

ADM2341 Managerial accounting Winter 2015 SOLUTION
Duration: 150 minutes

NAME.....

STUDENT #.....

| | √ Check |
|----------------------------|------------|
| Section | |
| N (Prof. Fodil Adjaoud) | |
| P (Prof. Fodil Adjaoud) | |
| M (Prof. Robert Bergquist) | |
| R (Prof. Robert Bergquist) | |
| Q (Prof. Marc Tasse) | |

INSTRUCTIONS:

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> |
|------------------|------------------|
| Question 1 | /20 |
| Question 2 | /20 |
| Question 3 | /20 |
| Question 4 | 20 |
| Total | /80 |

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 copy or booklet without that signed statement will not be graded and will receive a final exam grade of zero.

QUESTION 1 (20 points)

Choose the best answer for each of the following statement.

The following questions worth 1 point each.

1. Managerial accounting:

- A) focuses only on historical data.
- B) is governed by GAAP.
- C) focuses primarily on the needs of personnel within the organization.
- D) provides information for parties external to the organization.

2. Within the relevant range, what is the difference between variable costs and fixed costs?

- A) Variable costs per unit fluctuate and fixed costs per unit remain constant.
- B) Variable costs per unit are constant and fixed costs per unit fluctuate.
- C) Both total variable costs and total fixed costs are constant.
- D) Both total variable costs and total fixed costs fluctuate.

3. Average maintenance costs are \$1.50 per machine hour at an activity level of 8,000 machine hours and \$1.20 per machine hour at an activity level of 13,000 machine hours. Assuming that this activity is within the relevant range, total expected maintenance cost for a budgeted activity level of 10,000 machine hours would be closest to which of the following?

- A) \$11,433
- B) \$13,440
- C) \$15,000
- D) \$16,128

4. The following information was provided by A Co. for the year just ended:

| | |
|------------------------------------|-----------|
| Beginning finished goods inventory | \$130,425 |
| Ending finished goods inventory | \$125,770 |
| Sales | \$500,000 |
| Gross margin | \$100,000 |

What was the cost of goods manufactured for the year?

- A) \$395,345
- B) \$ 95,345
- C) \$104,655
- D) \$404,655

5. The books of B Inc. provide some financial information for the year ended Dec. 31, 2014:

| | |
|-------------------------------------|--------------|
| Raw materials used in production | \$ 500,000 |
| Direct labour | \$ 600,000 |
| Total overhead costs | \$ 1,100,000 |
| Cost of goods manufactured | \$2,400,000 |
| Beginning work-in-process inventory | \$ 500,000 |

What was the ending work-in-process inventory?

- A) \$500,000
- B) \$400,000
- C) \$300,000
- D) \$200,000

6. C Co. uses a predetermined overhead rate based on direct labour hours to apply manufacturing overhead to jobs. The company estimated manufacturing overhead at \$255,000 for the year and direct labour hours at 100,000 hours. Actual manufacturing overhead costs incurred during the year totalled \$270,000; actual direct labour hours were 105,000. What was the overapplied or underapplied overhead for the year?

- A) \$2,250 overapplied
- B) \$2,250 underapplied
- C) \$15,000 overapplied
- D) \$15,000 underapplied

7. The following data have been provided by D Co. for its single product:

| | <u>This Year</u> | <u>Last Year</u> |
|--------------------------|-------------------|------------------|
| Units Sold | 200,000 | 150,000 |
| Sales Revenue | \$1,000,000 | \$750,000 |
| Less: Cost of Goods Sold | <u>\$ 700,000</u> | <u>\$525,000</u> |
| Gross Margin | \$ 300,000 | \$225,000 |
| Less: Operating Expenses | <u>\$ 222,000</u> | <u>\$210,000</u> |
| Net Income | <u>\$ 78,000</u> | <u>\$ 15,000</u> |

What is the best estimate of the company's variable operating expenses per unit?

- A) \$0.24 per unit
- B) \$0.71 per unit
- C) \$0.90 per unit
- D) \$4.17 per unit

8. Refer to data from question 7. What is the best estimate of the company's total fixed operating expenses per year?

- A) \$ 0
- B) \$ 44,000
- C) \$ 80,000
- D) \$174,000

9. Refer to data from question 7. What is the best estimate of the company's contribution margin for this year?

- A) \$252,000
- B) \$300,000
- C) \$158,000
- D) \$120,000

10. E Co. makes collections on credit sales according to the following schedule:

- 25% in month of sale
- 70% in month following sale
- 4% in second month following sale
- 1% uncollectible

The following sales have been budgeted:

| <u>Month</u> | <u>Sales</u> |
|--------------|--------------|
| April | \$100,000 |
| May | \$120,000 |
| June | \$110,000 |

What would be the cash collections in June?

- A) \$110,000.
- B) \$111,500.
- C) \$113,400.
- D) \$115,500.

The following questions worth 2 points each.

11. Last year, F Co. reported profits of \$4,200. Its total variable expenses were \$66,000, or \$6 per unit. The unit contribution margin was \$3.00.

What is the break-even point in units for F Co.?

- A) 11,000 units.
- B) 9,600 units.
- C) 22,000 units.
- D) 12,400 units.

Use the following to answer questions 12-14:

G Co. had the following data for the year just ended:

| | |
|---------------|---------------|
| Sales | 4,000 units |
| Sales Price | \$60 per unit |
| Variable Cost | \$18 per unit |
| Fixed Costs | \$42,000 |

12. If the company wants to increase its total contribution margin by 40% in the next year, all other factors remaining the same, by how much will it need to increase its sales?

- A) \$96,000
- B) \$50,400
- C) \$67,200
- D) \$72,000

13. If the company wants its margin of safety to equal \$35,000 next year, all other factors remaining the same, how many units will it need to sell?

- A) 1,000 units
- B) 833 units
- C) 1,583 units
- D) 1,833 units

14. If the company's sales volume increases by 30% next year, all other factors remaining the same, by how much will its net income increase?

- A) \$92,400
- B) \$50,400
- C) \$37,800
- D) \$72,000

15. If company A has a lower degree of operating leverage than company B, then which of the following statements is true?

- A) Company A has lower variable expenses.
- B) Company A is less profitable.
- C) Company A's profits are less sensitive to percentage changes in sales.
- D) Company A has a higher risk.

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

QUESTION 2 (20 POINTS)

Winter is over Inc. manufactures and sells a single product. The following data are from the accounting records at December 31, 2014:

| | |
|---|------------------|
| Production (units) | To be determined |
| Sales (\$30 per unit) | \$900,000 |
| Advertising | 45,000 |
| Cash | 19,000 |
| Direct labour | 270,000 |
| Rent (Production has 80 % of the space, administration and marketing functions the remaining 20%) | 39,000 |
| Depreciation-equipment (\$15 000 + \$0.10 per unit produced) | To be determined |
| Office salaries | 65,000 |
| Prime costs (total) | 470,000 |
| Supplies-factory | 18,200 |
| Other MOH | 60,000 |
| Mortgage | 121,000 |
| Depreciation-factory | 28,800 |
| Direct materials inventory, beginning | 20,000 |
| Direct materials inventory, ending | To be determined |
| Work in process inventory, beginning | 30,000 |
| Work in process inventory, ending | 40,000 |
| Finished goods inventory, beginning | 102,000 |
| Finished goods inventory, ending | To be determined |
| Purchases Direct materials | 230,000 |

Winter is over Inc. uses FIFO to evaluate the inventories. Finished goods inventory beginning and ending were 6,000 units and 4,000 units, respectively.

Gross margin percentage was 30 % of sales.

REQUIRED:

1. Present the schedule of Cost of Goods Manufactured for 2014.

| | | |
|----------------------------|----------------|-----------------|
| DM | | |
| USED 3 | | 200000 |
| BI | 20000 | |
| P | 230000 | |
| EI | 50000 1 | |
| DL | | 270000 |
| MOH | | 156000 1 |
| RENT | 31200 | |
| SUPPLIES | 18200 | |
| DEP FACT | 28800 | |
| Depre equip 1,1 | 17800 | |
| OTHER MOH | 60000 | |
| total cost incurred | | 626000 1 |
| BIWIP | | 30000 |
| EIWIP | | 40000 |
| COGM | | 616000 1 |
| Production | | 28000 |
| COGM | | 22 |

$$6000 + P - (900000 / 30) = 4000$$

$$P = 28000 \text{ 1,1}$$

2. Present the Income statement for 2014.

| | | | |
|-----------|---------------|---------------|------------|
| SALES | | 900000 | |
| COGS | | 630000 | 1,1 |
| BI | 102000 | | |
| COGM | 616000 | <u>1</u> | |
| EI | 88000 | <u>1</u> | |
| GM | .30*900000 | 270000 | 1,1 |
| OE | | | |
| SALARIES | 65000 | | |
| AD | 45000 | | |
| RENT | 7800 | 117800 | 1 |
| OI | | 152200 | 1 |

$$102000 + 28000x - 4000x = .7 * 900000$$

$$x = \mathbf{22 \ 1}$$

QUESTION 3 (20 POINTS)

Adm2341 Inc. has a single product. The following budgeted data are for 2015:

| | |
|-------------------------------------|-----------|
| Sales (\$20 per unit) | \$820,000 |
| <u>Total variable cost :</u> | |
| Manufacturing | 410,000 |
| Selling expenses | 82,000 |
| <u>Total fixed cost :</u> | |
| Manufacturing costs | 60,000 |
| Selling expenses | 120,000 |

REQUIRED:

Part 1: Using the data above:

1. Present the Income statement for 2015

| | | |
|------------|--------|-----------------|
| Sales | | 820000 |
| TVC | | |
| manuf | 410000 | |
| selling | 82000 | 492000 |
| CM | | 328000 1 |
| TFC | | |
| manuf | 60000 | |
| selling | 120000 | 180000 1 |
| OI | | 148000 1 |

2. Calculate the Break Even Point in units and dollars for 2015

2. Break even

| | | |
|------------------|----------|----------------|
| BEP units | | 22500 1 |
| BEP \$ | 1 | 450000 |

Part 2: To increase sales for 2015, Adm2341 Inc.'s managers are considering the following options:

- A) Increase variable selling expenses by \$1 per unit and fixed selling expenses by \$10,000. Sales are expected to increase by \$80,000. If sale price per unit stays unchanged (as in part 1), what would the impact on operating income be for 2015?

| | | |
|-----------|----------|---------------|
| SP | | 20 |
| TVC | 12+1 | 13 1 |
| CM | | 7 1 |
| volume | | 45000 |
| CM | | 315000 |
| TFC | | 190000 |
| OI | 1 | 125000 |

B) Increase variable selling expenses per unit by 30% and decrease total fixed selling expenses by 15 %. Sales are expected to increase by 12 %. If sale price per unit stays unchanged (as in part 1), what would the impact on operating income be for 2015?

| | | |
|--------|------------|---------|
| SP | | 20 |
| TVC | $10+2*1.3$ | 12.6 1 |
| CM | | 7.4 1 |
| volume | | 45920 1 |
| CM | 1 | 339808 |
| TFC | 1 | 162000 |
| OI | 1 | 177808 |

C) Which option would you recommend to Adm2341 Inc.? Explain why?

Option A:

OI decreases by $148000-125000=$ **-23000 1**

Option B:

OI increases by $177808-148000=$ **29808 1**

CHOICE : OPTION B BECAUSE HIGHER OI **1**

Part 3: Adm2341 Inc. adds a new additional product, called BB. This addition will have no impact on the current product sales. The contribution margin of this new product is \$7 per unit. Total fixed cost will increase by \$12,400. How many units of product BB, Adm2341 Inc. will need to sell to increase operating income (found in part 1) by 20 %?

| | | |
|--------------------------------------|---------------|---------------|
| desired OI | $148000+20\%$ | 29600 1 |
| Increase TFC | | 12400 1 |
| CM | | 7 |
| Volume of | | |
| BB=$29600+12400/7$ | | 6000 1 |

QUESTION 4 (20 POINTS)

CPA Inc. is preparing its master budget for the third quarter of the coming year. The following data are provided:

1. Expected sales are:

| | |
|-----------|-----------|
| July | \$520,000 |
| August | 585,000 |
| September | 780,000 |
| October | 617,500 |
2. Sales collections are: 20% in cash, 50 % in the following month and 30 % two months following the sale. Sales of May and June are \$455,000 and \$494,000, respectively.
3. Each month's ending inventory of finished goods should be 50 %of the following month's cost of goods sold. This policy is in place since last year.
4. Gross margin percentage is 40 % of sales.
5. Of each month's purchases, 30% are paid in the month of purchase, and the remaining is paid for in the month following purchase. June purchases are \$304,200.
6. The monthly operating expenses are expected to be:
 - Salaries: \$30,000 plus 17 % of sales
 - Advertising: 10 % of sales.
 - Depreciation : \$2,500 \$.
7. All expenses are paid in the month in which they are incurred.
8. An old equipment is expected to be sold in September for \$30,000 cash.
9. CPA Inc. has a policy that the ending cash balance in each month must be at least \$10,000. The company can borrow at the beginning of each month. All repayments are supposed to be made at the end of the month. The interest rate is 6% annually. Any surplus cash is invested at 4% annually and the interests earned are paid at the end of each month. Cash balance at June 30th was \$10,000.

REQUIRED: Prepare the following budgets:

1. Cash collections budget

| | July | August |
|--------------|---------------|---------------|
| Sales | 520000 | 585000 |
| Cash- | | |
| 20% | 104000 | 117000 |
| 50% | 247000 | 260000 |
| 30% | <u>136500</u> | <u>148200</u> |
| Total | 487500 | 525200 |
| | 1,1 | 1,1 |

2. Purchases budget

| | July | August | September |
|------------------|---------------|---------------|-----------|
| Sales | 520000 | 585000 | 780000 |
| COGS | 312000 | 351000 | 468000 |
| EI | 175500 | 234000 | |
| BI | 156000 | 175500 | |
| Purchases | 331500 | 409500 | |
| | 1,1 | 1,1 | |

3. Cash disbursements for purchases budget

| | July | August |
|--------------|---------------|---------------|
| June | 212940 | |
| July | 99450 | 232050 |
| August | | <u>122850</u> |
| Total | 312390 | 354900 |
| | 1,1 | 1,1 |

4. Operating expenses budget

| | | July | August |
|-------------------|------------|---------------|---------------|
| Salaries-Fixed | | 30000 | 30000 |
| Salaries-Variable | | 88400 | 99450 |
| Advertising | | 52000 | 58500 |
| total | 1,1 | 170400 | 187950 |
| Depreciation | | <u>2500</u> | <u>2500</u> |
| total | 1,1 | 172900 | 190450 |

5. Cash budget

| | | July | August |
|-----------------------------|----------|---------------|---------------|
| Beginning | | 10000 | 14726 |
| collections | | <u>487500</u> | <u>525200</u> |
| Total | 1 | 497500 | 539926 |
| <u>Disbursements</u> | | | |
| Purchases | | 312390 | 354900 |
| OE | | 170400 | 187950 |
| Total | 1 | 482790 | 542850 |
| Surplus(deficit) | 1 | 14710 | -2924 |
| Borrowings | | 0 | 13000 |
| Repayments | | 0 | 0 |
| Interests | 1 | <u>16</u> | <u>-65</u> |
| Cash balance, ending | | 14726 | 10011 |

