

CHAPTER 10

BUDGETS AND BUDGETARY CONTROL

Question 1

Explain briefly the concept of 'flexible budget'.

(Nov 2008, 2 Marks)

Answer

Flexible Budget: A flexible budget is defined as "a budget which, by recognizing the difference between fixed, semi-variable and variable cost is designed to change in relation to the level of activity attained". A fixed budget, on the other hand is a budget which is designed to remain unchanged irrespective of the level of activity actually attained. In a fixed budgetary control, budgets are prepared for one level of activity whereas in a flexibility budgetary control system, a series of budgets are prepared one for the each of a number of alternative production levels or volumes. Flexible budgets represent the amount of expense that is reasonably necessary to achieve each level of output specified. In other words, the allowances given under flexibility budgetary control system serve as standards of what costs should be at each level of output.

Question 2

Discuss the components of budgetary control system.

(May 2009, 2 Marks)

Answer

Components of budgetary control system

The policy of a business for a defined period is represented by the master budget the details of which are given in a number of individual budgets called functional budgets. The functional budgets are broadly grouped under the following heads:

- (a) Physical Budgets – Sales Qty, Product Qty., Inventory, Manpower budget.
- (b) Cost Budgets – Manufacturing Cost, Administration Cost, sales & distribution cost, R & D Cost.
- (c) Profit Budget

Question 3

Following is the sales budget for the first six months of the year 2009 in respect of PQR Ltd. :

Month :	Jan.	Feb.	March	April	May	June
Sales (units) :	10,000	12,000	14,000	15,000	15,000	16,000

Finished goods inventory at the end of each month is expected to be 20% of budgeted sales quantity for the following month. Finished goods inventory was 2,700 units on January 1, 2009. There would be no work-in-progress at the end of any month.

Each unit of finished product requires two types of materials as detailed below:

Material X : 4 kgs @ Rs.10/kg

Material Y : 6 kgs @ Rs.15/kg

Material on hand on January 1, 2009 was 19,000 kgs of material X and 29,000 kgs of material Y. Monthly closing stock of material is budgeted to be equal to half of the requirements of next month's production.

Budgeted direct labour hour per unit of finished product is $\frac{3}{4}$ hour.

Budgeted direct labour cost for the first quarter of the year 2009 is Rs.10,89,000.

Actual data for the quarter one, ended on March 31, 2009 is as under:

Actual production quantity : 40,000 units

Direct material cost

(Purchase cost based on materials actually issued to production)

Material X : 1,65,000 kgs @ Rs.10.20/kg

Material Y : 2,38,000 kgs @ Rs.15.10/kg

Actual direct labour hours worked : 32,000 hours

Actual direct labour cost : Rs.13,12,000

Required :

(a) Prepare the following budgets:

- (i) Monthly production quantity for the quarter one.
- (ii) Monthly raw material consumption quantity budget from January, 2009 to April, 2009.
- (iii) Materials purchase quantity budget for the quarter one.

(b) Compute the following variances :

- (i) Material cost variance
- (ii) Material price variance
- (iii) Material usage variance
- (iv) Direct labour cost variance
- (v) Direct labour rate variance
- (vi) Direct labour efficiency variance

(May 2009, 15 Marks)

Answer

(a) (i) **Production Budget for January to March 2009**
(Quantitative)

	Jan	Feb	Mar	April
Budgeted Sales	10,000	12,000	14,000	15,000
Add: Budgeted Closing Stock (20% of sales of next month)	<u>2,400</u>	<u>2,800</u>	<u>3,000</u>	<u>3,000</u>
	12,400	14,800	17,000	18,000
Less: Opening Stock	<u>2,700</u>	<u>2,400</u>	<u>2,800</u>	<u>3,000</u>
Budgeted Output	<u>9,700</u>	<u>12,400</u>	<u>14,200</u>	<u>15,000</u>

Total Budgeted Output for the Quarter ended March 31, 2009

$$= (9,700 + 12,400 + 14,200)$$

$$= 36,300 \text{ units.}$$

(ii) **Raw Material Consumption Budget (in quantity)**

Month	Budgeted Output (Units)	Material 'X' @ 4 kg per unit (Kg)	Material 'Y' @ 6 kg per unit (Kg)
Jan	9,700	38,800	58,200
Feb	12,400	49,600	74,400
Mar	14,200	56,800	85,200
Apr	15,000	60,000	90,000
Total		2,05,200	3,07,800

(iii) **Raw Materials Purchase Budget (in quantity)
for the Quarter ended (March 31,2009)**

	Material X (kg)	Material Y (kg)
Raw material required for production	1,45,200	2,17,800
Add: Closing Stock of raw material	<u>30,000</u>	<u>45,000</u>
	1,75,200	2,62,800
Less: Opening Stock of raw material	<u>19,000</u>	<u>29,000</u>
Material to be purchased	<u>1,56,200</u>	<u>2,33,800</u>

Alternative Solution

(iii) **Raw Materials Purchase Budget (in quantity)
for the Quarter ended (March 31,2009)**

Material X

	Jan	Feb	Mar	Total
Raw material required for production(x)	38800	49600	56800	145200
Add: Closing stock of raw material	24800	28400	30000	83200
	63600	78000	86800	228400
Less: Opening stock of raw material X	19000	24800	28400	72200
Materials to be purchased X	44600	53200	58400	156200

Raw Materials Purchase Budget (in quantity)

for the Quarter ended (March 31,2009)

Material Y

	Jan	Feb	Mar	Total
Raw material required for production(Y)	58200	74400	85200	217800
Add: Closing stock of raw material	37200	42600	45000	124800
	95400	117000	130200	342600
Less: Opening stock of raw material Y	29000	37200	42600	108800
Materials to be purchased Y	66400	79800	87600	233800

(b) Calculation of Material Cost Variance

(a)	(b)
Std Price × Std Mix × Std Qty for actual output	Std. Price × Std. Mix × Actual Qty.
X – 10 × 4 × 40,000 = 16,00,000	X – 10 × $\frac{4}{10}$ × 4,03,000 = 16,12,000
Y – 15 × 6 × 40,000 = <u>36,00,000</u>	Y – 15 × $\frac{6}{10}$ × 4,03,000 = <u>36,27,000</u>
<u>52,00,000</u>	<u>52,39,000</u>

(c)	(d)
Std Price × Actual Mix × Actual Qty	Actual Price × Actual Mix × Actual Qty.
X – 10 × 1,65,000 = 16,50,000	X – 10.20 × 1,65,000 = 16,83,000
Y – 15 × 2,38,000 = <u>35,70,000</u>	Y – 15.10 × 2,38,000 = <u>35,93,800</u>
<u>52,20,000</u>	<u>52,76,800</u>

Direct Material Usage Variance = (a – c)

X –	16,00,000 – 16,50,000	= 50,000 (A)
Y –	36,00,000 – 35,70,000	= 30,000 (F)
	52,00,000 – 52,20,000	= 20,000 (A)

Direct Material Price Variance = (c – d)

X –	16,50,000 – 16,83,000	= 33,000 (A)
Y –	35,70,000 – 35,93,800	= 23,800 (A)
	52,20,000 – 52,76,800	= 56,800 (A)

Direct Material Cost Variance = (a – d)

X –	16,00,000 – 16,83,000	= 83,000 (A)
Y –	36,00,000 – 35,93,800	= 6,200 (F)
	52,00,000 – 52,76,800	= 76,800 (A)

Verification:

$$\begin{aligned}\text{Direct Material Cost Variance} &= \text{Direct Material Usage Variance} + \text{Direct Material Price Variance} \\ &= 20,000 \text{ (A)} + 56,800 \text{ (A)} \\ &= 76,800 \text{ (A)}\end{aligned}$$

Alternative Solution (Total basis)

$$\begin{aligned}\text{Direct Material Cost Variance} &= 52,00,000 - 52,76,800 = 76,800 \text{ (A)} \\ \text{Direct Material Price Variance} &= 52,20,000 - 52,76,800 = 56,800 \text{ (A)} \\ \text{Direct Material Usage Variance} &= 52,20,000 - 52,00,000 = 20,000 \text{ (A)}\end{aligned}$$

Calculation of Labour Cost Variances:

$$\begin{aligned}\text{Budgeted output for the quarter} &= 36,300 \text{ units} \\ \text{Budgeted direct labour hours} &= 36,300 \times \frac{3}{4} \text{ hrs.} \\ &= 27,225 \text{ hours}\end{aligned}$$

Standard or Budgeted labour rate per hour

$$\begin{aligned}&= \frac{\text{Budgeted direct labour cost}}{\text{Budgeted direct labour hours}} \\ &= \frac{\text{Rs. } 10,89,000}{27,225 \text{ hours}} = \text{Rs. } 40\end{aligned}$$

Standard labour hours for actual output:

$$\begin{aligned}&= 40,000 \text{ units} \times \frac{3}{4} \text{ hour} \\ &= 30,000 \text{ hours} \\ \text{Actual labour hour rate} &= \frac{\text{Rs. } 13,12,000}{32,000 \text{ hrs}} = \text{Rs. } 41\end{aligned}$$

$$\begin{aligned}\text{Direct Labour Efficiency Variance} &= \text{Standard Rate} \times (\text{Std. hrs} - \text{Actual hrs.}) \\ &= \text{Rs. } 40 \times (30,000 - 32,000) \\ &= \text{Rs. } 80,000 \text{ (A)}\end{aligned}$$

$$\begin{aligned}\text{Direct Labour Rate Variance} &= \text{Actual hrs.} \times (\text{Std. Rate} - \text{Actual Rate}) \\ &= 32,000 \times (40 - 41) \\ &= \text{Rs. } 32,000 \text{ (A)}\end{aligned}$$

$$\begin{aligned}
 \text{Direct Labour Cost Variance} &= (\text{Std. rate} \times \text{Std. hrs.}) - (\text{Actual rate} \times \text{Actual hrs.}) \\
 &= (40 \times 30,000) - (41 \times 32,000) \\
 &= 12,00,000 - 13,12,000 \\
 &= 1,12,000 \text{ (A)}
 \end{aligned}$$

Verification:

$$\begin{aligned}
 \text{Direct Labour Cost Variance} &= \text{Direct Labour Efficiency Variance} + \text{Direct Labour Rate Variance} \\
 &= \text{Rs.}80,000 \text{ (A)} + \text{Rs.}32,000 \text{ (A)} \\
 &= 1,12,000 \text{ (A)}
 \end{aligned}$$

Question 4

Calculate efficiency and activity ratio from the following data:

$$\begin{aligned}
 \text{Capacity ratio} &= 75\% \\
 \text{Budgeted output} &= 6,000 \text{ units} \\
 \text{Actual output} &= 5,000 \text{ units} \\
 \text{Standard Time per unit} &= 4 \text{ hours}
 \end{aligned}$$

(November 2009, 2 Marks)

Answer

$$\begin{aligned}
 \text{Capacity Ratio} &= \frac{\text{Actual Hours}}{\text{Budgeted Hours}} \times 100 \\
 75\% &= \frac{\text{AH}}{6000 \text{ Units} \times 4 \text{ hour per unit}} \\
 .75 &= \frac{\text{AH}}{24000 \text{ Hours}} \\
 \text{AH} &= 18000 \text{ Hours} \\
 \text{Efficiency Ratio} &= \frac{\text{Actual Output in term of S tan dard Hours}}{\text{Actual Working Hours}} \times 100 \\
 &= \frac{5000 \text{ units} \times 4 \text{ hours per unit}}{18000 \text{ Hours}} \times 100
 \end{aligned}$$

$$\begin{aligned}
 &= \frac{20000 \text{ Hours}}{18000 \text{ Hours}} \times 100 = 111.11\% \\
 \text{Activity Ratio} &= \frac{\text{Actual Output in term of S tandard Hours}}{\text{Budgeted Output in term of S tandard Hours}} \times 100 \\
 &= \frac{20000 \text{ Units}}{6000 \text{ Units} \times 4 \text{ hour per unit}} \times 100 \\
 &= \frac{20000 \text{ Units}}{24000 \text{ Units}} \times 100 = 83.33\%
 \end{aligned}$$

Question 5

List the eight functional budgets prepared by a business.

(November 2009, 3 Marks)

Answer

The various commonly used Functional budgets are:

- Sales Budget
- Production Budget
- Plant Utilisation Budget
- Direct Material Usage Budget
- Direct Material Purchase Budget
- Direct Labour (Personnel) Budget
- Factory Overhead Budget
- Production Cost Budget