

CMA INTERMEDIATE

# COST ACCOUNTING



## NOTES

*Let's Break the Cost*

**Relevant for New  
Syllabus Students**

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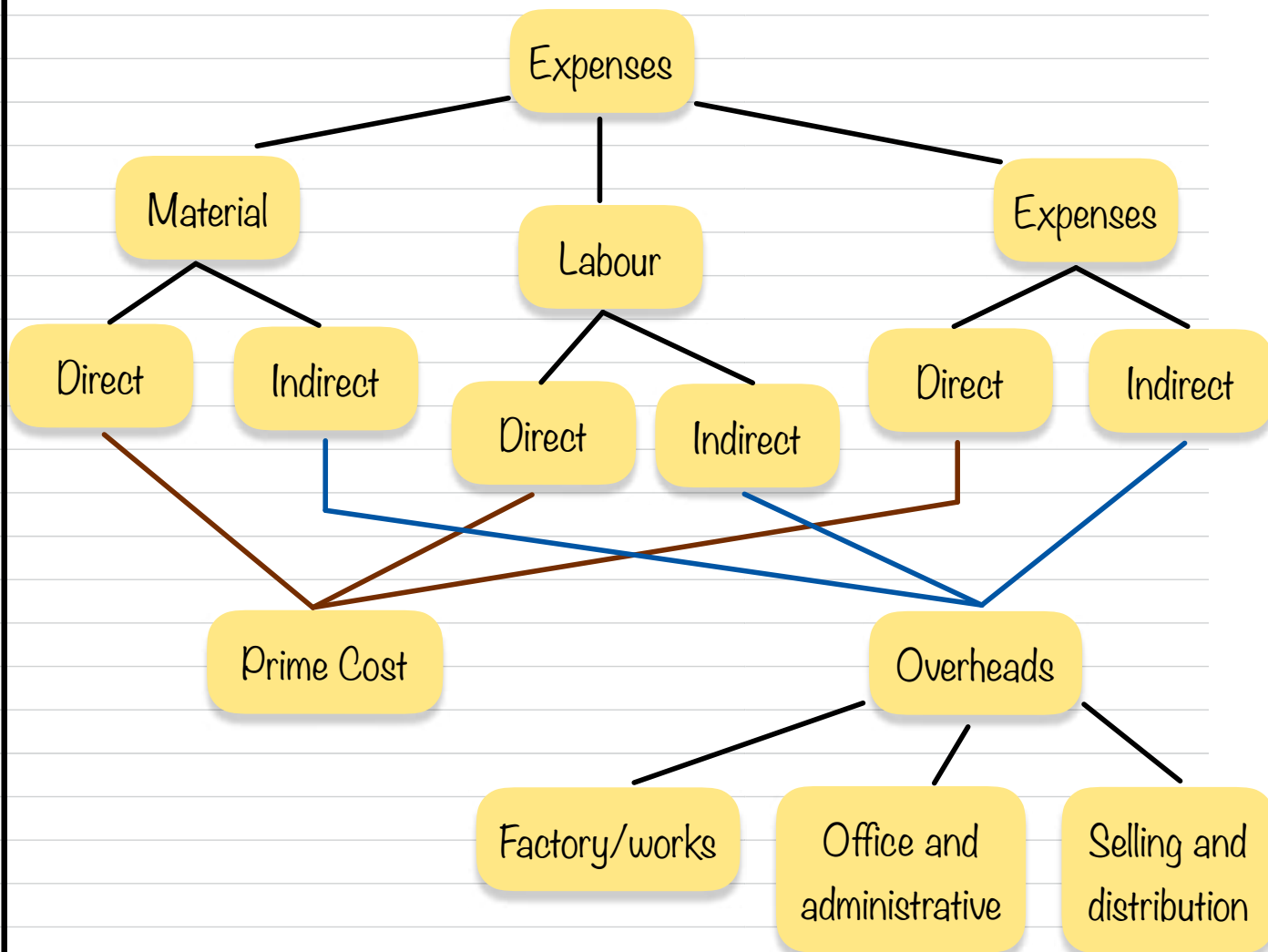
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# Cost sheet

A Cost sheet is a statement which represents the various cost incurred at different stages of business operations in a tabular form. It determines the total cost of expenditure made by the organisation along with the Cost incurred on each unit of a product or service in a particular period.



Particulars	Prime Cost	Factory Cost	Conversion Cost
Direct Material	✓	✓	✗
Direct Labour	✓	✓	✓
Direct Expenses	✓	✓	✓
Factory Overheads	✗	✓	✓

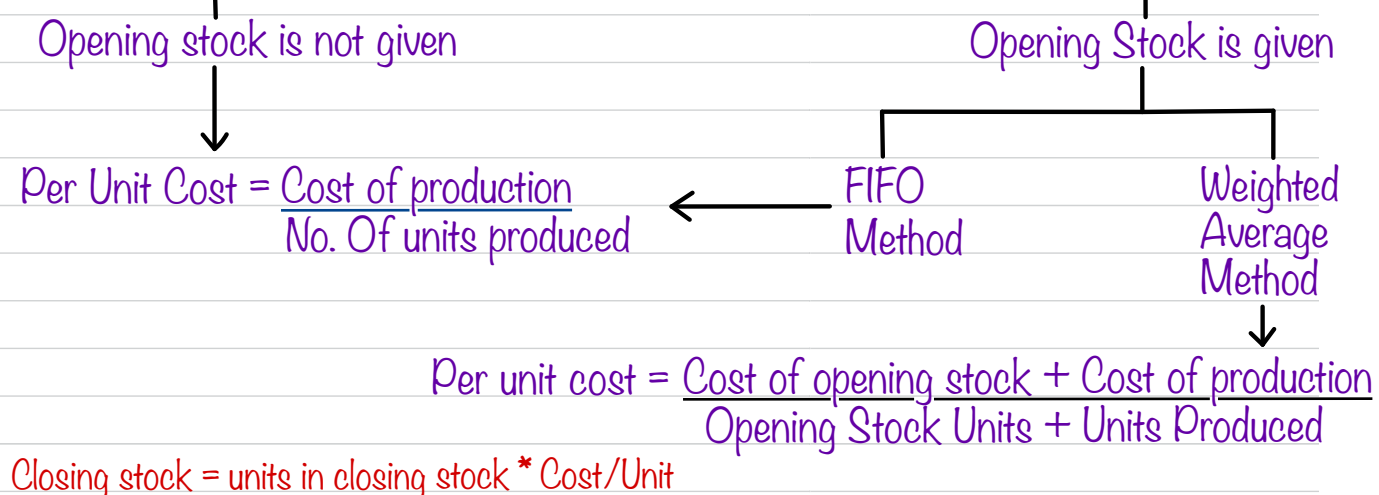
Items Excluded from Cost sheet: financial Nature Items

For Ex - Cash Discount, Interest Expenses, Income Tax Paid. Provision for tax, Provision for Bad Debts, Dividend Paid, Etc.

## Format

Particulars	Amount
Direct material consumed:	
Opening stock of raw material	XXX
+ purchases	XXX
+ carriage inwards	XXX
+ Any other direct expenses on purchases	XXX
- closing stock of raw material	<u>(XXX)</u>
Direct/productive wages	XXX
Direct or chargeable expenses	XXX
Prime cost	XXX
Add: Works and factory overheads	XXX
Less: sale of scrap	XXX
Factory/Works cost on FG and WIP	XXX
Add: Opening stock of WIP	XXX
Less: Closing stock of WIP	XXX
Factory/Works cost on FG	XXX
Add: Office and Administrative Overheads	XXX
Cost of Production	XXX
Add: Opening stock of FG	XXX
Less: Closing stock of FG	XXX
Cost of Goods Sold	XXX
Add: Selling and Distribution Overheads	XXX
Cost of sales	XXX
Add: Profit	XXX
Sales	XXX

## Calculation of closing Stock



### Absorption Rates

Used for the calculation of indirect Nature Expenses based on previous period Data

$$\text{Absorption Rate} = \frac{\text{Factory/Administrative/Selling \& distribution Overheads}}{\text{Suitable Basis}}$$

Generally Question will provide you with suitable basis but in silent cases take basis as follows

For Factory Overheads - Direct labour

For Administrative Overheads - Factory Cost

For Selling Overheads - Cost of Goods Sold

### Bifurcation of variable and fixed cost from semi variable cost

$$\text{Variable Cost per Unit} = \frac{\text{Change in Cost}}{\text{Change in Units}}$$

$$\text{Fixed Cost} = \text{Total cost} - \text{No. of Units} * \text{Variable cost/Unit}$$

# Material Costing



## Topic 1: Valuation of material receipt

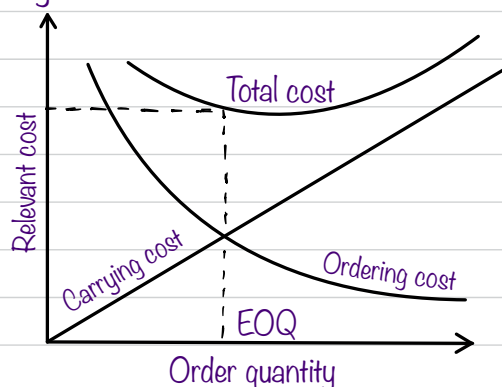
Items	Treatment
Trade discount	Subtract from cost
Cash discount	Do not Subtract
Quantity discount	Subtract from cost
GST tax	Subtract from cost if ITC available
Custom duty	Included in cost
Subsidy and grants	Subtract from cost
Toll tax	Included in cost
Demurrage/fines/detention charges	Exclude from cost
Freight inwards	Included in cost
Insurance	Included in cost
Commission on Purchase	Included in cost
Cost of non returnable containers	Included in cost
Cost of returnable containers	If full amount is refunded then do not include in cost If on return amount received less than cost paid then include amount paid - refund received
Normal loss (shortage)	Absorbed by good units
Abnormal loss (shortage)	Transfer to costing profit and loss account

$$* \text{Cost/unit} = \frac{\text{Total cost}}{\text{No of units}}$$

## Topic 2: Economic order quantity



How much quantity to be ordered in a single order so that the cost is minimum.



Ordering cost - cost of placing an order to supplier till the goods received.

Carrying cost - cost of storage and maintenance of raw material. it generally includes storage cost, interest cost, insurance cost, obsolescence cost.

$$\text{No. of orders} = \frac{\text{annual requirement}}{\text{Order quantity}}$$

$$\text{EOQ} = \sqrt{\frac{2 \times \text{annual requirement} \times \text{ordering cost}}{\text{Carrying cost}}}$$

$$\text{Average inventory} = \frac{\text{order quantity}}{2}$$

Note: If question provide monthly demand of product or normal usage per week then find out annual usage by using normal usage per week  $\times 52$

$$\text{Time between 2 orders/ order frequency} = \frac{360 \text{ days} / 52 \text{ weeks} / 12 \text{ months}}{\text{No. Of orders}}$$

If OC and CC is provided in the question and we need to find annual demand then apply

$$OC + CC = \sqrt{2 \times A \times O \times C}$$

### Topic 3: EOQ vs NON EOQ (without discount)

→ Irrelevant cost

Particulars	EOQ	NON EOQ
Purchase cost	Annual requirement units $\times$ cost/unit	Annual requirement units $\times$ cost/unit
Ordering cost	$\frac{\text{Annual demand} \times \text{OC/order}}{\text{EOQ}}$	$\frac{\text{Annual demand} \times \text{OC/order}}{\text{OQ}}$
Carrying cost	$\frac{\text{EOQ} \times \text{CC/unit/p.a.}}{2}$	$\frac{\text{OQ} \times \text{CC/unit/p.a.}}{2}$
	Total cost	Total cost

### Topic 4: EOQ vs NON EOQ (with discount)

→ Relevant cost

Particulars	EOQ	NON EOQ
Purchase cost	Annual requirement units $\times$ cost/unit	Annual requirement units $\times$ cost/unit
Ordering cost	$\frac{\text{Annual demand} \times \text{OC/order}}{\text{EOQ}}$	$\frac{\text{Annual demand} \times \text{OC/order}}{\text{OQ}}$
Carrying cost	$\frac{\text{EOQ} \times \text{CC/unit/p.a.}}{2}$	$\frac{\text{OQ} \times \text{CC/unit/p.a.}}{2}$
	Total cost	Total cost

After discount

Note: If carrying cost given in percentage then apply that percent in cost per unit after discount for calculation of carrying cost in case of NON EOQ but if CC given as flat rate then apply the same in both the cases.

### Topic 5: Slab discount (Price break)

Select the minimum cost

Quantity	Cost/unit	Purchase cost	Ordering cost	Carrying cost	Total cost

Take the quantity on the lower side of slab for each level and for 1st level take any round off Qty.

## Topic 6: Various stock levels

Reorder level = Maximum consumption x Maximum lead time

Or

= Minimum level + (Normal consumption x Normal lead time)

Minimum level = Reorder level - (Normal consumption x Normal lead time)

Maximum level = Reorder level + Reorder Quantity - (Minimum consumption x Minimum lead time)

In very exceptional case = EOQ + Minimum level

Average level = Minimum level +  $\frac{1}{2}$  Re order Quantity

Or

=  $\frac{\text{Maximum level} + \text{Minimum level}}{2}$

Danger level = Normal/Minimum consumption x Lead time for emergency purchase



If not given assume any days less than minimum days

## Topic 7: Stores ledger

Date	Receipt			Issue			Balance		
	Qty.	Rate	Amount	Qty.	Rate	Amount	Qty.	Rate	Amount

### Methods of valuation of stock



Return to supplier: Put in issue column at the rate of purchase

Return from production to stores: Put in receipt column

# If fifo method followed put the amount in Top of balance column

# If lifo method followed put the amount in bottom of balance column

If freight is given: Add in purchase price

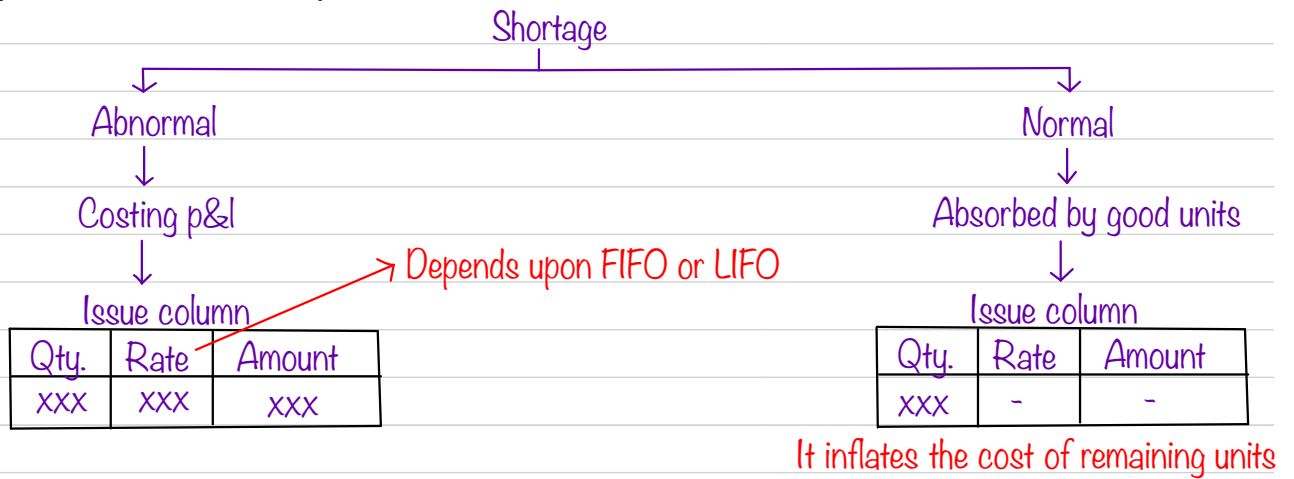
Que. specify the date of issue

Value at the given rate

Que. Doesn't specify the date of issue.

Value at the latest issue rate

**Topic 8: Shortage or surplus**



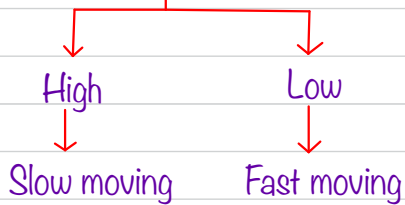
**Topic 9: Material turnover ratio**

$$MTR = \frac{\text{cost of raw material consumed}}{\text{Average stock of raw material}}$$

$\longrightarrow$   $\frac{\text{Opening stock} + \text{purchases} - \text{Closing stock}}{2}$



$$\text{Material holding period} = \frac{360 \text{ days} / 52 \text{ weeks} / 12 \text{ months}}{\text{Material turnover ratio}}$$



# Labour Costing



## Topic 1: Calculation of Employees cost

Benefits paid or payable to the employees of an entity, whether permanent, or temporary for the services rendered by them. Employee cost includes payments made in cash or kind.

S.no.	Particulars	Amount
a.	Basic pay	
b.	Dearness Allowance	
c.	All Allowances	
d.	Bonus	
e.	Other benefits to employees	
f.	Gross wages (a+b+c+d+e)	
i.	Employer's contribution towards PF & ESI	
j.	Labour cost (f+i)	
k.	Employee's contribution towards PF & ESI	
l.	Net wages (f-k)	

$$\text{Labour hr. Rate} = \frac{\text{Labour cost}}{\text{Total effective labour hrs.}} = \text{Rate/hr}$$

$$\frac{\text{Total no. Of days} - \text{Holidays}}{\text{Actual days worked}} \rightarrow \begin{matrix} \text{Khud chutti mari} \\ \text{Hamne chutti dedi} \end{matrix}$$

$$\text{Total hours} = \text{Actual days worked} \times \text{Hours/day} - \text{Normal idle time}$$

Total effective hours

## Topic 2: Idle Time

Normal idle time: treated as factory overheads

Abnormal idle time: transfer to costing P&L



## Topic 3: Over time

Overtime Payment = Wages paid for overtime at normal rate + Premium (extra) payment for overtime work

As per the Factories Act 1948 "Where a worker works in a factory for more than nine hours in any day or for more than forty eight hours in any week, he shall, in respect of overtime work, be entitled to wages at the rate of twice his ordinary rate of wages".

Reason of overtime	Treatment
The customer demands	Overtime premium charged to job directly
Overtime is done to meet any shortfall in production which is unexpected	Normal wages = Direct labour cost Overtime premium = Factory overheads
Overtime is done as a regular policy due to labour shortage	Charged to Direct labour cost on weighted average rate basis which is calculated from past data
Overtime is done due to fault of any department	Charge overtime to that particular department
Overtime is done due to any abnormal reason such as flood, earthquake, etc	Charged to costing P&L

Normal wage rate = 25/hr

Overtime rate =  $25 + 25 \times 40\% = 35/\text{hr}$

Overtime premium =  $35 - 25 = 10/\text{hr}$



#### Topic 4: Time rate and piece rate

Payment can be done

Time rate

Time worked  $\times$  rate/hr

Piece rate

Units produced  $\times$  rate/unit

#### Topic 5: How to calculate efficiency of labour

Efficiency

Time based  
=  $\frac{\text{standard time}}{\text{Actual time}} \times 100$

Output based  
=  $\frac{\text{Actual quantity}}{\text{Standard quantity}} \times 100$

#### Topic 6: Various Incentive Plan

Taylor Differential Piece Rate System

- Performance Below 100% = 80% of Normal Wages
- Performance Equal and Above 100% = 120% of Normal wages

Merrick Differential Piece Rate System

- Up to 83% of production = Normal piece rate
- 83% to 100% of production = 110% of ordinary piece rate
- Above 100% of production = 120% of ordinary piece rate



**Gantt Task Bonus Plan**

- Production below standard = Guaranteed time rate
- Production at standard = Bonus of 20% [normally] of time rate
- Production above standard = High piece rate for the entire output

**Emerson's Efficiency Plan**

- for a performance below 66.67% efficiency, only time rate wages is paid without any bonus
- for a performance between 66.67% and 100% efficiency, bonus 20%
- above 100% efficiency level, bonus of 20% of basic wages + 1% for each 1% increase in efficiency is admissible

**Bedaux System**

$$\text{Bedaux Points} = \text{Time} \times 60$$

$$\text{Premium} = \frac{75\% \text{ of Bedaux points saved} \times \text{Rate per hour}}{60}$$

**Barth Variable Sharing Plan**

$$\text{Wages} = \text{Rate per hour} \times \sqrt{\text{Standard Time} \times \text{Hours Worked}}$$

**Halsey premium plan**

$$\text{Wages} = \underbrace{\text{Time taken} \times \text{Rate/hr}}_{\text{Basic pay}} + \underbrace{50\% \text{ of } (\text{standard time} - \text{time taken}) \times \text{Rate/hr}}_{\text{Bonus}}$$

Basic pay

Bonus

**Rowan premium plan**

$$\text{Wages} = \underbrace{\text{Time taken} \times \text{Rate/hr}}_{\text{Basic pay}} + \underbrace{\frac{\text{Time taken}}{\text{Standard time}} \times \text{Time saved} \times \text{Rate/hr}}_{\text{Bonus}}$$

Basic pay

Bonus

**Halsey weir plan**

$$\text{Wages} = \underbrace{\text{Time taken} \times \text{Rate/hr}}_{\text{Basic pay}} + \underbrace{33\frac{1}{3}\% \text{ of } (\text{standard time} - \text{time taken}) \times \text{Rate/hr}}_{\text{Bonus}}$$

Basic pay

Bonus

**Topic 7: Group Bonus scheme**

Bonus is to be calculated on the basis of group performance and not by a individual worker performance. Total actual output and total standard output of the group is considered for efficiency calculation and accordingly % of bonus is calculated then applied to rate/hr to find out bonus rate per hour.

### Topic 8: Labour turnover ratios

$$\text{Replacement Method} = \frac{\text{Number of employees replaced during the period}}{\text{Average number of employees during the period}} \times 100$$

$$\text{Separation method} = \frac{\text{Number of employees separated during the period}}{\text{Average number of employees during the period}} \times 100$$

No. of Accessions

$$\text{Flux method} = \frac{\text{No. Of employees separated} + \text{No. of replacement} + \text{No. of new joining}}{\text{Average number of employees during the period}} \times 100$$

OR

Note: use this formula when LTR given and que says to find separation, replacement, etc.

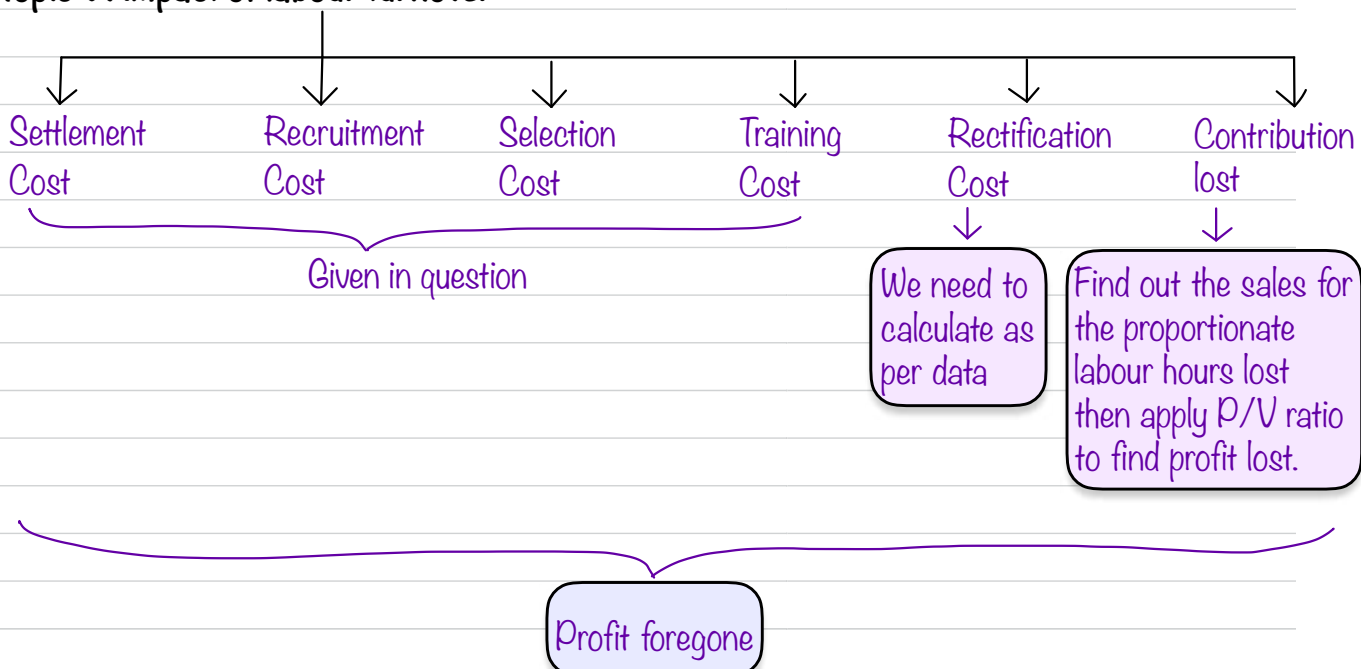
$$= \frac{1/2 (\text{No. of separation} + \text{No. of accessions})}{\text{Average number of employees during the period}} \times 100$$

$$\text{Average number of employees during the period} = \frac{\text{No. of employees at beginning} + \text{No. of employees at the end}}{2}$$

$$\text{Closing workers} = \text{opening workers} - \text{separated} + \text{replaced} + \text{New joining}$$

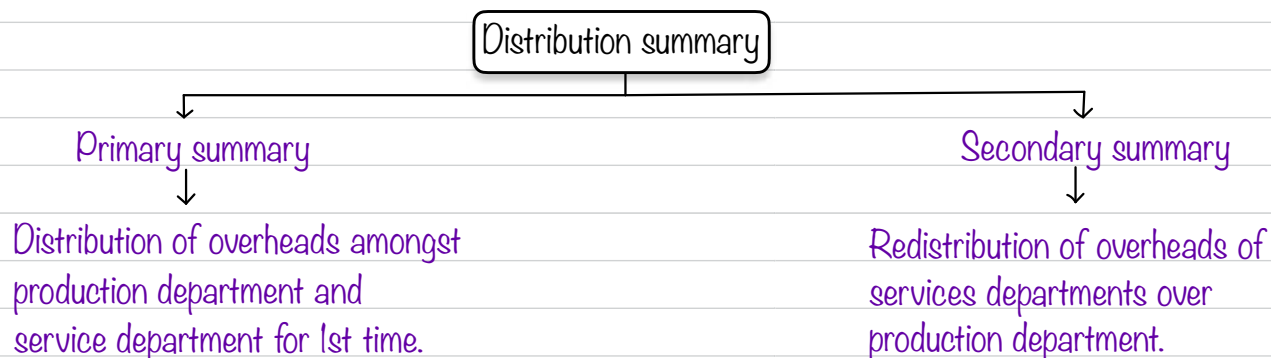
$$\text{Equivalent labour turnover ratio} = \frac{\text{LTR for the period}}{\text{Number for period}} \times 365 \text{ days}/12 \text{ months}/52 \text{ weeks}/4 \text{ quarters}$$

### Topic 9: Impact of labour turnover



# Overheads

## Topic I: Distribution of overheads



### Format of primary summary

Particulars	Basis	P1	P2	P3	S1	S2
Direct material	Given	-	-	-	xxx	xxx
Direct wages	Given	-	-	-	xxx	xxx
Indirect material	Direct material	xxx	xxx	xxx	xxx	xxx
Indirect labour	Direct wages	xxx	xxx	xxx	xxx	xxx
Depreciation	Capital value of assets	xxx	xxx	xxx	xxx	xxx
Rent	Area	xxx	xxx	xxx	xxx	xxx
Insurance	Capital value of assets	xxx	xxx	xxx	xxx	xxx
Lighting	Lights points/Area	xxx	xxx	xxx	xxx	xxx
Power	H.P. Of machine x Hrs	xxx	xxx	xxx	xxx	xxx
Maintenance	Machine hours	xxx	xxx	xxx	xxx	xxx
Super vision/staff welfare	No. Of employees	xxx	xxx	xxx	xxx	xxx
Sundries	Labour hr/machine hr/ Direct wages	xxx	xxx	xxx	xxx	xxx
Total of primary summary		xxx	xxx	xxx	xxx	xxx

### Secondary summary

**Direct method: Ek service department dusre ko service nahi dega**

### Format of secondary summary

Particulars	Basis	P1	P2	P3	S1	S2
Total of primary summary		xxx	xxx	xxx	xxx	xxx
Distribution of overheads of S1	Ratio	xxx	xxx	xxx	(xxx)	-
Distribution of overheads of S2	Ratio	xxx	xxx	xxx	-	(xxx)
Total		xxx	xxx	xxx	-	-

**Step ladder method: Ek bar koi service nil hua toh dubara cost nahi allocate hogi**

Format of secondary summary

Particulars	Basis	P1	P2	S1	S2	S3
Total of primary summary		xxx	xxx	xxx	xxx	xxx
Distribution of S1		xxx	xxx	(xxx)	xxx	xxx
Distribution of S2		xxx	xxx	-	(xxx)	xxx
Distribution of S3		xxx	xxx	-	-	(xxx)
Total						

The service department which provides services to maximum number of departments are going to be distributed first and so on.

**Example**

Particulars	P1	P2	S1	S2	S3	
S1	60	40	-	-	-	Rank 3
S2	20	30	10	-	40	Rank 1
S3	40	30	30	-	-	Rank 2

Format of secondary summary (without following ranking)

Particulars	Basis	P1	P2	S1	S2	S3
Total of primary summary		xxx	xxx	xxx	xxx	xxx
Distribution of S1		xxx	xxx	(xxx)	-	-
Distribution of S2		xxx	xxx	-	(xxx)	-
Distribution of S3		xxx	xxx	-	-	(xxx)
Total						

Format of secondary summary (with ranking sequence)

Particulars	Basis	P1	P2	S1	S2	S3
Total of primary summary		xxx	xxx	xxx	xxx	xxx
Distribution of S2		xxx	xxx	xxx	(xxx)	xxx
Distribution of S3		xxx	xxx	xxx	-	(xxx)
Distribution of S1		xxx	xxx	(xxx)	-	-
Total						

**Simultaneous Equations Method: 2 equations banao or solve them simultaneously**

Total overheads of S1 = x

Total overheads of S2 = y

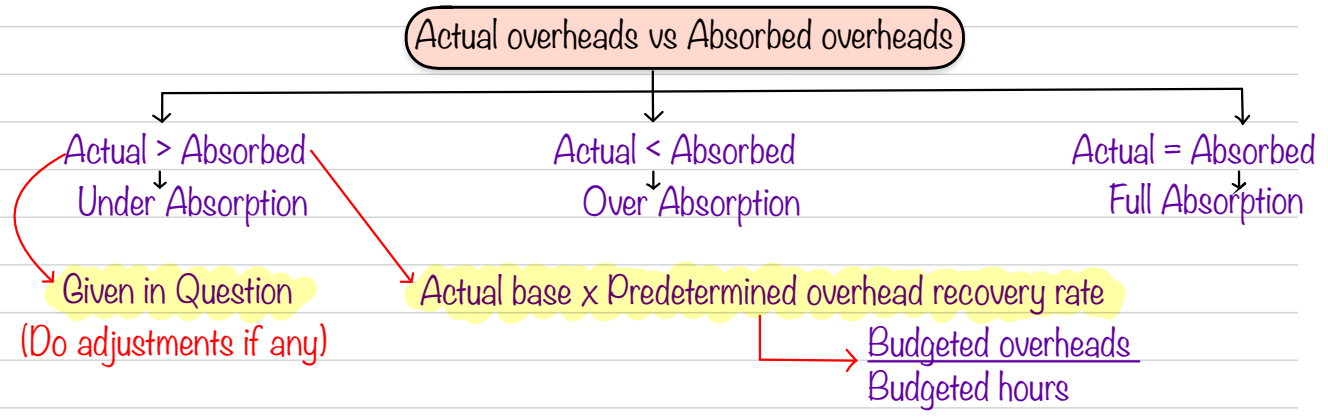
x = overheads of S1 + share of overheads received from S2

y = overheads of S2 + share of overheads received from S1

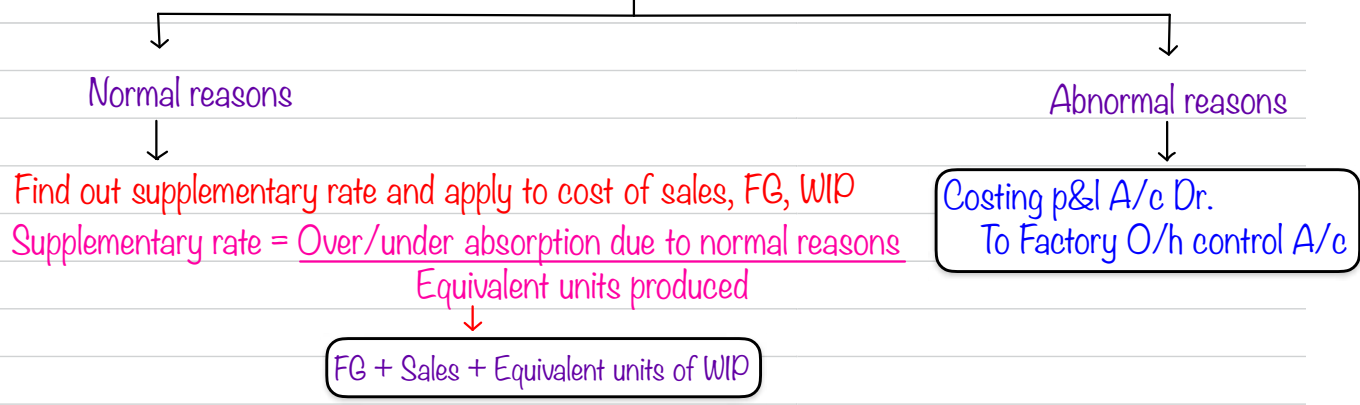
Repeated distribution method: 3 rounds tak distribution karte jao (2 service dept.)

Particulars	Basis	P1	P2	S1	S2
Total of primary summary		xxx	xxx	xxx	xxx
Distribution of S1		xxx	xxx	(xxx)	xxx
Distribution of S2		xxx	xxx	xxx	(xxx)
Distribution of S1		xxx	xxx	(xxx)	xxx
Distribution of S2		xxx	xxx	xxx	(xxx)
Distribution of S1		xxx	xxx	(xxx)	xxx
Distribution of S2		xxx	xxx	-	(xxx)
Total					

Topic 2: Over/under Absorption



Treatment of Under/Over Absorption



Journal:  
 Cost of sales A/c Dr.  
 FG control A/c Dr.  
 WIP control A/c Dr.  
 To Factory O/h Control A/c

**Topic 3: Machine hour rate**

Statement showing calculation of machine hour rate

S.no.	Particulars	Calculations	Amount
A.	Standing charges		
	Salary to manager, foreman, Supervisor, etc		
	Lighting		
	Rent		
	Indirect wages		
	Depreciation (based on time)		
	Department overheads		
	Total standing charges (a)		
	Total machine hours (b)		
	Standing expenses per hour (a/b)		
B.	Machine charges		
	Fuel	} Calculate on per hr basis	
	Power/electricity		
	Repairs and maintenance		
	Consumables		
	Depreciation (based on Run)		
	Machine charges per hour		
	Machine hour rate (A+B)		

Effective machine hours = Total machine hours - maintenance time - set up (unproductive)   
 Assume unproductive in silent cases

Note: In new study material institute taken depreciation in machine charges only.

**Topic 4: Overhead recovery rate/Absorption rate**

$$\text{Absorption rate} = \frac{\text{overheads}}{\text{Basis}} \times 100$$

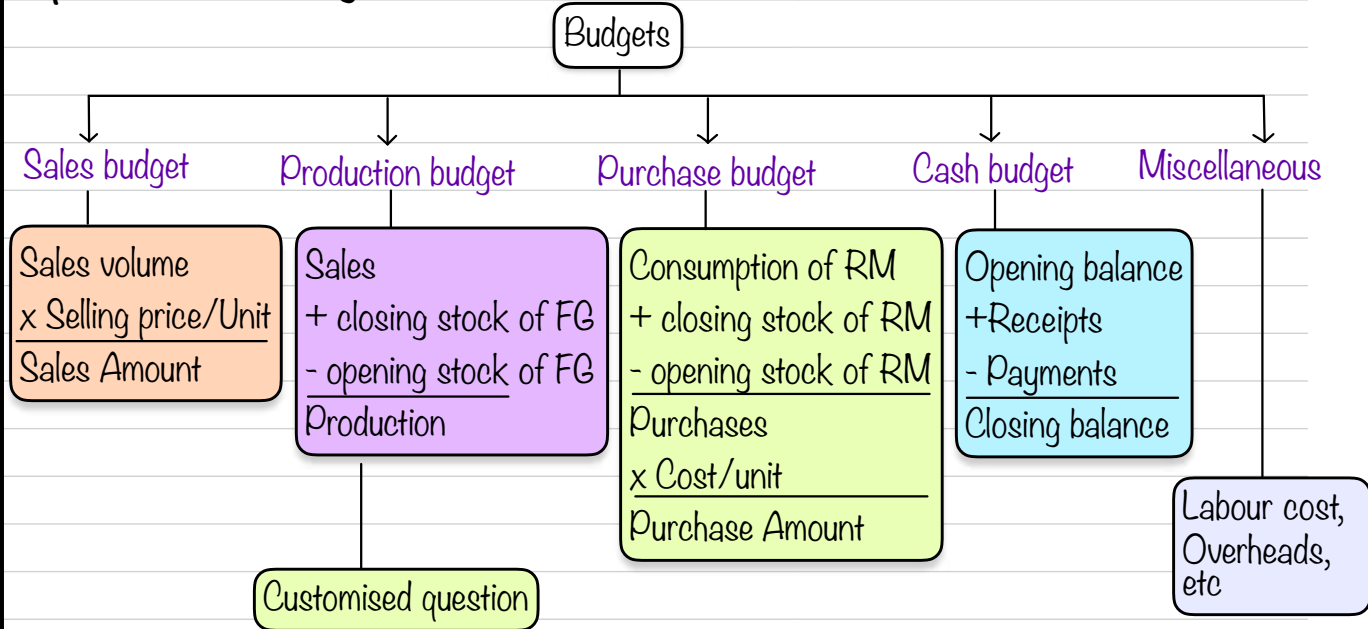
→ Direct material, Direct labour, Direct labour hours, Machine hours

Department rate = Separate rate for each department

Blanket rate = Single rate for whole department

# Budget and Budgetary control

## Topic 1: Functional budgets

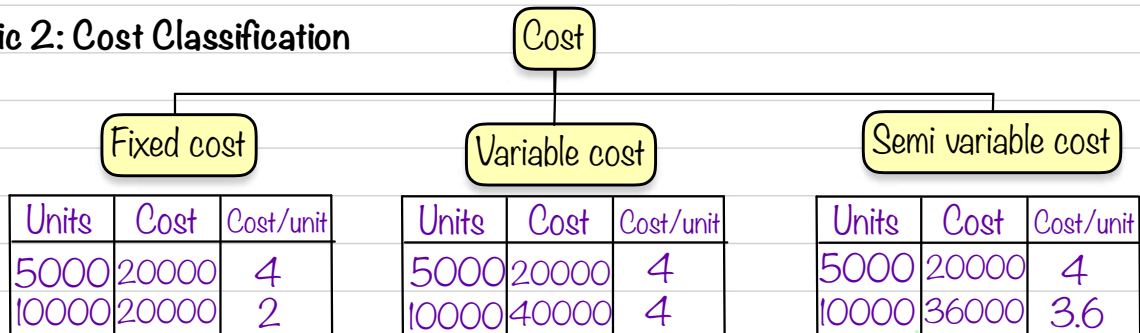


Particulars	Q1.	Q2.	Q3.	Q4.
Sales	xxx	xxx	xxx	xxx
60% of current Qtr.	xxx	xxx	xxx	xxx
40% of next Qtr.	xxx	xxx	xxx	xxx
Production	xxx	xxx	xxx	xxx

Total sales  
+ closing stock for the year  
- opening stock for the year  
Total production

Total production  
- Production for 3 Qtrs.  
Production for 4th Qtr.

## Topic 2: Cost Classification



change in totality

change on per unit basis

Bifurcation on fixed and variable  
then change as per nature

$$VC \text{ per unit} = \frac{\text{Change in cost}}{\text{Change in units}} = \frac{36000 - 20000}{10000 - 5000} = 3.2$$

$$36000 = \text{Fixed cost} - 10000 \times 3.2 \text{ i.e. } FC = 4000 \text{ (Total cost} = \text{Fixed cost} + \text{Variable cost)}$$

Topic 3: Flexible Budget

Format of flexible budget

S.no	Particulars	Level 1 units	Level 2 units	Level 3 units
A.	Sales			
B.	Cost			
	Fixed			
	Variable			
	Semi variable			
	Total			
C.	Profit & Loss (A-B)			

Topic 4: Budget Ratios

Standard time = Standard time for actual production =  $36 \times 2$

Actual Time = Actual time for actual production =  $36 \times 3$

Budgeted time = Budgeted time for Budgeted production =  $40 \times 2$

Particulars	Hours/unit	Units
Actual	36	3
Budgeted	40	2

$$\text{Efficiency ratio} = \frac{\text{standard time} \times 100}{\text{Actual time}}$$

$$\text{Activity ratio} = \frac{\text{standard time} \times 100}{\text{Budgeted time}}$$

$$\text{Capacity ratio} = \frac{\text{Actual time} \times 100}{\text{Budgeted time}}$$

$$\text{Calendar ratio} = \frac{\text{Actual working days} \times 100}{\text{Budgeted working days}}$$

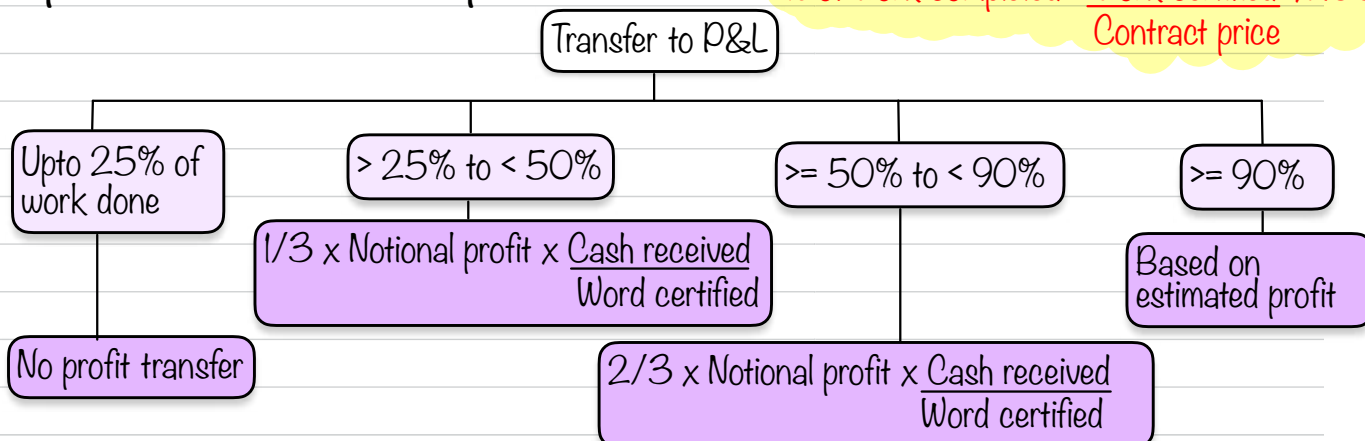
# Contract Costing

## Topic 1: Format of Contract A/c

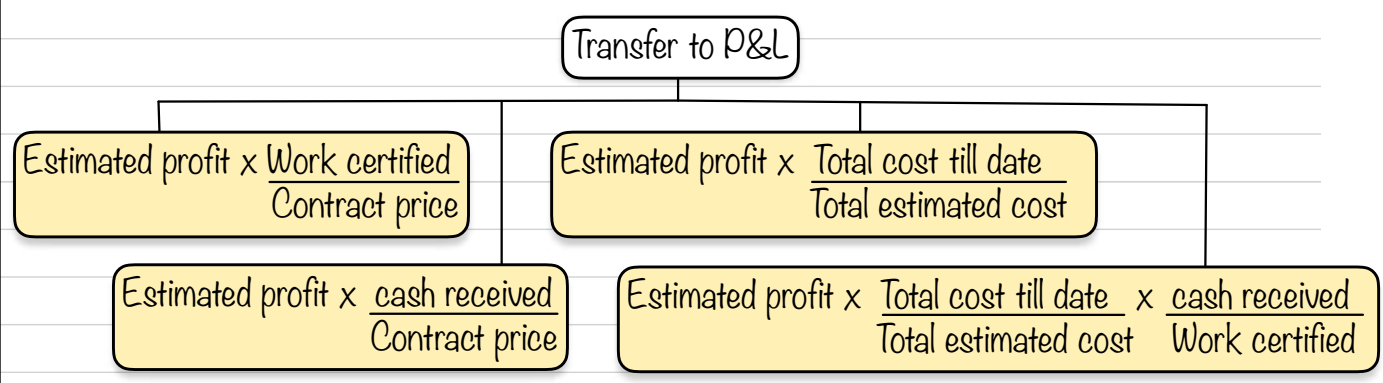
Contract A/c			
Particulars	Amount	Particulars	Amount
To materials:		By material:	
Opening stock	xxx	Returned to supplier	xxx
Direct purchases	xxx	Returned to stores	xxx
Issued from stores	xxx	Transferred to other contracts	xxx
Transfer from other contract	xxx	Sold	xxx
To wages		In hand	xxx
To plant		By plant	
Cost of special plant	xxx	Returned to stores	xxx
Depreciation **	xxx	Transferred to other contracts	xxx
Opening plant	xxx	Sold	xxx
To Direct expenses	xxx	In hand	xxx
To cost of sub contractor	xxx	By p&l	
To cost of extra work	xxx	Material lost, stolen, destroyed	xxx
To indirect expenses	xxx	Plant lost, stolen, destroyed	xxx
To accrued expenses	xxx	By WIP (Incomplete Contract)	
To p&l		Value of work certified	xxx
Profit on sale of material	xxx	Value of work uncertified	xxx
Profit on sale of plant	xxx	By contractee A/c (completed contract)	xxx
To notional profit (b/f)	xxx	Contract price	
		By costing p&l (b/f)	xxx
	xxx		xxx

## Topic 2: Calculation of realised profits

$$\% \text{ of work completed} = \frac{\text{work certified}}{\text{Contract price}} \times 100$$



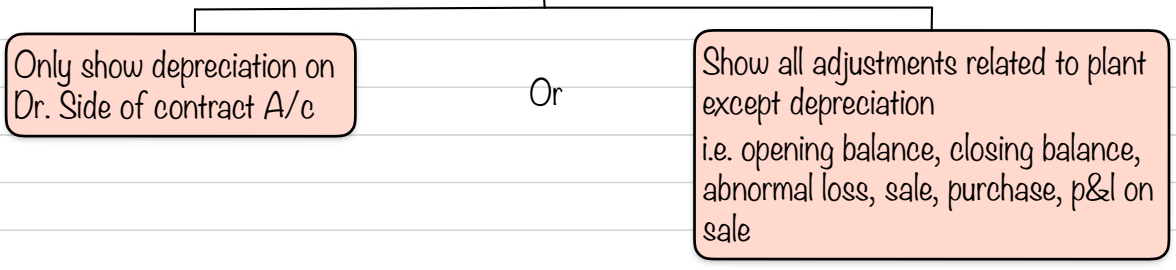
Estimated profit = Contract price - Actual cost till date - Estimated further cost



Calculation of further estimated cost

S.no	Particulars	Actual cost till now	Further estimated cost	Total cost
1.	Material			
2.	Labour			
3.	Overheads			
4.	Plant			
5.	Any other expenses			
Total estimated cost				
+ provisions for contingencies				
Total estimated cost after provision for contingencies				

Depreciation in contract A/c



Balance sheet (extract)

Liabilities	Amount	Assets	Amount
O/s expenses	xxx	Plant at site	xxx
Advance from customer	xxx	Material at site	xxx
P&L balance	xxx	Plant at store	xxx
		Material at store	xxx
		Prepaid expenses	xxx
		WIP:	
		Work certified	xxx
		(+ Work un certified	xxx
		(-) Advance received from customer	xxx

### Topic 3: Valuation of work uncertified

Contract price = 600000

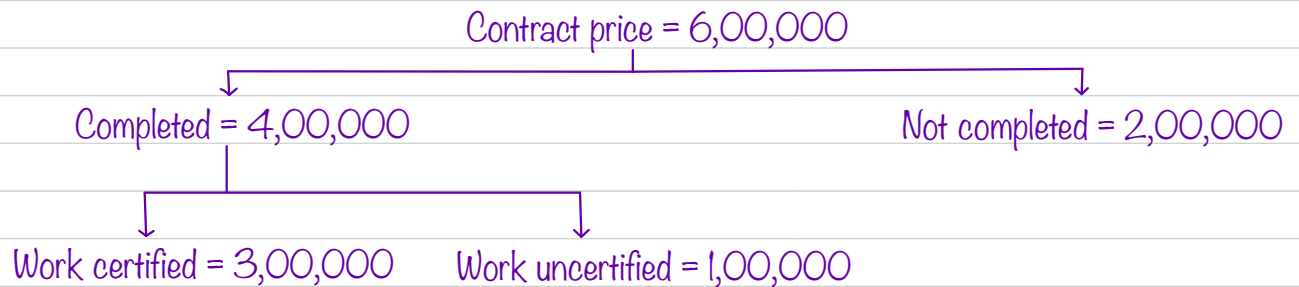
Work certified = 300000

Work completed is 2/3 of CP

Cost till now is 267300

Note: Work certified is valued at contract price

Work uncertified is valued at cost price



$$\% \text{ of work uncertified on work completed} = \frac{100000}{400000} \times 100 = 25\%$$

$$\begin{aligned} \text{Work uncertified} &= \text{cost till now} \times \% \text{ of work certified to work completed} \\ &= 267300 \times 25\% \\ &= 66825 \end{aligned}$$

Contractee A/c

Particulars	Amount	Particulars	Amount
To balance c/d	xxx	By bank	xxx
To balance c/d	xxx	By balance b/d	xxx
To balance c/d	xxx	By bank	xxx
To balance c/d	xxx	By balance b/d	xxx
To contract A/c	xxx	By bank	xxx
		By balance b/d	xxx

### Topic 4: Escalation clause

The clause inserted in a construction contract so that if the price of raw material & other expenses increased beyond a certain limit then the contract price increased by contractor

Journal

Contractee A/c Dr.

To contract A/c

(Being contract price increased due to escalation clause)

Example: It was agreed in the contract that in the event of price rise of material above 5% escalation clause activated & contractee will pay 50% of the price rise above 5%

Material issued to the contract 100000 & material in hand at the end of the year 20000

Price of material is increased by 25%

Solution:  $\text{Material consumed} = 100000 - 20000 = 80000$

$\text{Material price before price rise} = \frac{80000}{125} \times 100 = 64000$

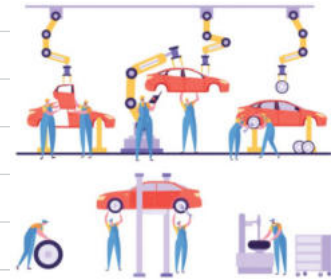
$\text{Price rise} = 80000 - 64000 = 16000$

$5\% \text{ increase} = 16000 \times 5\% = 3200$

$\text{Price rise above } 5\% = 16000 - 3200 = 12800$

$\text{Amount to be borne by contractee} = 12800 \times 50\% = 6400$

# Process costing



## Topic 1: Process Costing

When more than 1 process is required to manufacture a product then concept of process costing arise. Here we have to prepare process accounts to know cost incurred process wise and the value of stock transferred to next process or finished goods account.

## Topic 2: Process A/c

As a percentage of input or production

Process 1 A/c					
Particulars	Units	Amount	Particulars	Units	Amount
To material	xxx	xxx	By normal loss	xxx	xxx
To labour	-	xxx	By next process/FG	xxx	xxx
To overheads	-	xxx	By Abnormal Loss	xxx	xxx
To abnormal gain	xxx	xxx			

$$\text{Valued at per unit cost} = \frac{\text{Total cost} - \text{Normal loss scrap sale}}{\text{Total units} - \text{Normal loss units}}$$

Normal loss: It is absorbed by good units  
 Abnormal loss: It is transferred to costing p&l  
 Abnormal Gain: It is transferred to costing p&l

Normal Loss A/c					
Particulars	Units	Amount	Particulars	Units	Amount
To process A/c	xxx	xxx	By Bank A/c	xxx	xxx
			By Abnormal Gain A/c	xxx	xxx

Abnormal Loss A/c					
Particulars	Units	Amount	Particulars	Units	Amount
To process A/c	xxx	xxx	By Bank A/c	xxx	xxx
			By Costing P&L (b/f)	-	xxx

Abnormal Gain A/c					
Particulars	Units	Amount	Particulars	Units	Amount
To Normal Loss A/c	xxx	xxx	By Process A/c	xxx	xxx
To Costing P&L (b/f)	-	xxx			

## Topic 3: Process Stock A/c

## Process I A/c

Particulars	Units	Amount	Particulars	Units	Amount
To material	xxx	xxx	By normal loss	xxx	xxx
To labour	-	xxx	By Process Stock A/c	xxx	xxx
To overheads	-	xxx	By Abnormal Loss	xxx	xxx
To abnormal gain	xxx	xxx			

## Process Stock A/c

Particulars	Units	Amount	Particulars	Units	Amount
To bal. b/d	xxx	xxx	By next process/FG	xxx	xxx
To Process I A/c	xxx	xxx	By bal. c/d	xxx	xxx

Weighted average method

Cost/unit =  $\frac{\text{Total Amount of dr. Side of process stock A/c}}{\text{Total units of dr. Side of process stock A/c}}$

Balancing figure in case when closing stock is valued at current cost

## Topic 4: Direct sale from process A/c

Sometimes Question provide data related to selling price of respective process that means process are selling their output directly to the market. In that case 2 types of presentation can be possible

1. Process is an responsibility centre: sales shown in process A/c
2. Process is not an responsibility centre: sales shown in costing p&l A/c

## Topic 5: Equivalent production units (when opening WIP is not given)

## Process A/c

Particulars	Units	Amount	Particulars	Units	Amount
To material	xxx	xxx	By normal loss	xxx	xxx
To labour	-	xxx	By Process Stock A/c	xxx	xxx
To overheads	-	xxx	By Abnormal Loss	xxx	xxx
To abnormal gain	xxx	xxx	By closing WIP	xxx	xxx

Scrap sale

As per statement of valuation

Statement of equivalent production units

Input	Particulars	Output	Material		Labour		Overheads	
			DOC	EPU units	DOC	EPU units	DOC	EPU units
xxx	Introduced							
	Normal loss	xxx	-	-	-	-	-	-
	Units Completed	xxx	100%	xxx	100%	xxx	100%	xxx
	Closing WIP	xxx	DOC	xxx	DOC	xxx	DOC	xxx
	Abnormal Loss	xxx	DOC	xxx	DOC	xxx	DOC	xxx
	Abnormal Gain	(xxx)	100%	(xxx)	100%	(xxx)	100%	(xxx)
				EPU		EPU		EPU

If DOC not given take 100%

Statement showing per unit cost

Particulars	Cost	EPU	Cost/Unit
Material	xxx - Normal loss scrap sale	EPU	Cost/EPU
Labour	xxx	EPU	Cost/EPU
Overheads	xxx	EPU	Cost/EPU

Statement of valuation

Items	Elements	EPU	Cost/unit	Total Value
Completed, Abnormal loss/gain, WIP	Material	EPU	xxx	EPU * Cost/unit
	Labour	EPU	xxx	EPU * Cost/unit
	Overheads	EPU	xxx	EPU * Cost/unit
				xxx

Amount to be taken to process A/c

Topic 6: Equivalent production units (when opening WIP is given) - FIFO method

Process A/c

Particulars	Units	Amount	Particulars	Units	Amount
To opening WIP	xxx	xxx	By normal loss	xxx	xxx
To material	xxx	xxx	By Process Stock A/c	xxx	xxx
To labour	-	xxx	By Abnormal Loss	xxx	xxx
To overheads	-	xxx	By closing WIP	xxx	xxx
To abnormal gain	xxx	xxx			

Scrap sale

Opening WIP cost + Opening WIP & current period production as per statement of valuation

As per statement of valuation

Statement of equivalent production units

Input	Particulars	Output	Material		Labour		Overheads	
			DOC	EPU units	DOC	EPU units	DOC	EPU units
xxx	Opening WIP + Introduced							
	Normal loss	xxx	-	-	-	-	-	-
	Units Completed - Op.	xxx	100 - DOC	xxx	100 - DOC	xxx	100 - DOC	xxx
	Current period	xxx	100%	xxx	100%	xxx	100%	xxx
	Closing WIP	xxx	DOC	xxx	DOC	xxx	DOC	xxx
	Abnormal Loss	xxx	DOC	xxx	DOC	xxx	DOC	xxx
	Abnormal Gain	(xxx)	100%	(xxx)	100%	(xxx)	100%	(xxx)
				EPU		EPU		EPU

Transfer to next process

If DOC not given take 100%

Statement showing per unit cost

Particulars	Cost	EPU	Cost/Unit
Material	xxx - Normal loss scrap sale	EPU	Cost/EPU
Labour	xxx	EPU	Cost/EPU
Overheads	xxx	EPU	Cost/EPU

Statement of valuation

Items	Elements	EPU	Cost/unit	Total Value
Completed, Abnormal loss/gain, WIP	Material	EPU	xxx	EPU * Cost/unit
	Labour	EPU	xxx	EPU * Cost/unit
	Overheads	EPU	xxx	EPU * Cost/unit
				xxx

Amount to be taken to process A/c

Topic 7: Equivalent production units (when opening WIP is given) - Weighted Average method

Process A/c

Particulars	Units	Amount	Particulars	Units	Amount
To opening WIP	xxx	xxx	By normal loss	xxx	xxx
To material	xxx	xxx	By Process Stock A/c	xxx	xxx
To labour	-	xxx	By Abnormal Loss	xxx	xxx
To overheads	-	xxx	By closing WIP	xxx	xxx
To abnormal gain	xxx	xxx			

Scrap sale

As per statement of valuation

Statement of equivalent production units

	Particulars	Output	Material		Labour		Overheads	
			DOC	EPU units	DOC	EPU units	DOC	EPU units
xxx	Opening WIP + Introduced							
	Normal loss	xxx	-	-	-	-	-	-
	Units Completed.	xxx	100%	xxx	100%	xxx	100%	xxx
	Closing WIP	xxx	DOC	xxx	DOC	xxx	DOC	xxx
	Abnormal Loss	xxx	DOC	xxx	DOC	xxx	DOC	xxx
	Abnormal Gain	(xxx)	100%	(xxx)	100%	(xxx)	100%	(xxx)
				EPU		EPU		

Take Units transferred to next process don't bifurcate opening & current period production If DOC not given take 100%

Statement showing per unit cost

Particulars	Opening WIP Cost	Current period cost	EPU	Cost/Unit
Material	xxx	xxx - Normal loss scrap sale	EPU	Cost/EPU
Labour	xxx	xxx	EPU	Cost/EPU
Overheads	xxx	xxx	EPU	Cost/EPU

Opening WIP cost + Current period cost

Statement of valuation

Items	Elements	EPU	Cost/unit	Total Value
Completed,	Material	EPU	xxx	EPU * Cost/unit
Abnormal loss/	Labour	EPU	xxx	EPU * Cost/unit
gain, WIP	Overheads	EPU	xxx	EPU * Cost/unit
				xxx

Amount to be taken to process A/c

When Question does not provide DOC of Opening WIP & Provide bifurcation of cost of opening WIP then by default apply weighted average method

Topic 8: Concept of Material 1 and Material 2

When Question Provides DOC of material of Opening WIP or Closing WIP or Scrap Units less than 100% then concept of M1 and M2 Arise

Note: If Question provides Material DOC then it is by default M2



## Topic 9: Inter Process Profits

Process A/c					Cost of process	Cost of company	
Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To opening stock	xxx	xxx	xxx	By next process			
To Direct material	xxx	xxx	-	or FG A/c	xxx	xxx	xxx
To Direct Labour	xxx	xxx	-				
To prime cost	xxx	xxx	xxx				
(-) Closing stock	xxx	xxx	xxx				
To factory overheads	xxx	xxx	-				
To Factory Cost	xxx	xxx	xxx				
To profit (Cost * profit %)	xxx		xxx				

→ Given in question

Note: For last process A/c sales value is going to be provided by questions so profit will be balancing figure.

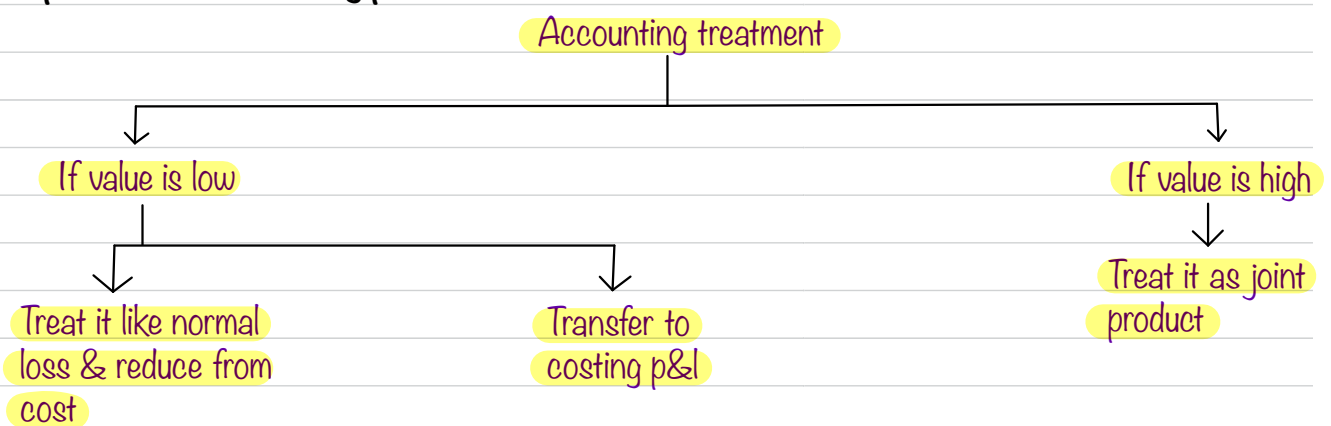
Actual realised profit = Profit of process - unrealised profit of closing stock + unrealised profit of opening stock

# Joint product By product

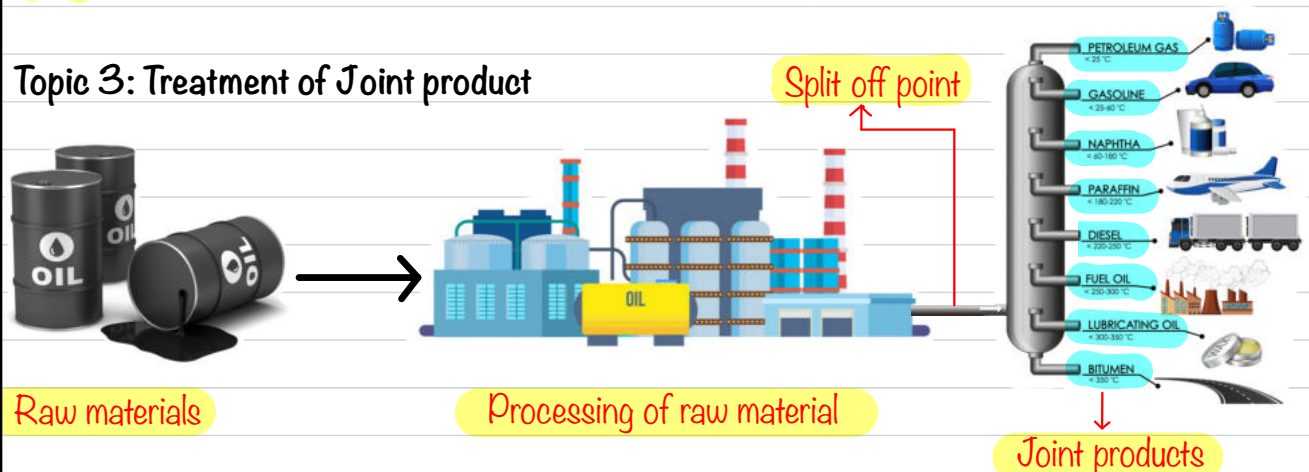
## Topic 1: Difference between joint product & by product

BASIS FOR COMPARISON	JOINT PRODUCT	BY-PRODUCT
Meaning	When the production of two or more products of similar value, are made together with same input and process, is called joint product.	The term by-product means a product which is incidentally produced, during the processing operation of another product.
Economic Value	Joint products have same economic value.	Economic value of by-product is lower than the main product.
Production	Consciously	Consequently
Input	Raw material	Waste or scrap of the main product.
Further Processing	Required to turn the joint products into finished product.	Not required.

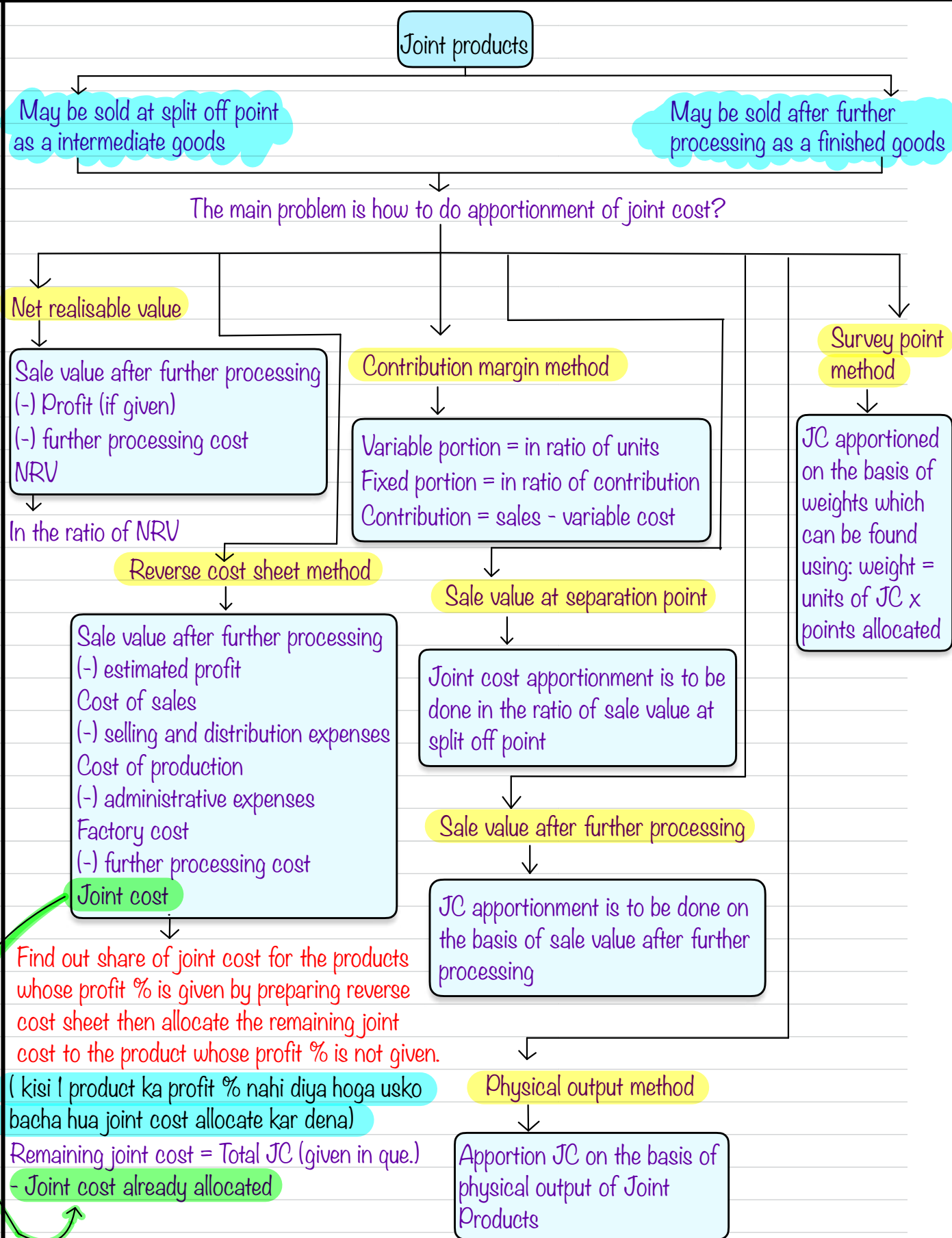
## Topic 2: Treatment of by product



## Topic 3: Treatment of Joint product



## Joint product By product



Note: If question does not mention method of apportionment then analyse the data and decide the method accordingly. If question does not provide even any hint then follow any method and put note for that. It may be noted that institute's preference is NRV and sale value at split off point.

Topic 4: Computation of profits

Profit

Profit at split off point =  
sale value at split off point - JC apportioned

Profit after further processing =  
sale value after further processing - JC apportioned - further processing cost

Topic 5: Decision regarding further processing

Incremental sales	xxx	→ Sale value after further processing - sale value at split off
(-) incremental cost	xxx	→ Further processing cost
Incremental profit	xxx	→ Positive = Accept

↓  
Negative = Reject

$f_1$ SH x SR	$f_2$ AH x SR	$f_3$ SH for S.P. x SR	$f_4$ AH x AR
$32500 \times 1.5$	$33000 \times 1.5$	$30000 \times 1.5$	50000
<hr/> 48750	<hr/> 49500	<hr/> 45000	<hr/> 50000

fixed overheads Cost Variance =  $f_1 - f_4 = 1250 (A)$

fixed overheads Exp. Variance =  $f_3 - f_4 = 5000 (A)$

fixed overheads Volume Variance =  $f_1 - f_3 = 3750 (F)$

fixed overheads Efficiency Variance =  $f_1 - f_2 = 750 (A)$

fixed overheads Capacity Variance =  $f_2 - f_3 = 4500 (F)$



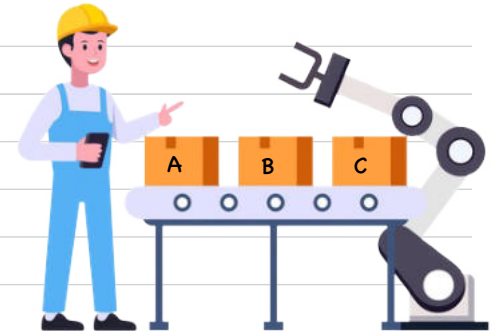
# Standard Costing



Standard costing is the practice of substituting an expected cost for an actual cost in the accounting records. Subsequently, variances are recorded to show the difference between the expected and actual costs.



Actual cost > standard cost = Adverse  
 Actual cost < standard cost = Favorable



## Topic I: Material cost variance

Direct material cost variance  
 ( Standard cost - Actual cost =  $SQ \times SR - AQ \times AR$  )

Direct material usage variance  
 $SR \times (SQ - AQ)$

Direct material price variance  
 $AQ \times (SR - AR)$

Direct material mix variance  
 $SR \times (RAQ - AQ)$

Direct material yield variance  
 $SR \times (SQ - RAQ)$

SQ = standard quantity for actual production      AQ = Actual quantity      SR = standard rate.  
 AR = Actual rate      RAQ = Actual Quantity in standard rate.

	M1	M2	M3	M4
Particulars	$SQ \times SR$	$RAQ \times SR$	$AQ \times SR$	$AQ \times AR$
Material 1				
Material 2				
Material 3				
Total				

- Direct material cost variance = M1 - M4
- Direct material usage variance = M1 - M3
- Direct material price variance = M3 - M4
- Direct material mix variance = M2 - M3
- Direct material yield variance = M1 - M2

Note: if question provide opening and closing stock then use consumption to find variances except DMPV which is to be calculated on purchases basis.

Direct material consumed = opening stock (value at std. rate if value not given in que.) + purchases - closing stock ( value at FIFO basis )

**Example:**

The standard mix to produce one unit of product is as follows:

Material A 60 units @ Rs. 15 per unit = Rs. 900

Material B 80 units @ Rs. 20 per unit = Rs. 1600

Material C 100 units @ Rs. 25 per unit = Rs. 2500

During the month of April, 10 units were actually produced as follows:

Material A 640 units @ Rs. 17.50 per unit

Material B 950 units @ Rs. 18.00 per unit

Material C 870 units @ Rs. 27.50 per unit

Calculate all material variances.

**Solution:**

	M1	M2	M3	M4
Particulars	SQ x SR	RAQ x SR	AQ x SR	AQ x AR
Material A	600 x 15	615 x 15	640 x 15	640 x 17.5
Material B	800 x 20	820 x 20	950 x 20	950 x 18
Material C	1000 x 25	1025 x 25	870 x 25	870 x 27.5
Total	50000	51250	50350	52225

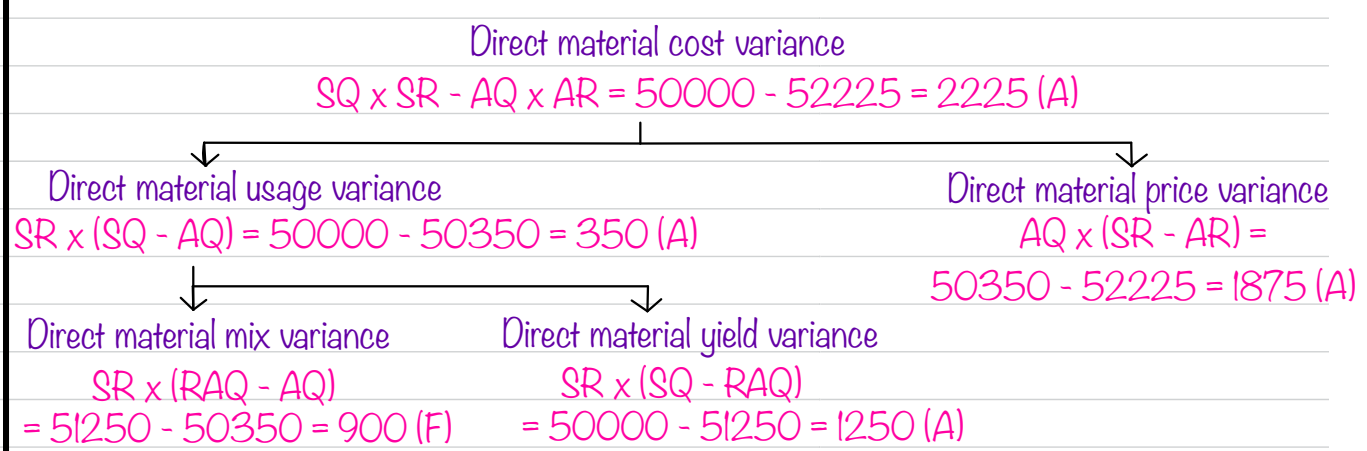
Direct material cost variance = M1 - M4 = 50000 - 52225 = 2225 (A)

Direct material usage variance = M1 - M3 = 50000 - 50350 = 350 (A)

Direct material price variance = M3 - M4 = 50350 - 52225 = 1875 (A)

Direct material mix variance = M2 - M3 = 51250 - 50350 = 900 (F)

Direct material yield variance = M1 - M2 = 50000 - 51250 = 1250 (A)



## Topic 2: Labour cost variance



## Direct labour cost variance

$$(\text{Standard cost} - \text{Actual cost} = \text{SH} \times \text{SR} - \text{AHP} \times \text{AR})$$

## Direct labour efficiency variance

$$\text{SR} \times (\text{SH} - \text{AHW})$$

## Idle time variance

$$\text{SR} \times (\text{AHW} - \text{AHP})$$

## Direct labour rate variance

$$\text{AHP} \times (\text{SR} - \text{AR})$$

## Direct labour Mix variance

$$\text{SR} \times (\text{RAHW} - \text{AHW})$$

## Direct labour yield variance

$$\text{SR} \times (\text{SH} - \text{RAHW})$$

SH = standard hours for actual production    AH = actual hours    SR = standard rate    AR = actual rate  
 RAHW = AHW in Standard ratio.    AHW = Actual hours worked for.    AHP = actual hours paid for  
 AHW = AHP - idle time

Particulars	L1	L2	L3	L4	L5
	SH x SR	RAHW x SR	AHW x SR	AHP x SR	AHP x AR
Skilled					
Semi skilled					
Unskilled					
Total					

$$\text{Direct labour cost variance} = \text{L1} - \text{L5}$$

$$\text{Direct labour efficiency variance} = \text{L1} - \text{L3}$$

$$\text{Idle time variance} = \text{L3} - \text{L4} \text{ (always adverse)}$$

$$\text{Direct labour rate variance} = \text{L4} - \text{L5}$$

$$\text{Direct labour Mix variance} = \text{L2} - \text{L3}$$

$$\text{Direct labour yield variance} = \text{L1} - \text{L2}$$

Idle time: if the workers sit idle or not doing any work then it is termed as idle time.

Example: worker is paid for 50 hrs but he actually worked for 42 hrs then 8 hrs is idle time of worker

**Example:**

X Ltd., manufactures product X which requires 2 hours of skilled men, 3 hours of semi-skilled men and 5 hours of unskilled men, per unit at Rs. 5, 3 & 2 per hour respectively. During April 2003, the production department reported output of 5000 units of product X. The labour cost incurred was as detailed below:

Type of labour	Hours paid for	Rate per hour
Skilled	9,000	7.00
Semi-skilled	17,000	2.75
Unskilled	30,000	1.50

The total hours paid for included 1000 idle hours due to machine break down etc. out of which 500 hours pertained to skilled men, 400 hours pertained to semi-skilled men and the balance to unskilled men.

Required: Calculate the labour cost variances.

**Solution:**

SH Ratio

55000 in 10:15:25

AHP - Idle time

9000 - 500, 17000 - 400,

30000 - 100

Particulars	L1 SH x SR	L2 RAHW x SR	L3 AHW x SR	L4 AHP x SR	L5 AHP x AR
Skilled	5000 x 2 x 5	11000 x 5	8500 x 5	9000 x 5	9000 x 7
Semi skilled	5000 x 3 x 3	16500 x 3	16600 x 3	17000 x 3	17000 x 2.75
Unskilled	5000 x 5 x 2	27500 x 2	29900 x 2	30000 x 2	30000 x 1.5
Total	145000	159500	152100	156000	154750

$$\text{Direct labour cost variance} = L1 - L5 = 145000 - 154750 = 9750 \text{ (A)}$$

$$\text{Direct labour efficiency variance} = L1 - L3 = 145000 - 152100 = 7100 \text{ (A)}$$

$$\text{Idle time variance} = L3 - L4 \text{ (always adverse)} = 152100 - 156000 = 3900 \text{ (A)}$$

$$\text{Direct labour rate variance} = L4 - L5 = 156000 - 154750 = 1250 \text{ (F)}$$

$$\text{Direct labour Mix variance} = L2 - L3 = 159500 - 152100 = 7400 \text{ (F)}$$

$$\text{Direct labour yield variance} = L1 - L2 = 145000 - 159500 = 14500 \text{ (A)}$$

## Direct labour cost variance

$$SH \times SR - AHP \times AR = 145000 - 154750 = 9750 \text{ (A)}$$

Direct labour efficiency variance

$$SR \times (SH - AHW) = 145000 - 152100 = 7100 \text{ (A)}$$

Idle time variance

$$SR \times (AHW - AHP) = 152100 - 156000 = 3900 \text{ (A)}$$

Direct labour rate variance

$$AHP \times (SR - AR) = 156000 - 154750 = 1250 \text{ (F)}$$

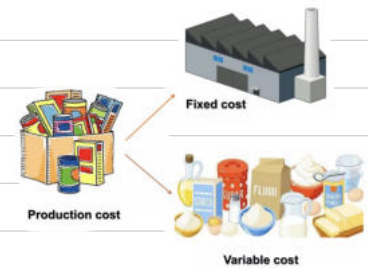
Direct labour Mix variance

$$SR \times (RAHW - AHW) = 159500 - 152100 = 7400 \text{ (F)}$$

Direct labour yield variance

$$SR \times (SH - RAHW) = 145000 - 159500 = 14500 \text{ (A)}$$

# Marginal Costing



## Topic 1: Meaning of marginal cost and marginal costing

Marginal cost is the change in the total cost for addition of one unit. It is to be noted that for an economist marginal cost and variable cost would be different. But for an accountant both marginal cost and variable cost are same and are interchangeably used. Therefore, for our study, we use marginal cost and variable cost synonymously.

Marginal costing is "the ascertainment of marginal costs and of the effect on profit of changes in volume or type of output by differentiating between fixed costs and variable costs." Several other terms in use like direct costing, contributory costing, variable costing, comparative costing, differential costing and incremental costing are used more or less synonymously with marginal costing.

### Relevant cost vs Irrelevant cost

Variable cost = Relevant cost  
 Units  $\uparrow$  Total cost  $\uparrow$  Cost/unit =  
 Units  $\downarrow$  Total cost  $\downarrow$  Cost/unit =

Fixed cost = Irrelevant cost  
 Units  $\uparrow$  Total cost = Cost/unit  $\downarrow$   
 Units  $\downarrow$  Total cost = Cost/unit  $\uparrow$

## Topic 2: Income statement

Particulars	Amount
Sales	
(-) Variable cost (Direct material, Direct labour, Variable overheads)	
Contribution	
(-) Fixed cost	
Profit	

$$\text{Sales} - \text{Total cost} = \text{Profit}$$

$$\text{Sales} - \text{Variable cost} - \text{Fixed cost} = \text{Profit}$$

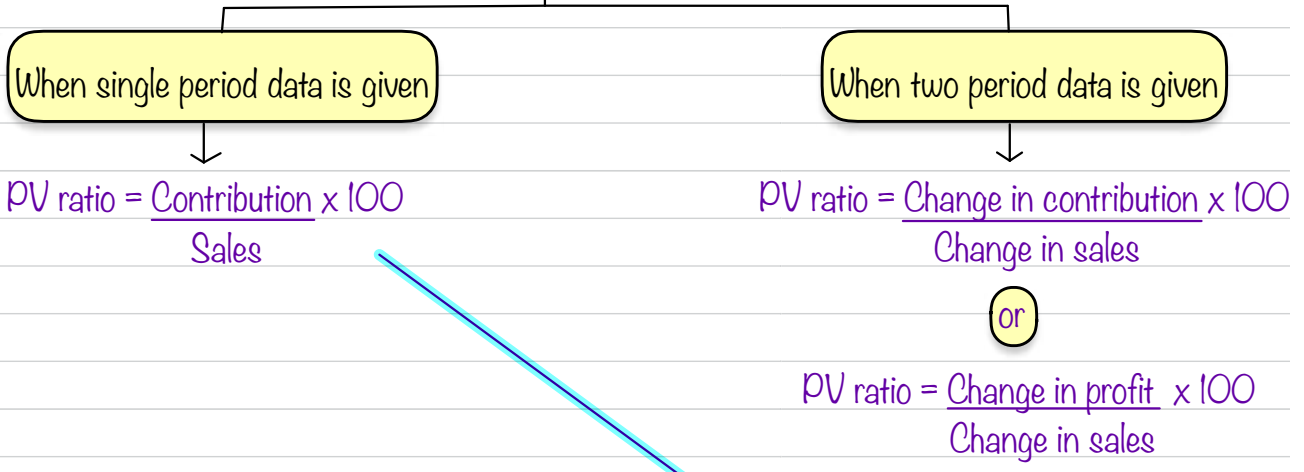
$$\text{Sales} - \text{variable cost} = \underbrace{\text{Profit} + \text{Fixed cost}}_{\text{Contribution}}$$

$$\text{Contribution} = \text{sales} - \text{variable cost}$$

$$\text{Contribution} = \text{fixed cost} + \text{profit}$$

$$\text{Contribution} = \text{fixed cost} - \text{loss}$$

**Topic 3: Profit Volume ratio/ Contribution ratio/ Variable profit ratio**



**Topic 4: Variable cost ratio**

$$VC \text{ ratio} = \frac{\text{Variable cost}}{\text{Sales}} \times 100$$

PV ratio + VC ratio = 100%

**Topic 5: Break even point**

Break Even means the volume of production or sales where there is no profit or loss. In other words, Break Even Point is the volume of production or sales where total costs are equal to revenue.

$$\text{Sales} - \text{Total cost} = \text{profit}$$

$$\text{Sales} - VC - FC = 0$$

$$\text{Sales} - VC = FC$$

$$\text{Contribution} = FC \text{ (at break even point)}$$

$$\text{BEP Sales} \times PV \text{ ratio} = \text{Fixed Cost}$$

$$\text{BEP sales} = \frac{\text{Fixed cost}}{PV \text{ ratio}}$$



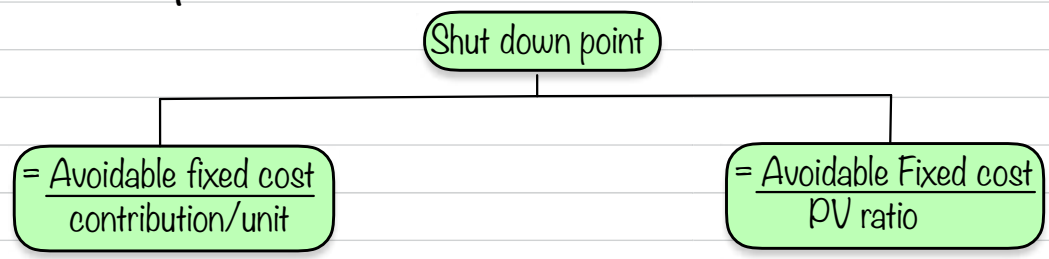
$$\text{Cash BEP} = \frac{\text{cash fixed cost}}{\text{Contribution/unit}}$$

**Topic 6: Margin of safety**

It is the sales point beyond the breakeven point. Margin of safety can be obtained by subtracting break even sales from Total sales. It is useful to determine financial soundness of business enterprise.

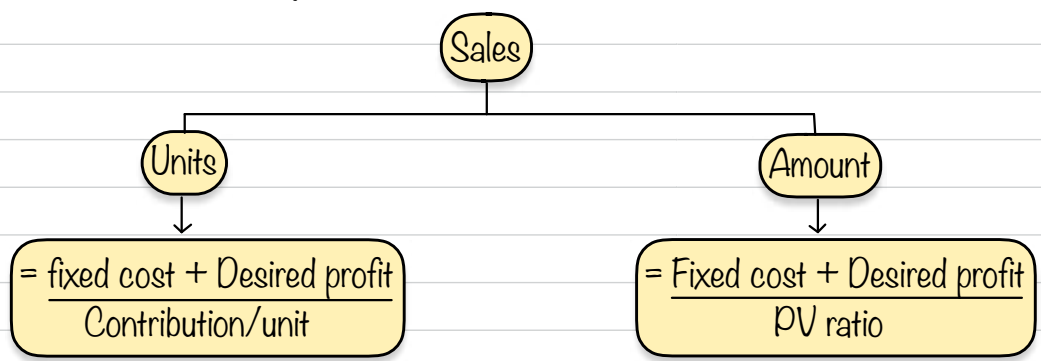


Topic 7: Shut down point



Actual sales > Shut down point sales = Continue business operations  
 Actual sales < Shut down point sales = Don't continue business

Topic 8: Sales for the target profit



Note: If question provide after tax profit then find out profit before tax first.

Topic 9: Combined BEP

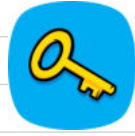
$$\text{Combined BEP} = \frac{\text{Total fixed cost}}{\text{Weighted contribution/unit}}$$

↓

Product	Contribution/unit	Weights	Product
X	xxx	xxx	xxx
Y	xxx	xxx	xxx
Total		xxx	xxx

$$\text{Weighted contribution/unit} = \frac{\text{Total of products}}{\text{Total of weights}}$$

Topic 10: Key factor i.e. short supply of any factor of production



A key factor is defined as the factor in the activities of an undertaking which, at a particular point of time or over a period, will limit the volume of output. Other variant terms are limiting factor, Principal Budget Factor & scarce factor. Limiting factors are governed by both internal & external factors. It may be actual or potential. If a factor of production is in short supply, then the best-paying product becomes that which yields the highest contribution per unit of limiting factor.

Moon Ltd. produces products 'X', 'Y' and 'Z' and has decided to analyse its production mix in respect of these three products - 'X', 'Y' and 'Z'.

You have the following information:

	X	Y	Z
Direct Materials ₹ (per unit)	160	120	80
Variable Overheads ₹ (per unit)	8	20	12

Direct labour:

Departments	Rate per hour	Hour per unit		
		X	Y	Z
Department-A	4	6	10	5
Department-B	8	6	15	11

From the current budget, further details are as below :

	X	Y	Z
Annual Production at present (in units)	10000	12000	20000
Estimated Selling Price per unit (₹)	312	400	240
Sales departments estimate of possible sales in the coming year (in units)	12000	16000	24000

There is a constraint on supply of labour in Department-A and its manpower cannot be increased beyond its present level.

Required:

- IDENTIFY the best possible product mix of Moon Ltd.
- CALCULATE the total contribution from the best possible product mix.

Particulars	X	Y	Z
Selling price	312	400	240
Variable cost:			
Direct material	160	120	80
Direct labour			
Dept. A (Rate x hours)	24	40	20
Dept. B. (Rate x hours)	48	120	88
Variable overheads	8	20	12
Total variable cost	240	300	200
Contribution per unit.	72	100	40
Hours in department A.	6	10	5
Contribution per hour.	12	10	8
Rank.	1	2	3

Existing Hours =  $10,000 \times 6 \text{ hrs.} + 12,000 \times 10 \text{ hrs.} + 20,000 \times 5 \text{ hrs.} = 2,80,000 \text{ hrs.}$

Best possible product mix (Allocation of Hours on the basis of ranking)

Produce 'X' = 12000 units

Hours Required = 72000 hrs (12000 units x 6 hrs)

Balance Hours Available = 208000 (280000 - 72000)

Produce Y the next best = 16000 units

Hours required = 160000 (16000 units x 10 hrs)

Balance hours available = 48000 (208000 - 160000)

Balance Hours Available Produce 'Z' (balance) = 9600 units (48000 hrs/5 hrs)

Product	Units	Contribution/unit	Total contribution
X	12000	72	864000
Y	16000	100	1600000
Z	9600	40	384000

### Topic II: Marginal costing vs Absorption costing

#### Income statement under absorption costing

Particulars.	Amount
Sales	xxx
Production costs:	
Direct material cost	xxx
Direct labour cost	xxx
Variable manufacturing overheads	xxx
Fixed manufacturing overheads	xxx
Cost of production	xxx
(+) opening stock of finished goods (Value at cost of previous period production)	xxx
(-) closing stock of finished goods (Value at cost of current period)	xxx
Cost of goods sold	xxx
(+/-) under or over absorption of fixed manufacturing overheads	xxx
(+) administrative cost	xxx
(+) selling and distribution cost	xxx
Total cost	xxx
Profit (sales - total cost)	xxx

#### Income statement under marginal costing

Particulars	Amount
Sales	xxx
Variable manufacturing costs:	
Direct material consumed	xxx
Direct labour	xxx
Variable manufacturing overheads	xxx
Cost of goods produced	xxx
(+) opening stock of finished goods (value at previous period)	xxx
(-) closing stock of finished goods (value at current period)	xxx
Cost of goods sold	xxx
(+) variable administration, selling and distribution overheads	xxx
Total variable cost	xxx
Contribution (sales - total variable cost)	xxx
(-) fixed costs (production, administration, selling and distribution)	xxx
Net profit	xxx

✨ Absorption costing is used to calculate per unit cost of item manufactured while marginal costing is costing used to take future decision in launching a new product in market.

✨ Income calculated under both approaches is always difference. The reason behind this is valuation of opening and closing stock.

✨ In absorption costing, stocks are valued at all variable manufacturing costs and fixed production overheads. Variable manufacturing costs = Direct material cost + Direct labour cost + Direct expenses + Variable production OH

✨ In marginal costing, stocks are valued at only variable manufacturing cost hence fixed production overheads are not included in this.

✨ This is the reason why valuation of stock under both approaches differs And if stock valuation differs then profit figure also differs.

# Integral & Non Integral Accounting System

## Topic I: Meaning of Integral & Non Integral Accounting System

BASIS	INTEGRATED ACCOUNTS	NON-INTEGRATED ACCOUNTS
Meaning	It is a combination of financial and cost accounts	It is a system in which financial and cost accounts are prepared separately
Reconciliation	Reconciliation is not required	Reconciliation is required
Number of books	One set of books is prepared	Separate books for cost and financial accounts are prepared
Duplication	Duplication of work doesn't take place	Duplication of work occurs, as one transaction is recorded in two books and reconciled at the end
Economical	It is economical as it saves time and money while maintaining books of accounts	It is less economical as compared to Integrated Accounts
Profit and Loss Figure	Only one profit and loss figure is shown because of a single set of books	Profit and loss are displayed in both books
Ledger	Subsidiary ledgers are prepared	Cost ledgers are prepared
Interdependence	Cost and Financial accounts are dependent on each other	It is an independent system of accounting

Note: from the next page, the journal entries of non-integral accounting system is given after understanding non-integral accounting system. You just have to replace general ledger adjustment account with personal or real account which We ignored at the time of passing journal entries in non-integral accounting system.

## Integral & Non Integral Accounting system

### Material Journal Entries (Financial Accounting vs Cost Accounting)

#### 1. Purchase of material

Purchase A/c Dr. To Cash/Creditor A/c (Being material purchase)	Material control A/c Dr. To General Ledger Control A/c (Being material purchase)
Stores A/c Dr. To Purchases A/c (Being material t/s to stores)	Stores ledger control A/c Dr. To material control A/c (Being material t/s to stores)

#### 2. Return of Material

Creditor A/c Dr. To stores A/c (Being material returned to supplier)	General ledger A/c Dr. To stores ledger control A/c (Being material returned to supplier)
--	---

#### 3. Material issued to production department (direct)

Production department A/c Dr. To Stores A/c (Being material issued to production dept.)	WIP ledger control A/c Dr. To stores ledger control A/c (Being material issued to production dept.)
---	---

#### 4. Material issued to production department (indirect)

Production overheads A/c Dr. To stores A/c (Being indirect material issued)	Product overheads control A/c Dr. To stores ledger control A/c (Being indirect material issued)
---	---

#### 5. Material directly purchased by production department

Production department A/c Dr. To cash/creditor (Being direct purchases made by purchase dept.)	WIP ledger control A/c Dr. To general ledger control A/c (Being direct purchases made by purchase dept.)
--	--

#### 6. Material returned from production to stores

Stores A/c Dr. To Production Dept. (Being material returned to stores)	Stores ledger control A/c Dr. To WIP ledger control A/c (Being material returned to stores)
--	---

#### 7. Material issued for the purpose of repairs

Production Overhead A/c Dr. To stores A/c (Material issued for repairs)	Production O/h control A/c Dr. To stores ledger control A/c (Material issued for repairs)
---	---

#### 8. Transfer of production o/h to WIP

Production Department A/c Dr. To Production O/h A/c (Being overhead T/s to Production)	WIP ledger control A/c Dr. To Production O/H control A/c (Being overhead T/s to Production)
--	---

## Integral &amp; Non Integral Accounting system

## Wages Journal Entries (Financial Accounting vs Cost Accounting)

## 1. Wages paid (Direct)

Wages A/c Dr.  
 To Cash/Bank A/c  
 (Being wages paid)

—

Wages control A/c Dr.  
 To General Ledger Control A/c  
 (Being wages paid)  
 WIP ledger control A/c Dr.  
 To wages control A/c  
 (Being wages charged to production)

## 2. Wages paid (Indirect) - Production

Wages A/c Dr.  
 To Cash/Bank A/c  
 (Being wages paid)

—

—

Wages control A/c Dr.  
 To General Ledger Control A/c  
 (Being wages paid)  
  
 Production overhead control A/c Dr.  
 To wages control A/c  
 (Being indirect wages T/s to Production o/h)  
  
 WIP ledger control A/c Dr.  
 To Production O/h control A/c  
 (Being production o/h charged to production)

## 3. Wages paid (indirect) - Administrative

Wages A/c Dr.  
 To Cash/Bank A/c  
 (Being wages paid)

—

Wages control A/c Dr.  
 To General Ledger Control A/c  
 (Being wages paid)  
  
 Administration overhead control A/c Dr.  
 To wages control A/c  
 (Being indirect wages T/s to Production o/h)

## 4. Wages paid (indirect) - selling and distribution

Wages A/c Dr.  
 To Cash/Bank A/c  
 (Being wages paid)

—

Wages control A/c Dr.  
 To General Ledger Control A/c  
 (Being wages paid)  
  
 Selling overhead control A/c Dr.  
 To wages control A/c  
 (Being indirect wages T/s to Production o/h)

## Integral & Non Integral Accounting system

### Direct expenses journal entry

Direct expenses A/c Dr.  
 To Cash/Bank  
 (Being direct expenses paid)

Production department A/c Dr.  
 To Direct expenses A/c  
 (Being direct expenses t/s to Production dept.)

WIP ledger control A/c Dr.  
 To General ledger control A/c  
 (Being Direct expenses paid)

### Overheads journal entries

Production overheads control A/c Dr.  
 To general ledger control A/c  
 (Being factory overheads paid)

WIP ledger control A/c Dr.  
 To Production overheads control A/c  
 (Being Production overheads charged to Production)

Administrative overheads control A/c Dr.  
 To general ledger control A/c  
 (Being Administrative expenses paid)

Selling & distribution overheads control A/c Dr.  
 To general ledger control A/c  
 (Being selling expenses paid)

### Sales entry

General ledger control A/c Dr.  
 To costing p&l  
 (Being sales made)

### Profit/loss entry

Costing p&l A/c Dr.  
 To general ledger control A/c  
 (Being profit t/s to capital A/c)

General ledger control A/c Dr.  
 To Costing p&l  
 (Being loss t/s to capital A/c)

### Abnormal loss/Normal loss entry

Costing p&l A/c  
 To stores ledger control A/c  
 (Being abnormal loss of material)

Production overheads control A/c Dr.  
 To stores ledger control A/c  
 (Being normal loss of material)

### Transfer entries

Finished goods control A/c Dr.  
 To WIP ledger control A/c  
 (Being factory expenses t/s FG A/c)

Finished goods control A/c Dr.  
 To Administrative O/h control A/c  
 (Being admin. Expenses t/s to FG A/c)

Cost of sales A/c Dr.  
 To finished goods control A/c  
 (Being FG t/s to cost of sales A/c)

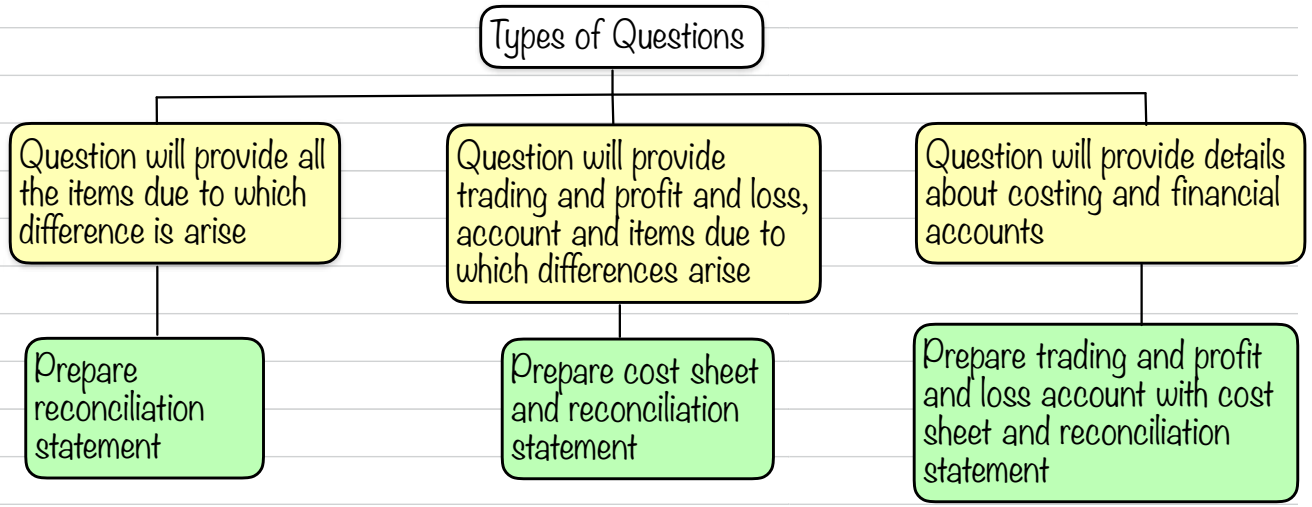
Cost of sales A/c Dr.  
 To selling & Distribution O/h Control A/c  
 (Being selling expenses t/s to cost of sales)

### Over recovery/Under recovery of overheads

Costing p&l A/c Dr.  
 To Respective Overheads  
 (Being under recovery of overheads now recovered)

Respective overheads A/c Dr.  
 To Costing P&L  
 (Being over recovery of overheads now reversed)

Topic 2: Reconciliation of cost Accounting & financial Accounting systems



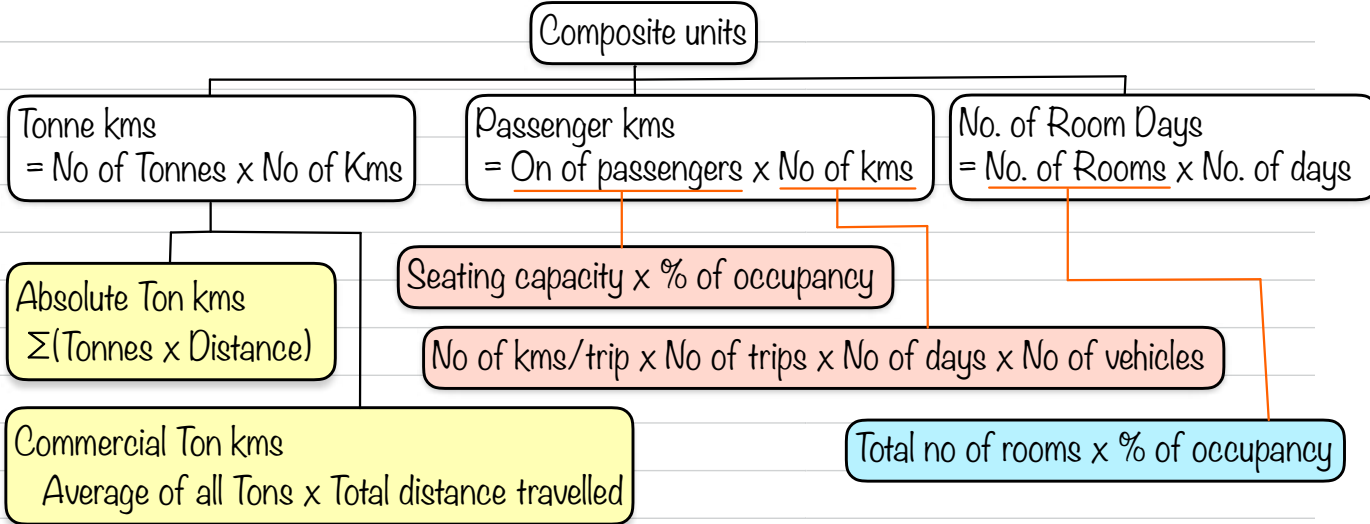
Reconciliation statement

Particulars	Amount
Profit as per cost accounting	
Add:	
* Expenses included in cost accounts, but not in financial accounts	
* Incomes included in financial accounts, but not in cost accounts	
* Excess amount of income shown in financial accounts or compare to entries made in cost account	
* Excess of expenses shown in cost accounts as compare to entries made in cost accounts	
* Over absorption of overheads in cost accounts	
* Overvaluation of closing stock in financial accounts	
* Over valuation of opening stock in cost accounts	
Less :	
* Income included in cost accounts, but not in financial accounts	
* Expenses included in financial accounts, but not in cost accounts	
* Excess of income shown in cost accounts as compare to financial accounts	
* Excess of expenses shown in cost accounts as compare to financial accounts	
* Over absorption of overheads in cost accounts	
* Overvaluation of closing stock in financial accounts	
* Overvaluation of opening stock in cost accounts	
Profit as per financial accounts	

Note: Just do addition subtraction as per the the end point. Jiske pass jaa rahe ho vo jaisa kiya hai vaise kardo.

# Service Costing

## Topic 1: Composite Units calculation



## Topic 2: Statement of cost

S.No	Particulars	Calculations	Amount
A.	<b>Fixed Expenses</b>		
	License fees and insurance		
	Salaries of drivers, cleaners, and conductors		
	Garage rent		
	Depreciation		
	Taxes		
	Administrative expenses		
	Insurance, etc		
	Total		
B.	<b>Variable Expenses</b>		
	Petrol & diesel		
	Lubricants		
	Grease		
	Tyres		
	Total		
C.	<b>Repairs &amp; Maintenance</b>		
	Repairs & Maintenance		
	Total		
D.	<b>Total cost (A+B+C)</b>		
	Profit		
	Total collection		

# Job and Batch Costing

## Topic 1: Difference between Job and Batch Costing

BASIS FOR COMPARISON	JOB COSTING	BATCH COSTING
Meaning	Job costing refers to a specific costing method, used when the production/work is carried out according to the requirements of customers.	Batch costing, is a form of job costing, that is applied when the articles are produced in batches, i.e. a group of like units are produced.
Production	As per customer specification	Mass production
Product	Product have an independent identity, as each job is distinct from other jobs.	Products do not lose their individual identity, as they are manufactured in continuum.
Cost unit	Executed Job	Batch
Cost ascertainment	On the completion of each job.	Ascertained for the whole batch and then per unit cost is determined.

## Topic 2: Economic Batch Quantity

Optimum Quantity that should be produced in one batch so that set up cost and carrying cost is lowest.

$$EBQ = \sqrt{\frac{2 \times \text{Annual production} \times \text{Set up cost/batch}}{\text{Carrying cost per unit per annum}}}$$

$$\text{No of batches} = \frac{\text{Annual production}}{EBQ}$$

$$\text{Time between 2 batches} = \frac{360 \text{ days}/52 \text{ weeks}/12 \text{ months}}{\text{No of batches}}$$

$$\text{Set up cost} = \text{No of batches} \times \text{Set up cost/batch}$$

$$\text{Carrying cost} = \frac{EBQ}{2} \times \text{Carrying cost per unit per annum}$$

## Topic 3: Economic Batch Quantity vs Non EBQ

Show comparison between set up cost and carrying cost of both the batch size.

### Absorption rates

If questions does not provide any information then find out absorption rates as follows:

Factory overheads on Direct wages  
Admin & selling overheads on works cost