



THE INSTITUTE OF COST AND MANAGEMENT ACCOUNTANTS OF BANGLADESH
CMA JUNE, 2016 EXAMINATION
PROFESSIONAL LEVEL-II
SUBJECT : 202. MANAGEMENT ACCOUNTING.

Model Solution

Solution to the Question No. 1.

(a) A budget is a detailed plan outlining the acquisition and use of financial and other resources over a given time period. As such, it represents a plan for the future expressed in formal quantitative terms.

Budgetary control involves the use of budgets to control the actual activities of a firm.

Major benefits to be gained from budgeting

1. Budgets provide a means of communicating management's plans throughout the organization.
2. Budgets force managers to think about and plan for the future.
3. The budgeting process provides a means of allocating resources to those parts of the organization where they can be used most effectively.
4. The budgeting process can uncover potential bottlenecks before they occur.
5. Budgets coordinate the activities of the entire organization. Budgeting helps to ensure that everyone in the organization is pulling in the same direction.
6. Budgets define goals and objectives that can serve as benchmarks for evaluating subsequent performance.

(b)

(i) Special Order of 5,000 Rets from a large retail chain:

Since the fixed costs will not change as a result of the order, they are not relevant to the decision. The cost of the new machine is relevant, and this cost will have to be recovered by the current order since there is no assurance of future business from the retail chain.

	<i>Unit</i>	<i>Total—5,000 units</i>
Revenue from the order (Tk. 50 × 84%).....	Tk. 42	Tk. 210,000
Less costs associated with the order:		
Direct materials.....	15	75,000
Direct labor.....	8	40,000
Variable manufacturing overhead.....	3	15,000
Variable selling expense (Tk 4 × 25%).....	1	5,000
Special machine (Tk. 10,000 ÷ 5,000 units).....	2	10,000
Total costs.....	29	145,000
Net increase in profits.....	Tk. 13	Tk. 65,000

(ii) Special Order of 5,000 Rets from BD. Army:

Revenue from the order:	
Reimbursement for costs of production (variable production costs of Tk. 26, plus fixed manufacturing overhead cost of Tk. 9 = Tk. 35 per unit; Tk. 35 per unit × 5,000 units).....	Tk. 175,000
Fixed fee (Tk. 1.80 per unit × 5,000 units).....	9,000
Total revenue.....	184,000
Less incremental costs—variable production costs (Tk. 26 per unit × 5,000 units)	130,000
Net increase in profits.....	Tk. 54,000

(iii) Special Order of 5,000 Rets from BD. Army and giving up regular sales of 5,000 Rets:

Sales revenue:	
From the BD. Army (above).....	Tk. 184,000
From regular channels (Tk 50 per unit × 5,000 units).....	250,000
Net decrease in revenue.....	(66,000)
Less variable selling expenses avoided if the Army's order is accepted (Tk. 4 per unit × 5,000 units).....	20,000

Net decrease in profits if the Army's order is accepted Tk. (46,000)

Alternate Solution:

Incremental revenue from regular sales $\{50-(15+8+3+4)\} = 20 \times 5000$ = Tk. 1,00,000
 Revenue to forgo from special order (R-ii) = Tk. 54,000
 Profit increase if sales through regular channels = Tk. 46,000

Solution to the Question No. 2.

(b)

Report

To : R&D Director

From : Management Accountant

Date :

Subject : **Zero based budgeting**

i. Zero based budgeting and traditional budgeting

The traditional approach to budgeting works from the premise that last year's activities will continue at the same level or volume, and that next year's budget can be based on last year's costs plus an extra amount to allow for expansion and inflation. The term 'incremental' budgeting is often used to describe this approach.

Zero based budgeting (ZBB) quite literally works from a zero base. The approach recognizes that every activity has a cost and insists that there must be quantifiable benefits to justify the spending. ZBB expects managers to choose the best method of achieving each task by comparing costs and benefits. Activities must be ranked in order of priority.

- ii. **A discretionary cost** is not vital to the continued existence of an organization in the way that, say, raw materials are to a manufacturing business. ZBB was developed originally to help management with the difficult task of allocating resources in precisely such areas. Research and development is a frequently cited example; others are advertising and training.

Within a research and development department ZBB will establish priorities by ranking the projects that are planned and in progress. Project managers will be forced to consider the benefit obtainable from their work in relation to the costs involved. The result may be an overall increase in R&D expenditure, but only if it is justified.

(c)

i. Financial viability of the common process

<u>Product</u>	<u>Selling price after common process</u>	<u>Litres</u>	<u>Total revenue</u>
	<u>Taka/Litre</u>		<u>Taka</u>
M	6.25	25,000	156,250
N	5.20	15,000	78,000
P	6.80	45,000	306,000
	Total revenue		540,250
	Less: costs at end of common process		(480,000)
	Net revenue at the end of the common process		<u>60,250</u>

Therefore the common process is viable as net revenue is positive.

ii. Optimal processing plan for each product

<u>Product</u>	<u>Further revenues</u>	<u>Further costs</u>	<u>Incremental net revenue</u>
	<u>Taka</u>	<u>Taka</u>	<u>Taka</u>
M	Tk. $2.15 \times 25,000 = 53,750$	Tk. $1.75 \times 25,000 = 43,750$	10,000
N	Tk. $1.25 \times 15,000 = 18,750$	Tk. $0.95 \times 15,000 = 14,250$	4,500
P	Tk. $0.65 \times 45,000 = 29,250$	Tk. $0.85 \times 45,000 = 38,250$	(9,000)

Therefore products M and N make additional profit and so should be processed further.

Products P should not be processed beyond the common stage as net revenue is negative.

Solution to the Question No. 3.

1. Direct materials price and quantity variances:

Direct Materials Price Variance = $AQ (AP - SP)$
 64,000 feet (Tk. 8.55 per foot – Tk. 8.45 per foot) = Tk. 6,400 U

Direct Materials Quantity Variance = $SP (AQ - SQ)$
 Tk. 8.45 per foot (64,000 feet – 60,000 feet*) = Tk. 33,800 U
 *30,000 units × 2 feet per unit = 60,000 feet

2. Direct labor rate and efficiency variances:

Direct Labor Rate Variance = $AH (AR - SR)$
 43,500 DLHs (Tk. 15.80 per DLH – Tk. 16.00 per DLH) = Tk. 8,700 F

Direct Labor Efficiency Variance = $SR (AH - SH)$
 Tk. 16.00 per DLH (43,500 DLHs – 42,000 DLHs*) = Tk. 24,000 U
 *30,000 units × 1.4 DLHs per unit = 42,000 DLHs

3. a. Variable manufacturing overhead spending and efficiency variances:

Actual Hours of Input, at the Actual Rate (AH × AR)	Actual Hours of Input, at the Standard Rate (AH × SR)	Standard Hours Allowed for Output, at the Standard Rate (SH × SR)
Tk. 108,000	43,500 DLHs × Tk. 2.50 per DLH = Tk. 108,750	42,000 DLHs × Tk. 2.50 per DLH = Tk. 105,000
↑	↑	↑
Spending Variance, Tk. 750 F		Efficiency Variance, Tk. 3,750 U

Alternative solution:

Variable Overhead Spending Variance = $(AH \times AR) - (AH \times SR)$
 (Tk. 108,000) – (43,500 DLHs × Tk. 2.50 per DLH) = Tk. 750 F

Variable Overhead Efficiency Variance = $SR (AH - SH)$
 Tk. 2.50 per DLH (43,500 DLHs – 42,000 DLHs) = Tk. 3,750 U

b. Fixed overhead budget and volume variances:

Actual Fixed Overhead Cost	Budgeted Fixed Overhead Cost	Fixed Overhead Cost Applied to Work in Process
Tk. 211,800	Tk. 210,000	42,000 DLHs × Tk. 6.00 per DLH = Tk. 252,000
↑	↑	↑
Budget Variance, Tk. 1,800 U		Volume Variance, Tk. 42,000 F

Alternative approach to the budget variance:

Budget Variance = Actual Fixed Overhead Cost - Flexible Budget Fixed Overhead Cost
 Tk. 211,800 – Tk. 210,000 = Tk. 1,800 U

Alternative approach to the volume variance:

Volume Variance = Fixed Portion of the Predetermined Overhead Rate (Denominator Hours - Standard Hours Allowed)
 Tk. 6.00 per DLH (35,000 DLHs – 42,000 DLHs) = Tk. 42,000 F

4. The total of the variances would be:

Direct materials variances:	
Price variance.....	Tk. 6,400 U
Quantity variance	33,800 U
Direct labor variances:	
Rate variance	8,700 F
Efficiency variance.....	24,000 U
Variable manufacturing overhead variances:	
Spending variance	750 F
Efficiency variance	3,750 U
Fixed manufacturing overhead variances:	
Budget variance	1,800 U
Volume variance	42,000 F
Total of variance	<u>Tk. 18,300 U</u>

Notice that the total of the variances agrees with the Tk. 18,300 unfavorable variance mentioned by the president.

It appears that not everyone should be given a bonus for good cost control. The materials price variance, quantity variance and the labor efficiency variance are 1.8%, 6.25% and 3.6%, respectively, of the standard cost allowed and thus would warrant investigation. In addition, the variable overhead efficiency variance is 3.45% of the standard cost allowed.

The reason the company's large unfavorable variances (for materials quantity and labor efficiency) do not show up more clearly is that they are offset for the most part by the company's favorable volume variance for the year. This favorable volume variance is the result of the company operating at an activity level that is well above the denominator activity level used to set predetermined overhead rates. (The company operated at an activity level of 42,000 standard DLHs; the denominator activity level set at the beginning of the year was 35,000 DLHs.) As a result of the large favorable volume variance, the unfavorable price, quantity and efficiency variances have been concealed in a small "net" figure. Finally, the large favorable volume variance may have been achieved by building up inventories.

Solution to the Question No. 4.

a)

i & ii) Planning Budget and Flexible Budget

	<u>Revenue and Cost Formula</u>	<u>Planning Budget Income Statement</u>	<u>Flexible Budget Income Statement</u>
Budgeted number of units sold		2,000	2,100
Revenue	Tk. 13.00/unit	Tk. 26,000	Tk. 27,300
Expenses:			
Conversion costs	Tk. 3.25/unit	6,500	6,825
Salaries	Tk. 8,000	8,000	8,000
Utilities	Tk. 0.50/unit+Tk. 600	1,600	1,650
Rent	Tk. 5,000	5,000	5,000
Miscellaneous	Tk. 0.80/unit+Tk. 800	2,400	2,480
Total expenses		<u>Tk. 23,500</u>	<u>Tk. 23,955</u>
Net Operating Income		<u>Tk. 2,500</u>	<u>Tk. 3,345</u>

iii) Flexible budget Performance Report

		(1) <u>Planning Budget</u>	<u>Activity Variance (2) - (1)</u>	(2) <u>Flexible Budget</u>	<u>Revenue and Spending Variances (3) - (2)</u>	(3) <u>Actual Results</u>
Number of Units		2,000		2,100		2,100
Revenues	Tk. 13.00/unit	Tk. 26,000	Tk. 1,300 F	Tk. 27,300	Tk. 700 F	Tk. 28,000
Expenses:						
Cost of materials	Tk. 3.25/unit	6,500	325 U	6,825	175 U	7,000
Salaries	Tk. 8,000	8,000	0	8,000	400 F	7,600

Utilities	Tk. 0.50/unit+Tk . 600	1,600	50 U	1,650	100 F	1,550
Rent	Tk. 5,000	5,000	0	5,000	0	5,000
Miscellaneous	Tk. 0.80/unit+Tk . 800	2,400	80 U	2,480	20 U	2,500
Total Expense		Tk. 23,500	Tk. 455 U	Tk. 23,955	Tk. 305 F	23,650
Net Operating Income		Tk. 2,500	Tk. 845 F	Tk. 3,345	Tk. 1,005 F	Tk. 4,350

Solution to the Question No. 5.

(a)

i) Operating profit: Sales – variable cost – fixed cost

$$\text{Profit} = PX - VX - F$$

$$= \text{Tk. } 360,000 - \text{Tk. } 240,000 - \text{Tk. } 60,000$$

$$= \text{Tk. } 60,000$$

ii) Break-even point: Fixed cost ÷ contribution margin per unit

$$X = F \div (P - V)$$

$$= \text{Tk. } 60,000 \div (\text{Tk. } 90 - \text{Tk. } 55 - \text{Tk. } 5)$$

$$= \text{Tk. } 60,000 \div \text{Tk. } 30$$

$$= 2,000 \text{ units}$$

iii) Target volume in units: (Fixed cost + Target profit) ÷ contribution margin per unit

$$\text{Profit} = \text{Tk. } 120,000$$

$$X = (F + \text{Target profit}) \div (P - V)$$

$$= (\text{Tk. } 60,000 + \text{Tk. } 120,000) \div \text{Tk. } 30$$

$$= 6,000 \text{ units}$$

iv) Target volume in sales (taka): Profit = Tk. 20,000

$$\text{Contribution margin ratio} = \text{Tk. } 30 \div \text{Tk. } 90 = 0.333 \text{ (rounded)}$$

$$PX = (F + \text{Target profit}) \div \text{Contribution Margin Ratio}$$

$$= (\text{Tk. } 60,000 + \text{Tk. } 20,000) \div 0.333 = \text{Tk. } 240,000$$

v) Number of units sold to produce an operating profit of 20 percent of sales (taka)

$$PX - VX - F = 20\%PX$$

$$\text{Tk. } 90X - \text{Tk. } 60X - (20\%)(\text{Tk. } 90)X = \text{Tk. } 60,000$$

$$(\text{Tk. } 90 - \text{Tk. } 60 - \text{Tk. } 18)X = \text{Tk. } 60,000$$

$$X = \text{Tk. } 60,000 \div \text{Tk. } 12$$

$$= 5,000 \text{ units}$$

(b)

Required sales in unit:

$$= \frac{\text{Fixed Cost} + \frac{\text{Profit}}{1 - \text{Tax}}}{\text{CM Per Unit}}$$

$$= \frac{60,000 + \frac{48,750}{0.65}}{8}$$

$$= \frac{1,35,000}{8}$$

$$= 16,875 \text{ units}$$

$$[\text{CM Per Unit: } 15 - 7 = 8]$$

(c)

Based on the current mix of tent spaces and RV spaces, the sales mix at HDC is 40% (= 6,000 ÷ 15,000) tent spaces and 60% (= 9,000 ÷ 15,000) RV spaces. The weighted-average contribution margin for HDC is:

$$0.40 \times (\text{Tk. } 6 - \text{Tk. } 3) + 0.60 \times (\text{Tk. } 15 - \text{Tk. } 7) = \text{Tk. } 6$$

The multiple-product break-even point can be determined by the break-even formula:

$$\begin{aligned} X &= \text{Fixed costs} \div \text{Weighted-average contribution margin per unit} \\ &= \text{Tk. } 60,000 \div \text{Tk. } 6 \\ &= 10,000 \text{ units} \end{aligned}$$

At the current sales mix, this would be 4,000 tent spaces (40% of 10,000 units) and 6,000 RV spaces (60% of 10,000 units).

= THE END =