TELFER

VOTRE LIEN AVEC CE QUI COMPTE — CONNECTS YOU TO WHAT MATTERS

ADM2341 Managerial Accounting Fall 2017
Midterm Exam SOLUTION
Duration: 180 minutes

	√ Check
Section	
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NAME.....

STUDENT #.....

SEAT #.....

TOTAL……/80 POINTS

QUESTION 1- (20 points)

SUMMARY OF YOUR ANSWERS: PLEASE WRITE THE LETTER YOU HAVE CHOSEN FOR EACH QUESTION 11-15 : worth 2 marks each

1B	6C	**11E**
2C	7C	**12C**
3E	8C	**13C**
4D	9D	**14C**
5B	10A	**15D**

QUESTION 2- (6 points)

Required:

1. Determine the predetermined manufacturing overhead rate for the Production Department.
   172,500/4,000 = 43.125 1 mark

2. What is the total cost of Job A?

DM used	32,500	0.50
DL	52,500	0.50
MOH applied (43.125 x 800)	34,500	1
Total cost	119,500	0.5

3. How much manufacturing overhead of Job A is over-allocated or under-allocated?

Actual MOH	(11,000+7,500+17,200) =	35,750	1
Applied MOH		34,500	0.50
Underapplied		**1,250**	1

QUESTION 3- (14 points)

REQUIRED:

DM USED		102340	1,1
BI	20000		
PURCH	102340		1
EI	20000		
DL		99660	1
MOH		90600	1
depreciation			
factory	60000		
supplies	3600		
indl la	25000		
taxes	2000		
TOTAL		292600	1
BIWIP		3000	
EIWIP		5000	
COGM		**290600**	1

1. Prepare the Income Statement for the period ending December 31, 2016.

SALES		300000	
COGS		242166.7	1
BI	0		
COGM	290600		1
EI	48433.33		1,1
GM		57833.33	1
S&a EXP		31400	1
supplies	2400		
adv	27000		
taxes	2000		
OI		26433.33	1

QUESTION 4 (16 points)

The following question contains two unrelated parts. Answer **each** part.

PART 1: (8 marks)

Required:

1. Compute annual dollar sales for 2016. (2 marks)

Answer:

DOL = CM / OI.
Since OI = $50,000 and DOL is 2.50, CM = $125,000 (½ mark).
Therefore, FC = $75,000 ($125,000 - $50,000) (½ mark).
VC = $75,000/.20 = $375,000 (½ mark).
Ssales must be $500,000 ($375,000 + $125,000) (½ mark).

2. How many units would Monarch Products Ltd. need to sell in order to make an operating income of $9,750? (2 marks)

The selling price of each bar of soap is $50.
Total sales are $500,000, unit sales = 10,000 units (½ mark)
Unit VC = $375,000 / 10,000 = $37.50 (½ mark).
Therefore, unit CM = $50 - $37.50 = $12.50/unit (½ mark).
(If students do 125,000/10,000 = 12.50) give 1 mark

No. of units (bars of soap) to be sold in order to earn a target operating income of $9,750

$$= \frac{FC + Target\ OI}{CM/unit} = \frac{\$75,000 + \$9,750}{\$12.50} = 6,780 \text{ bars of soap (½ mark)}$$

TA: Please consider the followings:
The majority of students' papers will read: "How many units would Monarch Products Ltd. need to see in order to make an operating income of $9,750"?
The answer would be as in the solution I provided = 75,000+9,750/12.50 = 6,780 units

However, some papers will have "How many units would Monarch Products Ltd. need to see in order to make a net income of $37,500 assuming a 25% tax rate?"
The answer would be: $75,000 + $37,500 /(1 - 25%) / $12.50 = 10,000 units

The calculation is worth 0.5 mark.

3. Calculate the company's margin of safety in units. (2 marks)

BEP (in units) = $75,000 / $12.50 = 6,000 units (1 mark)
Margin of safety (in units) = 10,000 units – 6,000 units = 4,000 units (1 mark)
(Students could use their answer from requirement 2 to calculate MS. 6,780 or any other number – 6,000).

4. Interpret your answer from part (3) above and explain what the margin of safety means. (2 marks)

The margin of safety (in units) is the excess of budgeted (or actual) unit sales over the break-even volume of sales. (1 mark) In the context of the above question, Monarch has a "buffer" or cushion of 4,000 units (bars of soap) such that sales can drop by up to 4,000 units before the company starts operating below its break-even point. Any company (Monarch Products Ltd. included) would want to operate with as large a margin of safety as possible in order to minimize the risk of dropping below its break-even point. (1 mark)

PART 2: (8 marks)

Required:

1. Calculate the contribution margin per unit and contribution margin ratio for each product. (2 marks)

		A	B	C	
1.	*Unit SP*	*$10*	*$20*	*$40*	
	- VC/unit	*(7)*	*(12)*	*(16)*	
	= CM/unit	*$ 3*	*$ 8*	*$24*	*(1 mark)*
	CM Ratio	*30%*	*40%*	*60%*	*(1 mark)*

2. Compute the weighted average contribution margin ratio. (3 marks)

   Weighted average CM Ratio = (20% x 30%) + (60% x 40%) + (20% x 60%) = 6% (1) + 24% (1) + 12% (1) = 42% (3 marks)

3. Based upon the data above, calculate the company's overall break-even point in sales dollars. (1½ marks)

   BEP (in sales dollars) = $840,000/.42 = $2,000,000 (1½ marks)

4. Calculate the dollar value of sales of each product to be sold at the break-even point. (1½ marks)

   Product A: $2,000,000 x 20% =$400,000 (½ mark)

   Product B: $2,000,000 x 60% =$1,200,000 (½ mark)

   Product C: $2,000,000 x 20% =$400,000 (½ mark)

Question No. 5 (8 marks)

Required: (when needed, please round calculations to 2 decimals).

1. Identify each cost item as either variable, fixed or mixed costs. (1 mark)
   TA: students can have the answer with or without calculations

   Deduct ½ mark for each error to a maximum of 2 errors

Account	
Cost of Tablets Sold	*V*
Selling Expenses	*M*
Rent and other expenses	*F*
Shopping Bags Used	*V*
Rachel Brown's Monthly Salary	*F*

2. Use the high-low method and provide the cost function for total fixed and variable costs. (3 marks)

   Analysis of selling expenses (mixed cost):

   β *(VC/unit)* = *Change in Cost* = *$2,600 – $2,180 = $2.10* *(½ mark)*
   Change in Activity *1,100 – 900*

   Y = a – βX; therefore: FC = $2,600 – $2.10 (1,100) = $290 (high point)
   or *(½ mark)*
   Y = a – βX; therefore: FC = $2,180 – $2.10 (900) = $290 (low point)

   Categorization of Costs:

Fixed Costs	
Rent Expense	*$1,330*
Rachel Brown's Salary	*1,850*
Fixed portion of selling expenses (see above)	*290*
Total FC (1 mark)	***$3,470***
VC/unit	
CGS – Tablets	*93.00*
Shopping Bags Used	*.02*
Variable portion of selling expenses (see above)	*2.10*
VC function (1 mark)	***$95.12X***

3. Assume the following for the month of July: Rachel plans to increase the number of tablets to be sold in July by 25% over sales made in June by reducing the selling price of the tablet.

   a. Calculate the forecasted total costs for July if sales increase by 25%. (2 marks)
   New sales level for July = 1,100 x 1.25 = 1,375 units (1 mark)
   Total costs at new sales level = $3,470 + $95.12 (1,375 units) = $134,260 (1 mark)

   b. Calculate the forecasted total cost per unit sold for July if sales increase by 25%. (1 mark)

   Cost per tablet = $134,260 / 1,375 = $97.64 (rounded) (1 mark)

   c. What is the lowest selling price the reading tablet can be sold for assuming Rachel wants to ensure the selling price will cover all costs and also make an extra profit of $3 per tablet? (1 mark)

   The desired profit of $3.00 per tablet tablet makes the minimum selling price= $3.00 +$97.644 = $100.64 (rounded) (1 mark)

QUESTION 6- (16 points)

REQUIRED:

Complete the following budgets. (Round your calculations to the nearest dollar).

1. **Sales Budget**

	Months			
	January	**February**	**March**	
Sales forecast (in units)	**5,000**	**4,500**	**4,500**	**0.50 marks**
Selling price	× $800	× $800		**0.50 marks**
Total sales $	**$4,000,000**	**$3,600,000**		

2. **Sales Collections Budget**

	January	**February**	
December sales ($4,000,000 × 25%)	$1,000,000		**0.50**
January sales ($4,000,000 × 75%) ($4,000,000 × 25%)	3,000,000	1,000,000	**1**
February sales: ($3,600,000 × 75%)		2,700,000	**1**
Total cash collections	**$4,000,000**	**$3,700,000**	

3. **Purchases Budget**

	January	**February**	**March**	
Sales forecast (in units)	5,000	4,500	4,500	
Desired ending inventory (4,500 × 6%) (4,500 × 4%)	270	180		**0.50 marks** **0.50**
Total needs	5,270	4,680		
Beginning inventory	250	270		**0.50**
Bikes to be purchased	**5,020**	**4,410**		**0.50**
Purchase price	× $450	× $450		
Cost of purchases	**$2,259,000**	**$1,984,500**		**0.50**

4. **Cash disbursements for Purchases budget**

	January	**February**	
December purchases ($80,000 × 30%)	$24,000		**0.5**
January purchases ($2,259,000 × 70%) ($2,259,000 × 30%)	1,581,300	677,700	**1**
February purchases ($1,984,500 × 70%)		1,389,150	**1**
Total cash disbursements	**$1,605,300**	**$2,066,850**	**0.5**

5. Selling and Administrative Expenses Budget

	January	February	
Sales forecast (in dollars)	**$4,000,000**	**$3,600,000**	**0.50**
Selling and adm. expenses:			
Variable (40% of sales)	1,600,000	1,440,000	0.50
Fixed	300,000	300,000	0.50
Total expenses	**$1,900,000**	**$1,740,000**	**0.50**
Depreciation expense	45,000	45,000	
Total expenses	**$1,855,000**	**$1,695,000**	

6. Cash Budget

	January	
Cash balance beginning	$ 50,000	**0.50**
Cash collection from sales	4,000,000	
Sale of land	100,000	**0.50**
Total cash available	**$4,150,000**	
Less disbursements:		
Purchases	1,605,300	**0.50**
S & A expenses	1,855,000	**0.50**
Equipment	800,000	**0.50**
Total cash disbursements	**$4,260,300**	
Surplus (deficit) of cash	$(110,300)	**1**
Borrowings	152,000	**1**
Repayments		
Interests on borrowings	(760)	**0.50**
Cash balance, ending	**$40,940**	