost system in which manufacturing overhead is applied to units of product on the basis of direct labour hours. The company has provided the following data concerning its fixed manufacturing overhead costs in March:

Denominator Hours	15,000 hours
Actual Hours Worked	14,000 hours
Standard Hours Allowed for the Output	12,000 hours
Flexible Budget Fixed Overhead Cost	\$45,000
Actual Fixed Overhead Costs	\$48,000

**Required:**

1. Calculate the fixed overhead budget(spending) variance? Indicate if the amount is favourable or unfavourable.
2. Calculate the fixed overhead volume variance? Indicate if the amount is favourable or unfavourable.

**Solution:**

1. \$3,000U = \$45,000 - \$48,000     **2 points**
2. \$9,000U= (\$45,000/15,000) x (15,000 – 12,000)     **3 points**

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**Q.4 (5)** David Rosenberg Golf World manufactures two types of golf carts, which are sold to golfers throughout the country. The compact cart is sold for an average price of \$2,000 per unit; variable costs are \$1,800 per unit. The standard-size cart is sold for an average price of \$3,500 per unit; variable costs are \$3,000 per unit. Total fixed costs are estimated to be \$360 million per year, target profit is \$20 million per year..

**Required:**

- a. Determine the target sales volume in carts and for each cart type for the company if the expected sales mix is one-third compact carts and two-thirds standard carts.

**Solution:**

CM Compact = \$2,000 – 1,800 = \$200  
 CM Standard = \$3,500 – 3,000 = \$500

CM Average = 1/3 \* 200 + 2/3\*500 = \$400     **2 points**

TS(Carts) = (\$360mn + \$20mn)/\$400 = 950,000 carts     **1 point**

Compact = 1/3 \*950,000 = 316,667     **1 point**  
 Standard = 2/3\* 950,000 = 633,333     **1 point**

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**Q.5 (4)** Shaw Ltd.'s balance sheets showed the following amounts:

Work In Process Inventory, Jan 1	\$180,000
Work In Process Inventory, Dec 31	100,000
Finished Goods Inventory, Jan 1	260,000
Finished Goods Inventory, Dec 31	210,000
Direct Materials Inventory, Jan 1	90,000
Direct Materials Inventory, Dec 31	60,000

**Required:** If the Cost of Goods Sold for Shaw Ltd. Is \$1,700,000, calculate the Cost of Goods Manufactured.

Solution:

FG, Jan 1	260,000
Add: COGM	X
COG Avail	1,910,000
FG, Dec 31	(210,000)
COGS	1,700,000

$$X = 1,650,000 \quad \text{0 or 4 points}$$

$$\text{OR} \quad 1,700,000 + 210,000 - 260,000 = 1,650,000$$

**Q.6 (4)** Depreciation of equipment used in production would be classified as which type(s) of costs: (circle all that apply)

Solution:

- a) variable
- b) fixed
- c) product cost
- d) period cost
- e) direct material
- f) direct labour
- g) manufacturing overhead
- h) direct cost
- i) indirect cost
- j) sunk cost
- k) opportunity cost

1 point for each correct, -1 point for each wrong up to 4

**Q.7 (5)** Eagle Corp has sales for the first quarter as follows:

Jan	\$780,000
Feb	825,000
Mar	860,000

Eagle Corp typically sells 30% of sales for cash. Of the sales that are on credit, cash is usually collected as follows:

60% in the month following the sale  
40% in the second month after the sale

**Required:** Calculate the amount in A/R at the end of March.

**Solution:**

Amounts of credit sales **not yet collected** at end of March

March credit sales 860,000 (0.7) = 602,000 2 points  
Feb credit sales 825,000 (0.7)(0.4) = 231,000 2 points

Total amount uncollected: 833,000 1 point

**Q.8 (6 )** Madison Decorative Floors operates with profit centers. Company policy requires all transfers between corporate units to be made at the market price available to the buyer division. Tile Division has been asked to produce 10,000 standard tiles for Consumer Products Division. Tile Division is operating at full capacity and could otherwise sell any output it produces externally. Tile Division has quoted a \$3.50 price per unit, but Consumer Products Division has found an external company that will make the tiles for \$2.80. Since corporate policy states that external market prices must be used, Tile Division will be required to sell the units at \$2.80. Tile Division’s total variable cost for this specific type of tile is \$2.20.

**Required:**

- a. What effect does the use of the externally quoted purchase price of \$2.80 have on Madison Decorative Floors’ net income? On Tile Division Profits?

**Solution:**

Min TP = VC (IS) + Lost CM  
 = \$2.20 + (\$3.50 – 2.20) = \$3.50

Max TP = \$2.80

So.. TP should be \$3.50 < TP < \$2.80 No transfers should occur

But if they do:  
 Madison worse off by 10,000 \*(\$3.50 - 2.80) = \$7,000  
 Tile Division worse off by \$7,000  
 Consumer indifferent

**Or quick way**

Just \$.350 - \$2.80 = \$.70 per unit worse off \* 10,000 = \$7,000

3 points for the \$.70 and 3 points for the 10,000\*\$.70 units worse off.....

**Q. 9 (5)** The numbers (1-6) in the following table identify missing data for three divisions of Big Creek Industries.

	<i>Package Division</i>	<i>Transport Division</i>
Sales \$s	\$2,000,000	\$16,000,000
Operating Income \$s	\$ 400,000	(4)
Income %	(1)	15%
Asset turnover	(2)	1.4
Average Operating Assets \$s	(3)	(5)
ROA %	10%	(6)

**Required:**

- a. Determine the values for each of the missing items.
- b. Identify the area where each division’s performance is weakest and strongest relative to the other division.

**Solution**

Formula = Margin \* Turnover = (Income/Sales)\*(Sales/Assets)

- (1) Profit Margin = 400,000/2,000,000 = 20%
- (3) Average Operating Assets = Income/ROA = 400,000/10% = \$4,000,000
- (2) Asset Turnover = Sales /AOA = 2,000,000/4,000,000 = .5

1 point each up to 2

- (4) Operating Income = 15% \* 16,000,000 = 2,400,000
- (5) AOA = 16,000,000/1.4 = \$11,428,571
- (6) ROA = 2,400,000/\$11,428,571 = 21%

1 point each up to 2

Package Division has a higher profit margin(20% vs 15%) but low asset turnover(.5 vs 1.6) resulting in lower ROI 10% vs 21%. 1 point

**Q.10 (6)** Dowchow Company makes two products from a common input. Joint processing costs up to the split-off point total \$38,400 a year. The company allocates these costs to the joint products on the basis of their total sales values at the split-off point. Each product may be sold at the split-off point or processed further. Data concerning these products appear below:

	<u>Rissoto</u>	<u>Rice Bran</u>	<u>Total</u>
Allocated Joint Processing Costs	\$20,800	\$17,600	\$38,400
Sales Value at Split-Off Point	\$26,000	\$22,000	\$48,000
Costs of Further Processing	\$22,600	\$20,400	\$43,000
Sales Value after Further Processing	\$45,000	\$45,900	\$90,900

**Required:**

- (a) Calculate the net monetary advantage (disadvantage) of processing Rissoto beyond the split-off point.
- (b) Calculate the minimum amount Dowchow Company should accept for Rissoto if it is to be sold at the split-off point.

**SOLUTION**

- (a) *Incremental revenue is \$19,000 (\$45,000 – \$26,000). However, incremental costs are \$22,600. Therefore, net disadvantage is \$3,600 (or negative \$3,600)*  
**Or** *CM: Sell at Split off = \$26,000*  
*CM: Process further = \$45,000 – 22,600 = 22,400,*  
*Worse off by \$22,400 – 26,000 = \$3,600 **0 or 3 points***
- (b) *If Rissoto is to be sold at the split-off point, the minimum amount to accept must exactly cover the net of sales value after processing (\$45,000) offset by the costs of further processing (\$22,600). Therefore, the minimum amount has to be \$22,400. **0 or 3 points***

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**Q.11 (10)** Flick Company uses a standard cost system. Manufacturing overhead is applied to units of product on the basis of direct labour hours. The company's total budgeted variable and fixed manufacturing overhead costs at the denominator level of activity are \$20,000 for variable overhead and \$30,000 for fixed overhead. The predetermined overhead rate, including both fixed and variable components, is \$2.50 per direct labour hour. The standards call for two direct labour hours per unit of output produced. Last year, the company produced 11,500 units of product and worked 22,000 direct labour hours. Actual costs were \$22,500 for variable overhead and \$31,000 for fixed overhead.

- What is the denominator level of activity?
- What were the standard hours allowed for the output last year?
- What was the variable overhead spending variance?
- What was the variable overhead efficiency variance?
- What was the fixed overhead budget variance?
- What was the fixed overhead volume variance?

Ans: a) Total overhead at the denominator level of activity \$50,000  
Denominator level of activity = \$50,000 / \$2.50  
= 20,000 DLHs **2 points**

c) Computation of variable overhead spending variance:  
 Spending variance = (AH x AR) - (AH x SR)  
 = (\$22,500) - (22,000 DLHs x \$1.00\*)  
 = \$500 unfavourable  
 \* \$20,000 / 20,000 DLHs = \$1.00

d) Computation of variable overhead efficiency variance:  
 Spending variance = (AH x SR) - (SH x SR)  
 = (22,000 DLHs x \$1.00) - (23,000 DLHs x \$1.00)  
 = \$1,000 favourable **2 points**  
 \* 2 DLHs per unit x 11,500 units = 23,000 DLHs

e) Computation of the fixed overhead budget variance:  
 Budget variance = Actual fixed overhead - Flexible budget fixed overhead  
 = \$31,000 - \$30,000  
 = \$1,000 unfavourable **1 point**

f) Computation of the fixed overhead volume variance:  
 Volume variance = Fixed portion of predetermined overhead rate x  
 (Denominator hours - Standard hours allowed)  
 = \$1.50\* (20,000 DLH - 23,000 DLH)  
 = \$4,500 favourable **1 point**  
 \*\$30,000 / 20,000 DLH = \$1.50

Actual FOH	Flex Bud FOH	FOH Applied
\$31,000g	\$30,000g	11,500g*2g(\$1.50*) 23,000*2*\$1.50 = \$34,500
1000U	4500F	

AH x AR	AH x SR	SH x SR
\$22,500g	22,000g x SR = 22,000 x \$1.00 = \$22,000	23,000 x SR = 23000 x \$1.00 = \$23,000
500U	1000F	

Denominator hours =  $\$50,000 / \$2.50 = 20,000$  hours  
FOH Rate  $\$30,000 / 20,000 = \$1.50$   
VOH Rate =  $\$2.50 - \$1.50 = \$1.00$

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**Q.12 (15)** Craddock Company has operations in Mississauga and manufactures stuffed poodles. Craddock currently produces 45,000 poodles a year but has capacity to produce 50,000. Craddock has just received a special order from a retailer in Stoney Creek, Ontario for 8,000 poodles that will be sold in Stoney Creek.

Craddock's Income Statement for the year ended December 31, 2008 is as follows:

Sales (45,000 poodles)		\$900,000
Cost of goods sold		
Direct materials	\$270,000	
Direct labour	225,000	
Manufacturing overhead	<u>210,000</u>	<u>705,000</u>
Gross profit		195,000
Selling expenses	125,000	
Administrative expenses	<u>20,000</u>	<u>145,000</u>
Net income		<u>\$ 50,000</u>

Craddock's variable manufacturing overhead is \$3.00 per poodle, and the variable selling expense is \$1.50 per poodle. The administrative expenses are fixed and will increase by \$2,400 if the special order is accepted. There will be no variable selling expenses associated with the special order and the variable manufacturing overhead per poodle will remain constant.

Craddock's direct labour cost per poodle for the special order will *decrease* by 5% while the direct material cost per poodle will increase by 15%. Fixed manufacturing overhead and fixed selling expenses will not change.

**Required:**

If the retailer from Stoney Creek has offered to pay \$18 per poodle for the special order, should Craddock accept the order? Show all supporting calculations. Ignore income tax considerations.

***SOLUTION***

Revenue from Stoney Creek order (8,000 x \$18)		\$144,000
Costs of special order:		
Direct materials (8,000 x \$6 x 1.15) <b>2 points</b>	55,200	
Direct labour (8,000 x \$5 x 0.95) <b>2 points</b>	38,000	
VOH (8,000 x \$3) <b>2 points</b>	24,000	
Administrative expenses <b>2 points</b>	<u>2,400</u>	<u>119,600</u>
Profit from special order <b>2 points</b>		24,400
Less profit lost on regular sales (\$20 – \$6 – \$5 – \$3 – \$1.5)*3,000** <b>2 points</b>		<u>13,500</u>
Incremental profit to Craddock from accepting special order <b>2 points</b>		<u>\$10,900</u>
Therefore, Craddock should accept the special order. <b>1 point</b>		

\*\* Regular Sales now = 45,000  
Capacity = 50,000, So spare/idle capacity = 5,000  
Special order sales 8,000  
Regular sales given up for special order 8,000 – 5,000 = 3,000

**OR**

Min Price on special order = VC(special order) + FC(Special Order) + Lost CM

VC(Special order) = DM(\$6.00\*1.15) + DL(\$5.00\*.95) + VOH(\$3.00) =  
\$6.90 + 4.75 + 3.00 = \$14.65

FOH on Special Order = \$2,400

CM Lost on Regular sales (\$20 – \$6 – \$5 – \$3 – \$1.5)\*3,000 = \$13,500

Min Price = \$14.65 + \$2,400/8,000 + \$13,500/8,000 = \$166.6375

Actual price = \$18.00

So Gain = 8,000(\$18.00 - 16.6375) = \$10,900



**Q.13 (10)** You are reviewing the following income statement for the year ended December 31, 2005, the MJ company’s first year of operations. During this first year, MJ was able to sell all 100,000 units that it produced.

*MJ Company*  
*Income Statement (Absorption Costing)*  
*Year ended December 31, 2005*

Sales (100,000 @ \$50.00)		\$5,000,000
Cost of goods sold:		
Variable (100,000 @\$10.00)	\$1,000,000	
Fixed	<u>4,000,000</u>	<u>5,000,000</u>
Gross profit		0
Administrative expenses (all fixed)		<u>500,000</u>
Net loss		\$ <u>(500,000)</u>

One of the consultants who helped start up the company proposes that she – the consultant- take over as president and be paid a bonus based on 50% of any profits the company makes while she is president. The board of directors agrees to these terms.

The new president decides that production should be increased in 2006 to 200,000 units. Sales for 2006 remain at the same level as for 2005, that is, 100,000 units.

**Required:**

- Prepare an income statement(Absorption Costing) for MJ for the year ended December 31, 2006, showing income before the president’s bonus.
- Explain the reason – with calculations – for the difference in income between 2005 and 2006.
- Explain why you have concerns, or not, about the income and the bonus that will be paid to the president in 2006.

**Solution:**

a.			
Sales (100,000 @ \$50.00)			\$5,000,000
Cost of goods sold:			
BB = 0			
COGM Variable (200,000 @\$10.00)	\$2,000,000		
Fixed	<u>4,000,000</u>		
	<u>6,000,000</u>		
EB 100,000*6,000,000/200,000	<u>- 3,000,000</u>		
COGS			<u>3,000,000</u>
Gross profit			2,000,000
Administrative expenses (all fixed)			<u>500,000</u>
Net Income			\$ <u>1,500,000</u>

- b. Sales the same, but

FMOH in BB 2006           0  
FMOH in EB 2006           100,000 \*4,000,000/200,000 = \$2,000,000 **2 points**

So Income higher by \$2,000,000: (\$500,000) + \$2,000,000 = \$1,500,000

- c. Not good, the president gets a bonus by overproducing. **2 points**

**OR**

Sales (100000 x 50)	5,000,000
COGS	
Variable (100,000 x 10)	1,000,000
Fixed* (4,000,000)*100/200)	2,000,000
Total COGS	(3,000,000)
Gross Profit	2,000,000
Admin	(500,000)
Income	1,500,000

**Q.14 (10)** Charles Corporation's sales of widgets are 35% for cash and 65% on credit. Past collection history indicates that credit sales are collected as follows:

- 40% in the month of sale
- 50% in the month following sale
- 10% in the second month following sale

In January, sales were \$45,000 and February sales were \$65,000. Projected sales for March are 3,500 widgets at \$10 each. Projected sales for April are 5,000 widgets at \$12 each. The cash balance at March 1 was \$7,525. For the end of March, Charles Corporation will need a minimum balance of \$20,000 in order to support some additional capital expenditures in April.

Markus expects to purchase \$36,000 of materials in February and \$28,000 of materials in March. Three-quarters of all purchases are paid for in the month of purchase, and the other one-fourth is paid for in the month following the month of purchase. In addition, a 2% discount is allowed for payments made in the month of purchase. All other fixed expenses are \$8,500 per month and are paid in the month of purchase. Borrowing, if required, is available as a line of credit with the bank.

**Required:** Prepare a cash budget for March

Solution:

Charles Corporation			
Cash Budget			
Month of March			
Beginning cash balance			7,525
Cash collections:			
From March credit sales $[(3,500 \times \$10) \times 65\% \times 40\%]$	2 points	\$ 9,100	
From cash sales $[(3,500 \times \$10) \times 35\%]$	1 point	12,250	
Cash collections from February sales $(\$65,000 \times 65\% \times 50\%)$	1 point	21,125	
Cash collections from January sales $(\$45,000 \times 65\% \times 10\%)$	1 point	<u>2,925</u>	
Total budgeted cash receipts during March			\$45,400
Cash payments:			
From February's purchases $(\$36,000 \times 25\%)$	1 point	\$ 9,000	
From March's purchases $(\$28,000 \times 75\%) \times .98$	1 point	20,580	
Other fixed expenses		<u>8,500</u>	
Total budgeted cash payments during March			<u>38,080</u>
Net excess (deficiency) in cash	1 point		14,845
Financing:			
Borrowing	2 points		5,155
Repayments			0
Ending cash balance			\$20,000
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**Q.15 (10)** The Moncton division of Creative Controls (CC) produces a digital pressure meter. The pressure meter can be sold on the open market for \$150 each, or it can be used by the Campbellton division in the production of a pressure control valve. The Moncton division is currently operating at 70% of its capacity of 2,000 digital pressure meters per month. Following are average costs per unit at this level of capacity:

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

If a digital pressure meter is sold on the open market, the shipping cost is \$10, paid by Moncton Division. The cost of shipping a digital pressure meter internally from Moncton to Campbellton Division is \$2, also paid by the Moncton Division. The Campbellton Division needs 1000 meters and can buy them from an outside supplier for \$145.

**Required:**

- a. What is the appropriate transfer price – or range of transfer prices - for Creative Controls if 1000 digital pressure meters are to be transferred to Campbellton and the Moncton division is operating at 70% of capacity?
- b. Will transfers occur?
- c. Will CC be better or worse off if transfers occur? By how much?

**Solution**

a. Min TP = VC(IS) + Lost CM(OS)  
VC(IS) = (\$40 + 20 + \$2) = \$62    1 point  
CM(OS) = + (\$150 – (40 + 20 + 10)) = \$80 1 point

Units given up 1,000 – (30%\*2,000) = 400, to sell 1,000 inside 2 points

Min TP = \$62 + (400\*\$80)/1,000 = 62 + 32 = \$94    2 points

Max TP = \$145    1 point

- c. Yes, transfers should occur with MD happy with TP > \$94  
And CD happy with TP < \$145    1 point

c, CC better off by 1,000 \* (145-94) = \$51,000    2 points

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