## 13

### Budgets and Budgetary Control

#### BASIC CONCEPTS AND FORMULAS

<table>
<thead>
<tr>
<th>Basic Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Budget</strong>: It is a statement of an estimated performance to be achieved in a given time, expressed in currency value or quantity or both.</td>
</tr>
<tr>
<td>2. <strong>Budget Centre</strong>: A section of an organization for which separate budget can be prepared and control exercised.</td>
</tr>
<tr>
<td>3. <strong>Budgetary Control</strong>: Guiding and regulating activities with a view to attaining predetermined objectives, effectively and efficiently.</td>
</tr>
<tr>
<td>4. <strong>Budget Manual</strong>: The Budget manual is a schedule, document or booklet which shows, in written forms the budgeting organisation and procedures.</td>
</tr>
<tr>
<td>5. <strong>Budget Period</strong>: The period of time for which a budget is prepared and used. It may be a year, quarter or a month.</td>
</tr>
<tr>
<td>6. <strong>Components Of Budgetary Control System</strong>:</td>
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</tr>
</tbody>
</table>
13.2 Cost Accounting

example, cash budgets, capital expenditure budget, budgeted balance sheet etc.

7. Objectives of budgeting are Planning, Directing and Controlling

8. **Functional budgets** - Budgets which relate to the individual functions in an organisation are known as Functional Budgets. For example, purchase budget; sales budget; production budget; plant-utilisation budget and cash budget.

9. **Master budget** - It is a consolidated summary of the various functional budgets. It serves as the basis upon which budgeted P & L A/c and forecasted Balance Sheet are built up.

10. **Long-term budgets** - The budgets which are prepared for periods longer than a year are called long-term budgets. Such budgets are helpful in business forecasting and forward planning. Capital expenditure budget and Research and Development budget are examples of long-term budgets.

11. **Short-term budgets** - Budgets which are prepared for periods less than a year are known as short-term budgets. Cash budget is an example of short-term budget. Such types of budgets are prepared in cases where a specific action has to be immediately taken to bring any variation under control, as in cash budgets.

12. **Basic budgets** - A budget which remains unaltered over a long period of time is called basic budget.

13. **Current budgets** - A budget which is established for use over a short period of time and is related to the current conditions is called current budget.

14. **Fixed budget** - According to Chartered Institute of Management Accountants of England, “a fixed budget, is a budget designed to remain unchanged irrespective of the level of activity actually attained”.

15. **Flexible budget** - According to Chartered Institute of Management Accountants of England, “a flexible budget is defined as a budget which, by recognizing the difference between fixed, semi-variable and variable costs is designed to change in relation to the level of activity attained.”

**Question 1**

*Explain briefly the concept of ‘flexible budget’.*

**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 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**

*TQM Ltd.* has furnished the following information for the month ending 30th June, 2007:

<table>
<thead>
<tr>
<th></th>
<th>Master Budget</th>
<th>Actual</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units produced and sold</td>
<td>80,000</td>
<td>72,000</td>
<td></td>
</tr>
<tr>
<td>Sales (₹)</td>
<td>3,20,000</td>
<td>2,80,000</td>
<td>40,000 (A)</td>
</tr>
<tr>
<td>Direct material (₹)</td>
<td>80,000</td>
<td>73,600</td>
<td>6,400 (F)</td>
</tr>
<tr>
<td>Direct wages (₹)</td>
<td>1,20,000</td>
<td>1,04,800</td>
<td>15,200 (F)</td>
</tr>
<tr>
<td>Variable overheads (₹)</td>
<td>40,000</td>
<td>37,600</td>
<td>2,400 (F)</td>
</tr>
<tr>
<td>Fixed overhead (₹)</td>
<td>40,000</td>
<td>39,200</td>
<td>800 (F)</td>
</tr>
<tr>
<td>Total Cost</td>
<td>2,80,000</td>
<td>2,55,200</td>
<td></td>
</tr>
</tbody>
</table>

The Standard costs of the products are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct materials (1 kg. at the rate of ₹1 per kg.)</td>
<td>1.00</td>
</tr>
<tr>
<td>Direct wages (1 hour at the rate of ₹1.50)</td>
<td>1.50</td>
</tr>
<tr>
<td>Variable overheads (1 hour at the rate of ₹0.50)</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Actual results for the month showed that 78,400 kg. of material were used and 70,400 labour hours were recorded.

Required:

(i) Prepare Flexible budget for the month and compare with actual results.

(ii) Calculate material, labour, sales price, variable overhead and fixed overhead expenditure variances and sales volume (profit) variance.
13.4 Cost Accounting

Answer

(i) Statement showing flexible budget and its comparison with actual

<table>
<thead>
<tr>
<th></th>
<th>Master budget (80,000 units)</th>
<th>Flexible budget (at standard cost)</th>
<th>Actual for 72,000 units</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per unit</td>
<td>72,000 units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Sales</td>
<td>3,20,000</td>
<td>4.00</td>
<td>2,88,000</td>
<td>8,000 (A)</td>
</tr>
<tr>
<td>B. Direct material</td>
<td>80,000</td>
<td>1.00</td>
<td>72,000</td>
<td>1,600 (A)</td>
</tr>
<tr>
<td>C. Direct wages</td>
<td>1,20,000</td>
<td>1.50</td>
<td>1,08,000</td>
<td>3,200 (F)</td>
</tr>
<tr>
<td>D. Variable overhead</td>
<td>40,000</td>
<td>0.50</td>
<td>36,000</td>
<td>1,600 (A)</td>
</tr>
<tr>
<td>E. Total variable cost</td>
<td>2,40,000</td>
<td>3.00</td>
<td>2,16,000</td>
<td></td>
</tr>
<tr>
<td>F. Contribution</td>
<td>80,000</td>
<td>1.00</td>
<td>64,000</td>
<td></td>
</tr>
<tr>
<td>G. Fixed overhead</td>
<td>40,000</td>
<td>0.50</td>
<td>32,000</td>
<td>800 (F)</td>
</tr>
<tr>
<td>H. Net profit</td>
<td>40,000</td>
<td>0.50</td>
<td>24,800</td>
<td>7,200 (A)</td>
</tr>
</tbody>
</table>

(ii) Variances:

- Sales price variance = Actual Quantity (Standard Rate – Actual Rate)
  = $72,000 (4.00 – 3.89) = 8,000 (A)

- Direct Material Cost Variance = Standard Cost for actual output – Actual cost
  = 72,000 – 73,600 = 1,600 (A)

- Direct Material Price Variance = Actual Quantity (Standard rate – Actual Rate)
  = $78,400 \left( 1.00 - \left( \frac{73,600}{78,400} \right) \right) = 4,800 (F)

- Direct Material Usage Variance = Standard Rate (Standard Quantity – Actual Quantity)
  = 1.0 (72,000 – 78,400) = 6,400 (A)

- Direct Labour Cost Variance = Standard Cost for actual output – Actual cost
  = 1,08,000 – 1,04,800 = 3,200 (F)

- Direct Labour Rate Variance = Actual Hour (Standard Rate – Actual Rate)
  = $70,400 \left( 1.5 - \left( \frac{1,04,800}{70,400} \right) \right) = 800 (F)
Direct Labour Efficiency: 
\[ \text{Variance} = 1.5 (72,000 - 70,400) = 2,400 \text{ (F)} \]

Variable Overhead: 
\[ \text{Variance} = (72,000 \times 0.50) - 37,600 = 1,600 \text{ (A)} \]

Fixed Overhead Expenditure: 
\[ \text{Variance} = 40,000 - 39,200 = 800 \text{ (F)} \]

Sales Volume (Profit) Variance: 
\[ \text{Variance} = .50 [80,000 - 72,000] = 4,000 \text{ (A)} \]

Question 3
Discuss the components of budgetary control system.

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 4
Following is the sales budget for the first six months of the year 2009 in respect of PQR Ltd.:

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan.</th>
<th>Feb.</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (units)</td>
<td>10,000</td>
<td>12,000</td>
<td>14,000</td>
<td>15,000</td>
<td>15,000</td>
<td>16,000</td>
</tr>
</tbody>
</table>

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 @ ₹10/kg
Material Y : 6 kgs @ ₹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 ¾ hour.

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

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

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Price/kg</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material X</td>
<td>1,65,000</td>
<td>₹10.20</td>
<td>₹16,77,000</td>
</tr>
<tr>
<td>Material Y</td>
<td>2,38,000</td>
<td>₹15.10</td>
<td>₹3,58,82,000</td>
</tr>
</tbody>
</table>

Actual direct labour hours worked : 32,000 hours
Actual direct labour cost : ₹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
Answer

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

(Quantitative)

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

Total Budgeted Output for the Quarter ended March 31, 2009
= (9,700 + 12,400 + 14,200) = 36,300 units.

(ii) Raw Material Consumption Budget (in quantity)

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

(iii) Raw Materials Purchase Budget (in quantity)

for the Quarter ended (March 31, 2009)

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

(b) Calculation of Material Cost Variance

<table>
<thead>
<tr>
<th></th>
<th>(a)</th>
<th>(b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std Price × Std Mix × Std Qty for actual output</td>
<td>Std. Price × Std. Mix × Actual Qty.</td>
<td></td>
</tr>
</tbody>
</table>
X – 10 × 4 = 40,000 = 16,00,000
Y – 15 × 6 = 40,000 = 36,00,000

\[
\begin{array}{ccc}
\text{(c)} & \text{(d)} & \\
\text{Std Price} \times \text{Actual Mix} \times \text{Actual Qty} & \text{Actual Price} \times \text{Actual Mix} \times \text{Actual Qty.} & \\
X – 10 \times 1,65,000 = 16,50,000 & X – 10.20 \times 1,65,000 = 16,83,000 & \\
Y – 15 \times 2,38,000 = 35,70,000 & Y – 15.10 \times 2,38,000 = 35,93,800 & \\
52,20,000 & 52,76,800 & \\
\end{array}
\]

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:
Direct Material Cost Variance = Direct Material Usage Variance + Direct Material Price Variance
= 20,000 (A) + 56,800 (A)
= 76,800 (A)

**Alternative Solution** (Total basis)
Direct Material Cost Variance = 52,00,000 – 52,76,800 = 76,800 (A)
Direct Material Price Variance = 52,20,000 – 52,76,800 = 56,800 (A)
Direct Material Usage Variance = 52, 20,000 - 52, 00,000 = 20,000 (A)

**Calculation of Labour Cost Variances:**

Budgeted output for the quarter = 36,300 units

Budgeted direct labour hours = 36,300 × ¾ hrs.

= 27,225 hours

Standard or Budgeted labour rate per hour

\[ \text{Standard or Budgeted labour rate per hour} = \frac{\text{Budgeted direct labour cost}}{\text{Budgeted direct labour hours}} \]

\[ \frac{10,89,000}{27,225} = \text{₹} 40 \]

Standard labour hours for actual output:

\[ = 40,000 \text{ units} \times \frac{3}{4} \text{ hour} \]

\[ = 30,000 \text{ hours} \]

Actual labour hour rate = \[ \frac{13,12,000}{32,000 \text{ hrs}} = \text{₹} 41 \]

Direct Labour Efficiency Variance = Standard Rate × (Std. hrs – Actual hrs.)

\[ = \text{₹} 40 \times (30,000 - 32,000) \]

\[ = \text{₹} 80,000 \text{ (A)} \]

Direct Labour Rate Variance = Actual hrs. × (Std. Rate – Actual Rate)

\[ = 32,000 \times (40 - 41) \]

\[ = \text{₹} 32,000 \text{ (A)} \]

Direct Labour Cost Variance = (Std. rate × Std. hrs.) – (Actual rate × Actual hrs.)

\[ = (40 \times 30,000) - (41 \times 32,000) \]

\[ = 12,00,000 - 13,12,000 \]

\[ = 1,12,000 \text{ (A)} \]

Verification:

Direct Labour Cost Variance = Direct Labour Efficiency Variance + Direct Labour Rate Variance

\[ = \text{₹} 80,000 \text{ (A)} + \text{₹} 32,000 \text{ (A)} \]

\[ = 1,12,000 \text{ (A)} \]
Question 5

Calculate efficiency and activity ratio from the following data:

- Capacity ratio = 75%
- Budgeted output = 6,000 units
- Actual output = 5,000 units
- Standard Time per unit = 4 hours

**Answer**

**Capacity Ratio**

\[
\text{Capacity Ratio} = \frac{\text{Actual Hours}}{\text{Budgeted Hours}} \times 100
\]

\[
75\% = \frac{\text{AH}}{6000 \text{ Units} \times 4 \text{ hour per unit}}
\]

\[
.75 = \frac{\text{AH}}{24000 \text{ Hours}}
\]

\[
\text{AH} = 18000 \text{ Hours}
\]

**Efficiency Ratio**

\[
\text{Efficiency Ratio} = \frac{\text{Actual Output in term of Standard Hours}}{\text{Actual Working Hours}} \times 100
\]

\[
= \frac{5000 \text{ units} \times 4 \text{ hours per unit}}{18000 \text{ Hours}} \times 100
\]

\[
= 20000 \text{ Hours} \times 100 = 111.11\%
\]

**Activity Ratio**

\[
\text{Activity Ratio} = \frac{\text{Actual Output in term of Standard Hours}}{\text{Budgeted Output in term of Standard Hours}} \times 100
\]

\[
= \frac{20000 \text{ Units}}{6000 \text{ Units} \times 4 \text{ hour per unit}} \times 100
\]

\[
= \frac{20000 \text{ Units}}{24000 \text{ Units}} \times 100
\]

\[
= 83.33\%
\]

**Question 6**

List the eight functional budgets prepared by a business.
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

Question 7

*Distinguish between Fixed and flexible budget.*

Answer

**Difference between fixed and flexible budgets**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Fixed Budget</th>
<th>Flexible Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>It does not change with actual volume of activity achieved. Thus it is rigid</td>
<td>It can be recasted on the basis of activity level to be achieved. Thus it is not rigid.</td>
</tr>
<tr>
<td>2.</td>
<td>It operates on one level of activity and under one set of conditions</td>
<td>It consists of various budgets for different level of activity.</td>
</tr>
<tr>
<td>3.</td>
<td>If the budgeted and actual activity levels differ significantly, then cost ascertainment and price fixation do not give a correct picture.</td>
<td>It facilitates the cost ascertainment and price fixation at different levels of activity.</td>
</tr>
<tr>
<td>4.</td>
<td>Comparisons of actual and budgeted targets are meaningless particularly when there is difference between two levels.</td>
<td>It provided meaningful basis of comparison of actual and budgeted targets.</td>
</tr>
</tbody>
</table>

Question 8

*Explain the Essentials of budget*
13.12 Cost Accounting

Answer

Essentials of budget
- It is prepared in advance and is based on a future plan of actions
- It relates to a future period and is based on objectives to be attained.
- It is a statement expressed in monetary and/or physical units prepared for the implementation of policy formulated by management.

Question 9

AK Limited produces and sells a single product. Sales budget for calendar year 2012 by a quarters is as under:

<table>
<thead>
<tr>
<th>Quarters</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of units to be sold</td>
<td>18,000</td>
<td>22,000</td>
<td>25,000</td>
<td>27,000</td>
</tr>
</tbody>
</table>

The year is expected to open with an inventory of 6,000 units of finished products and close with inventory of 8,000 units. Production is customarily scheduled to provide for 70% of the current quarter’s sales demand plus 30% of the following quarter demand. The budgeted selling price per unit is ₹40. The standard cost details for one unit of the product are as follows:

Variable Cost ₹34.50 per unit

Fixed Overheads ₹2 hours 30 minutes @ ₹2 per hour based on a budgeted production volume of 1,10,000 direct labour hours for the year. Fixed overheads are evenly distributed throughout the year.

You are required to:

(i) Prepare Quarterly Production Budget for the year.

(ii) In which quarter of the year, company expected to achieve bread-even point.

Answer

(i) Production Budget for the year 2012 by Quarters

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Sales demand(Unit)</td>
<td>18,000</td>
<td>22,000</td>
<td>25,000</td>
<td>27,000</td>
</tr>
<tr>
<td>I</td>
<td>Opening Stock</td>
<td>6,000</td>
<td>7,200</td>
<td>8,100</td>
<td>8,700</td>
</tr>
<tr>
<td>II</td>
<td>70% of Current Quarter’s Demand</td>
<td>12,600</td>
<td>15,400</td>
<td>17,500</td>
<td>18,900</td>
</tr>
<tr>
<td>III</td>
<td>30% of Following Quarter’s Demand</td>
<td>6,600</td>
<td>7,500</td>
<td>8,100</td>
<td>7,400*</td>
</tr>
<tr>
<td>IV</td>
<td>Total Production(I &amp; II)</td>
<td>19,200</td>
<td>22,900</td>
<td>25,600</td>
<td>26,300</td>
</tr>
<tr>
<td>V</td>
<td>Closing Stock ([I+IV-Sales])</td>
<td>7,200</td>
<td>8,100</td>
<td>8,700</td>
<td>8,000</td>
</tr>
</tbody>
</table>

*Balancing Figure
(ii) Break Even Point = Fixed Cost/ PV Ratio

\[ = \frac{220000}{13.75\%} = 1600000 \text{ or } 40000 \text{ units.} \]

\[ \text{P/V Ratio} = \frac{40 - 34.50}{40} \times 100 = 13.75\% \]

(Or, Break Even Point = Fixed Cost/ Contribution = 2,20,000/5.50 = 40,000 Units)

Total sales in the quarter II is 40000 equal to BEP means BEP achieved in II quarter.

**Question 10**

*State the considerations on which capital expenditure budget is prepared.*

**Answer**

The preparation of Capital Expenditure Budget is based on the following considerations:

1. Overhead on production facilities of certain departments as indicated by the plant utilisation budget.
2. Future development plans to increase output by expansion of plant facilities.
3. Replacement requests from the concerned departments.
4. Factors like sales potential to absorb the increased output, possibility of price reductions, increased costs of advertising and sales promotion to absorb increased output, etc.

**EXERCISE**

**Questions for Practice**

1. A factory is currently running at 50% capacity and produces 5,000 units at a cost of ₹ 900 per unit as per details below:

<table>
<thead>
<tr>
<th></th>
<th>(₹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>500</td>
</tr>
<tr>
<td>Labour</td>
<td>150</td>
</tr>
<tr>
<td>Factory overheads</td>
<td>150 (₹ 60 fixed)</td>
</tr>
<tr>
<td>Administrative overheads</td>
<td>100 (₹ 50 fixed)</td>
</tr>
</tbody>
</table>

The current selling price is ₹ 1,000 per unit. At 70% working, material cost per unit increases by 2% and selling price per unit falls by 2%.

*Estimate profits of the factory at 70% working by preparing a flexible budget.*

**Answer : ₹ 7,10,000**

2. Vivek Elementary School has a total of 150 students consisting of 5 sections with 30 students per section. The school plans for a picnic around the city during the week-end to places such as the zoo, the Niko Park, the planetarium etc. A private transport operator has come forward to lease out the buses for taking the students. Each bus will have a maximum capacity of 50 (excluding 2 seats reserved for the teachers accompanying the students). The school will employ two teachers for each bus, paying them an allowance
of ₹ 50 per teacher. It will also lease out the required number of buses. The following are the other cost estimates:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost per student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>₹ 5</td>
</tr>
<tr>
<td>Lunch</td>
<td>10</td>
</tr>
<tr>
<td>Tea</td>
<td>3</td>
</tr>
<tr>
<td>Entrance fee at zoo</td>
<td>2</td>
</tr>
</tbody>
</table>

Rent ₹ 650 per bus.

Special permit fee ₹ 50 per bus.

Block entrance fee at the planetarium ₹ 250.

Prizes to students for games ₹ 250.

No cost are incurred in respect of the accompanying teachers (except the allowance of ₹ 50 per teacher).

You are required to prepare:

(a) A flexible budget estimating the total cost for the levels of 30, 60, 90, 120 and 150 students. Each item of cost is to be indicated separately.

(b) Compare the average cost per student at these levels.

(c) What will be your conclusions regarding the break-even level of student if the school proposes to collect ₹ 45 per student?

**Answer**

(b) Cost per student  63.33  55.00  43.33  44.17  39.33

(c) Break-even level  Upto 50  51–100  101–150  

   |       | 52  | 84  | 116 |

3. **Ahead Ltd. produces and sells a single product.** Sales budget for calendar year 2009 by quarters is as under:

<table>
<thead>
<tr>
<th>Quarter</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of units to be sold</td>
<td>12,000</td>
<td>15,000</td>
<td>16,500</td>
<td>18,000</td>
</tr>
</tbody>
</table>

The year is expected to open with an inventory of 4,000 units of finished products and close with an inventory of 6,500 units.

Production is customarily scheduled to provide for two-thirds of the current quarter's sales demand plus one-third of the following quarter's demand. Thus production anticipates sales volume by about one month.

The standard cost details for one unit of the product is as follows:

- Direct materials 10 lbs @ 50 paise per lb.
- Direct labour 1 hour 30 minutes @ ₹ 4 per hour
- Variable overheads 1 hour 30 minutes @ ₹ 1 per hour
Budgets and Budgetary Control

Fixed overheads 1 hour 30 minutes @ ₹ 2 per hour based on budgeted production volume of 90,000 direct labour hours for the year.

(i) Prepare a Production budget for 2009, by quarters, showing the number of units to be produced and the total costs of direct material, direct labour, variable overhead and fixed overheads.

(ii) If the budgeted selling price per unit is ₹ 17, what would be the budgeted profit for the year as a whole?

(iii) In which quarter of the year, is the company expected to break-even.

Suggested Approach. First of all production budget should be prepared keeping in view that production should provide for (i) two-third of current quarter’s sales demand and (ii) one-third for following quarter’s demand. It should be noted that closing inventory of 4th quarter has been given. The total cost for each quarter should be found out. The cumulative result for the year and sales required to break-even can be found out.

Answer

(a) Units to be produced in each quarters

<table>
<thead>
<tr>
<th>Quarters</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13,000</td>
<td>15,500</td>
<td>17,000</td>
<td>18,500</td>
<td>64,000</td>
</tr>
</tbody>
</table>

(b) Budgeted profit for the whole year = ₹ 96,750

(c) Break Even Sales = ₹ 6,80,000

4. Soloproducts Ltd. manufactures and sells a single product and has estimated a sales revenue of ₹ 126 lakhs this year based on a 20% profit on selling price. Each unit of the product requires 3 lbs of material P and 1-1/2 lbs of material Q for manufacture as well as a processing time of 7 hours in the Machine shop and 2-1/2 hours in the Assembly Section. Overheads are absorbed at a blanket rate of 33-1/3% on direct labour. The factory works 5 days of 8 hours a week in a normal 52 weeks a year. On an average statutory holidays, leave and absenteeism and idle time amount to 96 hours, 80 hours and 64 hours respectively, in a year.

The other details are as under:

| Purchase Price | Material P | ₹ 6 per lbs |
| Comprehensive Labour Rate | Material Q | ₹ 4 per lbs |
| No. of Employees | Machine shop | 600 |
| Assembly | 180 |
| Opening Stock | Material P | Material Q |
| 20,000 units | 54,000 lbs | 33,000 lbs |
| Closing Stock (Estimates) | 25,000 units | 30,000 lbs | 66,000 lbs |
You are required to calculate:

(a) The number of units of the product proposed to be sold.

(b) Purchases to be made of materials P and Q during the year in Rupees.

(c) Capacity utilization of Machine Shop and Assembly Section, along with your comments.

Answer

(a) The number of units of the product proposed to be sold = 1,40,000 units

(b) Purchases (₹)

<table>
<thead>
<tr>
<th></th>
<th>P</th>
<th>Q</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24,66,000</td>
<td>10,02,000</td>
</tr>
</tbody>
</table>

(c) Capacity utilization statement of Machine Shop and Assembly Section.

<table>
<thead>
<tr>
<th>Shop</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Shop</td>
<td>91.94%</td>
</tr>
<tr>
<td>Assembly</td>
<td>109.45</td>
</tr>
</tbody>
</table>