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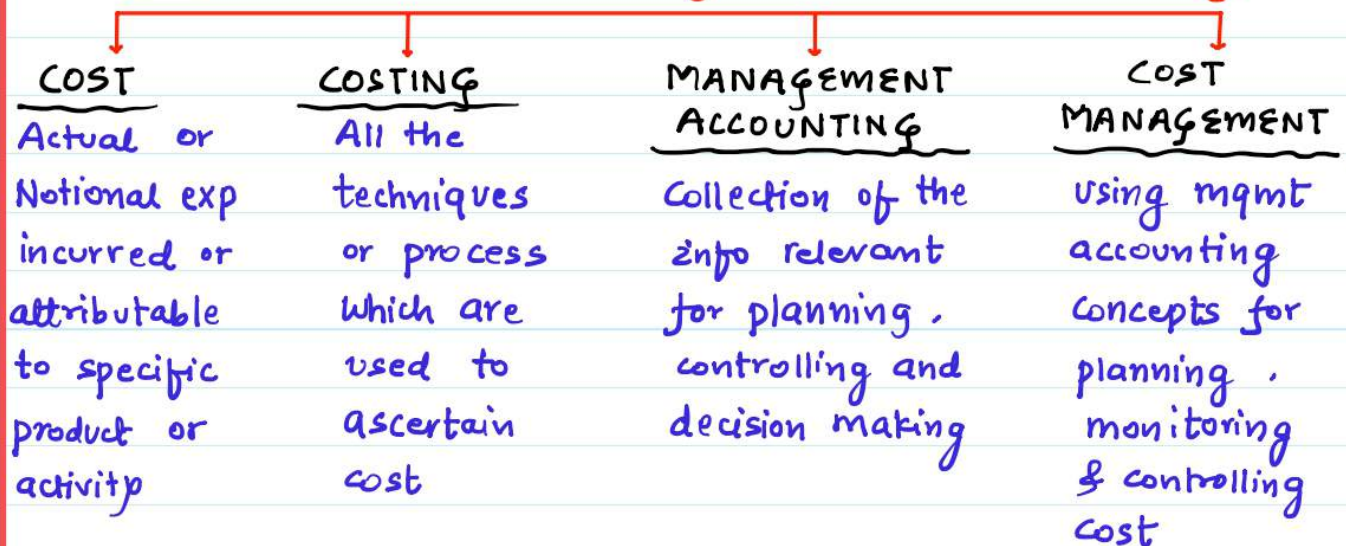
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Let's fall in love..

*With every chapter, With every page, With every concept.
Let's make it more interesting & fun in our own ways.
Let's open our hearts for this book in a new way.*

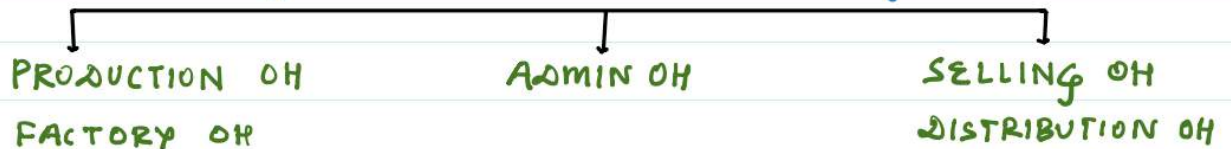
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CA AMIT SHARMA

01
CHAPTER**INTRO TO COST ACCOUNTING****① COST AND MANAGEMENT ACCOUNTING****② OBJECTIVES OF COST MANAGEMENT****③ TYPES OF COST (NATURE/ELEMENT)**

Imp. Note :-

All the Indirect expenses are clubbed under the umbrella of OVERHEADS or we can club all the Indirect cost under banner of overheads and sub-categorised into :-



④ TYPES OF COST (BEHAVIOUR/VARIABILITY)

<u>VARIABLE COST</u>	<u>SEMI - VARIABLE COST</u>	<u>FIXED COST</u>
Cost that change in same proportion wrt units produced and per unit remains same eg:- Raw mat used /unit Labour cost /unit	Combination of Fixed and variable cost eg:- setup cost	Cost that does not increase, even if units produced increase eg:- Depreciation Rent, salary

- Variable Cost remains "Same per unit" and "Total cost increases" with increase in units produced.
- Fixed Cost remains "Same in Totality Basis" and "per unit cost falls" with increase in units

Question :- HOW TO IDENTIFY VARIABLE , FIXED COST

Q1. Does my Total cost increase , if no of units produced increase

YES

NO

It is Fixed Cost

Q2. Does my cost increase in same proportion wrt increase in units produced

YES

NO

It is pure
VARIABLE COST

It is SEMI
VARIABLE COST

⑤ TYPES OF COST (FUNCTION)

MANUFACTURING
COST

SELLING
COST

RESEARCH &
DEVELOPMENT
COST

ADMINISTRATION
COST

DISTRIBUTION
COST



⑥ TYPES OF COST (NORMALITY)

NORMAL COST

Cost or expense which is incurred normally for a given level of output under specified / normal given conditions.

ABNORMAL COST

Cost which is **not incurred** normally for a given level of output under specified or normal given conditions.

⑦ NORMAL LOSS V/S ABNORMAL LOSS

- Losses incurred as normal part of the production process

- Entire loss is borne by the remaining good units and it increases cost per unit

- Losses incurred due to Abnormal reasons like floods, fire, theft

- Entire loss is ~~bf~~ to PIL a/c and both units and cost per unit are subtracted

⑧ HOW TO BIFURCATE SEMI-VARIABLE COST

- Variable cost per unit $\therefore \frac{\text{DIFFERENCE OF TOTAL COST}}{\text{DIFFERENCE OF TOTAL UNITS}}$

- Fixed cost (total) $\therefore \text{Total cost} - \left[\text{variable cost per unit} \times \text{No of Units} \right]$

2 CHAPTER

COST SHEET

It helps us to identify information w.r.t cost or cost info which is prepared on the basis of Functional Classification

FUNCTIONAL CLASSIFICATION



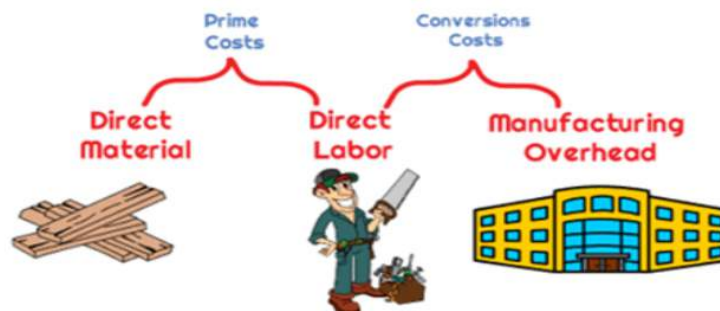
① HEADS OF COST SHEET



② PRIME COST



Manufacturing Costs





③ DIRECT MATERIAL

It is the cost of physical commodities which is used to make the final product and can be directly attributable to it
example :- Handle , Net , wheels used in CHAIR.

Imp. Note :-

How to identify if the material is DIRECT MATERIAL or not?
If the physical product is used only for or only one single product . then its Direct material . else not.

HOW TO CALCULATE COST OF DIRECT MATERIAL

	Opening stock of Raw material	xx
+	Cost of material purchased	xx
+	Freight Inwards	xx
+	Insurance and other direct exp	xx
+	Any tax	xx
-	Trade Discount	(xx)
-	Abnormal loss	(xx)
-	Sale amount of scrap of RM	(xx)
-	Closing stock of Raw material	(xx)
	DIRECT MATERIAL COST	xxx

④ DIRECT LABOUR COST

Any amount paid to employees for their efforts or labour put into making the product. (in short whatever employer gives to workers)

- It includes :-
- wages
 - Employer's contribution to PF/ESI
 - Other Benifits like free food , travel etc
 - Bonus
 - Overtime

5 DIRECT EXPENSES

Any expense other than material and labour which directly contributes in making of the product :-

- | | |
|--|--|
| (i) Hire charges of machine for specific product | (ii) Cost of specific design or software for product |
| (iii) Technical Assistance (Job worker) | (iv) Power , Fuel , Electricity or Royalty paid. |
| (v) Amortisation of Patents | (vi) Amortised cost of moulds |

6 FACTORY OVERHEADS

Any material , labour , expense not directly related to the product but still used in making the product IN FACTORY.

Imp. Note :-

It is charged on the basis of NO. OF. UNITS PRODUCED



- | | |
|------------------------------|-------------------------------------|
| (i) Stores & spares like oil | (ii) Depreciation of Plant |
| (iii) Insurance of Plant | (iv) Repairs & Maint. of Plant |
| (v) Design Dept in Factory | (vi) Rent of Normal Assets |
| (vii) Supervisor cost | (viii) Amortised cost of jigs/tools |
| (ix) Tool Room | (x) Pollution Control Equip. |

⑦ POINTS FOR TAXATION

If full tax is eligible
for ITC (refund)

Tax paid	100
Refund	(100)

Tax to be included 0

If partial tax
is eligible for ITC

Tax paid	100
Refund	(40)

Tax to be included 60

If No tax is
eligible for ITC

Tax paid	100
Refund	0

Tax to be included 100

⑧ QUALITY CONTROL COST

Cost of all the resources used for quality control purpose. (It will be directly given in the question)

9 RESEARCH & DEVELOP COST

It means the cost incurred for improvement of current process, product, service & it will be given in the Ques.

10 ADMIN OVERHEAD

It refers to the expenditure which are incurred in the office and may be related to production or not related to production.

Admin OH related to production :-

If the Question specifies :-

- Admin OH is related to production
- Admin OH is linked to production
- Admin OH is given on basis of ₹ per unit produced
- Admin OH is given separately

it means the expenditure incurred in office is related to the production hence it is included in calculating **cost of prod.**

Admin OH not related to production :-

It includes office expenses but not directly related to production process.

If the Question says Admin OH is ₹ per unit sold then it is general admin OH and is **not included in calculating cost of production.**



(i) Depreciation of office Building or Office Furniture

(ii) Salary of Admin employee or any Director

(iii) Office Rate, Tax, light

(iv) Remuneration, Commission

(v) Legal charges

(vi) Director's sitting Fee

(vii) Office Stationery

(viii) Meeting Expenses

(ix) Company's Income Tax

(x) Audit Fees

11 SALES OVERHEAD

All the indirect expenditure incurred for selling the product are known as sales overhead. They all are charged on the basis of no. of units sold :-

(i) Advertisement, Media cost, Website, Sales Market Research.

(ii) Salary of Sales Department Person

(iii) Depreciation, Maintenance of Sales Department.

12 DISTRIBUTION OVERHEADS

It refers to expenditure done for distribution of goods & it is charged on basis of no. of units sold

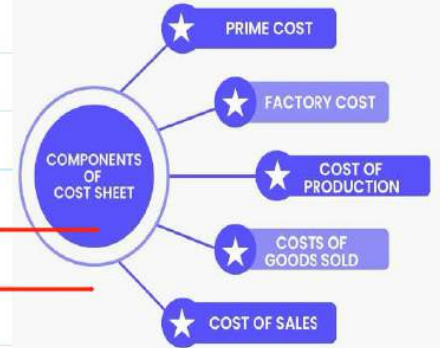
(i) Salary of employees in distribution department.

(ii) Depreciation, maintenance of vehicles for distribution.

13 PREPARING COST SHEET

+ Direct Material
+ Direct Labour
+ Direct Expenses

PRIME COST



+ Factory OH / Production OH
GROSS FACTORY COST

+ Opening WIP
- Closing WIP
NET FACTORY COST

+ Quality Control cost
+ Research & Develop cost
+ Admin cost related to production
+ Dnp Primary Packaging
- Sale of scrap or Bp. product
COST OF PRODUCTION

+ Opening FG
- closing FG
COST OF GOODS SOLD

+ General Admin OH
+ Selling OH



+ Distribution OH
 + Secondary packaging
COST OF SALES

+ profit
SALES

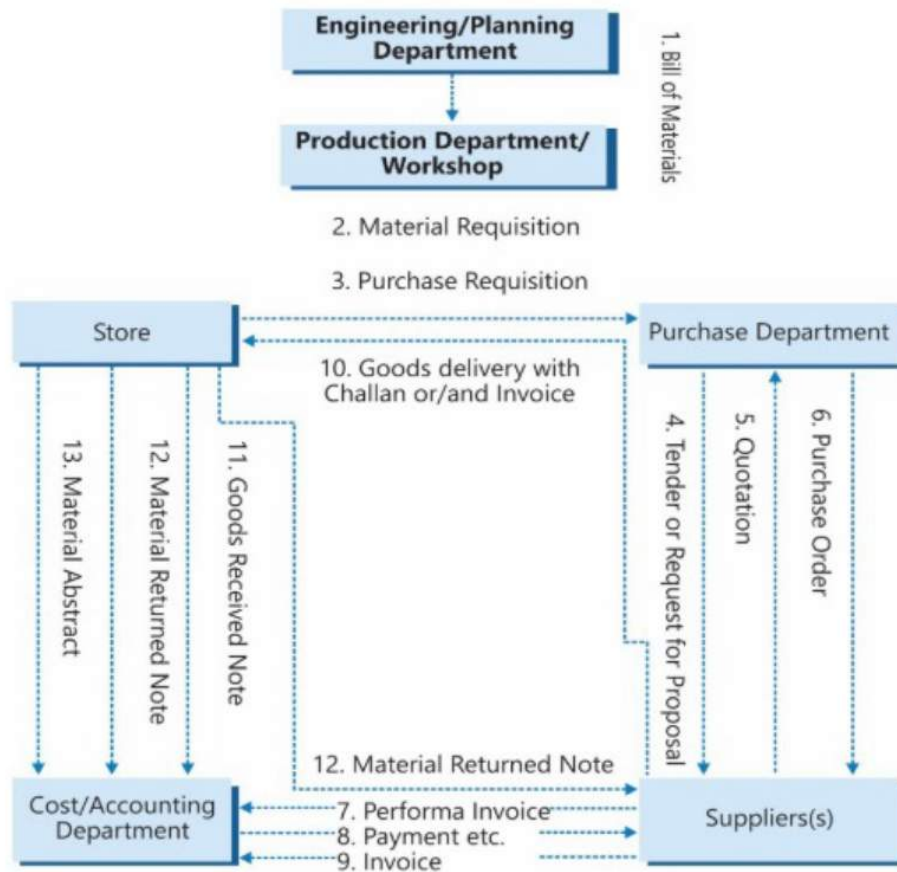
Imp. note :-

- (i) Sometimes question can club selling & distribution OH
- (ii) Question can also ask to calculate cost per unit and to calculate cost per unit.
 - upto cost of production - Divide by No. of units produced
 - after cost of production - Divide by No. of units sold
- (iii) Quality control and R&D cost will always be given in the question
- (iv) Any fines, penalty, demurrage is financial cost and not included (But ICAI includes Interest cost even though it is financial cost)
- (v) Question can also ask to calculate closing stock, so use FIFO to calculate closing stock :-

$$\text{Closing stock in ₹} = \frac{\text{Total cost of prod}}{\text{units produced}} \times \frac{\text{Closing Stock}}{\text{units}}$$

03
CHAPTER

MATERIAL COSTING



Material simply means all the commodities or the physical objects used to make the final product.

DIRECT MATERIAL

materials whose cost can be directly attributable or traced to the end product

INDIRECT MATERIAL

materials whose cost can't be directly traced to the end product



- (i) BILL OF MATERIALS :- Engineering department provides details of shape, size, quality, Quantity of material required.
- (ii) MATERIAL REQ. NOTE :- Whenever the production dept. is in need of material it sends a list of materials required to Stores department (godown).
- (iii) PURCHASE REQUISITION :- Now let's say if the materials are about to finish in the stores, then Stores manager will inform the purchase department to buy the materials required.
- (iv) INVITING TENDERS :- The purchase department now invites quotations from different Suppliers of the material.
- (v) SELECTION OF THE BEST :- After analysis of all the tenders on the basis of quality, price etc the best of the tender is selected and finalised.
- (vi) PURCHASE ORDER PLACED :- After the tender has been finalised purchase dept places the order for material.

- (vii) RECEIPTS & INSPECTION OF MATERIAL :- Once the order has been placed, the material are received and proper inspection is done to find out whether the materials are as per desired description.
- (viii) GOODS RECEIVED NOTE :- After the inspection has been done if there are any defects they are returned and for rest of the good quantity Goods Received Note (GRN) is issued.
eg :- let's say 100 units received and 5 units are defective . then GRN for 95 units are issued 5 are returned.
- (ix) MATERIAL RETURN NOTE :- The inspection is done at the time of receipt of material but let's say if after the goods are received and entered in stores , the goods are found defective , then to return such goods Material Return Note (MRN) is issued.
- (x) Payment :- After all the adjustments are done , payment is made.



1 VALUATION OF MATERIAL

Purchase price of the material xxx

- Discounts :-

Trade Discount (xx)

Quantity Discount (xx)

Grant / subsidy from anyone (xx)

Cash Discount [or any finance charges] (xx)
is also excluded

+ Taxes :-

Road Tax or Toll tax paid by buyer xx

Any GST only if ITC not allowed xx

Customs / Import duty xx

Penalties :-

Any type of penalty won't be included —
(so don't even add or minus penalty)

(Demurrage / Detention Charge / Fine)
is also penalty or abnormal cost.

+ Other Expenditure :-

Insurance / commission xx

Freight Inwards xx

Cost of container (point 2) xx

- Abnormal loss (point 3) (xx)

COST OF MATERIAL

② COST OF CONTAINER

Sometimes material are provided in the container and there can be two cases :-

CONTAINERS ARE REFUNDABLE

It means if we return the containers, we will get the amount as refund either 100% or less

CONTAINERS ARE NON-REFUNDABLE

It means even if we return the containers, we won't get any amount as refund.



Let's take an example :- The cost of container is ₹1000 and if we return the container we get :-

	<u>CASE I :-</u>	<u>CASE II :-</u>	<u>CASE III :-</u>
Amount paid	1000	1000	1000
Refund amount	(1000)	(600)	0
<u>Cost to be included</u>	<u>0</u>	<u>400</u>	<u>1000</u>

Just keep in mind, "How much money you paid out of pocket"

③ NORMAL LOSS V/S ABNORMAL LOSS

• Losses incurred as normal part of the production process

• Losses incurred due to Abnormal reasons like floods, fire, theft

- Entire loss is borne by the remaining good units and it increases cost per unit

eg:- 5000 units produced and cost incurred is ₹100,000
If normal loss is 200 units · Calculate cost/unit ·

units	Cost/unit	Total cost
5000	20	100000
(200)	-	-
4800	20.833	1,00,000

- Entire loss is ~~bf~~ to P/L a/c and both units and cost per unit are subtracted

5000 units produced and cost incurred is ₹100,000
If Abnormal loss is 200 units · Calculate cost/unit ·

units	Cost/unit	Total cost
5000	20	100000
(200)	(20)	4000
4800	20	96,000

Imp. Note:-

Sometimes question can give two types of material . in that case any Freight will be distributed on the basis of weight .

④ INVENTORY CONTROL

Re-order Stock Level	•When to Order
Re-order Quantity/ EOQ	•How Much to Order
Maximum Stock Level	•Upto How much to stock
Minimum Stock Level	•Atleast How much to stock
Average Stock Level	•Stock normally kept
Danger Stock Level	•Kept for emergency requirement
Buffer Stock	•To meet sudden demand

5 RE-ORDER QUANTITY

It is the fixed Qty of material which the company orders everytime and it remains same for each order. There are few cost related to ordering and storing the cost.

Ordering Cost :- Cost associated with ordering the material and it includes :-

- cost to invite Quotation
- Material checking and Inspection
- Paper work cost
- Employee cost directly related to ordering
- Transportation

$$\text{Order cost} = \frac{\text{Annual consumption}}{\text{Re-order Qty}} \times \text{ordering cost per-order}$$

$$\text{No. of order} \times \text{ordering cost per order}$$

Carrying Cost :- Cost of Holding or Storing material in stores or godown and includes :-

- Insurance cost
- Storage
- Interest cost in money invested in RM
- Obsolescence

$$\text{Carry cost} = \frac{1}{2} \times \text{Re-order Qty} \times \text{Carry cost per unit per annum}$$

Some examples of Ordering & carrying Cost

Ordering cost is ₹ 2000/order · Cost of Raw material is ₹ 500
 carry cost is 10% p.a and annual requirement is 5000 units
 Calculate Total order cost and Carry cost if Re-order Qty is
 (i) 500 (ii) 1000 (iii) 2500

$$\text{Ordering cost} = \frac{\text{Annual Req}}{\text{Reorder Qty}} \times \text{ordering cost / order}$$

$$(i) 500 = \frac{5000}{500} \times 2000 = ₹ 20000$$

$$(ii) 1000 = \frac{5000}{1000} \times 2000 = ₹ 10000$$

$$(iii) 2500 = \frac{5000}{2500} \times 2000 = ₹ 4000$$

(It means as we increase ROQ, Total ordering cost falls)

$$\text{Carrying cost} :- \frac{1}{2} \times \text{Re order Qty} \times \text{Carry cost p/unit p.a}$$

$$(i) 500 = \frac{1}{2} \times 500 \times (500 \times 10\%) = ₹ 12,500$$

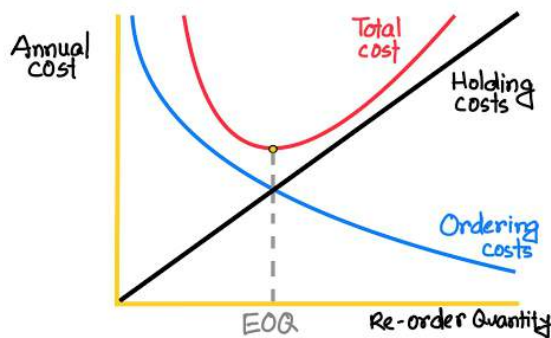
$$(ii) 1000 = \frac{1}{2} \times 1000 \times (500 \times 10\%) = ₹ 25,000$$

$$(iii) 2500 = \frac{1}{2} \times 2500 \times (500 \times 10\%) = ₹ 62,500$$

(It means as we increase ROQ, total carrying cost rises)

SO HERE COMES THE PROBLEM :- If ROQ $\uparrow$, T. Order cost $\downarrow$
If ROQ $\uparrow$, T. carry cost $\uparrow$

SO HERE COMES THE SOLUTION :- ECONOMIC ORDER QTY



It is the best version of Reorder Qty or we can say such a level of Reorder Qty where Total ordering cost plus Total carrying cost is minimum.

It is calculated by :-

$$\sqrt{\frac{2 \times A \times O}{C}}$$

A = Annual consumption (for year)
O = Ordering cost per order
C = Carrying cost per unit annum

TYPES OF QUESTIONS ASKED IN EXAM

Simply calculate
EOQ

Evaluate EOQ
v/s without EOQ
(compare only carry
cost and order cost)

Evaluate EOQ
v/s Discount
(compare purchase
price, carry cost
and order cost)

Imp Note :-

1. Sometimes question can ask to place order to two different types of materials together whose ordering cost and carry cost can be different.

In that case use weighted avg formula for calculation.

$$\text{Weighted avg carry cost} = \frac{\text{units}_A \times \text{carry cost p. unit of A} + \text{units}_B \times \text{carry cost p. unit of B}}{\text{units of A} + \text{units of B}}$$

$$\text{Weighted avg order cost} = \frac{\text{orders}_A \times \text{ordering cost per order of A} + \text{orders}_B \times \text{ordering cost per order of B}}{\text{Orders of A} + \text{orders of B}}$$

2. Sometimes question can also ask to calculate "Discount" which can be accepted to bring total cost equal to EOQ level.

$$\text{Discount amount} = \text{Total cost at given level} - \text{Total cost at EOQ level}$$

$$\text{Discount \%} = \frac{\text{Discount amount}}{\text{Qty purchased} \times \text{Purchase Price}}$$

(Check after 3 pages :- How to Calculate Annual Consm)



⑥ LEAD TIME

It refers to the time taken from placing the order till it reaches stores (godown).

Emergency
1 day

Minimum
3 days

Average
 $\frac{3+7}{2} = 5 \text{ days}$

Maximum
7 days

⑦ CONSUMPTION

It is the amount of Raw Material consumed to produce the finished goods.

Minimum
Consumption of
gysers in summer

Average
 $\frac{\text{max} + \text{mix}}{2}$

Maximum
Consumption of
AC in winters

⑧ RE-ORDER LEVEL (POINT)

It is the level at which company should place the next order for material and it helps us to understand when to order :-

Formula 1 :- $\text{Maximum consumption per day} \times \text{Maximum lead Time}$



$$\text{Formula 2 :- } \left[\begin{array}{cc} \text{Average consumption} & \times & \text{Average lead} \\ \text{per day} & & \text{Time} \end{array} \right] + \begin{array}{l} \text{Minimum Stock} \\ \text{or} \\ \text{Safety Stock} \end{array}$$

- If minimum stock is not available, use safety stock.
- If minimum stock is given use any formula else only Formula 1.
- If safety stock is given and annual consumption is also given always use Formula 2.

⑨ MAXIMUM STOCK

A company orders stock of material, then uses it and orders again before it gets finished, so maximum stock is the highest level of stock of material available at any point of time.

$$\text{Maximum Stock} = \text{Re-order Qty} + \text{Re-order Level} - \left[\begin{array}{cc} \text{Min. lead} & \times & \text{Min.} \\ \text{Time} & & \text{Consump} \end{array} \right]$$

⑩ MINIMUM STOCK

The least amount of stock of material available at any point of time.

$$\text{Minimum Stock} = \text{Re-order Level} - \left[\begin{array}{cc} \text{Avg. lead} & \times & \text{Avg.} \\ \text{Time} & & \text{Consumption} \end{array} \right]$$

We often find out that Minimum Stock and Safety Stock are used alternatively, so are both same ??

Safety Stock

It is the actual amount of Stock which company maintains to prevent stock-out.

Minimum Stock

It is the benchmark or the stock which company should maintain to prevent Stock out.

If minimum stock and safety stock are given separately, use them separately. otherwise $\text{min. stock} = \text{safety stock}$.

11

AVERAGE STOCK

It is just an average of minimum and maximum stock.

$$\text{Average Stock} = \frac{\text{Minimum Stock} + \text{Maximum Stock}}{2}$$

or

$$= \frac{1}{2} \times \text{Re-order Qty} + \text{Minimum Stock}$$

12

DANGER STOCK

It is that final level beyond which if company goes, then there will be stock out.

$$\text{Danger level} = \frac{\text{Emergency lead Time}}{\text{Time}} \times \text{Average Consumption}$$



DIFF. WAYS TO CALCULATE ANNUAL CONSUMP.

Already given
in the Ques.
Use that

Finished Good &
material used given
FG sold is 100 units
material A required
is 2kg/unit. So
Annual Consumption is
 $2 \times 100 = 200 \text{ kgs}$

Average Consump.
per week/month given
Avg consumption per
week is 10 kgs, so
annual consumption
 $10 \times 52 = 520 \text{ kgs}$
(Use this only if
other two not avail)

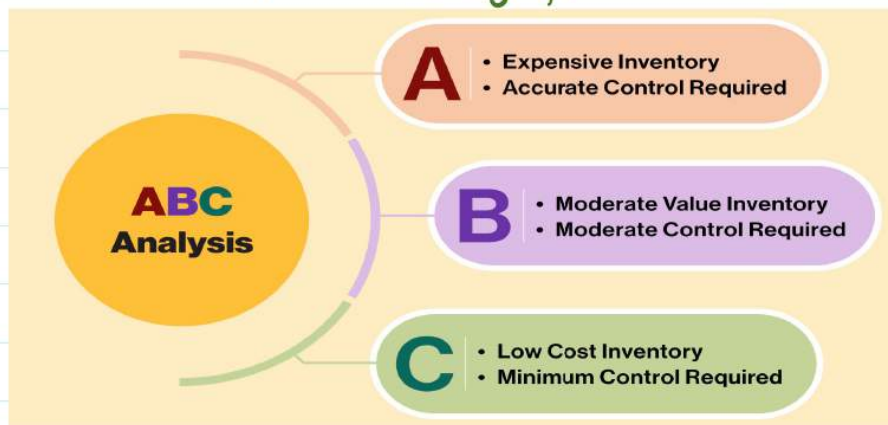
(13) ABC ANALYSIS

It is a controlling method in which material are given ranking as per their cost and not on the basis of units.

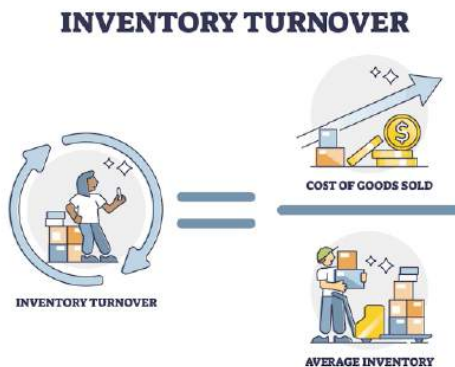
Step 1:- We calculate Total cost of material (Units $\times$ cost/unit)

Step 2:- Then we rank them Highest to Lowest

Step 3:- Generally top 70% is A category
Remaining 20% is B category
Final 10% is C category



14 INVENTORY TURNOVER RATIO



It just shows how many times the company has converted its inventory into sales.

$$= \frac{\text{COGS or RM consumed}}{\text{Average Inventory}}$$

$$\text{RM consumed} = \text{O/stock} + \text{purchases} - \text{closing stock}$$

$$\text{Average Inventory} = \frac{\text{Opening stock} + \text{Closing stock}}{2}$$

$$\text{Days Inventory is held} = \frac{360 \text{ Days}}{\text{Inventory T/O Ratio}}$$

15 STORE RECORDS

BIN CARDS

It is a Quantitative record of Inventory which shows Qty of inventory in a bin or box containing materials.

STOCK CARDS

It is also a Quantitative record maintained by stores (godown) dept showing receipts, issue, return and in hand.

STORE LEDGER

It records both Qty and cost of materials, received-issued, returned and



16 STORES LEDGER

Stores Ledger											
Material Code:				Maximum Qty:							
Bin No.:				Minimum Qty:							
Material Description:				Ordering Qty:							
Location:											
Date	Receipts				Issues				Balance		
	GR No	Qty	Rate	Amount	SR No	Qty	Rate	Amount	Qty	Rate	Amount

<u>Date</u>	<u>Receipts</u>			<u>Issue</u>			<u>Total</u>		
	<u>Units</u>	<u>price</u>	<u>Total</u>	<u>Units</u>	<u>price</u>	<u>Total</u>	<u>Units</u>	<u>price</u>	<u>Total</u>
o/stock	xx	x	xxx				xx	x	xxx
Received or Purchased	xx	x	xxx				xx	x	xxx
Issued				(xx)	x	(xxx)	xx	x	xxx
Return to Supplier				(xx)	x	(xxx)	xx	x	xxx
				at same rate at which it was purchased					
Return from Department	xx	x	xxx				xx	x	xxx
	at same rate at which it was issued to dept.								
Normal loss				(xx)	-	-	xx	x	xxx
Abnormal loss				(xx)	x	(xxx)	xx	x	xxx
c/stock							xx	x	xxx

Imp. Note :-

- (i) Replacement is also a Fresh Supply.
- (ii) If transfer done within 2 departments, no entry.
- (iii) If our dept returns goods, it is not fresh supply.

BASIS OF VALUATION OF STOCK

	<u>COGS valued</u>	<u>C/Stock valued</u>
(i) First in First out	Goods purchased at start	Goods purchased at last
(ii) Last in First out	Goods purchased at last	Goods purchased at start
(iii) Simple Average	Average Price	Average Price
(iv) Weighted Average	Average Price	Average Price

17 INVENTORY STOCK OUT

It is a situation where there is demand of product but still entity can't provide it.



It leads to financial loss - loss of image, reputation and also hamper relationship with customer.

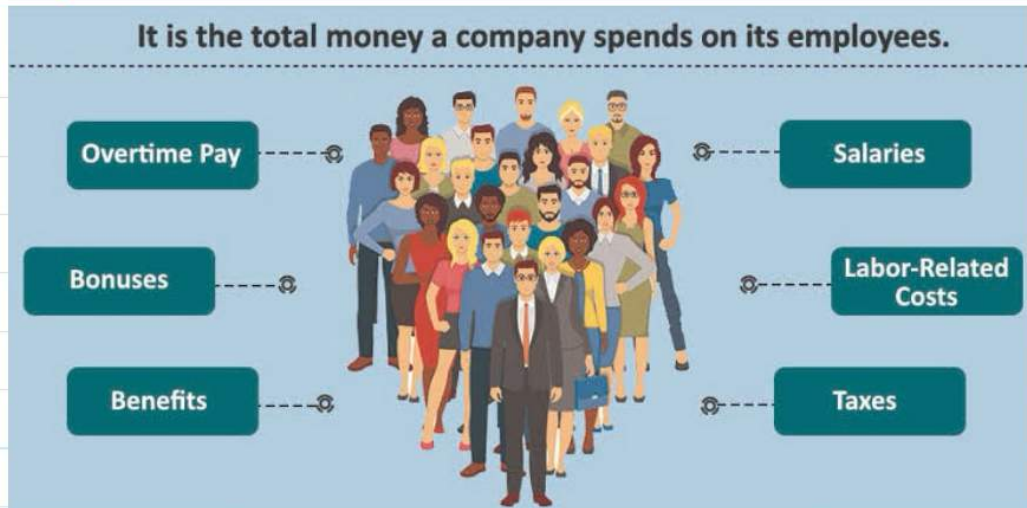


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04
CHAPTER

EMPLOYEE COSTING



Employee Cost is the amount paid to the human force of the organisation and it includes :-

- Salary
- Bonus
- Taxes
- Overtime-pay
- Benifits
- Provident Fund

① GROSS PAYMENT & NET PAYMENT

Payment actually made to the workers for work performed by them.

Basic Pay
+ Dearness Allowance

Basic + D.A

+ Other Allowance
+ Bonus / Commission
+ Other cash payment (overtime)



Gross Payment:

- TDS
- Professional Tax
- EMI deduction for any loan
- Any other deduction [like excess contribution to PF or any other fund]
- Employees Contribution to PF
- Employees Contribution to ESI

Net wages paid to worker

② LABOUR COST

It is the Total cost incurred from the side of company in the form of Labour.

Basic Pay
+ Dearness Allowance

Basic + D.A

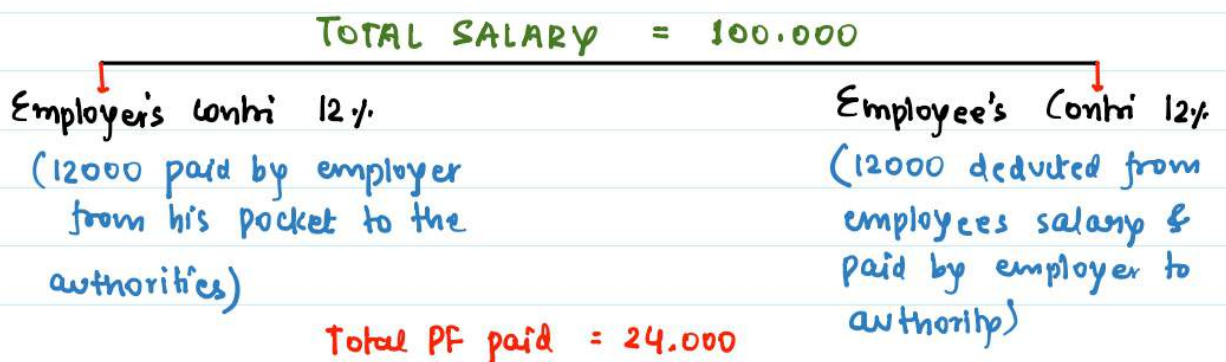
+ Other Allowance
+ Bonus / Commission
+ Other cash payment (overtime)
+ Perquisites
+ Employer's Contribution to PF
+ Employer's Contribution to ESI

Total labour cost
[working hours given — Normal Idle Time — Holiday]

LABOUR COST PER HOUR

Important Adjustment

- (i) Almost in all the questions, ICAI will try to fool us. It will provide details of "Employee contribution to PF & ESI". So students will think - no details of employer's contribution is given, so they will ignore it.
- (ii) But if no details of Employer's contribution is given, we will take employer's contribution = employee's contribution and we will add both to calculate LABOUR COST.
- (iii) And if details of employer's & employee's contribution is given separately, consider them separately.
- (iv) For the Provident Fund, employer deducts employee's share from his share and pays net amount to employee.
- To calculate employee's share :- Use only employee's share
 - To calculate employer's share :- Use only employer's share
 - To calculate total PF paid by :-
employer to PF authority employee's share (+) employer's share





③ EARNINGS

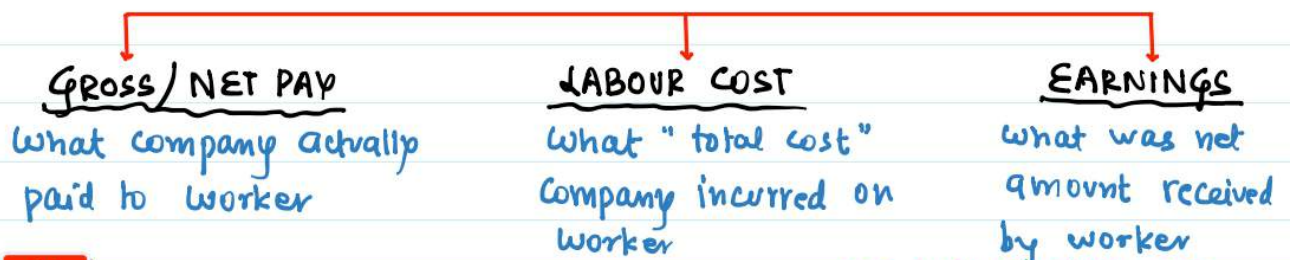
- + Basic Pay
 - + Dearness Allowance
 - Basic + D.A

 - + Other Allowance
 - + Bonus / Commission
 - ~~Other cash payment (overtime)~~
(because we don't do overtime usually)

 - + Employer's Contri to PF & ESI
 - Gross Payment

 - TDS
 - Professional Tax / Statutory deduction
 - EMI deduction for any loan
 - Any other deduction
(like any excess contribution / other contri)
 - ~~Employee contribution to PF~~
 - ~~Employee contribution to ESI~~ [we will get it on retirement]
- EARNINGS OF WORKER

THREE IMPORTANT CONCEPTS



④ OVERTIME PAYMENT

When worker works more than normal hours and receives extra payment for it.

For overtime hours we pay :- Normal Rate + Overtime prem
per hour per hour

example :- Normal work hours in a day = 10 Hours
Actual Hrs worked = 12 Hours
Normal pay = ₹ 20/Hr
Overtime premium = 50%.

$$\begin{aligned}\text{Total payment} &= (10 \times 20) + 2 \text{ Hrs} \times (20 + 50\%) \text{ per Hr} \\ &= 200 + 60 = ₹ 260\end{aligned}$$

$$\begin{aligned}\text{Effective rate per hour} &= \text{Average rate per hour} \\ &= 260 / 12 = ₹ 21.67 \text{ per hour.}\end{aligned}$$

REASONS OF OVERTIME AND ITS TREATMENT

<u>Due to market Shortage</u>	<u>Due to production requirement</u>	<u>Due to customer's requirement</u>	<u>Abnormal Reasons</u>
It will increase wage rate per hour	Charge normal rate from customer T/f overtime to production OH	Add to customer's bill	Transfer to P/L a/c

Important points :-

- (i) If Question ask us to calculate Earnings per day, it means we need to include all the amount earned by him, even if received today or not. So it means while calculating Earnings don't deduct employee's contri to PF because he has earned it, even though invested in PF. Similarly Add employer's contri to PF because employee has earned it even though he will receive it in future.
- (ii) Factories Act says, Overtime is paid if employee works more than 9 Hrs in a day or more than 48 hours in a week. Overtime includes Basic + D.A + Food allowance.



⑤ IDLE TIME

It is the time during which worker is not working but still get paid.

NORMAL IDLE TIME

- Normal Rest / Lunch / Washroom Break.
- Setting up of machine
- Travel from gate to work place
- Time between shift change

ABNORMAL IDLE TIME

- Non available of the material
- Fire / Flood / Power Fail
- Breakdown of machine
- Lockout, strikes

Treatment

Just like Normal loss of materials, (reduce hours and not cost)

Treatment

Just like Abnormal loss of materials (reduce hours and cost both)

⑥ WAGE PAYMENT & INCENTIVE SYSTEM

TIME RATE

The workers are simply paid on the basis of no. of good units produced.

PIECE RATE

The workers are paid on the basis of hours worked irrespective of units produced.

HALSEYROWAN

example :- A company pay ₹ 80 per hour or ₹ 200 for one good unit produced. **Worker K** is paid on timely basis and he worked for 10 Hours. **Worker S** is paid on piece rate and produced 5 units.

Worker K :- Will be paid on the basis of hours worked.

$$₹ 80/\text{hr} \times 10 \text{ Hrs} = ₹ 800$$

Worker S :- Will be paid on the basis of units produced.

$$₹ 200/\text{units} \times 5 \text{ units} = ₹ 1000$$



⑦ HOW TO CONVERT TIME RATE INTO PIECE RATE

example :- AB made 22 units in 10 Hours.
Hourly rate is ₹ 200 per hour.
Std time to produce one unit is 30 minutes

Question says we pay ₹ 200 for 1 hour.
As per hourly rate pay = $200 \times 10 = ₹ 2000$

Question also says standard time to produce 1 unit is 30 min.
So 1 unit in $30/60 = \frac{1}{2}$ Hour
So units produced in 1 Hr = $\frac{1}{\frac{1}{2}} = 2$ units

So, can we say For 1 Hour we pay ₹ 200
In 1 Hour we produce 2 units
For 2 units we pay ₹ 200
For 1 unit we pay $200/2 = ₹ 100$

So to convert Time Rate into Piece Rate

$$= \frac{\text{Rate per Hour or Day}}{\text{No of units 1 Hour as per standard}}$$

8 HOW TO CONVERT PIECE RATE INTO TIME RATE

example :- AB made 22 units in 10 Hours.
Hourly rate is ₹100 per unit
Std time to produce one unit is 30 minutes

Question says we pay ₹100 for 1 unit
As per unit rate system = ₹100 × 22 = 2200

Question also says standard time to produce 1 unit is 30 min.
So 1 unit in $\frac{30}{60} = \frac{1}{2}$ Hour
So units produced in 1 Hr = $\frac{1}{\frac{1}{2}} = 2$ units

So, can we say For 1 unit we pay ₹100
In 1 Hour we produce 2 units
For 2 units we pay ₹200
So for 1 Hour we pay ₹200

So to convert Piece Rate into Time Rate

$$= \frac{\text{Piece Rate Given}}{\text{Standard Time Per piece}}$$



9 HALSEY PLAN

It is a bonus plan. which shows what bonus should be paid to worker if he works efficiently i.e extra payment if he takes less than standard time.

$$\text{Bonus under Halsey Plan} = 50\% \text{ of } \left[\frac{\text{Standard Hours} - \text{Actual Hours}}{\text{Hours}} \right] \times \text{Rate per Hr}$$

$$\text{Total payment under Halsey} = \underbrace{\text{AH} \times \text{R}}_{\text{Normal pay}} + \underbrace{50\% \text{ of } [\text{SH} - \text{AH}] \times \text{R}}_{\text{Bonus for time saved}}$$

10 ROWAN PLAN

It is a bonus plan, in which Bonus is not fixed like Halsey, so bonus depends on efficiency.

$$\text{Bonus under Rowan Plan} = \frac{\text{AH}}{\text{SH}} \times \left[\frac{\text{Standard Hours} - \text{Actual Hours}}{\text{Hours}} \right] \times \text{Rate per Hr}$$

$$\text{Total payment under Rowan} = \underbrace{\text{AH} \times \text{R}}_{\text{Normal pay}} + \underbrace{\frac{\text{AH}}{\text{SH}} \times [\text{SH} - \text{AH}] \times \text{R}}_{\text{Bonus for time saved}}$$

AH = Actual Hours Worked

R = Normal Time Rate

SH = Standard Hour for total units produced

(SH - AH) = Time Saved.

Under both Halsey and Rowan plan, the final rate is :-

$$\text{Effective rate per Hour} = \frac{\text{Total Amount}}{\text{Actual Hours Worked}}$$

Types of Questions asked :-

- (i) Directly calculate Labour Rates
- (ii) Any one plan is given and question asks us to calculate missing data of other plan



LABOUR TURNOVER RATES

LABOUR TURNOVER



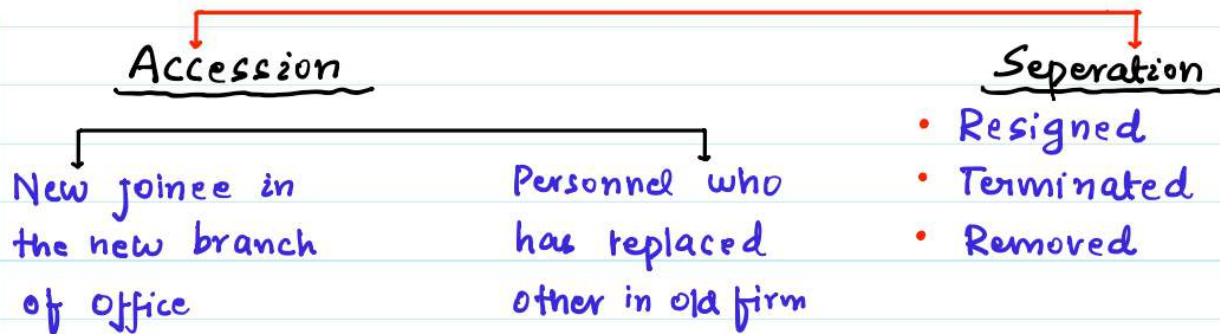
Employees at start of year = 900

Employees at end of year = 1300

$$\begin{aligned}\text{Average employees} &= \frac{900 + 1300}{2} \\ &= 1100\end{aligned}$$

labour Turnover refers to changes in number of employees in an organisation. It includes both, the number of employees joined during the period and also the number of employees left during the period.

$$\begin{array}{ccccccc}\text{Total employees} & + & \text{Employee} & - & \text{Employee} & = & \text{Employees at} \\ \text{at start} & & \text{joined} & & \text{separated} & & \text{end of period}\end{array}$$



DIFFERENT METHODS FOR LABOUR TURNOVER RATES

(i) SEPERATION METHOD = $\frac{\text{No of Seperations}}{\text{Average workers for period}} \times 100$

(ii) REPLACEMENT METHOD = $\frac{\text{No of Replacements}}{\text{Average workers for period}} \times 100$

(iii) FLUX METHOD = $\frac{\text{No of [Seperation + Replacement]}}{\text{Average workers for period}} \times 100$

⑧ = $\frac{\text{No of [Seperation + Replacement + New Joinee]}}{\text{Average workers for period}} \times 100$

(iv) ACCESSION METHOD = $\frac{\text{No of New Joinees}}{\text{Average workers for period}} \times 100$

⑧ = $\frac{\text{No of [New Joinees + Replacement]}}{\text{Average workers for period}} \times 100$

$$(v) \text{ EQUIVALENT LABOUR TURNOVER} = \frac{\text{Employee T/O for period}}{\text{No. of days in the period}} \times 365$$

12 COST DUE TO LABOUR TURNOVER

COST DUE TO SEPERATION

- Settlement cost like pay of PF or Gratuity
- Loss of profit due to time gap between seperation and its replacement

COST DUE TO ACCESSION

- Recruitment
- Training
- Interview/Selection



Hours lost $\times$ profit per hour

$\frac{\text{Hours lost}}{\text{Std time/unit}} \times \text{profit per unit}$

Important Note :-

If both new joining & replacement is given . then how to find out exact numbers :-

First . fill the chair/seat of employee leaving

Second . remaining all will be new joiners.



This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. In the bottom right corner, there is a small cartoon illustration of a boy with red hair, wearing a red shirt, holding a yellow pencil, and having a lightbulb above his head.



05
CHAPTER**OVERHEADS**

All those Indirect Material, Indirect labour, Indirect exp which are not directly linked or related to product are clubbed under one Umbrella, called as Overheads.

And further these overheads are sub-categorised into :-

Factory
Overhead

Admin
Overhead

Selling
Overhead

Distribution
Overhead

1**TYPES OF OVERHEAD****(i) FACTORY OVERHEADS**

:- refers to all the indirect cost incurred in the factory.



- Dep. of machine
- Repairs of plant
- PRIMARY PACKAGING
- Admin OH related to prod
- Dep on Building
- Insurance of plant
- Godown expenses

(ii) ADMIN OVERHEADS

:- refers to all the indirect cost incurred in the office



- Office Staff Salary
- Dep. of office Building
- Repairs of Office Building
- Rent of office Building (exclude finance lease)
- Director's salary
- Audit expenses
- Stationery



(iii) SELLING & DISTRIBUTION OVERHEADS

- :- Includes all Indirect cost incurred for selling & distributing the finished good.
- Sales person commission
 - Sales office expense
 - Secondary packaging
 - Advertisement
 - Delivery van exp.
 - Cold storage

② TYPES OF DEPARTMENT

PRODUCTION DEPARTMENT



Department of the company which is actually involved or engaged in the production.

(P)

SERVICE DEPARTMENT



These department help the production department in smooth production like canteen, godown, R&D

(S)

③ ALLOCATION V/S APPORTIONMENT

- When cost of a Cost center can be traced or matched directly to it
- When some cost can't be directly traced or matched to a cost center or dept.

- Here we don't need to distribute cost as there is already a separate cost of each department.

- example :- let's say a meter is fixed outside each department, so each dept has its own electricity bill.

- Here we have to distribute one big common cost to several other departments.

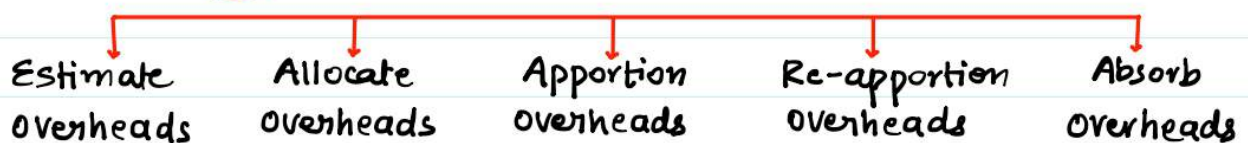
- example :- If there is a common meter and the entire bill is to be further distributed to all departments.

Question :- But how to identify if it is common cost or not?
Just check if it is paid jointly or paid separately.
If it is paid jointly, it is a common cost.

Question :- What is Re-apportionment?

We recover overheads generally on basis of units produced or hours worked for production and since service departments don't produce goods so their total cost i.e. both direct and indirect cost is re-distributed or transferred to production department for recovery and it is called as re-apportionment.

④ DISTRIBUTION OF OVERHEADS



**5****HOW TO ALLOCATE OR APPORTION****(i) PRIMARY ALLOCATION**

Items of Cost	Basis	Total Cost	Prod ₁	Prod ₂	Serv ₁	Serv ₂
Δ material	-	xx	[Check working note]		xx	xx
Δ labour	-	xx			xx	xx
Δ expenses	-	xx			xx	xx
Stores	2:3:4:5	xx	xx	xx	xx	xx
Accounts	1:2:3:4	xx	xx	xx	xx	xx
Canteen	1:3:2:1	xx	xx	xx	xx	xx

Important Note:-

- (i) When Direct wages or Direct material or Direct expenses for all the production and service department is given, then we DON'T WRITE Direct material/labour/expenses in Production Department while making Primary distrib.
- (ii) But if Direct Material/wages/Expenses are given only of Production Department - then in that case we will write them in production department while making primary distribution

SOME BASIS OF APPORTIONMENT**OVERHEAD COST**

- Rent, Building exp
Lighting, Heating, AC
Fire precaution service

BASIS OF APPORTION

Floor area or volume
of Department

- Perquisites , Labour exp
Supervision , Time keep] No. of workers
- PF / ESI / Holiday Pay
Compensation to worker] Direct wages
- General Overhead Direct labour / Direct wages
- Dep. of Plant or machine
Repairs of Plant
Insurance of Stock } Capital value of machine
- Lighting expenses No of light points . meter
- Material Handling
Stores overhead } Weight / value / volume of material handled
- Electric power for machine If machine Hours is given in
Gives use (HP x machine Hrs)

If only " Hours " is given
and not machine hours
then use Horse power to
apportion cost.



(ii) SECONDARY ALLOCATION (also called as RE-APPORTIONMENT)

DIRECT METHOD

Here service department or support department allocate their total cost after primary allocation - to production department only and there is no role of service dept.

INDIRECT METHOD

In this method, the service department allocate their cost to production department and other service department also.

RECIPROCAL

- Repeated Distribution

- Simultaneous Equation

- Trial & Error

NON-RECIPROCAL

- Step - Down

⑥ STEP - DOWN METHOD

(i) The Biggest Service Department will apportion its total cost to all production and service dept in given ratio.

(ii) Then Second Biggest Service Department will apportion its total cost to all production department and service department except the Biggest one and so on.

[In the Question, check which department is only sharing its cost and not receiving any apportion - its the biggest dept]

⑦ REPEATED DISTRIBUTION METHOD

Each and Every service department, distributes their total cost to all production and service departments.

So just keep distributing overheads, until balance of any one service department comes to less than 50.

⑧ SIMULTANEOUS EQUATION METHOD

Just convert the apportionment - in form of equation.

⑨ TRIAL AND ERROR

It is just as same as Repeated Distribution, but here we only apportion cost to service department and not to production department.

⑩ ABSORPTION OF OVERHEADS

Once we have calculated the total overheads of the production departments after apportionment or allocation, now we need to recover these costs also.

So for entire overheads we determine a base for recovery.

$$\text{Recovery Rate} :- \frac{\text{Total Budgeted Overheads}}{\text{Our Budgeted Base}}$$



METHODS OF ABSORPTION

$$(i) \text{ Percentage of Direct Materials} = \frac{\text{Total Budgeted OH}}{\text{Total Direct Material}}$$

$$(ii) \text{ Percentage of Prime Cost} = \frac{\text{Total Budgeted OH}}{\text{Total Prime Cost}}$$

$$(iii) \text{ Percentage of Direct Labour} = \frac{\text{Total Budgeted OH}}{\text{Total Direct Labour}}$$

$$(iv) \text{ Labour Hour Rate} = \frac{\text{Total Budgeted OH}}{\text{Total Labour Hrs}}$$

$$(v) \text{ Machine Hour Rate} = \frac{\text{Total Budgeted OH}}{\text{Total Machine Hrs}}$$

$$(vi) \text{ Rate per unit of output} = \frac{\text{Total Budgeted OH}}{\text{Total units}}$$

II MACHINE HOUR RATE

Under this we calculate what is the Hourly Rate of running a machine. Where we divide the total cost incurred in running a machine by total Hours the machine was used.

There are two types of cost :-

(i) Fixed or Standing Charges (ii) Running Charges

FIXED CHARGES :-

	Depreciation not related to activity	xx
+	Rent of machine	xx
+	Insurance of machine	xx
+	Wages of workers and Bonus for machine	xx
+	General Overheads of Department	xx
	<u>Total Fixed Charges</u>	<u>xxxx</u>

RUNNING CHARGES :-

	Repairs and Maintenance	xx
+	Power	xx
+	Depreciation related to activity	xx
+	Lubricants	xx
+	Sundry Variable Expenses	xx
	<u>Total Running Charges</u>	<u>xxxx</u>

Important Notes :-

Hours paid to workers = Normal Hours - Absent without pay

Total Machine Hours = Normal Hours
(take special care of no. of machines or no. of months in Ques)

- Absent without pay
- Absent with pay
- Idle Time

(Simply number of Hrs machine was running.)



12 UNDER AND OVER ABSORPTION

example :-
 Budgeted OH Rate = ₹ 10/unit
 Actual units = 10,000
 Actual OHs = ₹ 120,000
 OHs recovered = ₹ 10/unit × 10000
 = ₹ 1,00,000

[under-recovered] so ₹ 20,000 overheads were not recovered

example :-
 Budgeted OH Rate = ₹ 10/unit
 Actual units = 10,000
 Actual OHs = ₹ 90,000
 OHs recovered = ₹ 10/unit × 10000 =
 = ₹ 1,00,000

[over-recovered] so ₹ 10,000 overheads were recovered extra

TREATMENT FOR UNDER-RECOVERY



* Supplementary Rate = $\frac{\text{Total Overheads underabsorbed}}{\text{units sold} + \text{Fg stock} + \text{eq. wip}}$

06
CHAPTER

ACTIVITY BASED COSTING (ABC)

① OH RATES IN ABSORPTION COSTING

Normal Rates	Pre-determined OH Rates	Blanket OH Rates	Department OH Rates
$\frac{\text{Actual OHs}}{\text{Actual Base}}$	$\frac{\text{Budgeted OH}}{\text{Budgeted Base}}$	$\frac{\text{OH of entire factory}}{\text{Total Base for Factory}}$	$\frac{\text{OH of entire department}}{\text{Total Base for dept}}$

② ACTIVITY BASED COSTING

Unlike Absorption costing where one blanket rate or some departmental rate was used to recover overheads.

In Activity Based costing (ABC) we, apportion the cost on the basis of activities performed and recover our cost.

(i) **ACTIVITY** :- Any event due to which the cost gets incurred is called as Activity.
Example :- setup, ordering, packaging

(ii) **COST POOL** :- Now we club all the costs or expenses that are incurred for one activity.
Example :- In packaging cost of paper, glue, sticker, design is clubbed.



(iii) **COST DRIVER** :- It is the factor or the reason due to which cost of an activity gets changed or we can also call it basis on which the cost is apportioned.

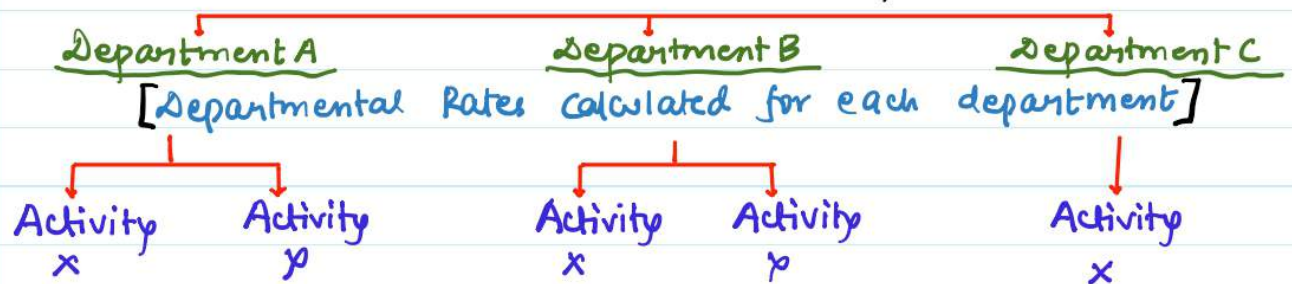
Example :- Setup cost - No of setup
Order cost - No of orders

(iv) **RECOVERY RATE** :- It is the rate which is recovered from each unit, so as to check total cost recovered.

$$\frac{\text{Total cost of Activity}}{\text{Total no. of cost drivers}}$$

③ REACHING TO ABC LEVEL

BLANKET OH RATE
FOR ENTIRE FACTORY



④ STEPS TO IMPLEMENT ABC

Step 1:- Identify activities to be performed.

Step 2:- Calculate total cost pool.

Step 3:- Identify cost drivers.

Step 4:- Find Total No. of Cost drivers.

Step 5:- Calculate Recovery Rate.

SOME EXAMPLES OF COST DRIVER

<u>BUSINESS FUNCTION</u>	<u>COST DRIVER</u>
(i) Research & Development	No of projects or Hours spent on project
(ii) Designing Cost	No of products designed No of hours spent
(iii) Customer Service	No of calls Hours spent on servicing
(iv) Marketing	No. of Advertisement No. of person in marketing



ABC

F.A.S.T
first attempt success tutorials



NOTES



07
CHAPTER**MARGINAL COSTING****What is Marginal Costing?**

The cost incurred to produce one extra or one additional unit is **marginal cost**.

Can we say Marginal cost is same as variable cost ??

YESS! because in CA Inter we consider Fixed cost do not change and since variable cost changes with units so $VC = MC$.

In Marginal costing, variable cost is given more importance than fixed cost. And fixed cost is even not considered in valuation of stock.

Sales

— variable cost

CONTRIBUTION

— Fixed cost

PROFIT

① CVP ANALYSIS

It shows us relationship between three important elements:-

(i) Sale price

(ii) Cost

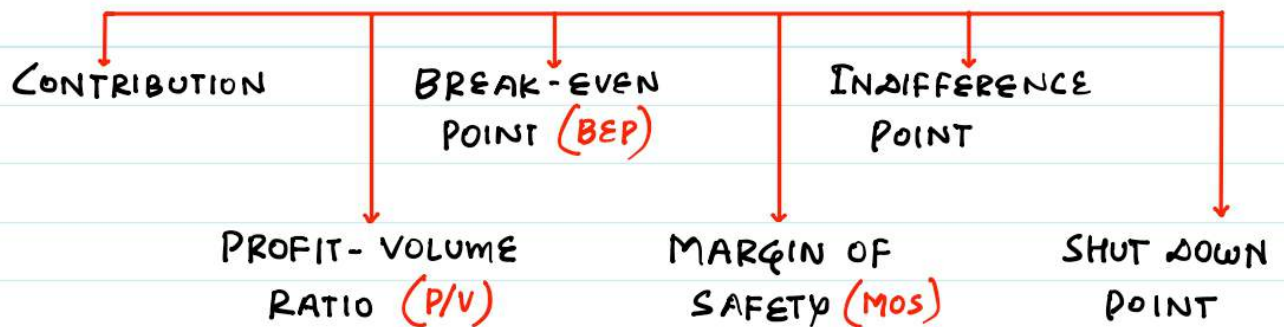
(iii) volume or Qtp

It helps us to understand that how profit gets affected if any one of the above factors change.



	<u>Base :-</u>	<u>Case I</u>	<u>Case II</u>	<u>Case III</u>
SP/unit	10	9	10	10
Qty	100	100	200	100
Cost/unit	6	6	6	7
Sales	1000	900	2000	1000
(-) Cost	(600)	(600)	(1200)	(700)
Profit	400	300	800	300

② IMPORTANT FORMULAS



③ CONTRIBUTION

$$\text{Contribution} = \text{Sale price per unit} - \text{variable cost per unit} \quad \text{OR} \quad \text{Total Sales} - \text{Total variable cost}$$

$$\text{OR} \quad \text{Contribution} + \text{Total Fixed cost} = \text{Total profit}$$

④ PROFIT - VOLUME RATIO

$$\frac{\text{Contribution per unit}}{\text{Sales price per unit}}$$

or

$$\frac{\text{Total contribution}}{\text{Total sales}}$$

$$\text{or } \frac{\text{Sales} - \text{VC}}{\text{Sales}} = 1 - \text{Variable Cost \%}$$

⑤ BREAK - EVEN POINT

It is the amount of sales at which the company earns NO PROFIT and NO LOSS and it can be expressed in units or ₹.

$$\text{BEP (in units)} = \frac{\text{Fixed Cost}}{\text{Contribution/unit}}$$

$$\text{BEP (in amount ₹)} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

$$\text{or } \text{BEP in units} \times \text{SP per unit}$$

So it means if we want to recover :- $\frac{\text{Cost}}{\text{Contribution/unit}}$
any cost, all we need to do is

And sometimes Question can ask us (units) $\frac{\text{Fixed cost} + \text{Profit}}{\text{Contribution/unit}}$
to recover (Fixed cost + profit). :-
so all we need to do is

$$\text{or } \frac{\text{Fixed cost} + \text{Profit}}{\text{P/V Ratio}}$$



⑥ MARGIN OF SAFETY

Since we already recovered our full cost in BEP, so now it's time to earn profit.

MOS refers to the sales we did beyond the Break even level.

$$\begin{aligned}
 \text{Margin of Safety} &= \text{Actual units sold} - \text{Break-even units} \\
 &\text{or} \\
 &\text{Actual sales amount} - \text{Break even amount} \\
 &\text{or} \\
 &(\text{units}) \quad \frac{\text{Total Profit}}{\text{Contribution / unit}} \\
 &\text{or} \\
 &(\text{amount}) \quad \frac{\text{Total Profit}}{\text{P/V Ratio}}
 \end{aligned}$$

Some Important Tips :-

- (i) Sometimes the Question can ask to calculate CASH BEP. In that case instead of Fixed cost use (Fixed cost - Dep)
- (ii) There can be situation when company produces more than one product and we need to calculate weighted avg. contribution.

$$\text{weighted average contribution} = \frac{\text{Contri/unit}_A \times \text{unit}_A + \text{Contri/unit}_B \times \text{unit}_B}{(\text{Units of } A + \text{units of } B)}$$

⑦ TWO-PERIOD QUESTION

2 Sales given 2 profit given <u>Calculate P/V Ratio</u>	2 units given 2 profit given <u>Calculate contribution per unit</u>	2 cost given 2 profit given <u>Calculate variable cost/unit</u>
---	---	---

- **P/v Ratio** = $\frac{\text{Change in profit or contribution}}{\text{Change in Sales}}$
- **Contribution per unit** = $\frac{\text{Change in profit or contribution}}{\text{Change in units}}$
- **Variable cost per unit** = $\frac{\text{Change in profit or contribution}}{\text{Change in cost}}$



⑧ INDIFFERENCE POINT

We all know there are two types of cost, variable and fixed. And in an option, there can be combination of these two.

ex:- Option 1 has variable cost ₹ 10/unit & Fixed cost ₹ 1,00,000
Option 2 has variable cost ₹ 15/unit & Fixed cost ₹ 50,000

Indifference Point is such a level of output (or sales) where total of variable cost and fixed in two different option is same.



$$\text{Indifference Point} = \frac{\text{Difference of Total Fixed cost}}{\text{Difference of Variable cost/unit}}$$

If actual production is more than the Indifference Point

Choose Option with LESS FIXED COST

If actual production is as same as the Indifference Point

Choose ANY OPTION

If actual production is less than the Indifference Point

Choose Option with MORE FIXED COST



⑨ SHUT-DOWN POINT

It is such a level where the business is shut-down temporarily or we can say organisation suspends manufacturing activities, so that certain fixed exp. can be avoided.

$$\text{SHUT DOWN POINT (any level below it)} = \frac{\text{Avoidable FC} - \text{Re-opening cost}}{\text{Contribution/unit}}$$

Avoidable Fixed Cost :- Those fixed which will not occur once we shut down and hence can be avoided example monthly cleaning expenses

Unavoidable Fixed Cost :- Fixed cost which is to be incurred even if we shut-down example salary of Fixed worker.

10 LIMITING FACTOR/ KEY FACTOR



It is that factor of production (material, labour, machine) which reduces total output and thus it plays key role in determining sales or production and also known as key-factor.



Case A :- Choose any one of both products

- Step 1:- Calculate contribution per unit.
- Step 2:- Divide by key factor per unit.
- Step 3:- We will get contribution per key factor.
- Step 4:- One which has maximum contribution per key factor will be produced

Case B :- Optimum Product Mix

- Step 1:- Calculate contribution per unit.
- Step 2:- Divide by key factor per unit.
- Step 3:- We will get contribution per key factor.
- Step 4:- Give Rankings as per contribution per key factor
One with maximum contribution per key factor will be ranked first & produced first.

[But if question already asks to produce another product first, do it.]

Case C :- Special Order

- Step 1:- Calculate total profit before accepting special order.
- Step 2:- Calculate total profit after accepting special order.
- Step 3:- Choose the BEST ONE

Case D :- Make or Buy

- Step 1:- Calculate total variable cost in case of manufacture.
- Step 2:- Calculate total cost in case of Buying.
- Step 3:- Choose the BEST ONE

08
CHAPTER**STANDARD COSTING**

A technique used by the management to control the cost.



Standard cost refers to the cost to be incurred as per Budget / Plan.

Actual cost refers to the cost actually incurred for production.

↑ **Variance** ↓

refers to the difference between the standard cost and Actual cost

eg:- We planned to produce 100 units, each using Raw material 2kg/unit and cost of ₹1/kg

$$\begin{aligned}\text{Standard Cost} &= 100 \times 2 \times 1 \\ &= ₹200\end{aligned}$$

eg:- We actually produced 110 units and used 2.1 kg/unit and bought at ₹0.9/kg.

$$\begin{aligned}\text{Actual Cost} &= 110 \times 2.1 \times 0.9 \\ &= 207.9\end{aligned}$$

↑ **Variance** ↓
equals 7.09



① TYPES OF VARIANCES



② MATERIAL VARIANCES

TOTAL MATERIAL COST VARIANCE

$$(SQ_{AO} \times SP) - (AQ_{AO} \times AP)$$

$$\textcircled{0\%} (SQ/\text{unit} \times AO \times SP) - (AQ/\text{unit} \times AO \times AP)$$

MATERIAL PRICE VARIANCE

$$(SP - AP) \times AQ$$

$$\textcircled{0\%} (SP - AP) \times AQ/\text{unit} \times AO$$

MATERIAL USAGE VARIANCE

$$(SQ_{AO} - AQ) \times SP$$

$$\textcircled{0\%} (SQ/\text{unit} - AQ/\text{unit}) \times AO \times SP$$

YIELD VARIANCE

$$(SQ_{AO} - RSQ) \times SP$$

MIX VARIANCE

$$(RSQ - AQ) \times SP$$

SQ_{AO} = Standard Quantity of RM for actual units produced

AQ = Actual Quantity of RM for actual units produced

SP = Standard price for one unit of Raw material

AP = Actual price paid for one unit of Raw material

RSQ = When the Actual Quantity used is re-distributed as per standard mix.

3 LABOUR VARIANCES

TOTAL LABOUR COST VARIANCE

$$(SHAO \times SR) - (AHAO \times AR)$$

$$\textcircled{0\%} (SH/\text{unit} \times AO \times SR) - (AH/\text{unit} \times AO \times AR)$$

LABOUR RATE VARIANCE

$$(SR - AR) \times AH$$

$$\textcircled{0\%} (SR - AR) \times AH/\text{unit} \times AO$$

(Here we use AH paid)

LABOUR EFFICIENCY VARIANCE

$$(SHAO - AH) \times SR$$

$$\textcircled{0\%} (SH/\text{unit} - AH/\text{unit}) \times AO \times SR$$

(Here we use AH worked)

Idle Time VARIANCE

$$(AHW - AHP) \times SR$$

YIELD VARIANCE

$$(SHAO - RSH) \times SR$$

MIX VARIANCE

$$(RSH - AH) \times SR$$

SHAO = Standard Hours for actual units produced

AH = Actual Hours for actual units produced

SR = Standard price for one hour

AR = Actual price paid for one hour

RSH = When the Actual Hours worked is re-distributed as per standard mix.



④ VARIABLE OH VARIANCES

(calculated on the basis of units)

TOTAL VARIABLE OH COST VARIANCE

$$(SQAO \times SP) - (AQAO \times AP)$$

$$\text{or } (SQ/\text{unit} \times AO \times SP) - (AQ/\text{unit} \times AO \times AP)$$

V.OH EXPENDITURE VARIANCE

$$(SP - AP) \times AQ$$

$$\text{or } (SP - AP) \times AQ/\text{unit} \times AO$$

V.OH EFFICIENCY VARIANCE

$$(SQAO - AQ) \times SP$$

$$\text{or } (SQ/\text{unit} - AQ/\text{unit}) \times AO \times SP$$

SQAO = Standard Quantity of OH for actual units produced

AO = Actual Quantity of OH for actual units produced

SP = Standard price for one unit of OH

AP = Actual price paid for one unit of OH

⑤ VARIABLE OH VARIANCES

(calculated on the basis of Hours)

TOTAL VARIABLE OH COST VARIANCE

$$(SHAO \times SR) - (AHAO \times AR)$$

$$\text{or } (SH/\text{unit} \times AO \times SR) - (AH/\text{unit} \times AO \times AR)$$

V.OH EXPENDITURE VARIANCE

$$(SR - AR) \times AH$$

$$\text{or } (SR - AR) \times AH/\text{unit} \times AO$$

(Here we use AH paid)

V.OH EFFICIENCY VARIANCE

$$(SHAO - AH) \times SR$$

$$\text{or } (SH/\text{unit} - AH/\text{unit}) \times AO \times SR$$

(Here we use AH worked)

SHAO = Standard Hours of VOH for actual units produced
AH = Actual Hours of VOH for actual units produced
SR = Standard price for one hour of VOH
AR = Actual price paid for one hour of VOH

⑥ FIXED OH VARIANCES

(calculated on the basis of units)

TOTAL FIXED OH COST VARIANCE

Recovered FOH - Actual FOH

F.OH EXPENDITURE VARIANCE

Budgeted FOH - Actual FOH

F.OH VOLUME VARIANCE

Recovered FOH - Budgeted FOH

Budgeted FOH = Will be given in the Ques

Actual FOH = Will be given in the Ques

Recovered FOH = Also known as Standard FOH for Actual output

$$\frac{\text{Budgeted FOH}}{\text{Budgeted units}} \times \text{Actual output}$$

⑦ FIXED OH VARIANCES

(calculated on the basis of Hours)

The entire formula for calculation of variances are same.
the only difference is in the calculation of further variance.



TOTAL FIXED OH COST VARIANCE

$$\text{Recovered FOH} - \text{Actual FOH}$$

FOH EXPENDITURE VARIANCE

$$\text{Budgeted FOH} - \text{Actual FOH}$$

FOH VOLUME VARIANCE

$$\text{Recovered FOH} - \text{Budgeted FOH}$$

FOH CALENDER VARIANCE

$$\left[\begin{array}{cc} \text{Actual} & - & \text{Budg.} \\ \text{work} & & \text{work} \end{array} \right] \times \begin{array}{c} \text{Budg} \\ \text{rate} \\ \text{per} \\ \text{day} \end{array}$$

FOH CAPACITY VARIANCE

$$\left[\begin{array}{cc} \text{Actual} & - & \text{Budg.} \\ \text{Hrs} & & \text{Hrs} \end{array} \right] \times \begin{array}{c} \text{Budg} \\ \text{rate} \\ \text{per} \\ \text{Hour} \end{array}$$

FOH EFFICIENCY VARIANCE

$$\left[\text{SHAO} - \text{AHAO} \right] \times \begin{array}{c} \text{Budg} \\ \text{rate} \\ \text{per} \\ \text{Hour} \end{array}$$

$$\text{Budgeted Rate Per Hour} = \frac{\text{Budgeted FOH}}{\text{Budgeted Hours}}$$

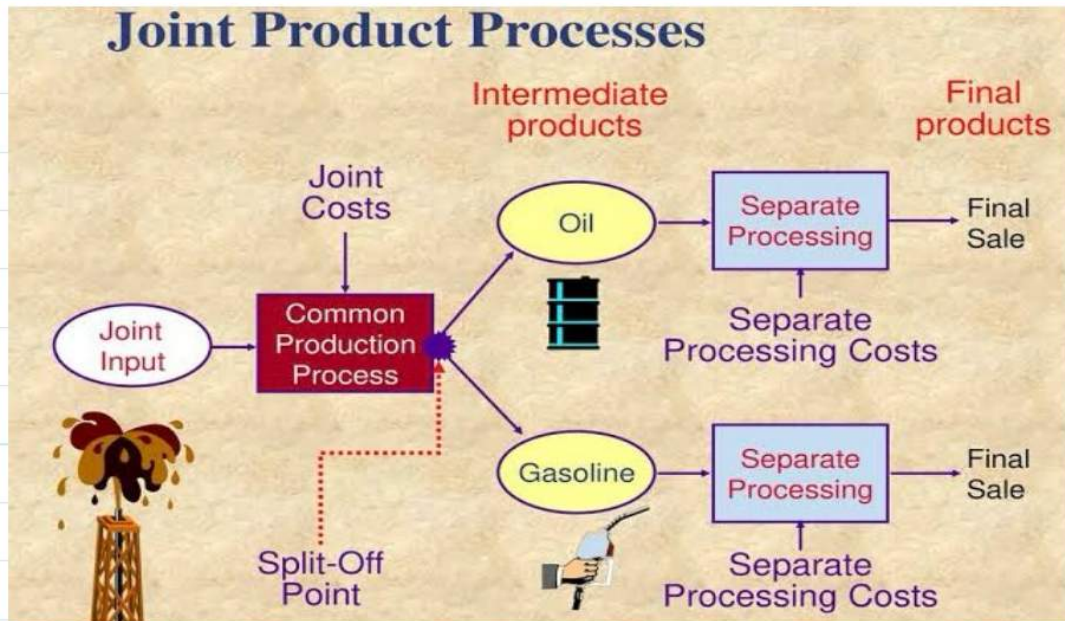
$$\text{Budgeted Rate Per Hour} = \frac{\text{Budgeted FOH}}{\text{Budgeted Days}}$$

$$\text{Recovered FOH} = \text{Also known as Standard FOH for Actual output}$$

$$\frac{\text{Budgeted FOH}}{\text{Budgeted Hours}} \times \text{Actual Hours}$$

09
CHAPTER

JOINT PRODUCT - BY PRODUCT



Question :- What is Joint Product ?

When two or more products of equal importance are produced simultaneously from the same process and each of them have significant relative sale value, they are called as Joint Products.



Question :- What is By-Product ?



When a product is recovered incidentally from the material used in production and it has very low realisable or useable value as compared to the main product. example lemon oil from processing of fruits.



Question :- What is co-product ?

They are contemporarp to each other but it is not necessary that they are produced from same material or process.

① HOW TO APPORTION JOINT COST

Joint cost reffers to the combined cost incurred on the products till the split off stage.

Split Off stage is the point where the joint products produced can be identified seperately.

METHOD I	METHOD II	METHOD III	METHOD IV	METHOD V	METHOD VI
PHYSICAL UNITS METHOD	AVERAGE UNIT COST METHOD	MARKET VALUE AT POINT OF SEPERATION	MARKET VALUE AFTER FURTHER PROCESSING	NRV AT SPLIT OFF POINT	CONTRIBUTION MARGIN

② PHYSICAL UNITS METHOD

Just distribute the total cost into joint products on the basis of no. of units produced.

But remember all the outputs must be in same unit of measurement (like litres . kgs etc)

③ AVERAGE UNIT COST METHOD

$$\text{Average cost} = \frac{\text{Total Joint Cost}}{\text{Output}_1 (+) \text{Output}_2}$$

$$\# \text{ joint cost allocated to product}_1 = \frac{\text{Average Cost}}{\text{Cost}} \times \text{Output}_1$$

$$\# \text{ joint cost allocated to product}_2 = \frac{\text{Average Cost}}{\text{Cost}} \times \text{Output}_2$$

④ MARKET VALUE AT POINT OF SEPERATION

	<u>Joint Product₁</u>	<u>Joint Product₂</u>
Sales price at split off stage	xx	xx
(-) <u>Belling expenses</u>	(xx)	(xx)
Net Market Price at split off point	xx	xx
x <u>units produced</u>	xx	xx
Final values	xxx	xxx

: Distribute in this ratio



5 MARKET VALUE AFTER FURTHER PROCESS

	<u>Joint Product₁</u>	<u>Joint Product₂</u>
Sales price after further processing	xx	xx
x No of units after further processing	xx	xx
Final value	xxx	xxx
{ Distribute in this ratio }		

6 NRV METHOD AT SPLIT OFF STAGE

First check, do we need to further process or not. If yes then we use sales price after further processing and if not then sales price before processing.

	<u>Joint Product₁</u>	<u>Joint Product₂</u>
Sales price after or before further processing	xx	xx
x No of units	xx	xx
Total	xxx	xxx
(-) Further processing cost	(xx)	(xx)
(-) Further selling exp	(xx)	(xx)
Final Amount	xxx	xxx
{ Split in this ratio }		

⑦ CONTRIBUTION MARGIN METHOD

TOTAL JOINT COST

Variable part of cost
Allocate on the basis of
no. of output

Fixed part of cost
Allocate on the basis
of contribution

If any product's contribution is **ZERO**, don't allocate joint cost to that product.

⑧ REVERSE CALCULATION

Joint cost of A
(+) Further process cost of A
(+) Selling exp of A
(+) Profit of A

Sales of A

Joint cost of B
(+) Further process cost of B
(+) Selling exp of B
(+) Profit of B

Sales of B

- This method is used when everything is given except the method of allocation of Joint cost.
- Let's say sometime the balancing figure of Joint cost will not match with Total joint cost, in that case distribute total joint cost in the ratio of balancing figure of J. cost.



9 FURTHER PROCESS OR NOT

Compare :- Extra revenue earned after processing (Incremental Revenue) v/s Extra expenses done in processing (Incremental cost)

- (i) If Incremental Revenue $>$ Incremental cost = Process
- (ii) If Incremental Revenue $<$ Incremental cost = Don't Process
- (iii) If Incremental Revenue = Incremental cost = Indifferent

10 TREATMENT OF BY PRODUCT

If By product is
IMPORTANT

means either the product earns profit or Ques says to allocate joint cost to product

[TREAT IT SAME AS JOINT PRODUCT]

If By product is
NOT IMPORTANT

In all other cases

[REDUCE NRV OF THE BY-PRODUCT FROM THE JOINT COST & ALLOCATE THE REMAINING JOINT COST TO OTHER JOINT PRODUCT]

10
CHAPTER

PROCESS COSTING



Process Costing is applicable to Industries or Companies where Raw material gets converted into Finished Goods by passing through different process.

eg :- sugarcane passes through various stages of Jaggery, sugar etc.

① HOW TO PREPARE PROCES A/C

STEP 1 :- A separate account is to be prepared for each process.

STEP 2 :- Calculate total cost of units manufactured in each process @ Normal cost per unit.

STEP 3 :- Calculate Normal cost per unit

$$\text{Total cost} - \left[\frac{\text{normal loss} \times \text{Selling price}}{\text{Units} \quad \text{of Normal loss units}} \right]$$

$$\left[\text{Total units} - \text{Normal loss units} \right]$$

STEP 4 :- Calculate Normal loss, Abnormal loss
Abnormal gain, Profit and Loss



PROCESS - I

<u>particulars</u>	<u>units</u>	<u>cost</u>	<u>particulars</u>	<u>units</u>	<u>cost</u>
To material	1000	26,000	By Normal loss	100 @ 20	2000
To Labour		7,000	By t/f to P-II	1050 @ 40	42000
To OHs		5,000	By Ab. loss	200 @ 40	8000
To Ab. gain	350 @ 40	14,000			
	<u>1350</u>	<u>52,000</u>		<u>1350</u>	<u>52000</u>

$$\begin{aligned}
 \text{Normal cost per unit} &= \frac{38,000 - (100 \times 20)}{1000 - 100} \\
 &= ₹ 40/\text{unit}
 \end{aligned}$$

Imp. points :-

INPUTS :-

We record the units introduced and if units introduced is not given, take kgs of Raw material as units introduced.

**NORMAL :-
Loss**

During the production, there are loss of some units normally. Given will specify that Normal loss is 10% of Input. Such Normal loss units are measured at Selling Price of such normal loss units & if no selling price is given, take SP = 0

**ABNORMAL :-
Loss**

When loss is due to abnormal reasons like fire or if actual loss > normal loss. remaining extra loss is Abnormal loss & valued at Normal cost per unit.

Abnormal loss units :- $\frac{\text{Total Inputs} - \text{Output T/f} - \text{Normal loss}}{\text{Normal cost per unit}}$

**ABNORMAL :-
GAIN**

Generally if we input the material, either it is converted into FG or there is loss of units. But if total of output and loss units is more than Input units, it means there is unknown gain of some units, known as Abnormal gain. It is calculated at Normal cost per unit.

Abnormal gain units :- $\frac{\text{Total Inputs} - \text{Output T/f} - \text{Normal loss}}{\text{Normal cost per unit}}$
(If it comes negative, it is abnormal gain)

OUTPUT :-

It means the no. of completed finished units produced and we measure it at Normal cost per unit.

② NORMAL LOSS A/c

particulars	units	Total	particulars	units	Total
To process a/c	units of normal loss	units @ SP of normal loss units	By Abnormal gain	units of Abnormal gain	units @ SP of normal loss units
			By cash	units of normal loss	"



③ ABNORMAL LOSS A/C

particulars	units	Total	particulars	units	Total
To process a/c	units of Abnormal loss	units @ Normal cost per unit	By cost ledger a/c	units of Abnormal loss	units @ SP of normal loss units
			By costing P/L		balance figure

④ ABNORMAL GAIN A/C

particulars	units	Total	particulars	units	Total
To Normal loss	units of Abnormal gain	units @ SP of Normal loss unit	By process a/c	units of Abnormal gain	units @ Normal cost per unit
To costing P/L		balance figure			

Step 1 :- Write down all the entries of N'loss , Ab'loss , Ab'gain made till date in respective a/c.

Step 2 :- Sell N'loss units & Ab'loss units @ SP of N'loss unit

Step 3 :- If there is Ab'gain then trf it to N'loss a/c @ SP of N'loss units and close entries by costing P/L.

⑤ FINISHED GOODS A/c

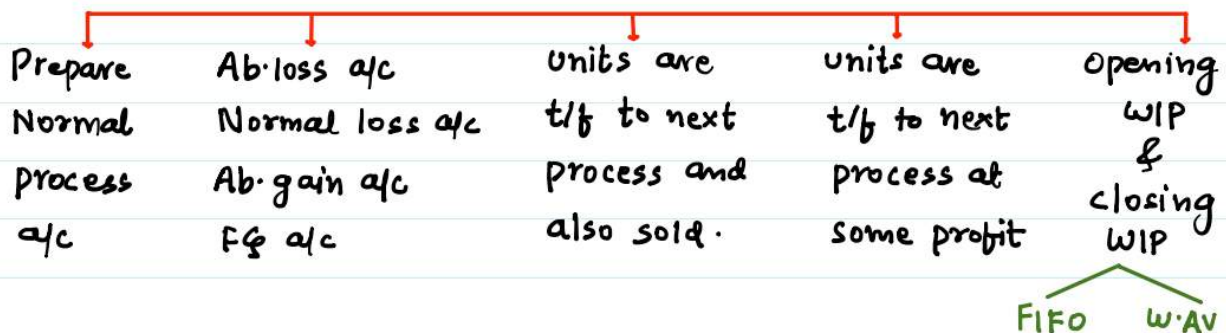
particulars	units	Total	particulars	units	Total
To process a/c	units of Finished Goods	units @ Normal cost per unit	By cost of Sale a/c	units Sold	units @ Normal cost per unit
			By bal c/d	balance figure	balance figure

⑥ BY-PRODUCT

While preparing the finished goods, some times By-product also get prepared as discussed in previous chapter.

While preparing process a/c - By-product is valued :-
 $SP - \text{cost of produce} - \text{selling exp}$

⑦ DIFFERENT TYPES OF QUESTIONS





⑧ WHEN UNITS ARE TRANSFERRED TO NEXT PROCESS AND ALSO SOLD

Step 1 :- Prepare process account normally as done in point 1, units t/f to next process are solved normally as in point 1 and units sold are transferred to cost of sale a/c.

Step 2 :- All goods will be sold in P/L a/c.
(If any selling or distribution OH cannot be allocated or apportioned, then directly write it in P/L A/c)

⑨ WHEN ONE PROCESS DEPARTMENT CHARGE PROFIT FROM OTHER DEPT

Uptill here, we only had questions where goods were t/f @ cost only but there are also cases where goods will be t/f @ cost + profit to next dept.

<u>particulars</u>	<u>Total</u> <u>cost</u> <u>profit</u>	<u>particulars</u>	<u>Total</u> <u>cost</u> <u>profit</u>

⑩ STATEMENT OF EQUIVALENT PRODUCTION



(11) ONLY CLOSING WIP IS GIVEN

Step 1 :- Prepare the process a/c normally.
 (only difference will be in value of Abnormal loss.
 Abnormal gain and closing WIP)

Step 2 :- Statement of Equivalent Production is prepared.

Step 3 :- Statement of Cost is prepared to calculate cost of each factor of production.

Step 4 :- Finally, the cost is apportioned on the basis of equivalent factors of production used.

(12) STATEMENT OF EQ. PRODUCTION

	Units	MATERIAL		LABOUR		OVERHEADS	
		% complete	Equiv. units	% complete	Equiv. units	% complete	Equiv. units
Normal loss	100	-	-	-	-	-	-
Finished Goods	2000	100%	2000	100%	2000	100%	2000
Abnormal Loss	500	100%	500	50%	250	50%	250
Closing WIP	1000	70%	700	50%	500	20%	200
			3200		2750		2450

Important point :-

- (i) On Normal loss units, work done = 0%
- (ii) On Finished Goods, work done = 100%



- (iii) Untill provided, Ab. loss and Ab. gain is considered as 100% complete (i.e. material, labour, OH = 100%)
- (iv) If work done on material is not given for Ab. gain, Ab. loss or closing stock, always consider it 100% complete

⑬ STATEMENT OF COST

Factor	Total cost (a)	Eq. Units (b)	Cost per unit (a/b)
Material	Total cost ↳ Sale of N. loss Units		
	xxx	xx	xx
Labour	xxx	xx	xx
Overheads	xxx	xx	xx

Important Note:-

- (i) If only one material is given, reduce sale of normal loss scrap from it.
- (ii) If two types of material are given, reduce it only from material 1.
- (iii) If any cost like packaging is only related to Fg, then add such cost only in Fg a/c.

14 STATEMENT OF APPORTIONMENT OF COST

Particulars	Factor	Eq. units	Cost per unit	Total cost
Finished Goods	Material	xx	xx	xxx
	Labour	xx	xx	xxx
	OH	xx	xx	xxx
				xxx
Abnormal loss	Material	xx	xx	xxx
	Labour	xx	xx	xxx
	OH	xx	xx	xxx
				xxx
Abnormal gain	Material	xx	xx	xxx
	Labour	xx	xx	xxx
	OH	xx	xx	xxx
				xxx

15 BOTH OPENING & CLOSING WIP IS GIVEN

FIFO METHOD

It means that units that were produced earlier will be sold first or the units that entered the production process early will get completed and transferred first.

WEIGHTED AVG

Here there is no such concept of selling any item first or last. we just add total cost and divide by total units to get avg price.

In FIFO Method

- (i) Firstly we will use remaining of opening WIP stock to produce FG.
- (ii) Then from current production we will do normal process a/c process.
- (iii) In statement of evaluation, just add value of o/stock of FG.

In Weighted Average Method

- (i) Follow normal process a/c
- (ii) Cost of each factor will be $\frac{\text{Cost of o/stock}}{\text{Current period cost}}$
- (iii) Calculate per unit rate of factor of production & apportion it

Note :- If any question says that we have received units from previous department, then it clearly means that it is also material for us and 100% work is already done on it.

$$\text{o/stock (+) Rm introduced} = \text{FG (+) closing WIP} + \text{Normal loss} + \text{Ab. loss}$$

11
CHAPTER**BUDGETARY CONTROL****① BUDGET v/s BUDGETARY CONTROL**

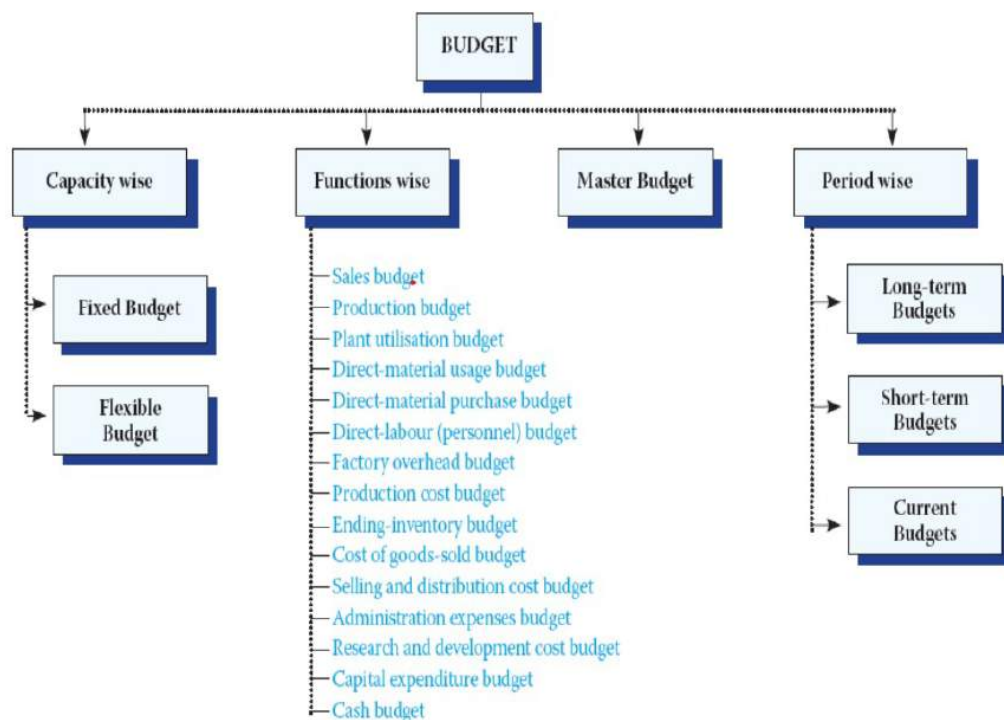
Budget simply refers to the **Quantification** of the plan. so when we express our plans in numbers, it is called as Budget.

Budgetary control has three stages :-

Stage 1 :- prepare Budget

Stage 2 :- Implement it and compare with actuals.

Stage 3 :- Find out reasons of deviations if any.



② HOW BUDGETS ARE PREPARED



Firstly, the sales budget is prepared which determines the no. of units a company is planning to sell or is capable to sell or will be able to sell.

Secondly, the production budget is prepared on the basis of sales budget. It helps the company to determine no. of units it need to produce to meet sales budget.

No. of units to be produced can be calculated by :-

$$\begin{array}{ccccc} \text{Opening} & + & \text{Units} & - & \text{Closing} & = & \text{Sales} \\ \text{Stock of FG} & & \text{Produced} & & \text{Stock of FG} & & \end{array}$$

Thirdly, the purchase budget is prepared to finally determine the no. of units of Raw material to be purchased to meet the production budget.

No. of units to be purchased can be calculated by :-

$$\begin{array}{ccccc} \text{Opening} & + & \text{Units} & - & \text{Closing} & = & \text{production} \\ \text{Stock of RM} & & \text{produced} & & \text{Stock of RM} & & \end{array}$$

Imp. point :-

- (i) If pattern of production or consumption is given - calculate purchases
- (ii) If Question asks us to maintain a specific level of closing stock - calculate production.

③ BUDGET RATIOS

$$(i) \text{ EFFICIENCY RATIO} = \frac{\text{Standard Hours for Actual output}}{\text{Actual Hours}} \times 100$$

It is calculated to find out whether it took more or less actual hours than expected.



$$(ii) \text{ ACTIVITY RATIO} = \frac{\text{Standard Hours for Actual output}}{\text{Standard Hours}} \times 100$$

It is calculated to find out level of activity in an organisation. Like at what level a company is working 70% or 80%.

$$(iii) \text{ CALENDAR RATIO} = \frac{\text{Available working day}}{\text{Total working days in Budgeted period}} \times 100$$

It is calculated to find out whether all the days or hours that were planned during the budget period were actually available or not.

$$(iv) \text{ STANDARD CAPACITY USAGE RATIO} = \frac{\text{Budgeted Hours}}{\text{Max possible hours in the Budgeted period}} \times 100$$

It shows how many hours were planned as against total hours available.

$$(v) \text{ ACTUAL CAPACITY USAGE RATIO} = \frac{\text{Actual Hours worked}}{\text{Max possible hours in the period}} \times 100$$

It shows how many hours were actually worked against total hours available.

$$\text{(vi) ACTUAL USAGE OF BUDGETED CAPACITY RATIO} = \frac{\text{Actual working Hours}}{\text{Budgeted Hours}} \times 100$$

It shows how many hours were actually worked against total budgeted hours.



“

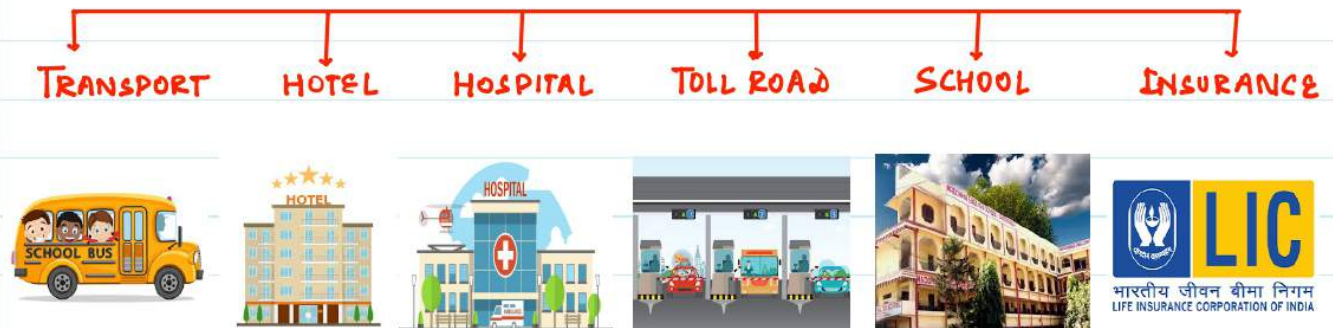
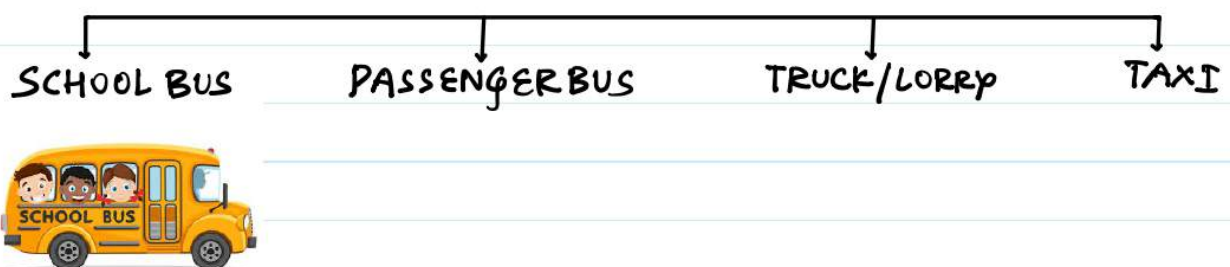


12
CHAPTER**SERVICE COSTING**

Before this chapter, we have tried our very best to calculate the cost of goods produced in the manufacturing industry.

Now, in this chapter we will calculate what will be cost of services provided by service industry.

In manufacturing industry we produce goods, so we have materials, labour and other expenses. But for service industry there are no such material or labour, so we will calculate the total cost and selling price in different manner.

**① TRANSPORTATION**

DIFFERENT TYPES OF COST IN TRANSPORT INDUSTRY

<u>VARIABLE COSTS</u>	<u>SEMI VARIABLE</u>	<u>FIXED COSTS</u>
• Diesel • Toll Tax • Lubricant • Wages to Driver • passenger tax • Depreciation	• Tyres • Tools • Repairs & Maint	• Salary of Driver • Insurance • Rent • Office expense • Taxes • Licence Fees • Admin fees • Garage Fees • Electricity • Load/unload exp • Gas • Technical Fee

Important point :-

In manufacturing industry we used to calculate cost :-
per unit or per kg or per Hour or per litre

In service industry we will calculate cost

- | | |
|----------------------------|-----------------------------|
| • For passenger Bus | - cost per passenger per km |
| • For goods carriage truck | - cost per tonne per km |
| • For Taxi | - cost per km |
| • For Hotel | - cost per room per day |
| • For Hospital | - cost per bed per day |

- For Toll Road – cost per vehicle per km
- For school – cost per student
- For Insurance – cost per policy

HOW TO CALCULATE COST PER PASSENGER PER KM

Step 1 :- Calculate total cost incurred per month or year

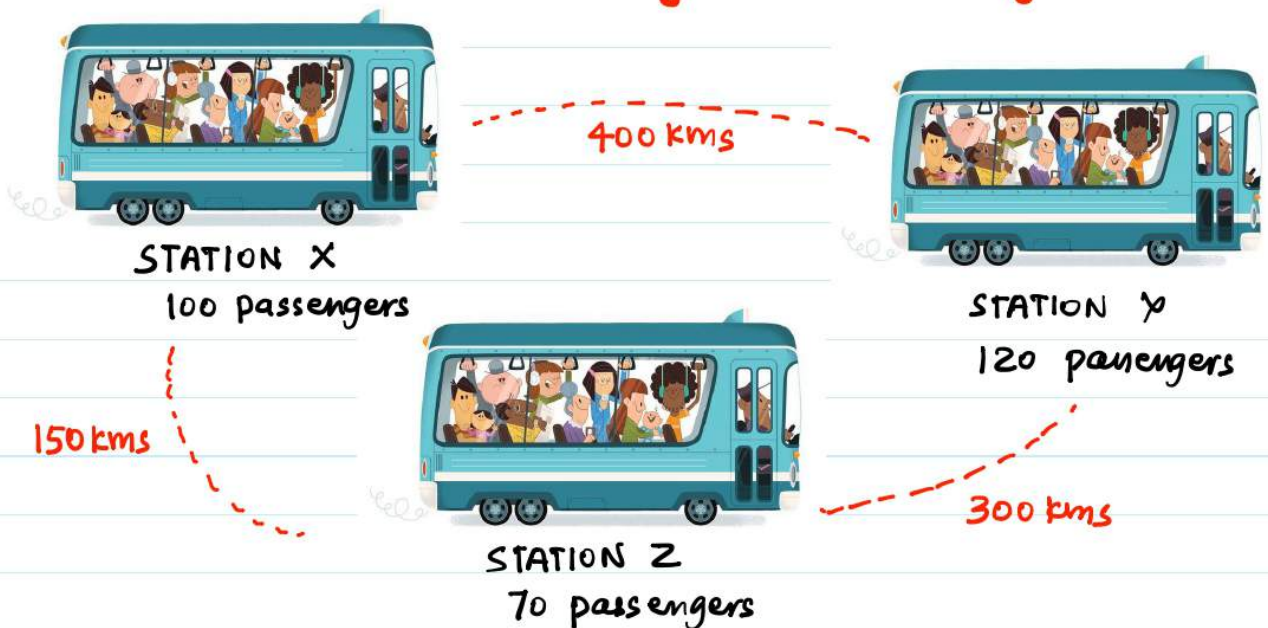
Step 2 :- Calculate total kms travelled

Step 3 :- Calculate total passenger or total tonnes

Step 4 :- Step 2 x Step 3

Step 1

WHAT IF THERE IS CHANGE IN PASSENGERS / TONNS



From station X - Y	400 kms x 100 passengers	= 40,000 pass. kms
From station Y - Z	300 kms x 120 passengers	= 36,000 pass. kms
From station Z - X	150 kms x 70 passengers	= 10,500 pass. kms
		<u>86,500 pass. kms</u>



ABSOLUTE TONNS v/s COMMERCIAL TONNS

↓
We solve it NORMALLY
 $(400\text{kms} \times 4\text{tons}) + (300\text{kms} \times 3\text{tons})$
 $+ (150\text{kms} \times 2\text{tons})$

↓
We take AVERAGE OF TONS
 $\left[\frac{4+3+2}{3} \right] \text{tons} \times 850\text{km}$

Some Important Tips :-

- (i) Always remember in most of BUS or Truck based Questions :-
there is TWO WAY JOURNEY (coming & going)
- (ii) So if a question says, the truck or bus makes one trip :-
it means ONE ROUND JOURNEY
- (iii) Occupancy means :- % of seats occupied
- (iv) So to calculate no of passengers :- Total seats $\times$ occupancy
- (v) And if nothing is given, it means :- Occupancy is 100%.
- (vi) Sometimes Question can also give different occupancy rate for
inward journey (coming) and outward journey (going)
- (vii) Takings means SALES REVENUE
- (viii) If Ques says there are 20 Buses and on average 10% buses
are down for repairs :- we will do calculations for 18 Buses

② TAXI OPERATORS

Both the passenger buses or goods carrying trucks charge on the basis of passengers - kms travelled or tonns - kms transported.

But in case of Taxi, it charges only on the basis of kms travelled and not persons travelled

So there can be two case :-

- (i) Auto / Taxi travels with passenger
- (ii) Auto / Taxi travels without passenger

example :- A Taxi travelled total 5000 kms where 40% of time it travelled searching for passenger. Total cost incurred is ₹ 9000.

It means out of 5000 kms :-

40% i.e 2000 km travelled w/out passenger

60% i.e 3000 km travelled with passenger

So Taxi driver will charge such a rate that he will recover all cost from passenger.

$$\begin{aligned}\text{So rate charged} &= \frac{\text{Total cost}}{\text{Total kms travelled with passenger}} \\ &= 9000 / 3000 = ₹ 3/\text{km}.\end{aligned}$$

WHEN THE QUES ASK TO COMPARE THREE ALTERNATIVE

	COMPANY'S CAR	EMPLOYEE'S OWN CAR	RENTED CAR
Depreciation	✓		
Reimbursement	✗		
Hire charges	✗		
Insurance	✓		
Repairs	✓		
Petrol	✓		
Tyres	✓		

③ HOTEL INDUSTRY



For the Hotel Industry, we have to calculate cost for one room for one day. But it is important to note that, a hotel may have different category of rooms like normal, delux, super delux, so we have to make the calculations for EQUIVALENT ROOMS.

For example :- 200 Rooms with Normal Price
 100 Delux Rooms with Double Price
 40 super delux Rooms with 2.5 times price
 Total cost for year is ₹10,00,000

$$\begin{aligned}\text{EQUIVALENT Rooms :- } & (200 \times 1) + (100 \times 2) + (40 \times 2.5) \\ & = 200 + 200 + 100 \\ & = 500 \text{ equivalent rooms}\end{aligned}$$

$$\begin{aligned}\text{Cost per equivalent room :- } & \frac{\text{COST}}{\text{Total eq. room}} = \frac{\text{₹ } 10,00,000}{500} \\ & = \text{₹ } 2000 \text{ per equivalent rooms}\end{aligned}$$

$$\text{Cost of Normal Rooms} = \text{₹ } 2000 \text{ per room per day}$$

$$\begin{aligned}\text{Cost of Delux Rooms} & = \text{₹ } 2000 \times 2 \\ & \text{₹ } 4000 \text{ per room per day}\end{aligned}$$

$$\begin{aligned}\text{Cost of Super Delux Rooms} & = \text{₹ } 2000 \times 2.5 \\ & \text{₹ } 5000 \text{ per room per day}\end{aligned}$$

④ HOSPITAL INDUSTRY

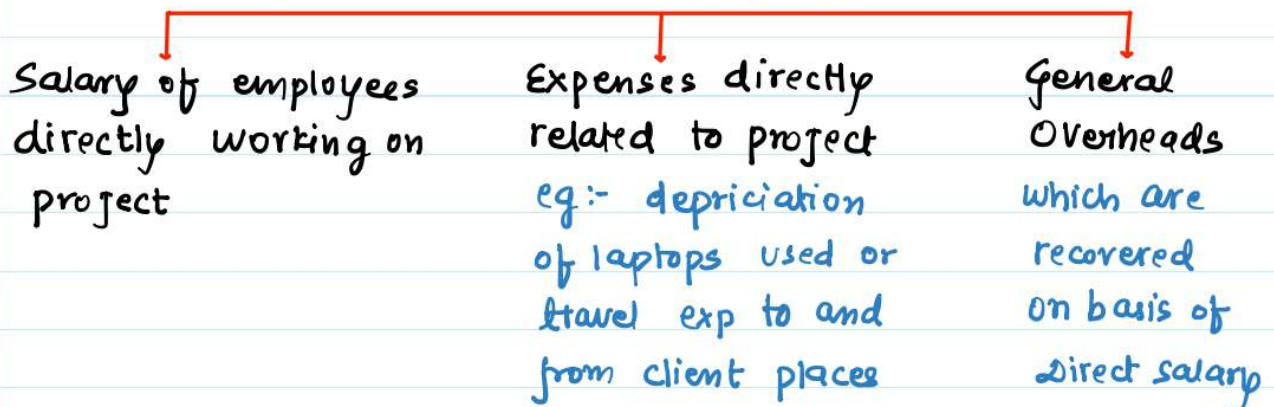


All calculations are same as per Hotel Industry & only difference is here, cost per bed per day is calculated.

⑤ IT SECTOR



In IT Industry, there are Individuals, group of Individuals or companies which provide Technical services and then raise bills for it. Some category of expenses are :-



⑥ TOLL ROADS



Roads are constructed by private bodies and then handed over to govt.

But for fixed period govt allows private bodies to collect TOLL to recover cost.

Since there are different types of vehicles, so we need to calculate equivalent vehicles. The cost of these projects are classified into :-



⑦ INSURANCE COMPANY

People or companies take insurance as a protection purpose. There can be various types of Insurances :-



The Entire costs of an Insurance company can be classified as:-

- (i) **DEVELOPMENT OF POLICIES** :- eg. sales . marketing
- (ii) **OPERATIONS** :- eg. Issuing Policy . Claim settlement
- (iii) **SUPPORT FUNCTIONS** :- eg:- postage . admin exp.
- (iv) **IT DEPT COST** :-

8 EDUCATIONAL INSTITUTE



- EXPENSES DIRECTLY TRACEABLE TO ONE COURSE :-
It is recovered on basis of students in that course.
- EXPENSES NOT DIRECTLY TRACEABLE:-
Recovered on basis of Total students

9 FINANCIAL INSTITUTIONS



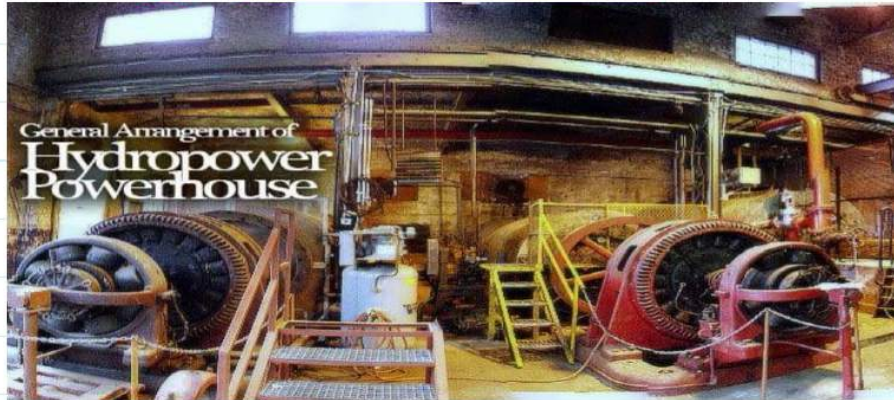
These institutions provide the much needed finance to the individuals or companies in the following forms :-



Cost of respective department :- recovered from that Dept.

Common overheads of all dept :- recovered on basis of no. of loan applications or loan amount

⑩ POWER HOUSE



FIXED COST

- Rent
- Rate
- Tax
- Depreciation
- Insurance
- Salary
- Admin

SEMI-VARIABLE

- Meters
- Tools
- Furnances

VARIABLE COST

- Fuel
- Water
- Wages
(any scrap of Rm is reduced)



This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. In the bottom right corner, there is a small cartoon illustration of a boy with red hair, wearing a red shirt, and holding a yellow pencil. A small lightbulb icon is positioned above his head, suggesting an idea or inspiration. The overall design is clean and suitable for educational or creative writing purposes.



13
CHAPTER**COST ACCOUNTING SYSTEM****INTEGRATED A/c**

Whenever all the cost related and finance related transactions are recorded together i.e. cost and financial accounting records are prepared combinedly.

NON - INTEGRATED A/c

When cost related and finance related transactions or we can say when cost a/c record and financial a/c records are prepared separately.

COST SHEET

Direct material

+ Direct Labour

+ Direct Expenses

PRIME COST

+ Factory OH

(adjustment for WIP)

FACTORY COST

+ Admin OH

Cost of production

(adjustment for F&F)

COST OF GOODS SOLD

+ Selling overheads

+ Distribution Overheads

Cost of sales.



- Raw material Control a/c
- Wages Control a/c
- Direct Exp. Control a/c
- Factory OH Control a/c
- WIP Control a/c
- Admin OH Control a/c
- Finished Goods Control a/c
- Selling & Dis Control a/c
- Cost of Sales a/c
- Sales a/c
- Costing P/L
- Gen. ledger Adjust. a/c
(Instead of Debtors/creditors / Cash A/c)

Question :- Why are we using CONTROL A/cs in place of RM, WIP or Finished goods a/c.

Whenever we are using the word RM/WIP/FG we are only referring to a particular type of RM.

But whenever we are using the term CONTROL, we are referring to the all types of RM/WIP/FG as a whole.

① JOURNAL ENTRIES

	<u>INTEGRATED</u>	<u>NON-INTEGRATED</u>
① When you purchase Raw Material	RM control a/c - dr To Cash/Bank	RM control a/c - dr To Gen Ledg. Adj.
② When you pay wages	Wages C. a/c - dr To Cash/Bank	Wages C. a/c - dr To Gen Ledg. Adj.
③ If RM is Direct and used in Production	WIP Control a/c - dr To RM C. a/c	WIP Control a/c - dr To RM Control A/c
④ If wages is Direct & used in production	WIP Control a/c - dr To Wages C. a/c	WIP Control a/c - dr To Wages C. A/c
⑤ If RM is Indirect and t/f to AOH, FOH or S&D OH	FOH Control a/c - dr AOH Control a/c - dr S&D OH Control a/c - dr To RM control a/c	FOH control a/c - dr AOH Control a/c - dr S&D OH Control a/c - dr To RM Control a/c
⑥ If Wages in Indirect and t/f to AOH, FOH or S&D OH	FOH Control a/c - dr AOH Control a/c - dr S&D OH Control a/c - dr To Wages control a/c	FOH control a/c - dr AOH Control a/c - dr S&D OH Control a/c - dr To Wages control a/c
⑦ When Factory OHs are incurred	FOH Control a/c - dr To Cash/Bank	FOH Control a/c - dr To Gen Ledg. Adj.



- | | | |
|---------------------------------------|--|--|
| ⑧ When FOH are recovered | WIP Control a/c — Dr
To FOH Control a/c | WIP Control a/c — Dr
To FOH Control a/c |
| ⑨ When Fg gets completed | Fg Control a/c — Dr
To WIP Control a/c | Fg Control a/c — Dr
To WIP Control a/c |
| ⑩ When Admin OHs are incurred | AOH Control a/c — Dr
To Cash/Bank | AOH Control a/c — Dr
To GenLedg. Adj |
| ⑪ When AOH are recovered | Fg Control a/c — Dr
To AOH Control a/c | Fg Control a/c — Dr
To AOH Control a/c |
| ⑫ Fg finally x/f to Cost of Sales a/c | Cost of Sales a/c — Dr
To Fg Control a/c | Cost of Sales a/c — Dr
To Fg Control a/c |
| ⑬ When S&D OHs are incurred | S&D Control a/c — Dr
To Cash/Bank | S&D Control a/c — Dr
To GenLedg. Adj |
| ⑭ When S&D OHs are recovered | Cost of Sales a/c — Dr
To S&D Control a/c | Cost of Sales a/c — Dr
To S&D Control a/c |
| ⑮ Entire cost of the good x/f to P/L | Costing P/L — Dr
To Cost of Sales a/c | Costing P/L — Dr
To Cost of Sales a/c |
| ⑯ Fg are sold | Cash/Bank — Dr
To Sales a/c | Gen Ledg Adj — Dr
To Sales a/c |

② ADDITIONAL ENTRIES

(i) When Rm is directly issued to production	WIP control a/c - dr To Cash/Bank	WIP control a/c - dr To Gen Ledg Adj.
(ii) When Rm returned to Supplier	Cash/Bank a/c - dr To Rm control a/c	Gen. Ledg Adj - dr To Rm control a/c
(iii) Excess Rm returned by production dept	Rm control a/c - dr To WIP control a/c	Rm control a/c - dr To WIP control a/c
(iv) Normal loss of Rm	FOH control a/c - dr To Rm control a/c	FOH control a/c - dr To Rm control a/c
(v) Normal loss of wages	FOH control a/c - dr To wages control a/c	FOH control a/c - dr To wages control a/c
(vi) Abnormal loss of Rm	Costing P/L a/c - dr Bank a/c - dr To Rm control a/c	Costing P/L - dr To Rm control a/c
(vi) Abnormal loss of wages	Costing P/L a/c - dr Bank a/c - dr To wages control a/c	Costing P/L - dr To wages control a/c
(vii) Transfer from ONE JOB TO OTHER	NO ENTRY	NO ENTRY.



③ RECONCILIATION

Since Both Cost accounting and Financial Accounting have their own methods of recording transactions.

So there can be various situations where there is difference in recording of transactions by Cost & Financial Accounting.



④ TRANSACTIONS ONLY IN FINANCIAL A/C

Financial expenses recorded
only in Financial Account

- Goodwill write off
- Preliminary exp w/off
- Interest on loan
- Loss on sale of Asset
- Discount on issue of Share
- Expense on issue of share
- Company's share t/f office exp
- Loss by Fire but only to extent not covered by Insurance
- Donations or Income Tax

Financial Income recorded
only in Financial Account

- Dividend Received.
- Profit on sale of asset.
- Interest received on loan.
- Rent received
- Transfer Fee received



⑤ TRANSACTIONS ONLY IN COST ACCOUNT

- Notional Rent
- Notional Salary
- Notional Depreciation
- Notional Interest on capital

⑥ DIFFERENCE OF AMOUNT

- Differentiation in valuation of Depreciation
- Difference in Valuation of Inventory
- Over/Underabsorb if not t/f to P/L

⑦ RECONCILIATION STATEMENT

Profit as per Cost A/c xxx

+ Items to be added xxx

— Items to be subtracted (xxx)

Profit as per Financial A/c xxx

14 CHAPTER

JOB & BATCH COSTING

This chapter is a more easi-fied and combination of all the Chapters discussed earlier :-



JOB COSTING :- It is applied where we have some special orders with specific requirements generally called as seperate job or cost and then all calculations are done to find cost for that job and Quote selling price.

SPOILED PRODUCT :- Totally out of use

DEFECTIVE PRODUCT :- Can be corrected by doing extra work.

SOME IMPORTANT CASES

- (i) If defects are normally :- COST OF RECTIFICATION is spread among entire batch.
part of production
- (ii) If defects are due to :- Transfer it to P/L a/c.
abnormal reasons (bad workmanship)
- (iii) If defects are due to :- Charge the cost to MATERIAL
negligiance of material INSPECTION DEPARTMENT
Inspection dept

BATCH COSTING

We apply the concept of Batch costing when the production is done in lots i.e. a entire batch of let's say 500 units are produced at one time or in one go.

ECONOMIC BATCH QUANTITY

It refers to the Quantity of units, that should be produced in one-time or one-go so that Cost per batch of production is least. It is derived by.

$$EBQ = \sqrt{\frac{2 \times D \times S}{C}}$$

D = Annual Demand of the product

S = Setting up cost - per batch

C = Carry cost per unit per annum