

**Midterm Exam SOLUTION**  
**ADM2341 Managerial Accounting Fall 2012**

**Your Professor:** Check one  Adjaoud  Ding  Eden

**150 minutes**

STUDENT NAME: .....

STUDENT NUMBER: .....

You may separate the pages but ensure that you put them back together and staple before handing in.

1. Please limit your answer to the space provided. Please indicate if you use the back of a page.
2. The use of standard abbreviations (O/H for Overhead and CM% for Contribution Margin Percentage) is quite acceptable.
3. Budget your time wisely.
4. Please do not ask the invigilators questions. Make reasonable assumptions where necessary.
5. Language dictionaries and calculators are allowed.
6. **You must show calculations.**

| <u>Questions</u> | <u>Max Grade</u> |
|------------------|------------------|
| Q.1              | 20               |
| Q.2              | 20               |
| Q.3              | 20               |
| Q.4              | 20               |
| Q.5              | 20               |
| <b>Total</b>     | <b>100</b>       |

**You must sign the following 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 headsets), 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.**

**QUESTION 1 (20 points)**

| Question # | Solution |
|------------|----------|
| 1*         | A        |
| 2          | A        |
| 3          | C        |
| 4          | B        |
| 5          | C        |
| 6          | D        |
| 7          | B        |
| 8          | A        |
| 9          | B        |
| 10         | D        |

**QUESTION 2 (20 POINTS)**

1. COGS: Not FC and average cost drops at higher output so.. mixed cost.

$$VC = (\$355,000 - \$275,000)/(35,000 - 250,000) = \$8 \text{ (2 points)}$$

$$FC = \$355,000 - (35,000 \times 8) = \$75,000 \text{ (1 point)}$$

Selling Expenses: Average cost VC = \$3.00 at all three levels so pure VC. (2 points)

Admin expenses, Not FC and average cost drops at higher output so, mixed cost

$$VC = (\$25,000 - \$20,000)/(35,000 - 25,000) = \$0.50 \text{ (2 points)}$$

$$FC = \$25,000 - (35,000 \times 0.50) = \$7,500 \text{ (1 points)}$$

2. Give two examples of likely components of the above **selling expenses** for this producer of metal window frames.

Possible examples, must be variable: selling commissions, variable shipping expense, bad debt expense %, packaging for shipping, Other reasonable? (2 points, 1 for any two )

3. Prepare an income statement in the contribution margin format for **2012**, assuming the cost structure remains the same and sales in 2012 are 40,000 units.

| Year                |          | 2012      |            |
|---------------------|----------|-----------|------------|
|                     | Per unit | Total     |            |
| Units sold          |          | 40,000    |            |
| Sales \$s           | \$16.00  | \$640,000 | (2 points) |
| VCOGS               | 8.00     | 320,000   | (2 points) |
| VSelling            | 3.00     | 120,000   | (1 point)  |
| VAdmin              | .50      | 20,000    | (1 point)  |
| Contribution Margin | 4.50     | 180,000   | (1 point)  |
| FC Mnf              |          | 75,000    | (1 point)  |
| FC Admin            |          | 7,500     | (1 point)  |
| Income              |          | \$97,500  | (1 point)  |

**QUESTION 3 (20 POINTS)**

1.

|   |                    |            |
|---|--------------------|------------|
| <u>DM Used</u>                                  |                    |            |
| Beginning Balance, Direct Materials             | \$40,000           |            |
| + Purchases                                     | <u>300,000</u>     |            |
| = Available for use                             | 340,000            |            |
| - Ending Balance, Direct materials? <b>Plug</b> | <u>210,000</u>     | (1 point)  |
| Direct material used(from COGM)                 | 130,000            |            |
| <u>COGM</u>                                     |                    |            |
| Direct material used***                         | 130,000            | (1 point)  |
| Direct labour**                                 | 390,000            | (2 points) |
| Manufacturing Overhead*                         | <u>780,000</u>     | (2 points) |
| = Manufacturing costs incurred                  | 1,300,000          | (1 point)  |
| + Beginning inventory, WIP                      | 90,000             | (1 point)  |
| - Ending Inventory, WIP <b>Plug</b>             | <u>110,000</u>     | (1 point)  |
| = Cost of Goods manufactured                    | <u>1,280,000</u>   | (1 point)  |
| <u>COGS</u>                                     |                    |            |
| Beginning Inventory, FG                         | 250,000            | (1 point)  |
| + COGM  | <u>1,280,000</u>   | (1 point)  |
| Available for sale                              | 1,530,000          |            |
| - Ending Inventory, FG <b>Plug</b>              | <u>130,000</u>     | (1 point)  |
| COGS  | <u>\$1,400,000</u> | (1 point)  |

\* MOH = 60% x \$1,300,000 = 780,000

\*\* MOH = 200%\*DL; So DL = 780,000/200% = 390,000

\*\*\* DM = 1,300,000 – 780,000 – 390,000 = 130,000

2. Prepare an income statement for 2011

| Year              |  | 2011         |            |
|-------------------|--|--------------|------------|
|                   |  | Total        |            |
| Sales \$          |  | \$2,000,000* | (2 points) |
| - COGS            |  | 1,400,000    | (1 points) |
| = Gross Margin    |  | 600,000      | (1 points) |
| Operating Expense |  | 220,000      | (1 points) |
| Income            |  | \$380,000    | (1 points) |

\* Sales = COGS + Gross Margin = 1,400,000 + 600,000 = 2,000,000

Mortgage Outstanding is a balance sheet item, not an expense (- 2 points)

**QUESTION 4 (20 POINTS)**

(a) **Collections** and other calculations

The numbers in brackets (.5, for example) add to the (points)

**Cash receipts and disbursements**

| a.  |     | July         | August        | Sept                  |
|---|-----|--------------|---------------|-----------------------|
| <b>Cash receipts from Sales</b>                           |     |              |               |                       |
| Sales (0.5)   |     | 6,000        | 50,000        |                       |
| Receipts:   | 10% | 600(.5)      | 5,000(.5)     |                       |
|   | 40% |              | 2,160(.5)     |                       |
|   | 48% | --           | --            |                       |
| Total   |     | <u>600</u>   | <u>7,160</u>  | (2 points)            |
| <b>b.</b>   |     |              |               |                       |
| <b>Cash disbursements for purchases for Cost of Sales</b> |     |              |               |                       |
| Cost of sales: 80%  |     | 4,800(1)     | 40,000(1)     | 320,000<br>(2 points) |
| + EB @10%   |     | 4,000(.5)    | 32,000(.5)    | (1 point)             |
| - BB  |     | 480(.5)      | 4,000(.5)     | (1 point)             |
| = Purchases   |     | 8,320        | 68,000        |                       |
| <b>c. Cash disbursements:</b>                             |     |              |               |                       |
| 30% (this month)  |     | 2,496(.5)    | 20,400(.5)    | (1 point)             |
| 70% (last month)  |     | 336(.5)      | 5,824(.5)     | (1 point)             |
| Total   |     | <u>2,832</u> | <u>26,224</u> |                       |

d) Prepare a monthly cash budget covering **the two month period** from July 1 to August 31.

**Cash Budget**

|                                     | July          |      | August             |            |
|-------------------------------------|---------------|------|--------------------|------------|
| Opening balance – Cash              | 75,000        |      | 37,708             |            |
| Collections                         | <u>600</u>    |      | <u>7,160</u>       |            |
| Available                           | 75,600        | (.5) | 44,868(.5)         | (1 point)  |
| <b>Disbursements:</b>               |               |      |                    |            |
| Purchases                           | 2,832         | (.5) | 26,224(.5)         | (1 point)  |
| Other expenses                      | <b>25,000</b> | (.5) | --(.5)             | (1 point)  |
| Sales and Admin \$10,000 + 1%*Sales | <u>10,060</u> | (.5) | <u>10,500(.5)</u>  | (1 point)  |
| Total Disbursements                 | 37,892        | (.5) | 36,724(.5)         | (1 point)  |
| Excess(Deficiency)                  | 37,708        | (.5) | 8,144(.5)          | (1 point)  |
| (Borrowings)Repayments              |               |      | 18,000(0.5)        | (1 points) |
| Interest                            |               |      | 1%*18,000=180(0.5) |            |
| Ending Balance – Cash               | 37,708        | (1)  | 25,964**(1)        | (2 points) |

Details: 1, 1,1

IF INTERESTS UNPAID, THEN BORROWINGS = 17,000

ENDING BALANCE = \$25,144

**QUESTION 5 (20 POINTS)**

- a) Estimated break-even based on the budgeted income statement [3.5 marks]:

|                         |                  |                     |
|-------------------------|------------------|---------------------|
| Sales (a)               |                  | \$10,000,000        |
| Variable expenses:      |                  |                     |
| Cost of sales           | \$6,000,000      |                     |
| Commissions             | <u>2,000,000</u> | <u>8,000,000</u>    |
| Contribution margin (b) |                  | <u>\$ 2,000,000</u> |

Contribution margin ratio (b) ÷ (a) 20%

|                           |                |
|---------------------------|----------------|
| Fixed expenses            | \$100,000      |
| Contribution margin ratio | <u>÷ 0.20</u>  |
| Break-even                | <u>500,000</u> |

1 mark for calculating total CMs, 1 mark for determining CM%, and 1.5 marks for calculating the BEP in dollars.

- b) Compute Wong's break-even point in sales dollars, assuming that the company employs its own salespersons.

|  |           |
|--|-----------|
| Variable expense ratios:               |           |
| Cost of sales                          | 60%       |
| Commissions                            | <u>5%</u> |
| Total                                  | 65%       |
| Contribution margin ratio (100% - 65%) | 35%       |

|                                |                   |
|--------------------------------|-------------------|
| Fixed expenses:                |                   |
| Sales manager                  | \$ 160,000        |
| 3 salespersons @ \$30,000 each | 90,000            |
| Administrative                 | <u>100,000</u>    |
| Total                          | <u>\$ 350,000</u> |

|                           |                    |
|---------------------------|--------------------|
| Fixed expenses            | \$ 350,000         |
| Contribution margin ratio | <u>+ 0.35</u>      |
| Break-even point          | <u>\$1,000,000</u> |

**OR COMMISSIONS 5 % X 3 = 15 %**

**TOTAL VC = 75 %**

**CM = 25 %**

**BEP = 350,000/.25 = \$1,400,000**

1 mark for calculating VC%, 1 mark for CM%, 0.5 marks for 160K (sales manager), 0.5 for 90K (salespersons), and 0.5 for 100K (administrative). 1.5 marks for calculating the BEP in dollars.

c)

VC % = 60% (cost of sales) + 25% (commissions) = 85%

CM% = 1 - VC% = 15%

Sales volume = (FC + Profit objective) / CM% = (100K + 1,900K) / 15% = \$13,333,333.

1.5 marks for VC%, 1 mark for CM%, 1 mark for adding up FC and Profit objective, i.e. \$2,000,000, and 1.5 marks for the sales volume.

d) VC% = 60% (cost of sales) + 5% (sale commission) = 65% **OR 60% + 5%X3 = 75 %**

CM% = 1- VC% = 35% **OR 100%-75 % = 25 %**

Total FC = **160K + 90K + 100K** = \$350K

Sale volume required = (FC + Profit) / CM% = (350K + 1,900K) / 35% = \$6,428,571

**OR (350 + 1,900) / 25 % = \$9,000,000**

1.5 marks for VC%, 1 mark for CM%, 1.5 marks for total FC (i.e., 0.5 for each number highlighted), 1 mark for adding up FC and Profit, and 1.5 marks for calculating the sale volume.

