



STUDY MATERIAL FOR B.COM
COST ACCOUNTING
SEMESTER - V, ACADEMIC YEAR 2020 - 2021

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UNIT - I
INTRODUCTION

Introduction

Cost Accounting provides significant information to the management to take various managerial decisions. The business, at present is highly competitive. In order to withstand competition the concerns have to supply goods at low prices. Low prices may affect the basic concept of the profit maximization of business. To overcome this problem the only alternative for a concern is to reduce the cost of production. Cost Accounting as a subject is designed to provide many methods and techniques to reduce the cost of production through various stages of production.

Definition of cost Accounting:

Cost Accounting is the process of accounting for cost which begins with the recording of income, expenditure and ends with the preparation of periodical statements and reports for ascertaining and controlling costs.

Meaning of cost:

Cost refers to the total expenses which are incurred to produce an article. Cost consists of all the expenses incurred in producing a commodity.

Objectives of cost Accounting

- To ascertain the cost of products or service
- To control costs
- To Provide guidelines for management policy
- To determine selling price

Elements of Cost

- Direct and indirect material
- Direct and Indirect Labour
- Direct and Indirect expenses

Classifications of Costs

- On the basis of elements - Direct Material, labour, expenses and Overheads
- On the basis of functions - Production expenses, Office expenses, Selling expenses and Distribution expenses
- On the basis of behavior - Variable expenses, fixed expenses and semi variable expenses
- On the basis of Controllability - Controllable and Uncontrollable
- On the basis of time - Historical cost and Predetermined Cost

Direct Material

Direct material cost is which cost can be conveniently identified and allocated to Cost units



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Example: Material specially purchased from a particulate job, order or process

Indirect Material

Indirect material cost cannot be conveniently allocated but can be apportioned of Absorbed by units or cost centers

Example: Lubricating oil, fuel, cotton, waste etc,

Labour Cost:

Labour cost is the cost of remuneration (Wages, salaries bonus etc.,) paid or payable to the employees of an undertaking.

Direct Labour

Direct labour is that labor which can be conveniently identified with and allocated to cost units. It is the among of labour which directly engaged or productive jobs or process

Example: Wages paid to a machine operator.

Indirect labour cost

It is the cost of labour or directly engaged in the production operators and engaged to assists or help the production operation

Example: Wages of store keepers, Inspectors etc.

Expenses

The cost other than the material cost and labour cost are called expenses.

Direct Expenses

Direct expenses are those expenses which can be directly identified with and allocated to cost units

Example: Hire of a special plants and machinery required for a particular job.

Indirect Expenses

Indirect expenses are those expenses which are common to jobs or process and cannot be directly identified with a particular job or process.

Factory Overheads

Factory overheads are those expenses which are incurred in connection with manufacturing operation but which cannot be identified and allocated to cost units or job or process.

Example: Power, factory rent salary of works manager.



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Office Expenses

Office expenses are those expenses which are incurred in formulating policies, planning and controlling the functions, directing and motivating the personnel of an organization for the attainment of the objectives.

Example: Office salaries, administration expenses, rent, repairs, depreciation of office building.

Selling expenses

Selling expenses are those expenses which are incurred to promote sales and to retain customers. That is the costs, which are incurred to create and stimulate demand for the products are known as selling expenses.

Example: Advertisement expenses, Salesman salaries, commission Bad debts.

Distribution expenses

Distribution expenses are those expenses which are incurred to distribute the goods which are manufactured by the concern.

Example: Delivery van expenses, Carriage outwards packing expenses etc.,

Fixed Cost

Fixed cost is the cost which is constant within the installed capacity, irrespective of volume of outputs. Fixed cost is the cost which is unaffected by the volume of output.

Example: Rent of building, factory, managers salary, insurance, administration expenses.

Variable cost

Variable cost is the cost which will vary according to the volume of unit production.

Semi – Variable cost or semi-fixed cost

Semi fixed cost is one which is partly fixed and partly variable it is also known as semi variable cost.

Example: Telephone expenses, Electricity expenses.

Controllable cost

Controllable cost is the cost which can be controlled by the action of the executive of a concern. Controllable cost is the cost which may be directly regulated by the top level management.

Example: Variable cost is an example for controllable cost.

Uncontrollable cost



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Uncontrollable cost is the cost which cannot be controlled by the action of the executive of a concern.

Example: Fixed expenses like salary, rent etc.,

Normal cost

Normal cost is the cost which is normality incurred at a given level of output which is normality attained.

Abnormal cost

Abnormal cost is the cost which is not normality incurred at a given level of output which is normality attained.

Historical cost

Historical costs are those costs which are computed or ascertained after they have been incurred. The cost which is calculated after the completion of the job or process is known as historical cost.

Predetermined costs

Predetermined costs are those cost which are computed in advance of production. The cost which is estimated before the production is attained predetermined costs are also known as standard cost.

Marginal cost

Marginal cost is the variable cost which includes direct material; direct labour, direct expenses.

Difference between Cost Accounting and Financial Accounting

SL.NO	Financial Accounting	Cost Accounting
1.	All trading transactions are recorded in financial records	Expenses which are incurred to production and sell the products are recorded in cost records
2.	The main purpose is to prepare trading , profit and loss account Balance sheet of a concern	The main purpose is to find out the total cost and profit for each of the unit
3.	All companies must prepare its final account	Only some companies prepare its cost accounts
4.	Financial reports are prepared at the end of every accounting year.	Cost records are prepared at short intervals
5.	It is used to shareholders, creditors, bankers, Government and agencies etc.	It is used for decision making , planning and cost control purposes
6.	Financial accounts are prepared at the end of every accounting year	Cost accounts are prepared as when goods are produced
7.	Stock is valued at cost price or market price whichever is lower	Stock is valued at cost price



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8.	Costs are not classified into fixed and variable	Costs are classified into fixed and variable
9.	It does not reveal inefficiencies in material handling	It reveals inefficiencies in handling
10.	It serves the needs of shareholders, bankers, creditors and tax authorities	It serves the needs of the management

Difference between Management Accounting and Cost Accounting

SL.No	Management Accounting	Cost Accounting
1.	It provides information to the management for efficient management of the business	It is used to determined and record the cost of producing a product or a service
2.	It deals with projection of future activities	It is based on past and present figures
3.	No principles and procedures are being followed	Certain principles and procedures are are being followed
4.	Qualitative and Quantitative data are recorded	Quantitative data are recorded
5.	The scope of the accounting is very wide	The scope of cost accounting is very narrow. That is cost ascertainment only.

Advantages of Cost Accounting

The advantages are grouped into four categories. They are.

To the Management

- In fixing price
- In fixing profit
- In fixing sales
- In selecting a sales mix
- In selecting an alternative production pattern
- In determining the future course of action
- In fixing remuneration to workers

To the employees

- fixing a sound wage policy
- In fixing a suitable bonus plan
- In distinguish between efficient and inefficient workers
- In fixing appropriate incentive scheme in employees

To the government

- In facilitating the assessment of excise duty
- In facilitating the assessment of income tax
- In facilitating the formulation of policies regarding industry



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To the public

- With control over costs, the prices are fair
- With control over wastage, the quality is better
- Cause overall growth of industries and employment

Limitation of Cost Accounting

- Not applicable to small business concern
- Expenses involved in installing a costing system is disproportionate to the benefits received from it
- It is only based on estimation

Methods of costing

Job costing

The costing adopted to concerns which produce goods according to the specific order of the customer is called job costing.

Example: Printing, Machine tools, Repair shops.

Batch Costing

Batch costing is a method of costing adopted to concerns which produce group of identical or similar product in large units.

Example: Medicines, Ready-made garments, Spare parts.

Contract costing

Contract costing is adopted by the concern which produce product of construction types. It is just like job costing. But a period is longer the cost.

Process costing

Process costing is adopted by concern which produces production of mass scale with two or more processes.

Operation costing

Operation costing is a method of costing adopted for the concern, producing products with number of process or operations where costs are collected, accumulated and ascertained for each operation separately.

Example: Engineering, toy making etc.

Single or output Costing

Single or output costing is methods of costing adopted by concern which produce one product with identical and standard units through two or more processes.

Example: Mines Quarries, Brick works.



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Operating costing

The method of costing adapted by concerns which render services is called operating costing

Example: Railways, Airways, Road transport Hospital, Power source etc.,

Techniques (or) type of costing

Historical Costing

The determination of cost after the costs have been incurred is called historical costing.

Standard Costing

The determination of cost before the costs are incurred for the production is called standard costing.

Absorption costing

The absorption costing is also known as full cost. In absorption costing, different costs incurred for manufacturing a product are charged to the product.

Marginal costing

Marginal costing is also called variable costing. It helps the management to take decisions on the basis of variable costs and fixed cost.

Uniform costing

Uniform costing is an adoption of similar costing principle and practices.

Preparation of cost sheet

Cost sheet is a statement of cost incurred for the production during a period. There is no time basis for the cost sheet. It may be for 15 days, 1 month, 2 months or 3 months etc., all the costs incurred in the production of the product during a period should be systematically stated in the cost sheet.

Cost sheet without stock and work –in- Progress

COST SHEET

Particulars	Rs
Direct Material	xxx
Direct wages	xxx
Direct expenses	xxx
Prime Cost	xxx
Add: Factory Overhead	xxx
	xxx
Work Cost	xxx
Add: Administration Overhead	xxx
Cost of production	xxx



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Add: Selling and Distribution Overhead	xxx
Cost of Sales	xxx
Costing Profit	xxx
Sales	xxx
	xxx

Cost sheet with stock and work-in-progress

Particulars	Rs
Opening stock of Material	xxx
Add: Purchases	xxx
	xxx
Less: Closing stock of material	xxx
Raw Material consumed	xxx
Direct wages	xxx
Direct expenses	xxx
	xxx
Prime Cost	xxx
Add: Factory Overhead	xxx
Opening work-in-progress	xxx
	xxx
Less: Closing work in Progress	xxx
Work Cost	xxx
Add: Administration Overhead	xxx
Cost of production	xxx
Add: Opening stock of finished goods	xxx
	xxx
Less: Closing stock of finished goods	xxx
	xxx
Cost of goods sold	xxx
Add: Selling and Distribution Overhead	xxx
Cost of Sales	-----
Costing Profit	xxx
Sales	xxx
	xxx
	xxx
	xxxx

Problem

The following are costing information related to ABC Company Ltd for three months ending 31st March 2011.



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	1 Jan 2011 Rs.	31 st March 2011 Rs.
Raw material	5,500	4,000
Work-in-Progress	14,00	15,000
Purchases of raw material	30,000	
Direct wages	31,500	
Rent, rates and works on cost	17,000	
Carriage inwards	2,000	
Factory Supervision cost	12,000	
Administration cost	31,000	
Sales	1,80,000	

Selling cost @ Rs.0.80 per Unit sold. The stock of finished goods as on 1st January 2011 is 2000 units and on 31st March 2011 is 2,500 units. The company sold 39,000 units during the period. Prepare a cost sheet and find out the costing profit, cost per unit and selling price per unit'

SOLUTION

Statement of Cost for 3 months ending 31st March 2011



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Particulars	Rs.	Rs.
Opening stock of raw material	5,500	
Add: Purchases of raw material	39,500	
Carriage inwards	2,000	
	47,000	
Less: Closing stock of raw material	4,000	
Material consumed		43,000
Direct wages		31,200
Prime Cost		74,200
Add Factory Overhead		
Rent, rates and works on cost	17,500	
Factory supervision cost	12,000	
		29,500
Add: Opening work-in-Progress		14,200
		1,17,900
Less: Closing work-in-Progress		15,000
Work Cost		1,02,900
Add: Administration Overhead		31,000
Cost of Production (40,000 units)		1,33,900
Add: Opening stock of finished goods(2000x3.25)		6,700
		1,40,600
Less: Closing stock of finished goods (2500x3.25)		8,375
Cost of goods sold		1,32,225
Add: Selling and Distribution Overheads (39,500x0.80)		31,600
Cost of Sales		1,63,825
Costing Profit		16,175
Sales (39,500 units)		1,80,000

Workings	Units
Sales	39,500
Add: Closing Stock	2,500
	2,000
Less: Opening stock	2,000
	40,000



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$$\begin{aligned} \text{Cost of finished goods} &= \text{Cost of Production} \\ &\quad \text{-----} \\ &\quad \text{No. of units} \\ & \\ & \quad 1,33,900 \\ & = \text{-----} = \text{Rs.3.25 per unit} \\ & \quad 40,000 \\ & \quad 1,80,000 \\ \text{Selling price per unit} &= \text{-----} = \text{Rs. 4.56 per unit} \\ & \quad 39,500 \end{aligned}$$



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UNIT - II
PROCESS COSTING

Meaning

- Process Costing is a method of costing to find out the cost of production when the product undergoes different stages or process of production.
- The characteristics of process costing, is that the finished product of one process is used as the raw material of another process.
- Apart from this each process has its own expenses like, material cost, labour cost and other expenses.
- This costing method helps to ascertain the cost of production and the cost per unit in each stages of production.

Difference between process Costing and Job costing

	Job Costing	Process Costing
1	Costs are computed for each job separately	Costs are computed for each process for a period
2	Reduction is against specific order	Production is not against specific order
3.	Each job is separate and independent in nature	Production is continuous and products are homogeneous
4	Costs are found out when job is completed	Costs are found out each end of the process
5.	Control is difficult as each product unit is different	Control is easier as the production is standardized

Procedure for preparing Process Account

1. The process costing is prepared in 'T' form containing debit side and credit side.
2. All expenses are debited in the process account. The opening stock in each process is also debited.
3. The transfer of completed work I to next process and the closing stock in the process are credited.
4. The expenses debited in the process account contain direct material cost direct labour cost, direct expenses and factory overhead, the material is usually debited only in the respective process account.
5. The factory overhead debited in the process account may be incurred commonly for all the process. This will be apportioned on the basis of some predetermined overhead rates.
6. The work of each process is to supply in output as an input to the next process account.
7. Normal process loss will not be shown in the process account and it will automatically be adjusted in the process cost.
8. If the output in the process is less than the input of material, after making adjustment of the normal loss opening stock and closing stock then it is called abnormal loss.
9. If the output in a process is greater than the input of material after making the adjustment of the normal loss, opening stock and closing stock, then it is called abnormal gain.



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Problem

Prepare process cost accounts from the following data

	Process X	Process Y	Process Z
Direct Material (Rs.)	41,500	32,400	24,000,
Direct wages	20,700	27,400	24,100
Factory overhead	14,300	17,700	12,300
Number of units produced	25,000	30,000	32,000
Stock as on 1 st August 2011 (Units) (from Proceeding process)	----	6,000	3,000
Stock on 31 st August 2011 (units)	----	4,000	6,000

Assume that the increase of output in subsequent process is due to additional material

Solution

Process X Account

Particulars	Rs	Particulars	Rs
To Direct Material	41,500	By Process Y A/c	85,500
To Direct swages	29,700		
To Factoory Overhead	14,300		
	85,500		85,500

Process Y Account

Particulars	Rs	Particulars	Rs
To Opening stock of process X(6000x3.42)	20,520	By Closing stock (of Process X) (4000 x 3.42)	13,680
To Process X A/c	85,500		
To Direct Material	32,400	By Process Z A/c(Transfer @ Rs.5.66 per units 30,000 Units)	169,840
To Direct wages	27,400		
To Factory Overhead	17,700		
	183,520		183,520

Process Z Account

Particulars	Rs	Particulars	Rs
To Opening stock (of Process Y)(3000 x 5.66)	16,980	By Closing Stock (of process Y) (5000 x 5.66)	28,300
To Process Y A/c	169,840	(Transfer @ Rs.6.86 per unit)	2,19,520
To Direct material	24,600		
To Direct wages	24,100		
To Factory overhead	12,300		
	2,47,820		2,47,820



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Treatment of Process Losses and Gain

Process Losses: Process losses are two types. They are I) Normal Loss II) Abnormal loss

Normal Loss

Normal loss is a loss which arises due to unavoidable and uncontrollable situation. It should not be prevented. It forms part of the manufacturing process. Normal loss may be in the form of **Scrap, Normal wastage and Normal spoilage**

Abnormal loss

Abnormal loss is a loss which arises due to abnormal and unexpected situation. This loss can be controlled and avoided. Abnormal loss may be due **to abnormal wastage, abnormal spoilage, negligence, accident, fire, theft etc.,**

Cost of production (excluding the realization of
Normal loss) X Abnormal loss units

Value of abnormal loss = -----
Number of units produced (including the Abnormal
Loss unit and including the normal loss units if any,
From the input units

Process gain or abnormal gain

Process gain is otherwise called abnormal gain. Abnormal gain arises when the actual normal loss is less than the standard or expected normal loss. For example if the input of material is 1000 units, the abnormal loss is 100 units and the output is 950 units, then the abnormal gain is 50 units

**Cost of production (excluding the realization of
Normal units) X Number of Abnormal gain units**

Value of abnormal gain = -----
Number of units produced

Problem

W.D & Co.Ltd produces a product with the help of three processes. The following are the information available in the cost records of the company.

	Process A	Process B	Process C
Material (Rs.)	5,500	1,200	3000
Wages(Rs)	4,500	5000	5,500
Normal loss as a percentage of input	10%	20%	15%
Value of scrap per Kgs (Rs)	Nil	4	5
Output (Kgm)	650	600	450

In the process A, 800kgm are introduced to Rs. 10 per Kgms. Factory overhead absorbed is 80 % on direct wages.

Prepare process account, abnormal loss account and abnormal gain account.



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Solution

Process A Account

Particulars	No of units	Rs.	Particulars	No.of units	Rs.
To Units introduced	800	8,000	By Normal loss	80	--
To Material		5,500	By Abnormal loss	70	2,100
To wages		4,500	@Rs.20		
To Factory overhead (80% of wages)		3,600	By Process B A/c (Transfer) @ Rs.30	650	19,500
	800	21,600		800	21,600

Process B Account

Particulars	No of units	Rs.	Particulars	No.of units	Rs.
To Process at A/c	650	19,500	By Normal loss	130	520
To Material		5,220	By Process C A/c	400	36,000
To wages		5,000	(Transfer) @ Rs. 60		
To Factory Overhead (80% of wages)		4,000			
To Abnormal gain @ Rs.60	80	4,800			
	730	36,520		730	36,520

Process C Account

Particulars	No of units	Rs.	Particulars	No.of units	Rs.
To Process C A/c	600	36,000	By Normal loss	90	450
To material		3,000	By Abnormal loss @	60	5,700
To Wages		5,500	Rs.95		
To Factory Overhead (80% of wages)		4,400	By Finished Goods A/c @ Rs.95	450	42,750
	600	48,900		600	48,900

Abnormal loss Acc

Particulars	No of units	Rs.	Particulars	No.of units	Rs.
To Process A A/c	70	2,100	By Sale of scrap in process A a/c	70	--
To Process C A/c	60	5,700	By sale of scrap in Process C A/c	60	300
			By Closing P&L A/c	--	7,500
	130	7,800			7,800

Abnormal Gain A/c



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UNIT - III
MARGINAL COSTING

Marginal Costing

- Marginal Costing is a technique of analyzing the changes of cost due to the changes in volume of production.
- The total cost of production will be classified into fixed cost and variable cost the fixed cost remains be constant up to certain level of production the variable cost changes due to the changes of volume of production.
- The variable cost is otherwise called Marginal Cost. Hence, marginal costing analyzing the relationship of the change of variable cost due to the changes of volume of production.

Meaning / Definition

The Institute of Cost and Management Accountants, London defines Marginal Cost is “The amount of given volume of output by which aggregate cost are change the volume of output by increased by one unit”.

Advantages of Marginal Costing:

1. It is simple to Operate and easy to understand
2. To helps the management to make managerial decision
3. To facilitate to fix the prices
4. Marginal costing technique can be apply for profit planning
5. To facilitates for taking decision regarding the acceptance of or rejection of a bulk order
6. Marginal costing helps the management to calculate the Break-Even-Point
7. To facilitates the management to decide the optimum product mix, when the company is producing more than one product

Limitations of Marginal Costing

1. Changes in the selling process affect the result of marginal costing.
2. The assumption that the fixed cost remains constant may not be always correct.
3. Since it may also vary due to various reasons
4. Marginal costing techniques excludes fixed cost for various marginal decision.
5. The assumption that the variable cost per unit remain constant practically not possible always.
6. Increase in volume of production may reduce the variable cost per unit.



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Cost Volume Profit Analysis

Meaning

Cost Volume Profit analysis is the analysis of three variables viz., cost, volume and profit. The analysis measures variations of costs and volume and their impact on profit. Profit is affected by several internal and external factors which influence sales revenue and costs. Cost volume profit analysis helps the management in profit planning. Profit of a concern can be increased by increasing the output and sales or reducing cost. If a concern produces to the maximum capacity and self contribution is also increased to the maximum level.

Cost Volume Profit analysis is made with the objectives of ascertaining the following

1. The cost for various levels of production
2. The desirable volume of production
3. The profit at various levels of production
4. The differences between sales revenue and variable cost.

Some Important concepts and terms in Cost –Volume-Profit Analysis

Fixed Cost

It is total of all those cost which are termed ‘Period Cost’ or ‘Time Cost’. They do not depend on the volume of production and sales. They must be incurred irrespective of the actual activity or operations. Examples: Office cost, Factory cost, Manager’s salary etc.,

Variable Cost

These are the cost which increase or decrease in production to the output and sales. Variable cost are called ‘**Product cost**’ or ‘**Marginal cost**’. Usually they vary in direct proportion to the output. They include all the direct costs i.e., direct material, direct wages, direct expenses and variable expenses.

Contribution

Contribution is the difference between sales and variable cost
 Contribution includes fixed cost and Profit or loss. Hence, contribution can be calculated by adding the profit with the fixed cost or deducting loss with the Fixed cost

$$\begin{aligned} \text{Hence Contribution} &= \text{Sales} - \text{Variable cost or} \\ &= \text{Fixed Cost} + \text{Profit or loss} \end{aligned}$$

Marginal Cost Equation

The equation Contribution = Sales – Variable cost is called Marginal Cost Equation. It helps to find out either fixed cost or Marginal cost when other information of the equation are given

Profit/Volume Ratio

Profit / Volume Ratio is the ratio between contribution and sales. It is otherwise called as contribution ratio or marginal ratio.

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \quad \text{OR} \quad \frac{\text{Sales} - \text{Variable Cost}}{\text{Sales}} \quad \text{OR} \quad \frac{\text{Fixed cost} + \text{Profit}}{\text{Sales}}$$



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$$= \frac{\text{Changes in profit or Contribution}}{\text{Changes in sales}}$$

Sales for an expected profit can be calculated by P/V Ratio through the following formula

$$\text{Expected sales} = \frac{\text{Fixed cost + Expected Profit}}{\text{P/V Ratio}}$$

Break – Even Analysis

Break Even point may be defined as the point of sales volume at which the total revenue is equal to the total cost. At a breakeven point there will be neither profit nor loss. At the point the contribution is equal to direct cost. Break-Even point is otherwise called ‘Critical Point’ or ‘Equilibrium point’ or ‘Balancing point’

Formula

$$\text{Break Even point (in units)} = \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$$

$$\text{Break-Even point (in Value)} = \frac{\text{Fixed Cost X Selling price per Unit}}{\text{Contribution per unit}}$$

$$\text{Contribution} = \text{Sales} - \text{Variable cost}$$

Through P/V ratio, BEP can be calculated and

$$\text{B.E.P} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

Break –Even analysis also helps to find out the expected sales to earn given profit

$$\text{Expected sales for an expected profit} = \frac{\text{Fixed cost + Expected Profit}}{\text{Contribution per unit}}$$

BREAK –EVEN - CHART

Break even chart is a graphical representation of the Break-even point. The Break-even point can be measured by a graph through the following procedures.

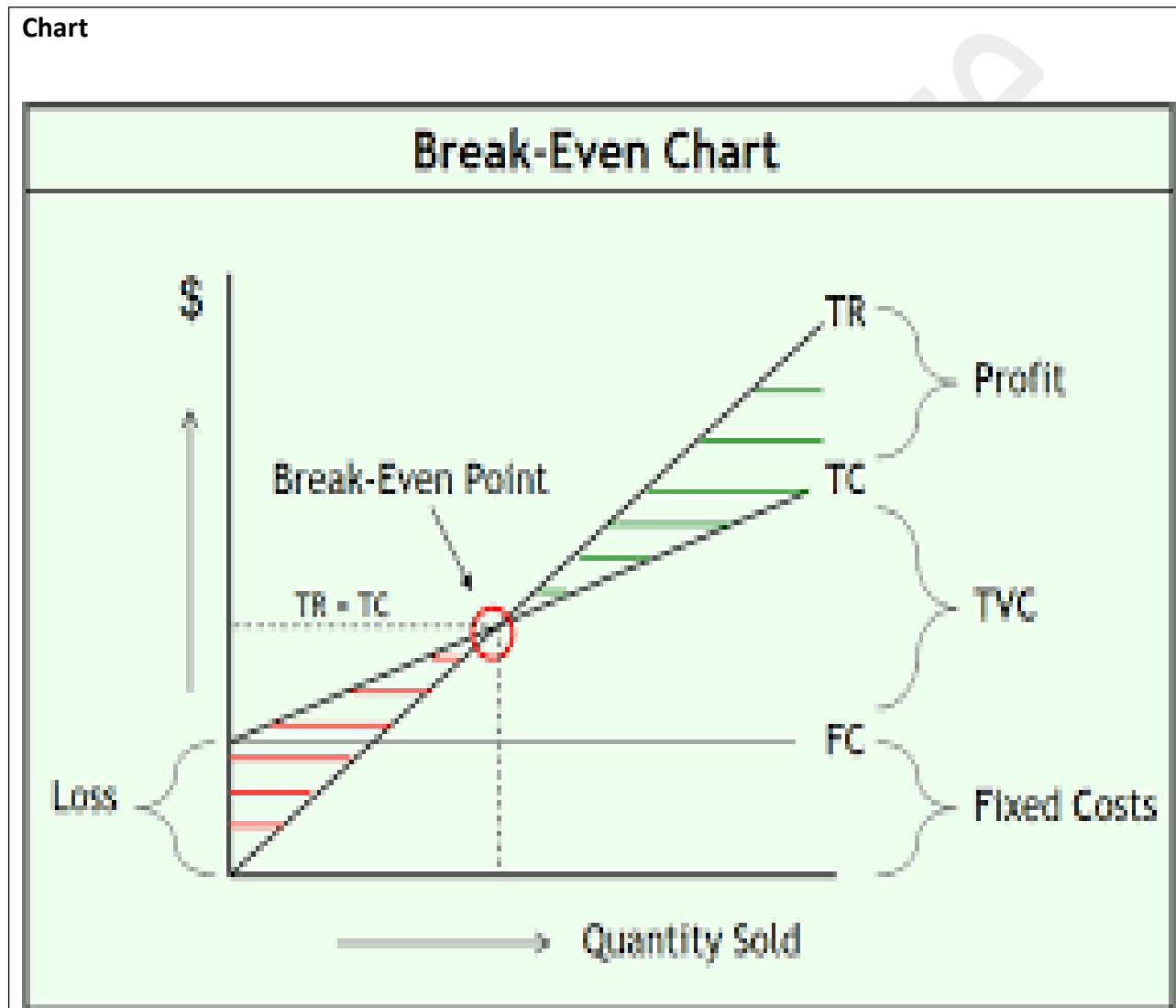
- X axis should be denoted for number of units and Y axis for cost and revenue
- Number of units should be provided conveniently in the X axis and amount should be marked uniformly in Y axis through a common scale
- Mark the fixed cost on the axis and draw a parallel line to X axis through the point



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- Plot points in the graph for the total cost (Fixed cost + variable cost) at various levels of production
- Joint all the points to get a straight line from the point of fixed cost at Y axis. This is called total cost line
- Plot points in the graph for the sales value at different levels (Units) of sales. In the point O of the graph to get a straight line. This is called sales line
- The sales line cuts at a point in the total cost line. This point is called Break-even point.

Chart





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Problem: 1

Prepare a statement of cost by marginal costing method

Particulars	Period-1 Rs.	Period-2 Rs.	Period-3 Rs.
Direct material consumed	21,000	30,000	25,000
Direct wages paid	17,000	15,000	20,000
Direct Expenses	7,000	5,000	6,000
Sales	1,30,000	1,25,000	1,50,000
Factory Overhead	14,000	7,000	4,000
Administration overhead	17,000	15,000	18,000
Selling & Distribution Overhead	10,000	8,000	13,000

10% of the administration overhead and 20% of the selling overheads are variable in nature

Statement of cost by Marginal costing method

Particulars	Period-1 Rs.	Period-2 Rs.	Period-3 Rs.
Sales	<u>1,30,000</u>	<u>1,25,000</u>	<u>1,50,000</u>
Less : Variable costs;			
Direct Material	21,000	30,000	25,000
Direct wages	17,000	15,000	20,000
Direct expenses	7,000	5,000	6,000
Factory Overhead	14,000	7,000	4,000
Variable Administration OH	1,700	1,500	1,800
Variable Selling & Distribution OH	<u>2,000</u>	<u>1,600</u>	<u>2,200</u>
Total Variable cost	<u>62,000</u>	<u>60,100</u>	<u>59,000</u>
Contribution (Sales – VC)	<u>67,300</u>	<u>64,900</u>	<u>91,000</u>
Less: Fixed Cost			
Fixed Administration OH	15,300	13,500	16,200
Fixed Selling & Distribution OH	<u>8,000</u>	<u>6,400</u>	<u>8,800</u>
Total Fixed cost	<u>23,300</u>	<u>19,900</u>	<u>25,000</u>
Costing Profit	<u>44,000</u>	<u>45,000</u>	<u>66,000</u>

Problem: 2

Calculate a) P/V ratio b) Fixed Cost c) Sales Volume to earn a profit of Rs 40,000

Sales Rs.2, 00,000 Profit Rs. 25,000 Variable cost is 80% of sales.

Solution

Sales = Rs.2,00,000

Variable cost = $\frac{80}{100} \times 2,00,000 = \text{Rs. } 1,60,000$



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$$\begin{aligned} \text{a) P/V ratio} &= \frac{\text{Sales} - \text{Variable cost}}{\text{Sales}} \times 100 \\ &= \frac{2,00,000 - 1,60,000}{2,00,000} \times 100 = 20\% \end{aligned}$$

$$\begin{aligned} \text{b) Contribution} &= \text{Fixed Cost} + \text{Profit} \\ \text{Sales} - \text{Variable Cost} &= \text{FC} + \text{Profit} \\ 2,00,000 - 1,60,000 &= \text{FC} + 25,000 \\ \text{FC} &= 40,000 - 25,000 \\ &= \text{Rs. } 15,000 \end{aligned}$$

$$\begin{aligned} \text{c) P/V Ratio} &= \frac{\text{Fixed cost} + \text{Profit}}{\text{Sales}} \\ &= \frac{\text{FC} + \text{Profit}}{\text{P/V ratio}} \\ &= \frac{15,000 + 40,000}{20\%} \\ &= \text{Rs. } 2,75,000 \end{aligned}$$

Problem: 3

Assuming that cost structure and selling prices remain the same in period I and II . Calculate the following a) Profit /Volume ratio b) Fixed Cost c) Break –Even sales d) profit when sales are of Rs.1,00,000 e) Sales required to earn a profit of Rs. 20,000 f) Margin of safety as a profit Rs. 55,000 and g) variable cost in period I

Solution

$$\begin{aligned} \text{a) P/V Ratio} &= \frac{\text{Change on profits}}{\text{Change in sales}} \times 100 \\ &= \frac{\text{Rs. } 8,000}{\text{Rs. } 40,000} \times 100 \end{aligned}$$

b) Fixed cost = (Sales X P/V ratio) – Profit

c)



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$$= (\text{Rs.1,20,000} \times \frac{1}{5} - \text{Rs. 10,000})$$

$$= \text{Rs.24,000} - \text{Rs. 10,000} = \text{Rs.14,000}$$

c) BEP (in Rupees) = $\frac{\text{Fixes Cost}}{\text{P/V ratio}}$

$$= \frac{\text{Rs.14,000}}{20\%} = \text{Rs.70,000}$$

d) Profit = (Sales X P/V ratio) -- Fixed cost

$$= (1,00,000 \times \frac{1}{5}) - \text{Rs.14,000}$$

e) Sales = $\frac{\text{Fixed cost} + \text{Desired Profit}}{\text{P/V ratio}}$

$$= \frac{\text{Rs. 14,000} - \text{Rs. 10,000}}{20\%}$$

$$= \text{Rs. 1,70,000}$$

f) Margin of safety = $\frac{\text{Profit}}{\text{P/V ratio}}$ = $\frac{\text{Rs.15,000}}{20\%}$ = Rs. 79,000

g) Variable cost in period II = (1-P/V ratio) x sales

$$= 80/100 \times 1,60,000 = \text{Rs. 1,28,000}$$



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UNIT - IV
BUDGET AND BUDGETARY CONTROL

BUDGET AND BUDGETARY CONTROL

Budget is an important tool of planning and control of cost for the management. CIMA London defines budget as “ a financial and / or quantitative statement prepared and approved prior to a defined period time, of the policy to be pursued during that period for the purpose of attaining a give objective” Budgeting is the process of preparing the budget.

Characteristics of a good budget

The following are the important characteristics of good budget

1. Persons at different levels of management should be involved in the preparation of budgets.
2. The targets of the budgets should be realistic.
3. The authority and responsibility should be clearly defined.
4. A good system of accounting should be followed.
5. The employees should be given education with regard to budget.
6. The actual results should be properly recorded for the purpose of performance appraisal.

Budgetary control

Budgetary control is the process of comparing the budgetary figures with the actual performance, for calculating variances, in order to control the variances.

Definitions

Brown & Howard defined as “Budgetary control is a system of controlling costs which includes the preparation of budgets, co-ordinating the department and establishing responsibility, comparing actual performance with the budgeted and acting upon results to achieve maximum profitability.

Objectives of budgetary control

The following are the important objectives of budgetary control.

1. To provide a detailed plan of action for a business over a period of time.
2. To co- ordinate all activities of the organisation.
3. To increase profitability and to eliminate waste.
4. To operate various cost centers and department efficiently and economically.
5. To control the variances.
6. To fix responsibilities of various individuals in the organisation.

Classification of budgets

The budgets may be classified as follows.

- I. Classification on the basis of time
- II. Classification on the basis of function
- III. Classification on the basis of flexibility



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Classification on the basis of time

- a. Long – term budgets
- b. Short – term budgets
- c. Current budgets

Classification on the basis of function

1. Master budget
2. Function or Subsidiary budget

Classification on the basis of flexibility

1. Fixed budget
2. Flexible budget

Classification on the basis of time

Long – term budgets

The period of long – term budget varies between five to ten years. It is based on long – term planning and prepared by top level management.

Example: Capital expenditure, research and development etc.

Short – term budgets

The period of Short – term budget is one or two years. The consumer goods industries like textile, cotton, sugar, coffee, cosmetics etc.,

Current budgets

The period of current budget is generally of weeks or a month or few months.

Classification on the basis of function

The important functional budgets are as follows.

- a. Sales budgets
- b. Production budgets
- c. Cost of production budgets
- d. Purchase budgets
- e. Cash budgets
- f. Capital expenditure budgets

Master budget

The master budgets as the summary budgets, incorporating its components functional budgets, which is finally approved, adopted and employed. It is the summary budgets incorporating its functional budgets.

Function or Subsidiary budget

Sales budget



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Sales budget is a budget for forecasting the sales in future in terms of quantity and value. It is prepared on the basis of past sales, production capacity, report of a salesman, pricing policy and competition.

Production budget

Production budget is a budget for forecasting the quantity of production for different types of products and for different periods. It is based on sales budget.

Cost of Production budget

The budget is a budget for forecasting the quantity of production for different of a company. A company may prepare separate budget for different elements of cost.

- a. Direct material budget
- b. Direct labour budget
- c. Factory overhead budget
- d. Administration overhead budget
- e. Selling and distribution overhead budget

a) Direct material budget

It is otherwise called as raw material budget. It is concerned with forecasting about the requirement of different types of raw materials and its value. This budget is based on the production budget, price of raw material, seasonal factors, inventory levels and storage facilities.

b) Direct labour budget

It explains the standard labour hours required for the estimated production and estimated labour cost per hour for different types of labour.

c) Factory overhead budget

This budget is prepared to forecast the indirect factory cost. It includes indirect material, indirect labour and indirect expenses to be incurred in the factory for certain level of production.

d) Administration overhead budget

This budget is prepared to forecast the indirect administration cost. It includes indirect material, indirect labour and indirect expense to be spent in the administration department in future.

e) Selling and distribution overhead budget

This budget is prepared to forecast the indirect selling and distribution cost. It includes indirect material, indirect labour and indirect expenses to be spent in the selling and distribution department in future.



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Purchase budget

Purchase budget is prepared to find out the total cost of purchase in future. It involves the purchase of direct and indirect materials. Indirect materials are concerned with materials used in factory, administration and selling and distribution department.

Cash budget

It is concerned with the inflow and outflow of cash in the budget period. This budget estimates the net cash flow in a concern. It facilitates the management to make necessary arrangements for the future cash requirements. This budget is prepared only the preparation of all the functional budgets.

Capital expenditure budget

This budget is prepared to know the estimated expenditure on all fixed assets like plant & machinery, land & building and furniture & fittings during the budget period.

Classification on the basis of flexibility

Fixed budget

Fixed budget is a budget which is designed to remain unchanged irrespective to the level of activity actually attained. It is prepared before the budgeting of the financial year.

Flexible budget

A flexible budget is budget for different levels of activities.

Example: Flexible budget is a budget for different levels of activities. Example for flexible budget is the budget for various capacity utilizations like 50%, 60%, 70%, 100%, etc. This budget is useful when the levels of activity in a company changes from time to time.

Meaning of Zero base budgeting

Zero base budgeting is a budget prepared taking zero as base. Previous year data are not considered in the preparation of budget under this method.

Advantages of Zero base budgeting

1. It considers all activities of an organization as important and hence, focuses on the efficiency in the performance of these activities.
2. It helps for the systematic evaluation of different activities, so that mistakes if any can be rectified immediately.
3. It suggests alternative ways of doing a job every time when budget is prepared since zero is taken as base.
4. It prevents the unnecessary expenditure in different activities of the organisation.
5. It helps to prepare various budgets on the basis of cost benefit analysis.
6. It gives proper direction to all managers to perform the activities in economical and efficient manner.



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Problem 1

Preparation of Sales Budget

A Company manufactures 2 types of products namely X and Y and with them in Chennai and Mumbai markets, the following information are related to the year ending 31st March 2011.

Market	Product	Budgeted sales	Actual sales
Chennai	X	600 @ Rs 12	800 @ Rs. 12
	Y	500 @ Rs 35	400 @ Rs.35
Mumbai	X	900 @ Rs 12	120 @ Rs. 12
	Y	500 @ Rs 35	900 @ Rs.35

Market studies reveal that product X is popular as it is under period. It is observed if its price is reduced by Re.1 it will find a good market. On the other hand product Y is over priced and it will get good market if the selling price is reduced to Rs. 33. The management has agreed for this. This impact of the change in price is reported as follows.

Product	Increase in sales over current budget	
	Chennai	Mumbai
X	+20%	+10%
Y	+25%	+5%

In addition to this, the following additional sales shows above the estimated sales are possible with an intensive advertisement.

Product	Chennai	Mumbai
X	50 Units	70 Units
Y	60 Units	50 Units



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Prepare a budget for sales by incorporating the above estimates.

Area	Product	Budget for the current year			Actual Sales			Budgeted for the future period		
		Units	Price Rs.	Value Rs.	Unit	Price Rs.	Value Rs.	Units	Price Rs.	Value RS.
Chennai	X	600	12	7,100	800	12	9,680	770	11	8,470
	Y	500	35	17,500	400	35	14,000	685	33	22,605
	Total	1,100		24,700	1,200		25,600	1,455		31,075
Mumbai	X		12	10,800	1,200	12	14,400	1000	11	11,660
	Y	900	15	24,500	500	35	17,500	785	33	25,905
	Total	700		35,300	1,700		31,900	1,845		347,565
Total	X		12	18,000	2,000	12	24,000	1,830	11	20,130
	Y	1,600	35	42,000	900	35	31,000	1,470	33	48,500
		1,500	-----	60,000	2,9000		55,000	3,300		68,630
		1,200	-----							
		2,700								

Preparation of production Budget

The following information are related to a company for 6 months ending 31st March 2011

The units to be sold for the different months are.

October 2010	4,000
November 2010	4,500
December 2010	4,800
January 2011	5,000
February 2011	5,500
March 2011	6,200
April 2011	7,000

Finished units equal is half the sales for the next month will be in stock at the end of each month including September 2010, budgeted production for the year ending 31st March 2011 is 55,000 units. Budgeted material and lab our cost per unit are Rs 12 and Rs.5 respectively. Total factory overhead absorbed is Rs. 1, 65,000 Prepare Production Budget for each month and summarized production cost budget for the month's endings 31st March 2011.



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Solution

Production Budget for 6 months from October 2016 to 31st March 2011

Months	Opening Stock (Units)	Sales (Units)	Closing Stock (Units)	Production (Units)
October 2010	2000	4000	2250	4250
November 2010	2250	4500	2400	4650
December 2010	2400	4800	2500	4900
January 2011	2500	5000	2250	5250
February 2011	2750	5500	3100	5850
March 2011	3000	6200	3500	6600
			Total	31,500

Production – Sales + Closing stock--Opening stock

Production Cost budget for 6 months ending 31st March 2011 for 31,500 units

Particulars	Rate per Unit (Rs.)	Amount (Rs.)
Direct Material	12	3,78,000
Direct Wages	5	1,57,500
Factory Overhead	3	94,500
		6,30,000

Preparation of Cash Budget

Cash Budget is prepared in know the net cash flow in future by taking into consideration of cash inflows and cash outflow. There are three methods for

Preparing cash budgets

They are

- a) Receipts and Payment Method
- b) Adjusted profit and Loss Account method and
- c) Balance sheet method
- d) Receipts and Payment method

In this method, cash receipts and cash payments of various sources should be estimated for future. The cash receipts should include all the receipts of revenue and capital nature. The cash payment should include all the payment of revenue and capital nature. The cash budget will show the estimated closing balance of cash. It may be a debit balance or a credit balance.



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Problem:

Prepare a Cash budget for a Months ending 30th April 2011 from the following information.

Months	Sales (Rs.)	Purchase Rs.	Wages (Rs.)	Manufacturing Expenses (Rs.)	Admin. Expenses	Selling Expenses
November 2010	50,000	13,000	4,000	1,500	1,700,	1,000
December 2010	60,000	15,000	5000	2,000	1,800	1,200
January 2011	55,000	14,000	4,500	1,600	1,750	1,100
February	70,000	20,000	6,000	2,200	1,900	1,300
March 2011	75,000	22,000	7,000	2,400	2,050	1,400
April 2011	80,000	24,000	8,000	2,600	2,200	1,500

Additional Information

1. Balance of cash in based on 1st Jan 2011 is Rs.40,000
2. Tax of RS.11,000 payable in the month of March
3. A dividend of Rs. Rs.14,000 payable in the month of April
4. Furniture worth Rs. 8,000 to be purchased in the month of February
5. Machinery worth Rs.80, 000 purchased on October 2010 and the payment is to be done on installment basis @ Rs. 6,000 per month.
6. The creditors are allowing a month of 2 months
7. Wages are paid on the 1st of next month
8. Lag in payment of manufacturing and selling expenses is one month
9. The customers are allowed a credit period of 2 months
10. Lag in payment of administration expenses is ½ month

Solution

Cash Budget for 4 months ending 30th April 2011

Particulars	January Rs.	February Rs.	March Rs.	April Rs.
Receipts:				
Balanced b/d	40,000	61,025	83,000	95,525
Cash received from December	50,000	60,000	55,000	70,000
Total	90,000	1,21,025	1,38,000	1,65,525
Payments:				
Payments to Creditors	13,000	15,000	14,000	20,000
Wages Payable	5,000	4,500	6,000	7,000
Manufacturing expenses	2,000	1,600	2,000	2,400
Administrative expenses	1,775	1,825	1,975	2,125
Selling Expenses	1,200	1,100	1,300	1,400
Tax Payable	--	--	11,000	--
Dividend Payable	--	--	--	15,000
Purchase of Furniture	---	8,000	--	--



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Payment of purchase of machinery	6,000	6,000	6000	6000
Total	28,975	38,025	42,475	53,925
Closing Balance	61,025	83,000	95,525	11,600

Preparation of Flexible Budget

The information regarding the expenses of a company at 40% capacity are as follows

Fixed Expenses

Fixed expenses	
Salaries	80,000
Rent	40,000
Administrative Expenses	60,000
Depreciation	40,000
Variable Expenses	
Material	1,90,000
Labour	60,000
Others	30,000
Semi-Variable Expenses	
Indirect Labour	95,000
Repairs & Maintenance	75,000
Electricity	30,000

The estimated sales at various levels of capacity are

Rs.8,00,000at 40% capacity

Rs.10,00,000at 50% capacity

Rs.12,00,000 60% capacity

Rs.15,00,000at 70% Capacity

The fixed expenses will remain the same till 100% capacity. Semi-Variable expenses remain constant till 50% of capacity. It will increase by 15% between 50% and 65% capacity and further increased by 10% above 65% capacity.



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Prepare a Flexible budget and calculate the profit at various levels of capacities (40%,50% 60% and 70%)

Particulars	Capacity			
	40% (Rs.)	50% (Rs.)	60% (Rs.)	70% (Rs.)
Fixed Expenses:				
Salary	80,000	80,000	80,000	80,000
Rent	40,000	40,000	40,000	40,000
Administrative Expenses	60,000	60,000	60,000	60,000
Depreciation	40,000	40,000	40,000	40,000
Variable Expenses				
Material	1,90,000	2,57,200	2,85,000	3,32,500
Labour	60,000	75,000	90,000	1,05,000
Others	30,000	37,500	45,000	52,500
Semi Variable Expenses				
Indirect labour	95,000	95,000	1,99,250	1,18,750
Repairs & Maintenance	75,000	75,000	86,250	93,750
Electricity	30,000	30,000	34,500	37,500
Total Cost	<u>7,00,000</u>	<u>7,70,000</u>	<u>8,70,000</u>	<u>9,60,000</u>
Profit	<u>1,00,000</u>	<u>2,30,000</u>	<u>3,30,000</u>	<u>5,40,000</u>
Estimated sales	<u>8,00,000</u>	<u>10,00,000</u>	<u>12,00,000</u>	<u>15,00,000</u>



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UNIT - V
STANDARD COSTING

Standard Costing

- Standard costing means the method of determination the cost in advance. It is otherwise called a predetermined cost. It helps to control the cost so as to achieve maximum profit.
- Standard costing helps for management for planning and decision making. In Addition to this, it is possible to compare the actual performance with expected performance.
- The actual performance with below standard performance, necessary control measure can be taken by the management. Hence, it facilitate for improvement in the organization and performance of the employees.

Standard costing Definition

Standard cost means pre-determined cost. According to the chartered institute of management Accountant, London “Standard cost is the pre-determined cost which is computed in advanced of production on the basis of specification of all the factors affecting cost and used in standard Costing”

Advantages of Standard Costing

- Standard costing improves the efficiency of the employees in the organization. The motivation to the employee to perform above the standard increases the efficiency
- It is possible to identify the area where performance is below standard so as to take corrective control measure
- It helps to compare the performance of one period to another and of one division to another division
- Standard costing facilitate for the determination of wages structure and incentive schemes
- Standard costing provide information for fixing prices of the product
- Standard costing helps for cost reduction in every stage of production
- It provides information for the preparation of budgeting and for budgetary control
- It facilitate for inventory control. It helps for the correct valuation of the inventory like raw material, work-in-progress and finished goods.

Limitation of standard costing

- Standard costing is expensive for companies to adopt. It possible only for large scale enterprises to adopt standard costing system.
- It is not possible to adopt standard costing method for all manufacturing company. The companies which are producing non standard product could not adopted standard costing
- It is difficult to estimate the costing future , since future is un certain
- The employees may oppose to trade union for the adoption of standard costing.
- Standard costing focuses on cost per unit. But correct estimation of fixed cost per unit is not possible.



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Variance Analysis

An analysis about the actual cost and standard cost is called variance analysis. Variance is the difference between the actual and standard cost. When the actual cost is less than the standard cost then the variance is called “ favorable variance “ and when the actual cost is greater than standard cost then the variance is called “Unfavorable Variance”

The variance may be classified as

1. Material cost Variance
2. Labor cost variance
3. Overhead variance
4. Sales variance

1. Material Cost Variance

Material cost variance is the difference between actual cost of material and the standard cost of material

Material variance = (Standard Quantity x Standard price)–(Actual Quantity x Actual price)

➤ **Material Price Variance**

Material Price Variance = (Std Price – Actual Price) x Actual Quantity

➤ **Material Usage Variance**

Material Usage variance is otherwise called as Material Quantity Variance . It may be calculated as follows

Material Usage Variance = (Std Qty Actual Qty) x Standard Price

➤ **Material Mix Variance**

Material Mix Variance = (Revised standard Quantity – Actual Quantity) x Std Price

Std Qty of material x Total Actual Qty
Revised Std Quantity =

Total STD Qty of material

➤ **Material Yield Variance**

Material Yield Variance = (Actual Yield – standard Yield) x standard Material price per unit

Material yield = Standard output for actual mix

Actual yield == Actual input

Standard Material Cost per Unit = Total cost of standard mix at standard price / Net output

Relation between the various Material Cost Variances

➤ **Material Cost Variance = Material Price Variance + Material Quantity Variance**

➤ **Material Usage Variance = material Mix Variance + Material Yield Variance**

Problem

Calculate Material Cost Variance from the following data



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Material	Standard			Actual		
	QTY	Rate(Rs)	Amount	QTY	Rate(Rs)	Amount
A	27,000	2.00	70,200	28,000	2.20	61,600
B	18,000	1.70	30,600	20,000	1.80	36,000
Total	45,000		1,00,800	48,000		97,600

Standard loss is 5%

Solution

- 1) Material Cost Variance = Standard Cost – Actual Cost
 = 1, 00,800 -- 97,600 = Rs.3,200 (F)
- 2) Material Price Variance = AQ(SP – AP)
 Material A = 28,000 (2.60 - 2.20)
 = 28,000 x 0.40 = Rs.11, 200 (F)
 Material B = 20,000 (1.70 – 1.80)
 = 20,000x 0.10= Rs.2,000 (A)
- 3) Material Usage Variance = SP (SQ – AQ)
 Material A = 2.60 (27,000 – 28,000)
 = 2.60 x 1000 = Rs. 2,600 (A)
 Material B = 1.70 (18,000 – 20,000)
 = 1.70 x2000 = Rs.3, 400(A)
 Total MUV = 2,600 + 3,400 = Rs.6, 000 (A)
- 4) Material Mix Variance = SP (RSM – ASM)
 Material A = 2.60 (28,800 -28,000)
 = 2.60 x 800= Rs.2,080 (F)
 Material B = 1.70(19,200 – 20,000)
 = 1.70 x 800 = Rs. 1360 (A)
 Total MMV = 2080 – 1,360 = Rs.720 (F)
- 5) Material Yield Variance = Std Rate from actual output (AY-SY)
 = 2,358 (42,750 – 45,600)
 = 2.40 x 2850 = Rs.6, 720 (A)
 Verification MCV = MPV+MQV = 9,200 – 6,000 = Rs.32, 000 (F)
 MQV = MMV +MYV = 720 – 6,720 = Rs.6,000 (A)

Labour Cost Variance

Labour cost variance analyses the actual cost of labour with the standard cost of labour
 The different types of labour variances are as follows.

1. Labour cost variance
2. Labour Rate variance
3. Labour efficiency variance
4. Labour mix variance
5. Labour yield variance
6. Idle time variance



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The difference between the standard cost of labour and actual cost of labour is called labour cost variance. It may be calculated as follows.

$$\text{Labour cost variance} = (\text{SH} \times \text{SR}) - (\text{AH} \times \text{AR})$$

Problem:

The information regarding the composition and hourly wage rates of labour force engaged on a job scheduled to be completed in 90 hours are as follows.

Category of workers	Standard		Actual	
	No of workers	Hourly wages rate per worker (Rs.)	No of workers	Hourly wages rate per worker (Rs.)
Skilled	75	6	70	7
Semi—Skilled	45	4	30	5
Un Skilled	60	3	80	2

The work was completed in 32 hours. Calculate labour variances

Solution

Workings

Workers	Standard man hours	Actual man hours
Skilled	75 x 30 = 2,250	70 x 32 = 2,240
Semi—Skilled	45 x 30 = 1,350	30 x 32 = 960
Un Skilled	60 x 30 = 1,800	60 x 32 = 560
Total	5,400	5,760

Std Hours means Standard man hours

$$\begin{aligned} \text{A) Labour Cost Variance} &= (\text{SH} \times \text{SR}) - (\text{AH} \times \text{AR}) \\ \text{Skilled} &= (2,250 \times \text{Rs. } 6) - (2,240 \times \text{Rs. } 7) \\ &= 12,600 - 15,680 \\ &= \text{Rs. } 2,180 \text{ (A)} \end{aligned}$$

$$\begin{aligned} \text{Semi-Skilled} &= (1,350 \times \text{Rs. } 4) - (960 \times \text{Rs. } 5) \\ &= 5,400 - 4,800 \\ &= \text{Rs. } 600 \text{ (F)} \end{aligned}$$

$$\begin{aligned} \text{Unskilled} &= (1,800 \times \text{Rs. } 3) - (2,580 \times \text{Rs. } 2) \\ &= 5,400 - 5,120 \\ &= \text{Rs. } 280 \text{ (F)} \end{aligned}$$

$$1,300 \text{ (A)}$$



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B) Labour Rate Variance = $(Sp - AP) AP$

Skilled	=	$(Rs. 6 - Rs. 7) 2,240$	=	Rs. 2,240 (A)
Semi-Skilled	=	$(Rs. 4 - Rs. 5) 960$	=	Rs. 960 (A)
Unskilled	=	$(Rs. 3 - Rs. 2) 2,560$	=	Rs. 2,560 (F)

Rs. 640 (A)

C) Labour Efficiency Variance = $(SH - AH)SR$

Skilled	=	$(2,250 - 2,240) Rs. 6$	=	Rs. 60 (F)
Semi-Skilled	=	$(1350 - 960) Rs. 4$	=	Rs. 1,560 (F)
Unskilled	=	$(1800 - 2560) Rs. 3$	=	Rs. 2,280 (A)

Rs. 660 (A)

D) Labour Mix Variance $(RSH - AH) SR$

RSH = Total Actual Hours / Total Standard Hours X Standard hours of....

Skilled = $5760 / 5400 \times 2250 = 2,400$

Semi-Skilled = $5,760 / 5400 \times 1350 = 1440$

Unskilled = $5,760 / 5400 \times 1800 = 1920$

LMV

Skilled = $(2,400 - 2240) 6 = 960 (F)$

Semi-Skilled = $(1440 - 960) 4 = 1920 (F)$

Unskilled = $(1920 - 2560) 3 = 1,920 (A)$

960 (F)

E) Labour Sub-Efficiency Variance $(SH - RSH) SR$

Skilled = $(2,250 - 2400) 6 = 900 (A)$

Semi-Skilled = $(1350 - 1440) 4 = 360 (A)$

Unskilled = $(1800 - 1920) 3 = 360 (A)$

1620 (A)

Verification

LCV = LRV + LEV

1300 (A) = 640 (A) + 650 (A)

LEV = LMV + L Sub EV

660 (A) = 960 (F) + 1620 (A)