WELCOME TO THE COST ACCOUNTING CLASS

By:
Dr. Deba Prasad Panda

UNIT–II

ELEMENTS OF COST AND COSTING TECHNIQUES

In this chapter we will cover:-

- *Classification of Cost.*
- *Controllable Costs.*
- *Concept of Cost.*
- *Analysis of Cost.*
- *Elements of Cost.*
- *Preparation of Cost Sheet.*

Cost

I.C.M.A. London : *"Cost means the amount of expenditure (actual or notional) incurred on, or attributable to, a given thing."*

- For example:
- X purchased a chair for Rs.500.
- Y manufactured a chair by paying Rs.150 for timber, Rs.50 for rent, Rs. 150 for color and other articles, Rs.150 to carpenter.

- From the above two examples it is clear that cost dose not mean the same thing under all circumstances.
- In other words cost is a flexible concept which can't be exactly defined. It depends on:-

a) The nature of business and industry, and
b) The context in which it is used.

Classification of Cost

- Classification is the process of ***grouping costs*** according to their ***common features***.
- There are various bases of classifying costs. Some important classifications are discussed below.

Basis of Classification of Cost

1. By Nature or Element
2. By Functions
3. By Relation to Cost Center
4. By Variability/ Behaviour
5. By controllability
6. By Normality
7. By Inventory
8. By Time
9. For Managerial Decision Making

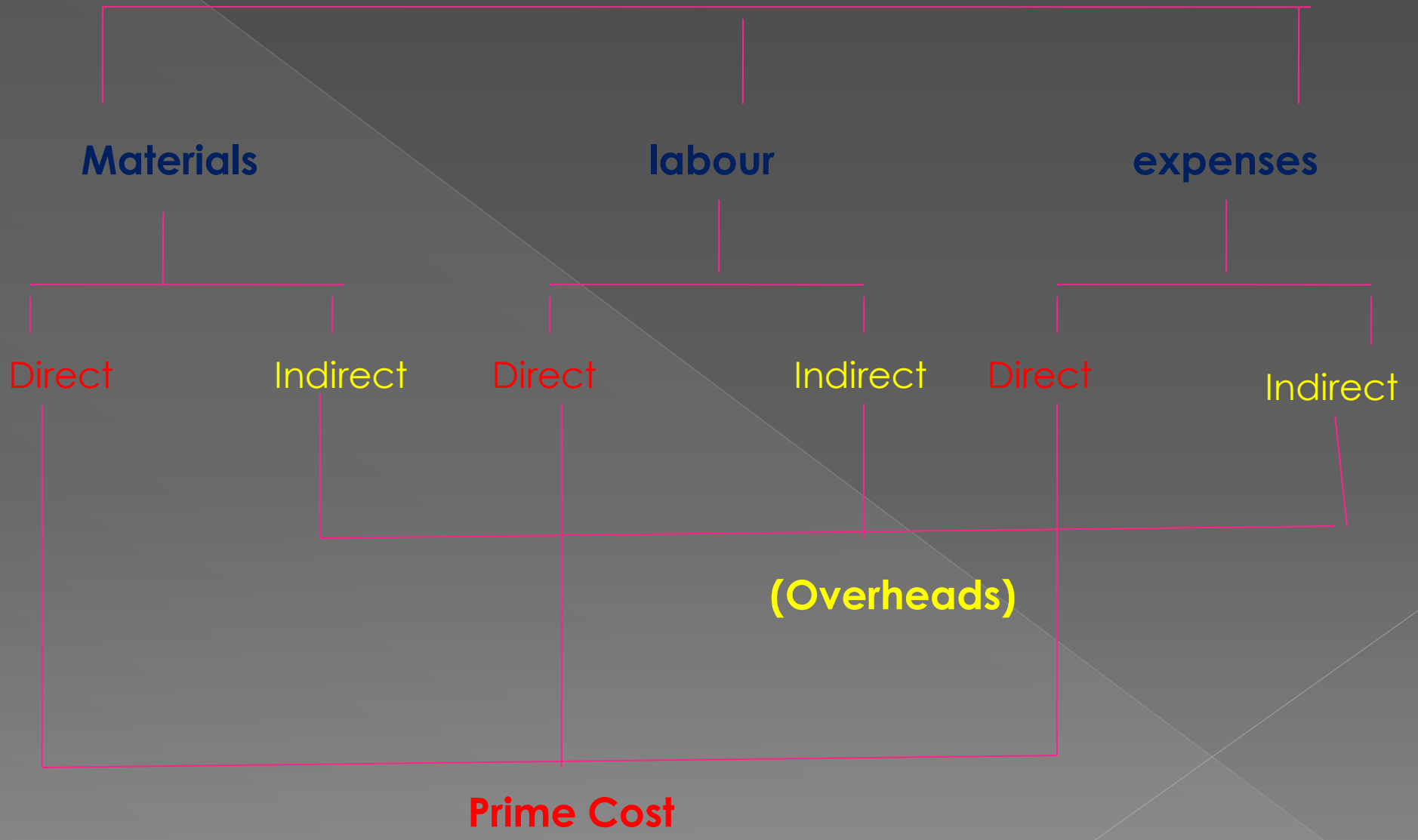
1.By Nature or Element

1. Materials Cost (Direct + Indirect)
2. Labour costs (Direct + Indirect)
3. Expenses (Direct + Indirect)

- Observations:

- Direct material +Direct Labour + Direct Expenses= Prime Cost
- Indirect material +Indirect Labour + Indirect Expenses= Overhead

Cost


Materials
labour
expenses
Direct
Indirect
Direct
Indirect
Direct
Indirect
(Overheads)
Prime Cost

Material Cost

- The term 'Materials refer to all commodities supplied to an undertaking.
- For costing purposes materials may be classified into two broad categories i.e. Direct materials and Indirect materials.

(a) Direct Materials

- **Direct materials** are those materials which can be conveniently identified with and can be directly allocated to a particular product, job or process.
- One of the nature of direct material is that it varies directly with the volume of output.
- Example:

a) **Basic raw materials**: Timber in furniture, Cloth in garments, Gold or silver in jewelry etc.

b) **Primary Packing materials: Bottles** for water, wine, Can or tin for drinks, milk, ghee, bag for cement etc.

(b) Indirect Materials

- **Indirect materials** are those materials which can not be conveniently identified with and can not be directly allocated to a particular product, job or process.
- it may or may not vary directly with the volume of output.
- Example:

a) Stores used for maintaining machines such as Lubricant, oil, grease, cotton etc.
b) Materials of small value etc.

Direct Labour

- **Direct Labour** is that which can be readily identified with a specific product, job, contract or process.
- it varies directly with the volume of output.
- Example:

a) Weaver in weaving unit, all factory workers, carpenter in furniture unit, baker in baking unit etc.

(b) Indirect Labour

- **Indirect Labour** is that labour which can not be readily identified with a specific job, contract or work order.
- it may or may not vary directly with the volume of output.
- Example:

a) Labour employed in personnel department, pay roll, engineering, time keeping department etc.

Direct Expenses

- All direct costs other than direct material and direct labour costs are termed as **direct expenses.**
- It can be directly allocated to a particular product, job or process.
- It varies directly with the volume of output.
- Example: Excise duty and Royalty based on output, Hiring charges of machine tools etc. Cost of special designs etc.

Indirect Expenses

- All indirect costs other than indirect material and indirect labour costs are termed as indirect expenses.
- It can not be directly allocated to a particular product, job or process.
- It may or may not vary directly with the volume of output.
- Example: Rent, rates and taxes, repair, insurance, depreciation, etc.

Overheads or on cost or indirect costs

Overheads = ***Indirect Material*** + ***Indirect Labour*** + ***Indirect Expenses***

(i) Production/Manufacturing/ Factory overheads

- Aggregate of indirect material cost, indirect labour cost and indirect expenses incurred by production department.
- Example: cost of consumables, salary of supervisor, rent rates taxes of factory building etc.

(ii) Administrative overheads

- *Aggregate of indirect material cost, indirect labour cost and indirect expenses incurred by administrative department.*
- *Example: cost of printing, postage, of administrative department, salary of managing director, rent, rates taxes of office building etc.*

(iii)Selling Overheads

- *Aggregate of indirect material cost, indirect labour cost and indirect expenses incurred by Sales department.*
- *Example: cost of printing, postage, of sales department, salary of sales director, rent, rates taxes of sales department/show room, advertising etc.*

(iv) Distribution Overheads

- ***Aggregate of indirect material cost, indirect labour cost and indirect expenses incurred by Distribution department.***
- ***Example: cost of printing, postage, of distribution department, salary of staff of distribution dept., rent, rates taxes of distribution department, Freight and carriage outward etc.***

(ii) Classification of Costs by Functions

1. *Production Cost*
2. *Administrative Cost*
3. *Selling Cost*
4. *Distribution Cost*
5. *Research Cost*
6. *Development Cost*
7. *Pre-production Cost*

1.Production Cost

Production cost= Aggregate of Direct material cost, direct labour cost, direct expenses of factory and production/factory overheads.

2.Administrative cost

Administrativecost= Aggregate of Direct material cost, direct labour cost, direct expenses of administrative departments and administrative overheads.

3.Selling Cost

- ***Selling cost= Aggregate of Direct material cost, direct labour cost, direct expenses of selling department and selling overheads.***

Distribution Cost

- Aggregate of material cost, labour cost and expenses incurred by distribution department.

Research Cost

- **The cost of research for new product, process development or innovation of new methods**

Development Cost

- **The cost for new product, process development or innovation of new methods and its implementation.**

Pre-Production Cost

- Pilot project cost before commercialisation of a product

3.Classification of cost s by Relation to Cost Centers

- **Direct cost of the Cost Center**
- **Indirect cost of the Cost Center**

4.Classification of Costs by Variability/Behaviour

- **Fixed Costs**
- **Variable Costs**
- **Semi variable Cost/Semi fixed Costs**

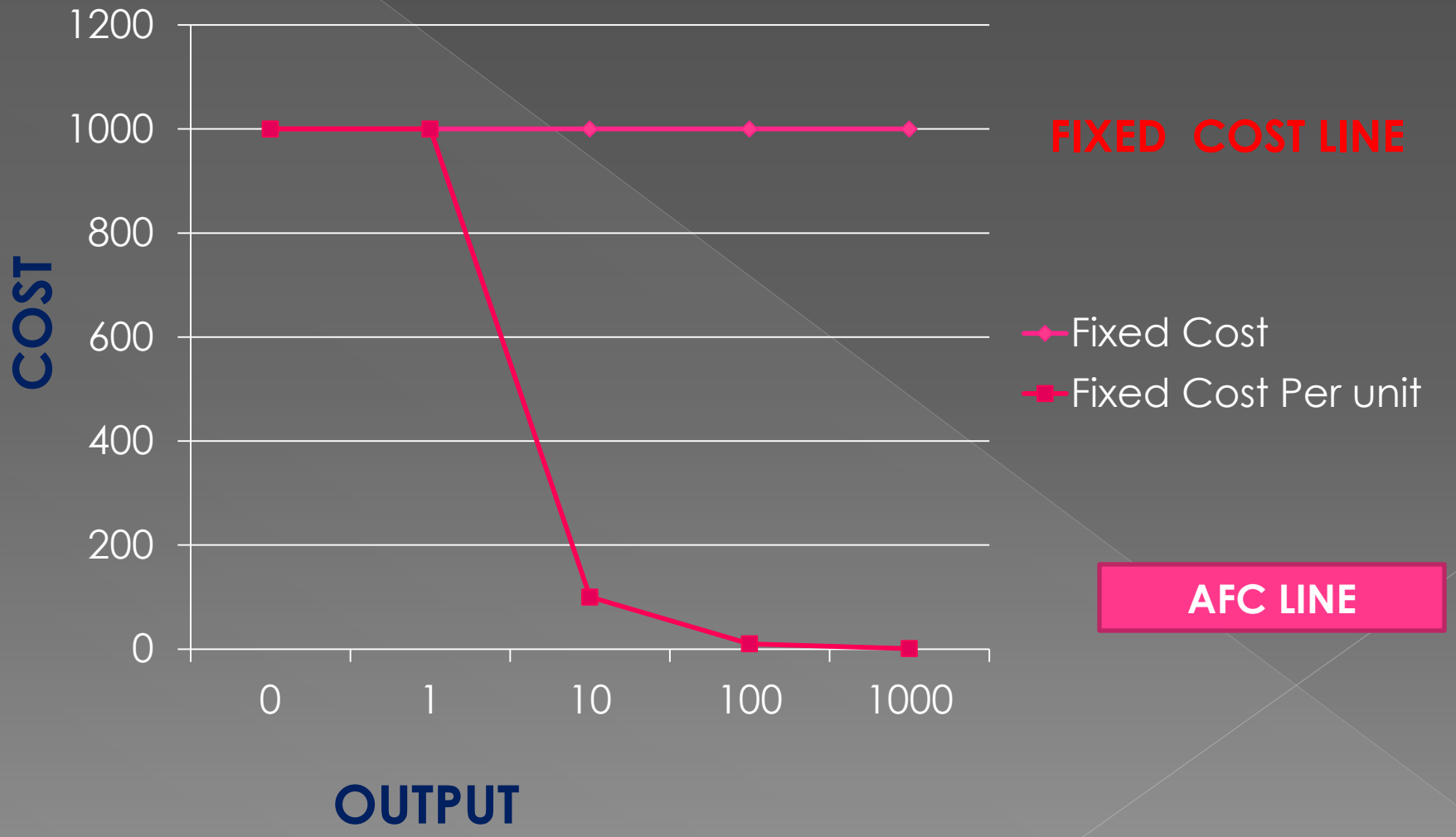
Fixed Cost

- Fixed costs are those costs which do not vary with the change in the volume of output.
- Fixed cost per unit decreases as the production increases and vice-versa.
- Examples of Fixed Cost: Rent, Insurance, salary of manager etc.

Example

OUTPUT(UNITS)	TOTAL FIXED COST (Rs.)	Fixed cost per unit(AFC)
0	1000	1000
1	1000	1000
10	1000	100
100	1000	10
1000	1000	1

FIXED COST LINE

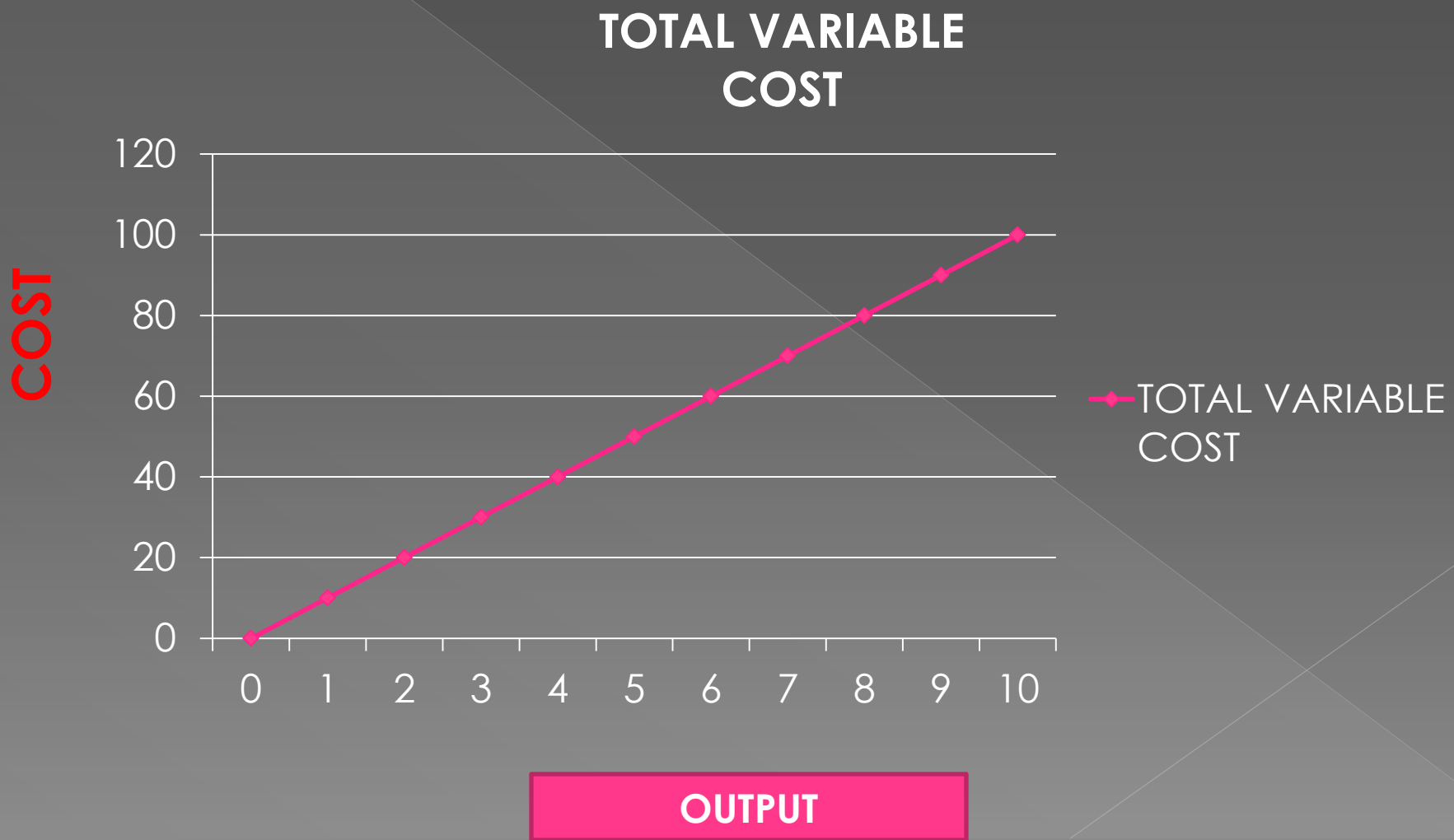


Variable Cost

- Variable cost are those costs which vary in direct proportion to the volume of production.
- Variable cost per unit remains constant
- For example: Direct material cost, direct labour cost, direct expenses etc.

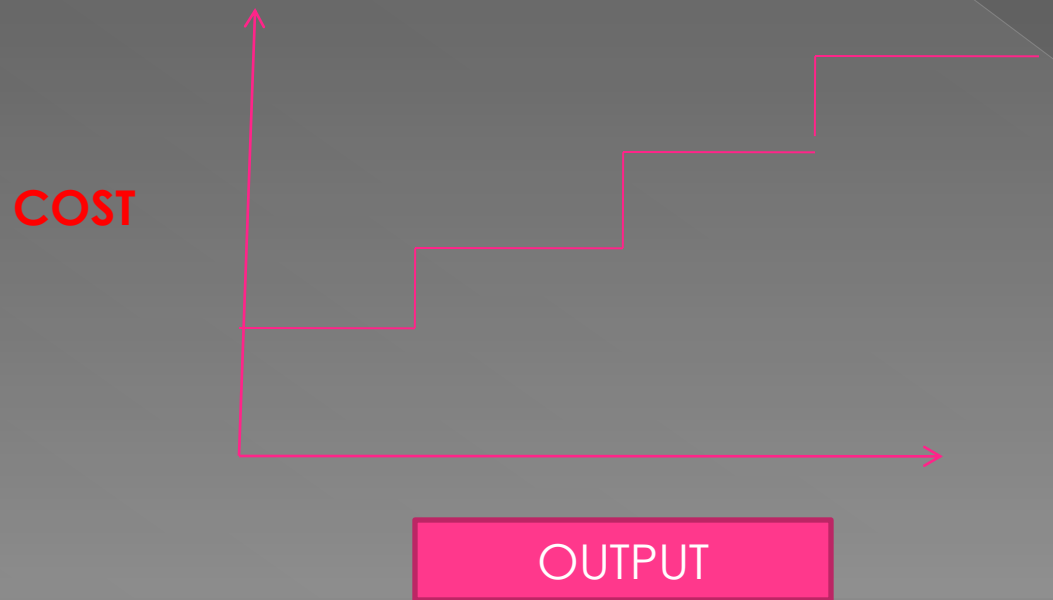
Example

OUTPUT(UNITS)	Variable cost Per unit	TOTAL Variable cost
0	0	0
1	10	10
10	10	100
100	10	1000
1000	10	10000


TOTAL VARIABLE COST
COST
120
100
80
60
40
20
0
0 1 2 3 4 5 6 7 8 9 10
TOTAL VARIABLE COST
OUTPUT

Semi Variable cost/ Semi Fixed Cost

- These Costs are partly fixed and partly variable.
- Example: Telephone, Electricity, depreciation etc



5.Classification of cost by controllability

- **Controllable cost**

Example: all direct costs

- **Uncontrollable Cost**

Example: Managerial remuneration, all fixed costs

6.Classification of costs by Normality:

- **Normal cost**: It is the cost which is normally incurred at a given level of output. (Cost of production)
- For example: cost of material or labour as per standard
- **Abnormal Cost**: These costs are incurred in and above the normal cost due to abnormal situation and these costs charged to costing profit and loss account
- For example: cost of abnormal material losses or abnormal idle time

7.Classification of cost by Inventory

- **Product costs or inventoriable costs: costs which are charged to products or services (Ex- variable costs)**
- **Period Costs: these costs are not charged to products but written off from revenue of the period. (all fixed costs)**

8.Classification of costs by time

- **Historical costs:** Actual costs incurred in a period. Ex-Cost of material consumed or labour cost in the financial year.
- **Pre-determined costs**: future costs ascertained in advance.

For example standard costs or budgeted costs.

9.Special costs used for managerial decision making

a) **Relevant costs: future costs, ex-dismantal cost of machinery**
b) **Irrelevant costs : ex-written down value of old machine is irrelevant cost**
c) **Sunk cost: Historical or past costs ex-written down value of old machine is sunk cost.**
d) **Shut-down costs: costs at the time of shut down of factory (all fixed costs)**

e) **Out of pocket costs**: costs involve outlay of cash.

f) **Opportunity cost**: Cost of next best alternative sacrificed. Rent of old building proposed to be used as new factory.

g)**Differential Costs**: Increase or decrease in total Costs due to production of less or more output.

h) **Marginal Cost**:

i)**Replacement cost**

ITEMS EXCLUDED FROM COST ACCOUNTS

- **Incomes:** Profit on sale of fixed assets, profit on sale of investments, interest income,dividend income, rental income etc.
- **Expenditures:** Loss on sale of fixed assets and investments, interest on mortgages and loans, preliminary expenses written off, goodwill written off.
- **Appropriations:** Income tax, dividend distribution tax, transfer to general reserves and special reserves.

COMPONENTS OF TOTAL COST

- **Prime Cost**= Direct Material+ direct Labour+ Direct Expences.
- **Works cost/Factory Cost**= Prime cost + works/factory/production overhead +(opening work in progress- closing WIP)
- **Cost of production or cost of goods produced**= Works cost + Administrative overheads
- **Cost of goods sold**= cost of goods produced +opening stock of finished goods-closing stock of finished goods.
- **Cost of sales**= cost of goods sold+selling & Distribution overhead.

COST SHEET:

- C.I.M .A. London: “A cost sheet is a document which provides for the assembly of the detailed cost of a cost center or cost unit.
- a cost sheet is a statement showing various components of total costs in a classified manner. It shows prime cost, works (or factory) cost, cost of production, cost of goods sold and total cost. It is also called as a 'STATEMENTOF COST."

Purpose of cost sheet

(i) It shows total cost and unit cost of output.

(ii) It reflects the break up figures of the total cost, i.e. different elements of cost.

(iii) It facilitates comparison over the years

(iv) It helps in the estimation of costs for preparation of tenders and quotations.

(v) It helps the management in fixing the selling price more accurately.

(vi) It acts as a basis for cost control as detailed costs in a classified manner are available.

Proforma of a cost sheet

Output: Units:

Particulars	TOTAL COST(Rs.)	Cost per Unit(Rs.)
Direct Material	--------	------
Direct Labour	-------	-------
Direct Expenses	--------	-------
PRIME COST	--------	-------
Add factory or works overheads	--------	-------
WORKS COST	--------	-------
Add Administrative overheads	--------	-------
COST OF PRODUCTION	--------	-------
Add selling and distribution overheads	--------	-------
TOTAL COST OR COST OF SALES	--------	-------
Add Profit (or minus loss)	--------	-------
SALES	--------	-------

Some adjustments in cost sheet

1. **Raw materials consumed:**

Opening Stock of Materials

***Add* : Purchases**

***Add* : Expenses on Purchases**

***Less*: Purchase Returns**

***Less*: Closing Stock of Materials**

***Less*: Net value of Normal Scrap**

Value of raw materials consumed

2.Work in progress

(i) If work-in-progress is valued at prime cost basis, then it is adjusted before arriving at the prime cost. Thus:-

Direct materials consumed	xxxx
Add Direct wages	xxxx
Add Chargeable expenses	xxxxx
Add: Opening work-in-progress	xxxxx
Less: Closing work-in-progress	xxxxx
PRIME COST	xxxxxx

(ii) If the work-in-progress is valued at works cost basis, then the work-in-progress amount is adjusted before arriving at the works cost. Thus,

PRIME COST	xxx
Add : Factory overheads :	xxx
Add : Cost of opening W.I. P.	xxx
Less: Cost of closing W. I. P.	xxx
FACTORY/ WORKS COST "	xxx

- ***Note:*** If the question does not mention the basis of valuation of work-in-progress, then it should be valued at works cost basis.

3. Stock of Finished Goods (Opening and closing)

- The adjustment for opening stock and closing stock of finished goods are made in the following manner:-

COST SHEET for the period…

COST OF PRODUCTION (of goods produced)

Add: Opening stock of finished goods

COST OF PRODUCTION OF GOODS AVAILABLE FOR SALE

Less: Cost of closing stock of finished goods

COST OF PRODUCTION OF GOODS SOLD

4.Treatment of Scrap

- When the factory has several productions, the realisable value of the scrap should be deducted from the factory overheads or factory cost in the cost sheet.

To be noted…..

- **Valuation of closing stock:**

=Cost of goods produced XClosing stock (units)

Number of units produced

- Some costs may be given as a percentage of other, calculate accordingly.

Q.Prepare a cost sheet from the following data.(RGU-2012)

Opening Stock:	**Raw materials**	**Rs. 50,000**
	Work in progress	**Rs.30,000**
	Finished goods	**Rs.32,000**
Closing Stock:	**Raw materials**	**Rs. 24,000**
	Work in progress	**Rs.18,000**
	Finished goods	**Rs.30,000**
Direct Wages:		**Rs.50,000**
Direct Expenses:		**15%of direct wages**
Purchase of raw materials:		**Rs.1,50,000**
Factory Expenses:		**18% of Prime cost**
Administrative & Selling Expenses:		**22%of works cost**
Sales:		**Rs.7,20,000**

Particulars	Total Cost(Rs.)	Per Unit Cost (Rs.)
Raw Materials Consumed(Working Note1.)	1,76,000	
Direct wages	50,000	
Direct Expenses (Working Note 2)	7,500	
PRIME COST	2,33,500	
Add factory or works overheads(Working 3)	42,030	
Works cost(before adjustment of WIP)	2,75,530	
Add opening Work in Progress	30,000	
	3,05,530	
Less Closing work in Progress	18,000	
WORKS COST	2,87,530	
Add Administrative & Selling overheads (working 4)	63,257	
COST OF PRODUCTION	3,50,787	
Add opening stock of finished goods	32,000	
	3,82,787	
Less Closing stock of finished goods	30,000	
TOTAL COST OR COST OF SALES	3,52,787	
PROFIT (Balancing Figure) (Rs.7,20,000 –Rs.3,52,787)	3,67,213	
SALES	7,20,000	

Workings:

1. Raw materials consumed:

Opening Stock of Raw materials	Rs. 50,000
Add Purchase of raw materials	Rs.1,50,000
Raw materials available for use	Rs.2,00,000
Less Closing stock of raw materials	Rs. 24,000
Value of raw materials consumed	Rs.1,76,000

2. Direct Expenses:

15% of Direct wages(Rs.50,000)

$= \frac{15}{100} \times 50,000 = Rs.7,500$

3. Factory Expenses:

18% of Prime Cost(Rs.2,33,500)

$= \frac{18}{100} \times 2,33,500 = Rs.42,030$

4. Administrative and Selling Expenses:

22% of Works Cost(Rs.2,87,530)

$= \frac{22}{100} \times 2,87,530 = Rs.63,256.60 = Rs.63,257$

(RGU-2011) Q .The following data relate to the manufacture of a standard product during the month of March, 2011

Raw materials	Rs.3,20,000
Direct wages	Rs.1,92,000
Machine hours worked	16,000 Hours
Machine hour rate	Rs.16 per hour
Office on cost	20% of works cost
Selling on cost	Rs.6 per unit
Units produced	8,000
Units sold	7,200@Rs.100 each

You are required to prepare a cost sheet in respect of above showing-

(i) Cost per Unit

(ii) Profit for the period

Cost sheet for the Month of March,2011

Particulars	Total Cost(Rs.)	Per Unit Cost (Rs.)
Raw Materials	3,20,000	40
Direct wages	1,92,000	24
Direct Expenses (Machine running cost)(Working Note 1)	2,56,000	32
PRIME COST	7,68,000	96
Add factory or works overheads		
Works cost	7,68,000	96
Add Office on cost (Administrative overheads)(working2)	1,53,600	19.20
COST OF PRODUCTION	9,21,600	115.20
Less closing stock of finished goods (800 units)(working 3)	92,160	115.20
Cost of goods sold (7,200 Units)	8,29,440	115.20
Add Selling on cost (Selling & dist.Overhead) @6per unit X7,200 units	43,200	6
COST OF SALES	8,72,640	121.20
LOSS (Balancing Figure)	**1,52,640**	21.20
SALES(7,200 UNITS @ Rs 100 each)	7,20,000	100

Working Notes:

1. Cost of running of machine for the product is treated as direct expenses:

=Machine hours worked X Machine hour rate

= 16,000 Hours X Rs.16 per hour =Rs.2,56,000

2.Office on cost: 20% of works cost

= 20% of Works Cost(Rs.7,68,000)

$= \frac{20}{100} \times 7,68,000 = Rs.1,53,600$

3. Value of closing stock:

Closing stock(units) = Units produced – units sold

=8,000 – 7200 = 800 units

Value of closing stock=

$\frac{\text{Cost of goods produced}}{\text{Number of units produced}} \times \text{Closing stock (units)}$

$= \frac{Rs.9,21,600}{8,000} \times 800 \text{ units}$

=Rs.92,160

(RGU-2010) Q .Prepare Cost Sheet from the following data:

Opening Stock:	**Raw materials**	**Rs. 10,000**
	Work in progress	**Rs. 5,000**
	Finished goods	**Rs. 8,000**
Closing Stock:	**Raw materials**	**Rs. 8,000**
	Work in progress	**Rs. 3,000**
	Finished goods	**Rs. 8,000**
Direct Wages:		**Rs.16,000**
Direct Expenses:		**10%of direct wages**
Purchase of raw materials:		**Rs.50,000**
Factory Expenses:		**10% of Prime cost**
Administrative & Selling Expenses:		**20%of works cost**
Sales:		**Rs.1,20,000**

COST SHEET FOR THE PERIOD…

Particulars	Total Cost(Rs.)	Per Unit Cost(Rs.)
Raw Materials Consumed(Working Note1.)	52,000	
Direct wages	16,000	
Direct Expenses (Working Note 2)	1,600	
PRIME COST	69,600	
Add factory or works overheads(Working 3)	6,960	
Works cost(before adjustment of WIP)	76,560	
Add opening Work in Progress	5,000	
	81,560	
Less Closing work in Progress	3,000	
WORKS COST	78,560	
Add Administrative & Selling overheads (working 4)	15,712	
COST OF PRODUCTION	94,272	
Add opening stock of finished goods	8,000	
	1,02,272	
Less Closing stock of finished goods	8,000	
TOTAL COST OR COST OF SALES	94,272	
PROFIT (Balancing Figure) (Rs.1,20,000 –Rs.94,272)	25,728	
SALES	1,20,000	

Workings:

1. Raw materials consumed:

Opening Stock of Raw materials	Rs.	10,000
Add Purchase of raw materials	Rs.	50,000
Raw materials available for use	Rs.	60,000
Less Closing stock of raw materials	Rs.	8,000
Value of raw materials consumed	Rs.	52,000

2. Direct Expenses:

10% of Direct wages(Rs.16,000)

$= \frac{10}{100} \times 16,000 = Rs.1,600$

3. Factory Expenses:

10% of Prime Cost(Rs.69,600)

$= \frac{10}{100} \times 69{,}600 = Rs.6{,}960$

4. Administrative and Selling Expenses:

20% of Works Cost(Rs.78,560)

$= \frac{20}{100} \times 78{,}560 = Rs.15{,}712$

RGU: 2009: Q: Soda products Ltd. Serves you the following information with regard to a product Zem. Prepare Cost Sheet for the period ended on 31st March, 2009 and ascertain profit.

Consumable materials:

Opening stock-Rs.10,000

Purchases-Rs.85,000

Closing stock-Rs.4,000

Direct wages-Rs.20,000

Other Direct Expenses-Rs.10,000

Factory Overheads-100% of Direct labour

Office Overheads-10% of works cost

Selling & distribution Overheads-Rs.2 per unit

Units of finished product:

At the beginning(1000 Units) –Rs.16,000

At the End (2000) units

Produced during the year (10,000 units)

Cost sheet for 'Zem' of soda Products Ltd. For the period ended on 31st March 2011

Particulars	Total Cost(Rs.)	Per Unit Cost (Rs.)
Raw Materials consumed (Working Note-1)	91,000	9.10
Direct wages	20,000	2.00
Direct Expenses	10,000	1.00
PRIME COST	1,21,000	12.10
Add factory or works overheads(100% of direct labour i.e. Rs.20,000	20,000	2.00
Works cost	1,41,000	14.10
Add Office & Administrative overheads (10% of works cost i.e. 10% of Rs.1,41,000	14,100	1.41
COST OF PRODUCTION	1,55,100	15.51
Add opening stock of finished goods(1000 units)	16,000	16.00
	1,71,100	
Less Closing stock of finished goods(2000 units)working-3	31,020	15.51
Cost of goods sold (9,000 Units)	1,40,080	15.564
Add Selling & Distbn. Expenses @Rs.2 per unit X 9,000 units sold (working2)	18,000	2.00
COST OF SALES	1,58,080	17.564
Profit/LOSS (Balancing Figure)		
SALES (No information available)		

- As no information of selling price is given so profit or loss can not be ascertained from this question.

Workings

1. Raw materials consumed:

Opening Stock of Raw materials	Rs. 10,000
Add Purchase of raw materials	Rs. 85,000
Raw materials available for use	Rs. 95,000
Less Closing stock of raw materials	Rs. 4,000
Value of raw materials consumed	Rs. 91,000

2. No. of Units sold:

Opening stock of finished goods-	1,000 units
Add Produced during the year-	10,000 units
Finished products available for sale-	11,000 units
Less Closing stock of finished goods-	2,000 units
Number of units sold	9,000 umits

3.Value of closing stock:

Closing stock = 2000 units

Value of closing stock=

$$\frac{\text{Cost of goods produced}}{\text{Number of units produced}} \times \text{Closing stock (units)}$$

$$= \frac{\text{Rs.1,55,100}}{10{,}000} \times 2000 \text{ units}$$

=Rs.31,020

Not for Exam…just try

Calculate the missing figures from the following :

	Estimated cost	Estimated profit (%)	Estimated selling price
(a)	Rs. 9,000	10% of cost	?
(b)	Rs. 9,000	10% of selling price	?
(c)	?	10% of cost	Rs. 11,000
(d)	?	10% of selling price	Rs. 5,000

Solution:

Solution

(a) **Cost price** — **Profit** — **Selling price**

Rs. 100 — 10% of cost, i. e., Rs. 10 — Rs. 110

Rs. 9000 — 10% of cost

$$\frac{110}{100} \times 9{,}000 = \text{Rs. } 9{,}900$$

(b)

C. P.	Profit	S. P.
90	10% on S. P.	100
9,000	"	

$$\frac{100}{90} \times 9{,}000 = \text{Rs. } 10{,}000$$

(c)

S. P.	Profit	C. P.
110	10% of cost	100
11,000	"	

$$\frac{100}{110} \times 11{,}000 = \text{Rs. } 10{,}000$$

( )

S. P.	Profit	C. P.
100	10% of S. P.	90
5,000	"	

$$\frac{90}{100} \times 5{,}000 = \text{Rs. } 4{,}500$$