

**CMA December, 2020 Examination
Professional Level – II
Subject: 202. Management Accounting**

Model solution

Solution of the Question No. 1(b)

(a)(i) When direct labour hours used to apply overhead cost to products the company's predetermined overhead rates would be:

$$\text{Predetermined Overhead rate} = \frac{\text{Manufacturing Overhead Cost}}{\text{Direct Labor Hours}} = \frac{\$1480,000}{20,000 \text{ DLHS}} = \$ 74 \text{ Per DLH}$$

(ii).

	Model	
	XR7	ZD5
Direct materials	\$35.00	\$ 25.00
Direct labor:		
\$20 per hour x 0.2 DLH, 0.4 DLH	4.00	8.00
Manufacturing overhead:		
\$74 per hour x 0.2 DLH, 0.4 DLH	14.80	29.60
Total unit product cost	\$53.80	\$62.60

b(i) Predetermined overhead rates for the activity cost pools:

	(a)	(b)	(a)/(b)	
Activity Cost Pool	Total Cost	Total Activity	Activity rate	
Machine Setups	\$ 180,000	20 setups	\$ 720	per setup
Special milling	\$ 300,000	1,000 MHS	\$300	per MH
General factory	\$ 1000,000	20,000 DLHS	\$50	per DLH

The manufacturing overhead cost that would be applied to each model can be computed as follows:

	Model	
	XR7	ZD5
Machine setups:		
\$720 per setup x 150 setups, 100 setups	\$ 108,000	\$72,000
Special milling:		
\$300 per MH x 1000 MHS, 0 MHS	300,000	0
General factory:		
\$50 per DLH x 4000 DLHS, 16000 DLHs	200,000	800,000
Total manufacturing overhead cost applied	\$608,000	\$872,000

(ii) Before we can determine the unit product cost under activity based costing. We must first take the overhead costs applied to each model in part 2(a) above and express them on a per unit basis-

	Model	
	XR7	ZD5
Total overhead cost applied(a)	\$608,000	\$872,000
Number of units produced(b)	20,000	40,000
Manufacturing overhead cost per unit (a)/(b)	\$30.40	\$21.80

With this information, the unit product cost of each model under activity based costing would be computed as follows:-

	Model	
	XR7	ZD5
Direct materials	\$35.00	\$25.00
Direct labor:		
\$20 per hour x 0.2 DLH, 04. DLH	4.00	8.00
Manufacturing overhead (above)	30.40	21.80
Total unit product cost	\$ 69.40	\$54.80

Comparing these unit cost figures with the unit costs in part 1(b), we find that the unit product cost for model XR7 has increased from \$53.80 to \$ 69.40 and the unit product cost for model ZD5 has decreased from \$62.60 to \$ 54.80

(c) It is especially important to note that, even under activity based costing 68% of the company's overhead costs continue to be applied to products on the basis of direct labor hours:

Machine setups (number of setups).....	180,000	12%
Special milling (Machine hours).....	300,000	20
General factory (direct labor hours).....	1000,000	68
Total overhead cost.....	\$1480,000	100%

Thus, the shift in overhead cost from the high volume product (Model ZD5) to the low volume product (model XR7) occurred as a result of reassigning only 32% of the company's overhead costs.

The increase in unit product cost for model XR7 can be explained as follows first, when possible, overhead cost have been traced to the products rather than being lumped together and spread uniformly over production. Therefore, the special milling costs, which are traceable to model XR7, have all been assigned to model XR7 and none assigned to model ZD5 under the activity based costing approach. It is common in industry to have some product that require special handling or special milling to some type. This is especially true in modern factories that produce a variety of products. Activity based costing provides a vehicle for assigning these costs to the appropriate product.

Second, the cost associated with the batch level activity (machine setups) have also been assigned to the specific products to which they relate. These costs have been assigned according to the number of setups completed for each product. However, since a batch level activity is involved, another factor affecting unit costs comes into play. That factor is batch size. Some products are produced in large batches and some are produced in small batches. The smaller the batch, the higher the per unit cost of the batch activity. In the case at hand, the data can be analyzed as shown below.

Model XR7:

Cost to complete one setup [See 2 (a)] \$ 720 (a)
 Number of units processed per setup
 (20,000 units / 150 setups)..... 133.33 (b)
 Setup cost per unit (a)/(b) \$ 5.40

Model ZD5:

Cost to complete one setup (above)..... \$ 720 (a)
 Number of units processed per setup
 (40,000 units / 100 setups)..... 400 (b)
 Setup cost per unit (a) / (b) \$ 1.80

Thus, the cost per unit for setups is three times as great for model XR7, the low-volume product, as it is for model ZD5, the high volume product. Such differences in cost are obscured when direct labor- hours (or any other volume measure) is used as a basis for applying overhead cost to products.

In sum, overhead cost has shifted from the high volume product to the low-volume product as a result of more appropriately assigning some costs to the products on the basis of the activities involved, rather than on the basis of direct labor-hours.

Solution of the Question No. 2(b)

Req. (i)

UNIVERSITY MOTOR POOL

Budget Report for March

	Monthly <u>Budget</u>	March <u>Actual</u>	(Over) <u>Under</u>
Gasoline.....	\$ 5,513	5,323	\$ 190
Oil, Minor repairs, parts and supplies.....	378	380	(2)
Outside repairs.....	236	50	186
Insurance.....	525	525	-
Salaries and benefits.....	2,500	2,500	-
Depreciation.....	<u>2,310</u>	<u>2,310</u>	-
Total.....	<u>\$11,462</u>	<u>\$11,088</u>	<u>\$ 374</u>
Number of automobiles.....	21	21	-
Total miles.....	63,000	63,000	-
Cost per mile.....	\$.1819	\$.1760	\$.0059

Supporting calculations for monthly budget amounts:

Gasoline: 63,000 miles/ 16 miles per gal x \$1.40 per gallon = \$5,512.50

Oil, Minor repairs, parts, and supplies: 63,000 miles x \$.006 per mile= \$378

Outside repairs: \$136 per auto X 21 autos/12 months = \$ 236.25

Insurance: Annual cost for one auto: \$6000/20 autos = \$300

Annual cost for 21 autos: 21x\$300=\$6,300

Monthly cost: \$6,300 / 12 = \$ 525

Salaries and benefits : No Change

\$30,000 annual cost/12 months = \$2,500 per month

Depreciation: Annual depreciation per auto: \$26,400 /20 autos= \$1,320

Annual depreciation for 21 autos: \$1,320 per auto x 21 = \$27,720

Monthly depreciation: \$27,720 / 12 = \$ 2,310

Req. (ii) Outside automobile repairs are a function of the use of the automobile over its lifetime. However these repairs occur irregularly. A monthly budget figure based upon a per mile charge becomes questionable. Therefore, the use of one twelfth of the estimated annual outside repair cost adjusted for the number of cars in operation during a month appears to be more reasoning.

Solution of the Question No. 3(b)

R-(1)(i) and (ii)	Absorption costing	Variable costing
Direct materials	Tk. 48	Tk. 48
Variable manufacturing overhead	2	2
Fixed manufacturing overhead (Tk. 360,000 ÷ 12,000 units)	<u>30</u>	=
Unit product cost	<u>Tk. 80</u>	<u>Tk. 50</u>

R-(2) Absorption costing income statement:

Sales (10,000 units × Tk. 150)	<u>Tk.1,500,000</u>
Less cost of goods sold:	
Beginning inventory	Tk.0
Add cost of goods manufactured (12,000 units × Tk.80)	<u>960,000</u>

Goods available for sale	960,000	
Less ending inventory (2,000 units × Tk.80)	<u>160,000</u>	<u>800,000</u>
Gross margin		700,000
Less selling and administrative expenses		<u>650,000*</u>
Net income		<u>Tk. 50,000</u>
* Variable (12% × Tk. 1,500,000)	Tk. 180,000	
Fixed	<u>470,000</u>	
Total	<u>Tk. 650,000</u>	

R-(3) Variable costing income statement:

Sales (10,000 units × Tk. 150)		<u>Tk. 1,500,000</u>
Less variable expenses:		
Beginning inventory	Tk. 0	
Add variable manufacturing costs (12,000 units × Tk.50)	<u>600,000</u>	
Goods available for sale	600,000	
Less ending inventory (2,000 units × Tk.50)	<u>100,000</u>	
Variable cost of goods sold	500,000*	
Variable selling and administrative expenses	180,000	680,000
Contribution margin		820,000
Less fixed expenses:		
Fixed manufacturing overhead	360,000	
Fixed selling and administrative expenses	<u>470,000</u>	<u>830,000</u>
Net loss		Tk. (10,000)

*This figure could be computed more simply as:
10,000 units × Tk. 50 = Tk. 500,000.

R-(4) Most managers would prefer to take the statement prepared under the absorption approach in part (2), since it shows a profit for the month. As long as inventory levels are rising, absorption costing will report higher profits than variable costing. Notice in the situation above that the company is operating below its theoretical break-even points, but yet reports a profit under the absorption approach.

R-(5) Variable costing net loss	Tk. (10,000)
Add: Fixed manufacturing overhead cost deferred	
In inventory under absorption costing (2,000 units × Tk.30)	<u>60,000</u>
Absorption costing net income	<u>Tk. 50,000</u>

Solution of the Question No. 4(a)

Main objective of the cost and management accounting is to enhance efficiency, minimize the cost and maximize the turnover and profit. An efficient system of costing brings prosperity to the business enterprise which in turn results in stepping up of the government revenue. The overall economic development of a country takes place as a consequence increase in efficiency of production. Control of costs, elimination of wastages and inefficiencies led to the progress of the industry and in consequence of the nation as a whole.

(b) Responsibility accounting, as a control device, to divisional performance measurement, where the other control devices are applicable to the organizational as whole. The objectives of divisional performance measurement are: (i) to determine the contribution that a division makes to the organization, (ii) to provide a basis for evaluating the quality of the divisional manager's performance, and (iii) to motivate the divisional manager to operate his division in a manner consistent with the basic goals of the organization as a whole.

Responsibility accounting focuses on responsibility centers. Responsibility center is a sub- unit of an organization under the control of a manager who is responsible for the activities of that center. The important criterion for creating responsibility center is that the unit of the organization should

be separable and identifiable for operating purpose and its performance evaluation. For the purpose measuring divisional performance, the responsibility centers are divided in to: (1) expenses/cost centers, (2) profit centers, and (3) investment centers. The modus- operandi of responsibility accounting is the comparison of budgeted and actual performance.

In an organization management creates several division and department and set managers for operating those division and department. Management also set a budgeted target regarding expenses, profit, return on investment etc. During the operational period and end of the financial year management compare the actual result with the budget and get variances either favorable or un favorable. Justifying the variances management evaluate the performance of the managers and employees. Favorable variances indicate the person responsible and its vis-versa.

R-(c)(i)

MEMORANDUM

To: Honorable Managing director, Desh Bondhu Ltd;
From: New Management Accountant
Subject: Role of Management Accounting
Date: -- Dec' 2020

With due respect I have the honor to state, further to my recent appointment as Management Accountant at Desh-Bondhu Ltd; the following is a brief outline of the role and importance of management accounting to companies like Desh Bondhu Ltd; the meaning of the question and also some brief suggestions are given below as to how my appointment may prove beneficial to you and the company from both financial and non-financial viewpoint.

Financial Accounting Vs Management Accounting:

Despite the fact that the word "Accountant" is common to both job titles, they are in fact very different roles. The financial accountant is primarily concerned with stewardship and compliance activities whereas the management accountant is concerned with information gathering, analysis and dissemination. The roles can be further differentiated using the following headings:

Users:

Financial Accountant aims to report the company's affairs and transactions to external audiences such as shareholders; debt providers; government bodies etc. Management Accountants aim to report information exclusively to internal audiences such as Directors; department managers; project managers; etc.

Time Horizon:

Financial accounts are usually based on historic data and are often reported some time after the event to which they relate. Hence, they are said to be backward looking.

Management accounting information can often be more forward looking and may use historic data but will usually try to use it predicatively to make decisions about the future direction of the company.

Regulatory Compliance:

Financial accounts are used for stewardship purpose and as a basis for other calculations such as taxation liabilities. Hence, there are expectations of precision and accuracy to give a "true and fair view". Therefore, they must comply with detailed legislation and generally accepted accounting practice (GAAP).

Management accounts and reports do not have to suffer the same restrictions of legislation and GAAP and may not have the same level of accuracy. The emphasis is on timely production of information rather than accuracy and compliance.

Objective

The main objectives of financial accounting are to disclose the end result of the business and the financial condition of the business on a particular date. Whereas the main objective of managerial accounting is to help management by providing information that is used to plan, set goals and evaluate these goals.

Formats

Financial accounting statements must be prepared to conform the legal requirements and the Generally Accepted Principles (GAAP) such as financial accounting standard board (FASB).

Management accounting are not required to adhered to generally accepted accounting principles when providing management information's for internal purpose.

R-(c) (ii)

Suggested Management Accounting Techniques:

Planning:

Management accountants will be heavily involved in producing the budgets within a company. These from long term strategic plan (3 to 5 years) to short term operational level plans (quarterly or monthly). Producing plans helps ensure the company grows in a structured and organized way and can ensure that adequate resources are put in place for example to help prepare for expansion of new markets.

Control:

Management accountants often use variance analysis to monitor actual results and compare them to expected norms (budgeted standards/ industry standards) for all the different facets of business activities. This technique

Identify positive and negative trends/ changes to ensure the company adapt quickly when results are different from original expectations and thus optimize the company's commercial performance.

Decision Making:

Management accountants use techniques such as break-even analysis, (limiting factor, linear programming) to help predict the activity levels required to ensure a profit or a target return on capital is achieved. This can help inform production quotas and scheduling and will help ensure optimal resource utilization.

R-(c)(iii)

Non-financial consideration:

Accountants are often criticized for concentrating too much on the financial outcome of activities-profit focused. Management accountants are encouraged to look at other aspects that contribute to business success such as:

- Customer satisfaction
- Corporate governance and ethical responsibilities
- Good labor relations
- Market penetration/expansion
- Environmental protection
- Number of complaints
- Idle times
- Number of defects.

Solution of the Question No. 5(b)

Req. (i)

	April	May	June
Sales	\$1500,000	\$1625,000	\$1750,000
Less Variable expenses:			
Variable mfg. expenses @ \$6 P/U	360,000	390,000	420,000
Variable selling & admin. Exp. @ \$9 P/U	540,000	585,000	6,30,000
Total VC	900,000	975,000	1050,000
Contribution Margin	600,000	650,000	700,000
Less FC:			

Fixed mfg. O/H	*560,000	560,000	560,000
Fixed selling & admin. O/H	** <u>80,000</u>		<u>80,000</u>
	<u>80,000</u>		
Total FC	<u>640,000</u>	<u>640,000</u>	<u>640,000</u>
Net operating income (loss)	<u>(40,000)</u>	<u>10,000</u>	<u>60,000</u>

*\$1680,000 /3 months = \$560,000 per month

** Fixed selling and administrative expenses (from April's figures):

\$620,000 – (60,000 units x \$ 9 P/U) = \$ 80,000

Req. (ii) Reconciliation Statement

	April	May	June
Variable costing net income (loss)	(40,000)	\$10,000	\$60,000
Add. Fixed manufacturing O/H Deferred in inventory at the end of April (15,000 units x \$ 8 P/U)	120,000		
Add. Fixed manufacturing O/H Deferred in inventory at the end of May (5,000 units x \$ 8 P/U)	40,000		
Less. Fixed manufacturing O/H Released from inventory at the end of June (20,000 units x \$ 8 P/U)			(160,000)
Absorption costing Net Income (loss)	\$80,000	50,000	(100,000)

Req. (iii) Under JIT, production is geared strictly to sales. Therefore, the company would have produced only enough units during June to meet sales needs beyond the inventory of units on hand at the start of the month. The computation is as follows:

Units sold during June	70,000
Less inventory at the beginning	<u>25,000</u>
Units produced during June under JIT	<u>45,000</u>

= THE END =