

ALL THE BEST

May 2018

One Day Revision Notes

CA Inter – Costing Paper

(New Syllabus)



CA Purushottam Aggarwal

www.purushottamaggarwal.com

HE GOT 99 MARKS IN



CA PURUSHOTTAM SIR
CA Inter Costing

CA Aaditya Jain Sir
CA inter FM , CA Final SFM

COST FM IN CA INTER



**CA
INTER**

**COST &
MANAGEMENT
ACCOUNTING
Rs.8000/-**

CA PURUSHOTTAM SIR



STUDY AT HOME

**Book Your Pen
Drive Classes**

www.purushottamaggarwal.com/copy-of-buy-pendrive

**CALL 9582808296
FOR MORE INFO.**

**COVERAGE OF FULL
COURSE IN
49 LECTURES**



CHAPTER - DIRECT MATERIAL

Concept :- **ECONOMIC ORDER QUANTITY (EOQ)** – How Much to order in single order

- **Purchase cost** :- it is the price paid to vendor for purchasing raw material.
- **Ordering cost** : it is cost of placing order with supplier till receipt of material in warehouse.
- **Carrying cost**:- Once raw material is received in warehouse, the firm has to incur expenses to keep it safe till use in production.
- $\text{Carrying Cost (\%)} = \text{Insurance cost (\%)} + \text{interest cost (\%)} + \text{storage space cost (\%)} + \text{obsolescence cost rate (\%)}$

Making of EOQ Formula: -

Total annual ordering cost = Total annual carrying cost





Annual Ordering cost = Total number of orders in a year X

Ordering cost per order

$$= \frac{\text{Annual requirement of raw material (A)}}{\text{Quantity ordered each time (Q)}} \times \text{Ordering cost per order (O)}$$

$$= \frac{A \times O}{Q}$$

Annual carrying cost = Average Inventory X Average carrying cost per unit

$$= \frac{\text{Quantity ordered each time (Q)}}{2} \times \text{Avg. carrying cost per unit (C)} =$$

$$\frac{Q \times C}{2}$$

$$\frac{A \times O}{Q} = \frac{Q \times C}{2} \quad \text{Hence } Q = \sqrt{\frac{2 \times A \times O}{C}}$$

How to Learn EOQ Formula – Salman Khan Approach

Tum DonokeDono (2)	Aa Jao (A)	Open (O)	Challenge (C) he	KaatDunga (Divide)	Gahr me ghuskar (Square root sign)
2	A	O	C	DIVIDE	√





Concept :- Will EOQ size shall always be optimum order size?

- Answer is “NO”.
- Order size involving minimum material cost shall be optimum order size.
- $\text{Material Cost} = \text{Purchase Cost} + \text{Carrying Cost} + \text{Ordering Cost}$

Concept :- EOQ in range type-question

Range type question are those question in purchase price per unit decreases as order size is increased from one range to another.

Step 1:- Calculate EOQ for each range.

Step 2:- If EOQ falls within respective range then it will be valid EOQ otherwise invalid EOQ. (We may find more than 1 EOQ size)

- Annual requirement of raw material (A) will be same in all range.
- Ordering cost per order (O) shall also remain same in all range
- Carrying cost (C) will change in each range if it will based on as a % of purchase price.





Concept :- Frequency of order and Lead Time

- FOO is the time gap between placing two consecutive orders e.g.

$$\text{FOO} = \frac{\text{Total number of days in a year}}{\text{Total number of orders}}$$

- **Lead Time:** it is time gap between date of placing the order with supplier and date of receipt of ordered material

Concept :- Re-order Level (Motor Bike Concept) – When to Order

ROL

Formula 1 :- Maximum Usage X Max lead time

Formula 2 :- Minimum Stock + Avg. Usage X Avg. Lead Time

Formula 3 :- Safety Stock + Avg. Usage X Avg. Lead Time





Concept :- Minimum Level / Maximum Level / Average Stock Level / Danger Level

- **Minimum Level:** it is that level of stock below which stock in hand of raw material should not be allowed to fall otherwise stock out.

Min. Level

F1 - Re-order Level – Avg. Usage X Avg. Lead Time **OR**

F2 - Max. Lead Time X Max. Usage – Avg. Lead Time X Avg. Usage

F3 - Safety Stock

- **Maximum level:** it is that level of stock above which stock in hand of raw material should not be allowed to exceed otherwise high carrying cost.

Max. Level

F1-Re-order Level + Re-order quantity – Minimum Usage X Minimum Lead Time.





- **Average Stock Level**

Formula 1:- Avg. stock held by an organization =
$$\frac{\text{Max. Stock Level} + \text{Minimum Stock Level}}{2}$$

Formula 2 :- Min. Stock Level + $\frac{\text{Re-order Quantity}}{2}$ (Derived from carrying cost formula)

- **Danger Level:-** It is the level at which raw material kept for emergency is used for production of FG (Normal issues of raw material is not possible).

Danger Level = Avg. Usage X Max. Lead Time for emergency purchase

Concept :- Material Turnover Ratio / Inventory Turnover Ratio for raw material

MTR:- It is a ratio between raw material consumed during a year and average stock of raw material maintained during the year.

MTR Formula = $\frac{\text{Raw material consumed during a year}}{\text{Avg. stock of raw material}}$

Avg. stock of raw material = $\frac{\text{Opening Stock} + \text{Closing stock}}{2}$





Raw Material holding period or Inventory Turnover period :- it is a ratio between No. of days/months in a year and MTR.

$$\text{Formula} = \frac{365 \text{ Days or } 12 \text{ months}}{\text{Material Turnover Ratio}}$$

Low MTR means High RM holding period which means high carrying cost hence unfavourable. (RM called slow moving)

High MTR means low RM holding period which means less carrying cost hence favourable. (RM Called fast moving)

Concept :- Valuation of raw material:- while calculating per unit cost of raw material purchased, some items are considered as follows:-

1. Trade Discount	Deduct from purchase price
2. Quantity Discount	Deduct from purchase price
3. Cash Discount	<u>Not Deduct</u> from purchase price since it is finance benefit.
4. Road Tax/Toll Tax / Octroi / Entry Tax	Add to purchase cost





5. GST	Add to purchase cost if no CENVAT availed.
6. Demurrages / Detention Charges / Fine / Penalty	<u>Deduct</u> from purchase price since it is a penalty
7. Insurance Cost / Comm. / Brokerage Paid / Freight Inwards	Add to purchase cost
8. Cost of containers (if specifically charged)	• Add to purchase cost if it is non-returnable. • Don't add to purchase cost if it is returnable.

Concept :- How to Calculate cost of material consumed and cost of closing stock of material if material purchase prices keeps on changing

3 methods





1. FIFO (First in First Out):- Material issued for production shall be priced at the price of material purchased **first** till its quantity exhausts. When the quantity exhausts, **next** price shall be used as basis.
2. LIFO (Last in First Out):-Material issued for production shall be priced at the price of material purchased **LAST** till its quantity exhausts. When the quantity exhausts, **previous** price shall be used as basis.
3. Weighted Average method:- With every receipt of material, price is averaged and this averaged price used for issue of material till next receipt of material. On next receipt of material, average price changes. Used when difficult to identify material physically e.g. petrol storage in a tank.

Note:- We will prepare stores ledger Account to find out cost of material issued and closing stock.





Concept :- ABC ANALYSIS

ABC Analysis suggests to divide all raw material into 3 categories A, B and C. then exercise more control over A category raw material, moderate control over category B raw material and least control over category C raw material.

1. Category A consists of raw material which contain nearly around 70% of total value of raw material. (consists approx. 10% of total items of stores) (Proper use of EQO, Re-order Level, Maximum level, Minimum level, safety stock etc.)
2. Category B consists of raw material which contain nearly around 20% of total value of raw material. (Consists approx. 20% of total items of stores)
3. Category C consists of raw material which contain nearly around 10% of total value of raw material. (consists approx. 70% of total items of stores) (Rare use of levels)

Practical steps to classify material in category A, B and C





Step 1:- Calculate value of each raw material by multiplying annual consumption of each raw material by its unit price.

Step 2:- Calculate total value of all raw materials.

Step 3:- Calculate % of value of each raw material in relation to total value of all raw materials.

Step 4:- Assign ranking to above calculated % i.e. Rank 1 to highest %, Rank 2 to second highest % and so on.

Step 5:- Classify items having nearly 70% value under category A, 20% value under category B and 10% value under category C.

Concept :- Input-output ratio

It explains the relationship between input consumption and output produced using that input.

$$\text{Formula} = \frac{\text{input}}{\text{output}} \times 100$$

Note:- To calculate I/O Ratio, Both input & output should be expressed in same unit i.e. both should be in kg, units amount.





Example:- suppose in a manufacturing process, output obtained is 200 kg from use of input of 260 kg then input-output ratio shall be 130% i.e. $\frac{260 \text{ kg}}{200 \text{ kg}} \times 100$

If input-output ratio is 130%, it means that manufacturing loss is of 30% of output.

This ratio is treated as unfavorable if it is more than 100% while it is regarded as favorable if it is near 100%.

Material cost for 1 unit of output = $\frac{\text{Total material cost}}{\text{Output (Units)}} =$

$\frac{\text{Input (units)} \times \text{Purchase price per unit of RM}}{\text{Output (units)}} =$

Hence = Input – Output Ratio x Purchase price of RM

Concept (a) Stock-out situation

When a supplier could not supply ordered units of FG then such a situation is called Stock out situation.

Stock-out ratio (Finished Goods) =

$\frac{\text{units for which order got cancelled}}{\text{total units for which orders received in whole year}}$





(b) Inventory turnover ratio for FG (ITR for FG)

1. Inventory turnover ratio for finished goods =

$$\frac{\text{Cost of sales}}{\text{Average inventory of finished goods}}$$

2. Average inventory of finished goods =

$$\frac{\text{Opening stock of FG} + \text{closing stock of FG}}{2}$$

3. Avg. stock of finished goods = $\frac{365 \text{ days or 12 months}}{\text{inventory turnover ratio of FG}}$

Low ITR for FG means High inventory holding period which means high holding cost hence unfavourable.

High ITR for FG means Low Inventory holding period which means low holding cost hence favourable.

Stock out cost = stock out units x Stock out cost per unit x probability (%).

Concept :- Raw material mix ratio

- When 2 or more type of raw materials are required in producing a product then the ratio in which material is used is, called raw material mix ratio.





CHAPTER - Direct Labour

Concept :- Basic Knowledge

- Workers are paid wages based on
 - Time basis Rs. 100 per hour
 - Piece rate basis e.g. Rs.200 per unit produced.
 - Piece rate wage system with guaranteed time wages:-

❖ Total Earning under time based wage method = No. of hours worked x wage rate per hour.

Concept 9 formula oriented bonus schemes as follows:-

1 Halsey Plan

Total wages = hours worked x wage rate + hours saved x $\frac{50}{100}$ x hourly wage rate **(Called Bonus)**

2 Rowan Scheme

Total Wages = hours worked x wage rate + hours saved x $\frac{\text{time taken}}{\text{time allowed}}$ x hourly wage rate **(Called Bonus)**





- Direct labour cost per unit = $\frac{\text{Total Wages}}{\text{Total Unit produced}}$
- Effective Wage Rate = $\frac{\text{Total Wages}}{\text{Total Actual hours worked}}$

3 Emerson plan (Time based wages based)

Total wages = Time based wages + bonus as specific % of Time based wages

Level of efficiency	Specific % of Time based wages
Upto 66.66%	NIL
More than 66.66% but upto 100%	It increases in steps and becomes max. 20% at 100% efficiency level. (This information will be given in question)
More than 100%	20% + 1% extra for each 1% extra efficiency

Cases	Level of Efficiency
Output based (When standard & actual time is same)	= $\frac{\text{Actual output}}{\text{Standard output}}$





Time based (When Standard & actual output is same)	$= \frac{\text{Standard Time}}{\text{Actual Time}}$
--	---

Example:- if student set a target 40 questions per day and did actually 30 questions in a day then level of efficiency achieved will be 75% $(\frac{30 \text{ Questions}}{40 \text{ Questions}} \times 100)$ **(PI Note standard and actual Time is same).**

Formula Derived $= \frac{\text{Actual Output}}{\text{Standard Output}} \times 100$ When standard and actual Time is same.

Example:- If a student set a target to 40 questions in 8 hours but did 40 questions in 10 hours then level of efficiency shall be 80% $(\frac{8 \text{ hours}}{10 \text{ hours}} \times 100)$. **(PI Note standard and actual Output is same).**

Formula Derived $= \frac{\text{Standard Time}}{\text{Actual Time}} \times 100$ When standard and actual Output is same





4 Taylor's Differential piece rate (Piece rate based)

Total wages = Actual output x differential piece rate

Level of efficiency	Differential piece rate
Less than 100%	80% of Normal piece rate
100% or more	120% of Normal piece rate

5 Merrick's piece rate system

Total Wages = Actual output x differential piece rate

Level of efficiency	Differential piece rate
Upto 83%	100% of Normal piece rate
More than 83% but upto 100%	110% of Normal piece rate
More than 100%	120% of Normal piece rate

6 Bedeaux scheme

Total wages = Time worked x wage rate + time Saved x 75% x wage rate





7 Gantt task scheme (Time wages and Piece rate based)

Level of efficiency	Total wages
Less than 100%	Time based wages
Equal to 100%	120% of time based wages
More than 100%	Actual output x Higher piece rate • High piece rate will be given in question • High piece rate should be fixed in such a manner that 120% of piece rate based wages are paid.

8 Total wages under Barth scheme =

$$\sqrt{\text{standard time} \times \text{actual time}} \times \text{hourly wage rate}$$

9 Total Wages under halsey weir plan = time worked x wage rate + $\frac{30}{100} \times \text{time saved} \times \text{hourly wage rate}$





Concept (Contribution to Sales Ratio)

As the name suggest, it shows relation between contribution and sales.

Profit = Total Sales – Total Cost

Total Cost = Total variable cost + Total Fixed Cost

Contribution = sales value - total variable cost

Total variable cost = Material cost + labour cost + variable Overhead

Contribution becomes profit if there is no fixed cost then contribution is itself profit Hence contribution to sales ratio is also called profit-volume ratio.

Concept Control Ratio:- All 3 formulae are time based.

$$\text{❖ Activity Ratio} = \frac{\text{std hours for actual output obtained}}{\text{budgeted hours for budgeted production}} \times 100 = \frac{S}{B}$$

$$\text{❖ Capacity ratio} = \frac{\text{actual hours worked}}{\text{budgeted hours for budgeted production}} \times 100 = \frac{A}{B}$$

$$\text{❖ Efficiency ratio} = \frac{\text{std.hours for actual output obtained}}{\text{actual hours worked}} \times 100 = \frac{S}{A}$$

Activity ratio = Capacity ratio x efficiency ratio





Concept 6:- Treatment of Overtime:-

Cases	Treatment of overtime
1. When overtime is required regularly as a policy due to shortage of labour.	Overtime payment is charged to product using <u>inflated wage rate.</u>
2. When overtime is desired at customer request to complete the work instantly.	Overtime payment to charged to job (Recovered from customer)
3. When overtime is required to make up any shortfall in production due to abnormal situations e.g. breakdown of machine.	Overtime payment is charged as loss in costing profit and loss account.
4. When overtime is worked irregularly to meet requirements of production	Overtime payment is treated as production overhead.





Concept Labour Turnover Rate (LTR)

1. Old worker resigns from company if they get better opportunity (**Called Resignation / Retirement / Left**).
2. Old workers are fired from company if they does not perform well (**Called retrenchment / discharged**).
3. New workers are recruited to fill in vacancy due to resignation/retrenchment (**Called Replacement**). It is not due to expansion plan of company.
4. New workers are recruited as additional work force due to expansion plan of company(**Called Fresh recruitment**).

There are 4 methods of calculating labour turnover rates as follows:-

1. Labour turnover under **separation method**:-

$$\frac{\text{No. of separations in a year}}{\text{Average no. of workers on the roll during the period}} \times 100$$

Separations (S) = **Resignation + Retirement + left ++
retrenchment+ discharged**





Note:- Average no. of workers on roll =

$$\frac{\text{workers on the beginning of the period} + \text{workers at the end of period}}{2}$$

2. Labour turnover under **replacement method** =

$$\frac{\text{No. of replacements in the period}}{\text{Average no. of workers on roll during the period}} \times 100$$

Replacement (R) = New workers are recruited to fill in vacancy due to resignation/retrenchment

Replacement does not include those works who are engaged due to expansion scheme.

3. Labour turnover under **accession method** =

$$\frac{\text{No. of accessions in the period}}{\text{Average No. of workers on the roll during the period}} \times 100$$

Accession (A) = Replacement + Fresh recruitment





4. Labour turnover under **Flux method**

C.1:-(If fresh recruitment due to expansion not considered) =

$$\frac{(\text{No. of separations in a year} + \text{No. of replacements in a year})}{\text{Average no. of workers on the roll during the period}} \times 100$$

We call flux as “Full” just to learn formula

Labour turnover under **Flux method**

C.2:-(If fresh recruitment due to expansion considered) =

$$\frac{(\text{No. of separations in a year} + \text{No. of accessions})}{\text{Average no. of workers on the roll during the period}} \times 100$$

Since Accession includes **both replacement and fresh recruitment.**

Equivalent annual Labour turnover rate =

$$\frac{\text{Turnover rate for the lesser period}}{\text{No. of days in the period}} \times 365 \text{ days}$$





Note:-workers recruited and joined = Accession = Replaced + Fresh recruited

Note:-workers left and discharged = S = Separation

Concept Factory Act

According to factories Act a worker shall be paid overtime payment if he works for more than 9 hours in a day or if he works for more than 48 hours in a week. in India, Overtime is paid at double the normal rate of wages.

Concept Treatment of Normal Idle Time & Abnormal idle Time

Idle time when worker keep on sitting without working. Idle time is categorized in 2 categories:-

1. Normal Idle Time:- Like lunch time, small 10 minutes break etc.:- Cost of such normal idle time is absorbed into cost of product.





2. Abnormal idle time:- Like breakdown of machine, charged as a loss in costing P&L A/c. Cost of abnormal idle time is charged as loss to costing P&L Account.





CHAPTER – OVERHEAD

Concept Overheads meaning and Recovery Rates /

Overhead absorption rate:- 5 Methods

a) Percentage of direct material cost =

$$\frac{\text{Amount of production overheads}}{\text{Direct material cost}} \times 100$$

b) Percentage of direct labour cost =

$$\frac{\text{Amount of production overheads}}{\text{Direct labour cost}} \times 100$$

c) Percentage of prime cost = $\frac{\text{Amount of production overheads}}{\text{Prime cost}} \times 100$

d) Direct labour hours rate = $\frac{\text{Amount of production overheads}}{\text{Direct labour hours}}$

e) Machine hour rate = $\frac{\text{Amount of production overheads}}{\text{Machine hours}}$





Concept Allocation of overheads VS apportionment of overheads:-

Allocation means charging a full amount of overhead directly to a department for which this amount has been incurred.

Apportionment of overheads:- when separate identification of overhead department-wise is not possible then we have to divide cost of whole overheads among all departments on logical basis then it is called apportionment of overheads.

Common Expenditure	Basis of Apportionment
1. (a) Factory Rent, Rates & Taxes (b) Repairs & Maintenance of Factory Building (c) Insurance of Factory Building (d) Depreciation of Factory Building (if owned)	Floor area occupied by each department





2. (a) Repairs & Maintenance of Plant & Machinery (b) Insurance of Plant & Machinery (c) Depreciation of Plant & Machinery	Capital cost of plant & machinery of each department
3. (a) Supervision Salary (b) Canteen, Staff Welfare Expenses (c) Time Keeping & Personnel Office Expenses	No. of workers of each department
4. (a) Compensation to Workers (b) Employees' State Insurance Contribution (c) Provident Fund Contribution	Wages of workers of each department
5. Lighting & Heating	No. of light points <i>or</i> floor area occupied by each department
6. Power consumption	Horse power of machines <i>or</i> machine hours consumed in each department

Common Expense, i.e. Overhead	Basis of Apportionment (Multiple Options)
Rent of Factory Building	- Area of Deptt. If Area Given - Equal if area not given
Factory Lighting Expenses	- Number of Light Points <i>or</i> - Area if light points not given
Depreciation of machines	- Number of machines of each deptt if value not given - Value of machines
Power for Machines	Horse Power (HP) Rating <i>or</i>





	• HP Rating × Machine Hours • Machine hours
Indirect Wages	• Direct Wages

Concept :- Treatment of under/over absorption (Recovery) of overheads:-

Under absorption of OH means that amount of OH absorbed over products is less than the amount of actual OH incurred.

Over absorption of OH means that amount of OH absorbed over products is more than the amount of actual OH incurred.

Accounting Treatment:- Under or over absorbed overheads are disposed off by any of following methods:-

- a. One method suggest that the **under or over absorbed overheads should be charged to costing profit & loss account as loss or profit. – Modern Break-up method**
- b. Second method suggest that **unabsorbed / over-absorbed overheads should be charged to WIP,**





Finished goods- stock and units sold (Traditional break-up method)

- by using supplementary rate **OR**
- in the ratio of their value in case units are not given in question.

Note 1:- supplementary rate =

$$\frac{\text{unabsorbed or over absorbed OH}}{\text{Total production in units including equivalent units of WIP}}$$

Absorbed OH = absorption OH = Recovered OH = Applied OH

Note 2:- The **under absorbed overhead** relating to **inefficiency or defective planning or defective production policy** is abnormal loss hence it is charged to profit and loss account as loss.

Note 3:- For calculation of unabsorbed / over absorption OH, **Actual overhead incurred** should not include non-recurring expenses

- amount paid to worker as per court order





- previous years' expenses booked to current year
- wages paid in strike period
- obsolete stores written off.

Concept Re-distribution of overheads

There are 2 kinds of departments – first is production departments and second is service departments.

4 methods are used for re-distribution

1) Repeated / continuous distribution method:- Following steps shall be applied under this method assuming 3 production deptt. As P1, P2, P3 and 3 service deptt. S1, S2 and S3.

S.1 Original Cost of S1 is distributed among P1, P2, P3, S2 and S3 in given %.**(1:5)**





S.2 Original Cost of S2 Plus shared cost from S1 is distributed among P1, P2, P3, S1, S3 in given %.(1:5)

S.3 Original cost of S3 plus shared cost from S1 & S2 is distributed among P1, P2, P3, S1 and S2 in given %.(1:5)

S.4 Repeat the above step -1, step – 2 and then step - 3 until cost of S1, S2 and S3 becomes small figure.

(Rs. 1 or Rs. 2). Now distribute this small figure over P1, P2 and P3

“Gadha method”

2) Trial and error method:-Following steps are applied under this method assuming 3 production deptt. As P1, P2, P3 and 3 service deptt. S1, S2 and S3.

S.1Original Cost of S1 is distributed among S2 and S3 in given %.(1:2) (No amount shall be reduced from S1)





S.2 Original Cost of S2 along with **shared cost** from S1 is distributed among S1 & S3 in given %.**(1:2)**(No amount shall be reduced from S2)

S.3 Original Cost of S3 along with **shared cost** from S1 & S2 is distributed among S1 & S2 in given %.**(1:2)**(No amount shall be reduced from S3)

S.4 Repeat the process of distribution again beginning with S1 until the **additional amount** becomes small amount (Rs.1 or Rs.2)

Note:- Original cost is shared only once and additional cost is shared again and again.

S.5 Now distribute the [**100% - Share of other Service Deptt.**] cost of S1, S2 and S3 among P1, P2 and P3 **only once.**

“Galti ka Putla method”

3) Simultaneous equation method:- Following steps are applied under this method assuming 3 production deptt. As P1, P2, P3 and 2 service deptt. S1 and S2.





S.1 Make 2 equations to show the total cost of S1 & S2 including its share (%) in S2 & S1 respectively.

S.2 Solve these 2 equations to find out the cost of S1 and S2. (**Called Calculated Cost**)

S.3 This calculated cost of S1 and S2 is then distributed **only once** over production deptt and service deptt. in given %.

4) Step ladder method :- following steps are applied under this method assuming 3 production deptt. As P1, P2, P3 and 4 service deptt. S1, S2, S3 & S4.

✓ S1 provide services to P1, P2, P3, S2, S3 & S4.

(1:6)

✓ S2 provide services to P1, P2, P3, S3 & S4. **(1:5)**

✓ S3 provides services to P1, P2, P3 and S4. **(1:4)**

✓ S4 provides services to P1, P2 & P3. **(1:3)**

S.1 Original Cost of S1 is distributed among P1, P2, P3, S2, S3 & S4.

S. 2 Original Cost of S2 along with **shared cost from S1** is distributed among P1, P2, P3, S3 & S4.





S.3 Original Cost of S3 along with **shared cost from S1 & S2** is distributed among P1, P2, P3 and S4.

S.4 Original Cost of S4 along with **shared cost from S1, S2 & S3** is distributed among P1, P2 & P3.

Concept Different capacity :-

Meaning	Capacity of a factory refers to its ability to produce with the available resources and facilities. It is expressed in terms of (a) Units of product e.g. 100 cars per day (b) Production Hours e.g. 8 hours per day
Types	It refers to the maximum possible production capacity of a factory which can
1. Maximum / Rated Capacity	never be achieved practically and it is only a theoretical capacity.
2. Practical	It refers to the maximum capacity of a factory <u>reduced</u> by capacity lost due to





Capacity	Normal repairs & maintenance, Sundays, Holidaysetc. Thus, Practical capacity = Maximum capacity – Normal loss of capacity
3. Normal Capacity / Average Capacity	It refers to average of capacity utilised of factory during one full business cycle which may extend over 3 to 5 years ignoring the abnormal year of highest and lowest utilisation.
4. Actual Capacity	It refers to the capacity actually utilised during a given period.

Concept Machine hour rate:- while calculating machine hour rate,

$$\text{Machine hour rate} = \frac{\text{Amount of production overheads}}{\text{Effective Machine hours}}$$





- All expenses related to **operating of machine** are divided into fixed/standing charges and running/machine expenses.
- Comprehensive machine hour rate = Simple machine hour rate + **direct wages per machine**

$$\text{hour} \left(\frac{\text{Total Direct wages}}{\text{Total machine hours}} \right)$$

STATEMENT SHOWING THE COMPUTATION OF MACHINE HOUR RATE

Particulars	Amount (Rs.)
A. Fixed/Standing Charges:	
(a) Rent & Rates	XXX
(b) Heating & lighting cost	XXX
(c) Supervision cost	XXX
(d) Insurance cost	XXX
(e) Department & general overheads	XXX
(f) Sundry Shop Supplies	XXX
(g) Depreciation of factory - building	
Total Fixed/Standing Charges	XXX
B. Machine Expenses per hour:	





(a) Depreciation = $\frac{\text{Original Cost} + \text{Installation Exp.} - \text{Scrap Value}}{\text{Effective useful life (in hours)}}$	
(b) Powerconsumed cost / Electricity	
(c) Repair & Maintenance	
(d) Lubricating oil & Consumable stores	
(e) Other running expenses	
C. Machine Hour Rate	

Calculation of Effective machine hours

Particulars	Hours
Maximum Capacity (365 days x 8 hours in a day(	XXX
Less:- Hours spent on holidays, festivals, Sundays, repair & maintenance	(XXX)
Practical capacity (In hours)	XXX
Less:- Set up time (If unproductive)	(XXX)
Effective machine hours	XXX

Note:- if set-up time is considered productive then it shall not be reduced.





Note:-Depreciation of machine shall be fixed exp. if life of machine is based on Time **OR** Depreciation of machine shall be variable exp. if life of machine is based on machine hours.
Depreciation of factory building shall always be fixed.





CHAPTER - JOB AND BATCH COSTING

Concept Job Costing is that form of specific order costing under which each job is treated as a cost unit and costs are ascertained separately for each job. A job may consist of a job, product, contract, a service or any other specific order.

Concept Batch Costing is that form of specific order costing under which each batch is treated as a cost unit and costs are accumulated and ascertained separately for each batch. Each batch consists of a number of like units e.g. Visiting Cards

Concept Economic Batch Quantity (EBQ)

Meaning	EBQ refers to the optimum quantity batch at which <u>Set up & Processing Costs</u> and <u>Carrying Costs</u> are together minimised.
Formula	$E.B.Q = \sqrt{\frac{2 \times \text{Annual Demand} \times \text{Set up cost per batch}}{\text{Cost of carrying per unit of production per annum}}}$





CHAPTER - OPERATING COSTING OR TRANSPORT COSTING

1. **Only for Service Providers**:- This chapter is basically related to service industries which provide services to their customers example coaching centres, hospitals, clubs and transport companies. (They don't sell any product).
2. transport Service providers = Transport of Passengers + Transport of Goods

Various cost per unit shall be calculated as follows:-

Service Provider	Cost per unit	Cost per unit – Calculation
Ola Cab / Taxi	Cost per Km.	$\frac{\text{Total Cost of operating}}{\text{Total Kms. run}}$
School Bus, Chartered Bus, Railways, Airlines	Cost per passenger	$\frac{\text{Total Cost of operating}}{\text{Total Passengers}}$
Metro, DTC Bus	Cost per passenger per	$\frac{\text{Total Cost of operating}}{\text{Total Passengers – Kms}}$





	km	
Goods Transport Service providers	Cost per tonne per km	$\frac{\text{Total Cost of operating}}{\text{Total Tonnes – Kms}}$

Total Passenger – Kms = Total No. of Passengers x Total Kms.

Total Tonnes Km = Total Tonnes x Total Km

3. We shall divide all expenses of transport industry in following 2 categories

- a. Fixed Exp. / Standing Charges :- as the name suggest, these charges are fixed by nature and not dependent on running of a vehicle. Salary to driver, Insurance, Road Tax etc
- b. Running Charges / Variable Exp:- as the name suggest, these charges are variable and purely dependent on running of vehicle like petrol exp. diesel, Repairs.





Note1 on Depreciation

- Depreciation of vehicle shall be treated as Fixed expenses if life of vehicle is given in number of years
- Depreciation shall be treated as variable expenses if life of vehicle is given in number of kilometers.
- If Nothing is given in question, we will assume depreciation to be Fixed Cost

Note 2 on Repairs & Maintenance

- R&M shall be treated as fixed expense if it is in the nature of annual maintenance contract (AMC) like in case of Air conditioner (AC) in our Home
- R&M shall be treated as variable expense if it is not in nature of AMC..
- If nothing is given in question, we will assume R&M to be variable cost.

In case of transport of goods services, we shall calculate cost per tonne-km.

Total Tonne-km = Total Tonne x Total Kms.





Tonne km are of 2 types:-

- ✓ Absolute Tonne Km = Weight in tonne x km run
- ✓ Commercial Tonne – Km – Total Km x Avg. Tonne Km.

Note:- If nothing is specified in question then absolute tonne km shall be used to calculate cost per tonne-km.

4. Total Collection for transport industry is called as total takings.

Particulars	Amount (Rs.)
Total operating Cost	XXX
Add:- Profit	XXX
Net Takings	XXX
Add:- Passenger Tax	XXX
Total Takings	XXX





CHAPTER - MARGINAL COSTING / VARIABLE COST

Concept What is marginal costing Technique ?

- ✓ Marginal Costing Technique says that Fixed cost is sunk cost / irrelevant cost for decision making but it shall be relevant for calculation of profit.

BEHAVE OF COST UNDER MARGINAL COSTING

Production	Variable Cost		Fixed Cost	
	Per unit	Total	Per unit	Total
Increases	Same	Increases	Decreases	Same
Decreases	Same	Decreases	Increases	Same

Concept - Meaning of Contribution

Under marginal costing, excess of selling price per unit over variable cost per unit is called contribution.

It is expressed on per unit basis and totality basis.

Formula 1:- Contribution per unit = Selling price per unit – Variable Cost per unit





Formula 2:- Total Contribution = Total Sales – Total Variable Costs

Concept Derivation of another formula of contribution

We know that Sales – Variable Cost – Fixed Cost = Profit

Sales – variable Cost = Fixed Cost + Profit

Contribution = Fixed Cost + Profit **OR**

Contribution = Fixed Cost – Loss (Since there may be loss inspite of profit)

Concept Marginal cost Equation

Sales	XXX
Less:- Variable Cost	(XXX)
Contribution	XXX
Less:- Fixed Cost	(XXX)
Profit	XXX

Concept Contribution to Sales Ratio = $\frac{\text{Contribution}}{\text{Sales}} \times 100$

(Expressed in %)





Called Profit-Volume Ratio (P/V Ratio)

In marginal costing, fixed cost is ignored for decision making. Hence If there is no fixed cost then all contribution shall be profit so contribution to sales ratio is called Profit-volume ratio or P/V ratio.

Contribution = Sales x P/V Ratio

$$\begin{aligned} \text{P/V ratio} &= \frac{\text{Sales} - \text{Variable Cost}}{\text{Sales}} \times 100 = \frac{\text{Fixed Cost} + \text{Profit}}{\text{Sales}} \times 100 = \\ &= \frac{\text{Fixed cost} - \text{loss}}{\text{Sales}} \times 100 \end{aligned}$$

Concept Break Even Sales

Break Even Sales means sales at which there is no profit no loss to the company.

$$\text{Units Sold [BEP (In units)]} = \frac{\text{Fixed Cost}}{\text{contribution per unit}} \quad (\text{Formula 1})$$





$$\text{Sales in rupees} = \frac{\text{Fixed Cost}}{p/v \text{ ratio}} \text{ (Formula 2)}$$

Concept How calculate P/V Ratio when break-even sales given

$$\text{P/v ratio} = \frac{\text{Fixed Cost} + \text{Profit}}{\text{Sales}} \times 100$$

Since at Breakeven point profit shall be zero and sales shall be called break even sales

$$\text{P/V Ratio} = \frac{\text{Fixed Cost}}{\text{Break Even Sales}} \times 100 \text{ (Formula)}$$

Concept How calculate P/V Ratio when profit and sales volume of 2 periods are given.

$$\text{P/V Ratio} = \frac{P_2 - P_1}{S_2 - S_1} = \frac{\text{difference in profit}}{\text{difference in sales}}$$

Concept Margin of safety sales

➤ Margin of safety sales means sales generating profit





- MOS sales means excess of actual sales over break-even point sales
- MOS Sales units = $\frac{\text{profit}}{\text{contribution per unit}}$
- MOS Sales in Rs. = $\frac{\text{profit}}{\text{pv ratio}}$

Concept Break Even Sales Ratio and MOS Sales Ratio

$$100\% = \text{Break Even Sales ratio} + \text{MOS Sales Ratio}$$

Concept Variable cost to sales ratio = $\frac{\text{variable cost}}{\text{sales}} \times 100$

Concept Contribution = Sales – Variable Cost

On dividing both sides by sales and multiplying both sides by 100 we get

$$\frac{\text{contribution}}{\text{sales}} \times 100 = \frac{\text{sales}}{\text{sales}} \times 100 - \frac{\text{variable cost}}{\text{sales}} \times 100$$

$$\text{P/V Ratio} = 100\% - \text{Variable cost to sales ratio}$$

$$\text{P/V Ratio} + \text{variable cost to sales ratio} = 100\%$$

Concept Calculate sales level to earn desired profit given in question





Desired level of Sales (In units) = $\frac{\text{Fixed Cost} + \text{Profit}}{\text{Contribution per unit}}$ (Sum of BEP Sales and MOS Sales Formula)

Desired level of Sales (In Rs.) = $\frac{\text{Fixed Cost} + \text{Profit}}{\text{PV Ratio}}$ (Sum of BEP Sales and MOS Sales Formula)

Concept Cost indifference point(also called cost BEP)

- It is the level of production at which total production cost (including both fixed and variable cost) under labour intensive and capital intensive method of production is same.

$$\text{Cost BEP} = \frac{\text{difference in fixed cost}}{\text{difference in variable cost per unit}}$$

Note:-Under labour intensive method:- More VC per unit (Low FC)

Note:-Under capital intensive method:- Less VC per unit (High FC)





Decision about selection of a production method (Target:-
Low Total Production Cost)

1. If actual production is equal to Cost BEP units then any one method can be selected.
2. If actual production is less than Cost BEP units then High VC incurring method will be selected.
3. If actual production is more than Cost BEP units then Low VC incurring method will be selected.

Concept - Merger of 2 departments or companies

If management of 2 or more companies decides to merge companies which are operating at same or different capacity level then Merged company desires to know following things:-

1. P/V Ratio
2. BEP in rupees
3. Capacity utilization at BEP
4. Desired Sales
5. Desired Profit
6. Desired capacity utilization of merged plant





Step1:- make marginal cost equation of all companies at 100% capacity level

Step2:-Add all figures to calculate Sales, Variable Costs, Fixed Costs and Contribution of merged company .

Note:- Fixed cost shall include additional fixed cost involved in merger, if any

- P/V Ratio of merged co. =

$$\frac{\text{Total contribution of all co.at 100\% capacity}}{\text{Total sales of all co.at 100\% capacity}} \times 100$$

- BEP in rupees of merged co. =

$$\frac{\text{Total Fixed cost of all co.+Additional FC of merger,if any}}{\text{PV Ratio of merged co.}} \times 100$$

- Capacity utilization at BEP of merged co. =

$$\frac{\text{BEP of merged co.}}{\text{Total sales of merged co.at 100\% capacity}} \times 100$$

- Desired sales to earn given profit =

$$\frac{\text{Fixed cost of merged co.+desired profit}}{\text{PV Ratio of merged co.}} \times 100$$

- Capacity utilization at desired sales =

$$\frac{\text{desired sales}}{\text{Total sales of merged co.at 100\% capacity}} \times 100$$





Concept Cash BEP

It means that level of sales at which company is able to recover out fixed cost incurred in cash.

- Cash BEP in units = $\frac{\text{Cash Fixed cost}}{\text{contribution per unit}}$
- Cash BEP in rupees = $\frac{\text{cash Fixed cost}}{\text{PV ratio}}$

Cash fixed cost = Total FC – Non-FC

Non-cash FC are those which do not involve cash outflow e.g. depreciation

Concept No. BEP for multiple products – Together

A company is selling more than one product hence contribution of all products can be calculated separately but FC is in total. In such situation BEP is required to be calculated for individual product or all products together

Concept No. 18 Shut down Point





Suppose a company is selling 2 products i.e. product A and B. Company is making profit in product A while company is making loss in product B. So company wants to decide the level of sales below which it is not beneficial to produce and sale product B.

In such situation, FC is divided in 2 category:-

1. Avoidable FC :- FC which need to be incurred if item is not produced.
2. Unavoidable FC:- FC which has to be incurred whether or not item is produced.

A company has taken on rent a commercial space for 2 departments i.e. Dept. 1 & Dept. 2. Product A is manufactured in dept. 1 and product B is manufactured in dept. 2. Rent given for whole commercial space is Unavoidable FC while salary paid to manager of each department is avoidable FC.

$$\text{SDP Sales (units)} = \frac{\text{Avoidable Fixed Cost}}{\text{contribution per unit}}$$

$$\text{SDP Sales (Rs.)} = \frac{\text{Aviodable FC}}{\text{PV Ratio}}$$





$\text{Avoidable FC} = \text{Total FC} - \text{Unavoidable FC (minimum FC)}$

Decision making about shut down point:-

1. If actual sales is equal to or more than SDP Sales then it is better to continue production
2. If actual sales is more than SDP sales then it is better to shut down the production.

Concept Calculation of BEP in case of range type FC

IF FC is Rs. 1,000 for producing every next 50 units then it shall be Range Type FC. Hence

Fixed Cost for	Shall be Rs.
1-50 units	1,000
51-100 units	2,000
101-150	3,000





units	
-------	--

If Company manufactures 20 units or 30 units or 50 units then FC shall be Rs.1,000.

In such a case, we shall calculate BEP for each range. If calculated BEP units falls within that range then it shall be valid BEP otherwise it is invalid BEP.

Concept Absorption Vs Marginal costing:-

- 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. Marginal costing is determination of future P/v ratio, Future BEP, Future desired sales etc.
- 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.

Income statement under Marginal costing approach

Particulars	Amount
Sales	XX
Less Variable Cost	
DMC	(XX)
DLC	(XX)
Direct Exp.	(XX)
Variable Factory OH	(XX)
Variable Office & Admin OH	(XX)
Variable Selling & Dist. OH	(XX)
Contribution	XX
Less Fixed Cost	





Fixed Factory OH	(XX)
Fixed Office & Admin OH	(XX)
Fixed Selling & Dist. OH	(XX)
Profit	XX

Income statement under Absorption costing approach

Particulars	Amount (Rs.)
Variable (Direct Material Cost)	XX
Variable (Direct Labour Cost)	XX
Variable (Direct Expenses)	XX
Variable Factory OH	XX
Fixed Factory OH <u>absorbed</u> units produced x standard rate per unit	XX
Total manufacturing cost of Quantity Produced	XX
Add:- Opening FG	XX
Less:- Closing FG	(XX)
Total manufacturing cost of Quantity Sold	XX
Add:- Variable Office & Admin OH	XX
Fixed Office and Admin OH	XX
Variable Selling & Distribution OH	XX
Fixed Selling & Distribution OH	XX
Add:- Under absorbed OH (Actual OH incurred – OH absorbed)	XX (XX)





Less:- Over absorbed OH (OH absorbed – Actual OH incurred)	
Total Cost of Sales (A)	XX
Sales (B)	XX
Profit (B – A)	XX

Reason for difference in profit

Particulars	Amount (Rs.)
Profit under marginal costing	Xxx
Add:- Opening stock Excess in marginal costing	Xxx
Closing stock Excess in absorption in marginal costing	Xxx
Less:- Opening stock Excess in absorption Costing	(xxx)
Closing stock Excess in Marginal costing	(xxx)
Profit under absorption costing	Xxx

DCP Approach:-

1. Debit item (Opening Stock) + Excess in Marginal Costing then Plus





Concept Key factor / limiting factor

- Key factor limits the production capacity of an undertaking examples are shortage of raw material, shortage of labour, shortage of sales capacity, shortage of plant capacity
- Contribution per unit of limiting factor should be considered to decide the ranking of products to be produced and sold

$$\text{Contribution per unit of limiting factor} = \frac{\text{contribution per unit}}{\text{key factor per unit}}$$

- The product having largest contribution per unit of limiting factor should be ranked as first and so on.
- Following are various limiting factors and decision making rule

Various limiting factor	Decision making Rule
1.labour hours	Contribution per labour hour





2.machine hours	Contribution per machine hour
3.raw material in Qty (Kg.)	Contribution per kg of raw material
4.raw material cost	Contribution per rupee of material cost
5.labour cost	Contribution per rupee of labour cost
6.sales Qty	Contribution per unit sold
7.sales value in rupees	Contribution per rupee of sales / P/V Ratio

Steps to calculate best suitable mix of products

Step1:- Find out contribution per unit of each product

Step2:- Find out contribution per unit of limiting factor e.g. contribution per labour hour

Step3:- Allot ranking based on first rank to highest contribution per unit of limiting factor.





Step4:- Allocate the available resources to production of different units of products on the basis of ranking in step3.

Step5:- Find suitable best mix of all the products and find contribution for this mix.

CHAPTER - RECONCILIATION OF COST AND FINANCIAL ACCOUNTING

1. Under cost records, profit is calculated using cost sheet which includes material cost, labour cost, overheads and sales.
2. Under financial records, profit is calculated by making trading and profit & loss account which includes **expenses actually incurred** along with items of financial nature like income tax, dividend etc.
3. Hence profit calculated under cost and financial records differs. A reconciliation statement is prepared to find out reasons of difference.
4. Following are the reasons of difference between the profit shown by cost records and financial records.





- ❖ **DIFFERENT BASES FOR VALUATION OF STOCKS:-** In cost accounts, stock is usually valued at cost of production while in financial accounts, Stock of Finished Goods is valued at cost or market price whichever is lower.

- ❖ **DIFFERENT METHODS OF DEPRECIATION:-** In financial accounts, the Straight Line Method (SLM) or Written Down Value (WDV) method is used but in cost accounts, depreciation of machine is based on Machine Hours e.g. machine hour rate

- ❖ **ITEMS INCLUDED ONLY IN FINANCIAL ACCOUNTS (Not in Cost Accounts) :-** Profit on sale of Fixed Assets, Interest Income, Dividend Income, Rental Income etc.





5.A Reconciliation statement shall be prepared in following manner:-

Particulars	Plus Items	Minus Items
Profit / Loss as per cost Records		
Add:- Items demanding addition should be added here in plus items heading		
Less:- Items demanding deletion should be deducted here in minus items heading		
Total (Make Total of both the columns i.e. "Plus items and Minus Items")		
Profit/Loss as per financial records (Rs. XXX – Rs. XXX) = Rs. XXX		

Note:- In case Memorandum Reconciliation Account is required to be prepared instead of reconciliation statement then

- ❖ All items appearing on plus item column shall be credited to Reconciliation Account e.g. profit as per cost records
- ❖ All items appearing on minus item column shall be debited to Reconciliation Account e.g. loss as per cost records
- ❖ Difference shall be profit / loss as per financial records.





6. Costing profit and loss Account is simply cost sheet presented in account format.

- ❖ Expenses and opening stock shown on debit side.
- ❖ Sales and closing stock shown on credit side
- ❖ Difference shall be profit / loss as per cost records.

7. Tricks for ease in preparation of reconciliation statement

Step 1:- Always take profit or loss of costing as a base

Step 2:- Always use DCP Approach

CHAPTER –COST SHEET

1. **Never break sequence**
2. **Large Scale production needed**
3. **One Format Based Chapter:-**
4. **Semi Variable Cost:-**





Basic Things

1. This Chapter is also known as single costing / Unit Costing / Output Costing.
2. Under unit costing, all costs incurred under various categories like material, labour etc. are totaled and cost per unit is calculated by dividing total cost by the number of units produced. Hence calculation of cost per unit.
3. The cost which can be **identified directly** is known as direct cost while cost which cannot be identified with product is known as indirect cost.

Particulars	Classification of cost involved in coaching classes
Direct material cost	Cost of study material given to each student
Indirect material cost	Cost of marker, cost of used pages
Direct labour cost	Payment to teacher because it is labour cost from coaching centre point of view
Indirect labour	Payment to other staff like receptionist





cost	since it is labour cost
Direct expenses	Hall rent charges since it is neither material cost nor labour cost.
Indirect expenses	Electricity bill and telephone bill of coaching centre place where class is conducted.

4. Indirect cost is overhead cost which may be production overhead, office & administration overhead and Selling & distribution overheads.

First we produce goods in factory (Factory OH incurred), then transfer these goods to showroom/shops (Admin OH incurred), then we give job to SRK for advertisement and finally receive order through flipkart.com (Selling & distribution OH incurred)

Admin Overhead has been divided in 2 types:-

1. Admin OH Related to production activity:- It includes admin cost which is incurred in factory





2. General Admin Overhead:-

Special Terms:-

1. Quality Control Cost:- Cost incurred in maintaining quality of product
2. Research & development Cost:- Cost incurred in improving quality of product.
3. Admin OH:- Cost incurred which is related to production activity only
4. Credit for recoveries:- Sale value of scrap or waste.
5. Primary Packing cost:- Packing Cost which is essential to hold and preserve the product for its use by customer.

5. The proforma of the **Comprehensive Cost Sheet**, i.e. with stocks, is as under. If we are given opening stock of raw material, WIP and finished goods.

Raw material :- manufacturing process not started.

Finished Goods :- Final product ready to sell.

WIP :- manufacturing started but not 100% completed.





Particulars	Amt (Rs.)	Total units
Opening stock of raw material		
Add:- Purchase of raw material including carriage inwards (Note 1)		
Less:- Closing stock of raw material		
Direct material consumed / DMC		Units produced
Direct Labour Cost		Units produced
Direct Expenses / Chargeable Expenses		Units produced
Prime Cost/Direct Cost		Units produced
Factory/works/Manufacturing/Production overhead		
Plus Opening stock of WIP		
Less closing stock of WIP		
Factory Cost		Units produced
Quality Control Cost		
Research & Development Cost (Process Related)		
Adm. Overheads (Related to Production Activity)		
Less:- Credit for Recoveries / Scrap / By – Products / Misc. Income		
Primary Packing Cost		
Cost of Production (For FG Produced)		Units produced





Plus opening stock of finished goods		
Less closing stock of finished goods		
Cost of goods Sold (For FG Sold)		Units Sold
Selling and distribution overhead		Units Sold
General Admin Overheads		Units Sold
Total cost / Cost of sales		Units Sold
Profit		
Total Sales		

Note 1:- Per unit Cost = $\frac{\text{Total Cost}}{\text{Total units}}$

Note 2:- Unit Cost of Closing FG (per unit) = $\frac{\text{Cost of Production}}{\text{No. of units produced}} = \frac{\text{Factory Cost} + \text{Office \& admin OH}}{\text{No. of units produced}}$

Note 3:- No. of units produced = Sales (units) + Closing Stock (units) – Opening Stock (units)

6. While preparing the cost sheet, following amounts are ignored

- ✓ Items of financial nature e.g. income tax, cash discount, interest on loan/capital, dividend, goodwill written off
- ✓ Abnormal expenses





7. Conversion cost:- It means cost incurred to convert raw material into finished goods.

Method 1:- Conversion cost = direct labour cost + direct expenses + factory overheads

Method 2:- Conversion Cost = Factory Cost – Direct material cost

Concept Valuation of closing stock – Absorption method & marginal cost method

Condition 1:- if stocks are valued on marginal cost basis.

Cost per unit of closing stock of FG shall be Sum of only variable portion till cost of production

Note:- if nothing is given in question we will assume absorption method to be followed.





Concept How to categorise a cost into variable cost & fixed cost.

A Cost, which is same on per unit basis under different production level, is variable cost per unit.

$$\text{Variable Cost per unit} = \frac{\text{Total variable Cost}}{\text{Total units}}$$

A Cost, which is same on Totality basis under different production level, is Total Fixed Cost.

A Cost, Which does not meet any above criteria, is called semi-variable cost / semi-fixed cost.

$$\text{Variable portion in semi-variable cost} = \frac{\text{Change in Total Cost}}{\text{Change in Total Units}}$$

Fixed portion in semi-variable cost = Total Cost – Variable portion (Units x variable portion per unit)

Concept Apportionment of total cost in various products

(How to calculate separate cost of 2 products if collective cost is given)

Total direct material cost of product A & B = Rs. 100000

Buy Pen Drive Classes at www.purushottamaggarwal.com – Call 9582808296





Total direct labour cost of product A & B = Rs. 200000

Units produced for product A is 1000 units and units produced for product B is 2000 units.

Calculate total material cost of A & B under each case ?

Case 1:- Material cost ratio per unit (A:B) = 1:2

Ratio to divide total cost shall be 1:4

A = 1000 units x 1 = 1000

B = 2000 units x 2 = 4000

Case 2:- Material Cost ratio (A:B) = 1:2

Ratio to divide total cost shall be 1:2 since not given on per unit basis

Concept Calculation of projected (Future) Cost

If previous period cost is given then future cost shall be calculated considering

1. Change in production (%)





2. Change in general price level (%) e.g. wage rate increased, material price increased
3. Change in efficiency level (%)

Change in production level (%) shall affect following **variable cost**

- Direct material cost
- Direct labour cost
- Variable OHs (Factory OH, Office & admin OH, selling & dist. OH)

CHAPTER – CONTRACT COSTING

Concept A contract is a **big job** which requires construction of building, road, bridges etc. A contract takes **more than one year** to complete but contract account is prepared at the end of each year





Concept There are 2 parties in a contract i.e. A contractor and A contractee. Contractor is the person who undertakes the contract and contractee is the person who gives the contract.

Concept At the end of each year, work completed till end is checked & certified by architect of contractee. Now contractee makes payment to contractor on the basis of work completed & certified. Normally contractee pays only 80% to 90% of value of work certified as completed and remaining amount is kept by contractee as security money which is paid on 100% completion of contract.

Concept Value of work certified:- It is expressed as a % of the contract price.

Example:- If contract price is Rs. 10 Lakh & work certified is 60% then value of work certified shall be 6 lakh (contract price x work certified as %)

Concept Retention money:- it is that portion of value of work certified which has not been paid by contractee and kept as security money for future defective work.





Retention money = Value of work certified – Cash received by contractor

Concept Work uncertified:- it is that portion of work which has been completed by contractor but has not been certified by architect of contractee. We calculate cost here, not value

Cost of work uncertified = Total cost incurred till date – Cost of work certified

Concept Notional profit:- Value of work certified – Cost of work certified.

Concept Calculation and transfer of profit to P&L A/c of a contract:- if the contract is not fully (100%) complete then it will be wrong if we recognise complete (100%) notional profit in Costing P&L A/c. Hence only a portion of notional profit is treated as profit & balance is kept as reserve against WIP.

Notional Profit = Profit to be recognised + Reserve against WIP





Rules to decide Profit to be recognised (Based of % of work completed – As certified by architect)

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

<u>% of work completed</u>	Amount of Profit to be recognised
Category 1:- If <u>less than 25%</u>	No Profit to be recognised. Whole notional profit is kept as reserve against WIP.
Category 2:- If equal to or more than 25% but <u>less than 50%</u> .	$\frac{1}{3} \times \text{Notional Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}}$
Category 3:- If equal to or more than 50% but <u>less than 90%</u> .	$\frac{2}{3} \times \text{Notional Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}}$
Category 4:- If equal to or more than 90% but <u>less than 100%</u>	Adopt any of the following formula:
(Formula 2 is normally used in this Category)	1. Estimated Total Profit $\times \frac{\text{Work certified}}{\text{Contract price}}$
	2. Estimated Total Profit $\times \frac{\text{Work certified}}{\text{Contract price}} \times \frac{\text{Cash Received}}{\text{Work certified}}$
	3. Estimated Total Profit $\times \frac{\text{Cost of contract incurred to date}}{\text{Total estimated cost}}$
	4. Estimated Total Profit $\times \frac{\text{Cost of Work to date}}{\text{Estimated Total cost}} \times \frac{\text{Cash Received}}{\text{Contract Price}}$
Category 5:- if equal to 100%	Whole notional profit to be recognised

Note:- Estimated Total Profit = Total Contract Price – Estimated Total Cost





Note:- Estimated Total Cost = Cost of Contract upto date + Costs to be incurred

Trick to learn Contracee A/c:- (in the books of contractor)

- On receiving pymt at 1st year end

Bank A/c Dr.	Value of work certified x Cash Pymt %
To Contractee A/c	

- On receiving pymt at 2nd year end

Bank A/c Dr.	Value of work certified x Cash Pymt % Minus Pymt received in 1 st year
To Contractee A/c	

- On receiving pymt in last year when 100% contract is complete

Bank A/c Dr.	Value of work certified x 100% Minus All previous Pymt received
To Contractee A/c	

Concept 9:- Treatment of notional loss and estimated total loss

- Notional loss shall arise when cost of work certified is more than value of work certified.
- Estimated total loss shall arise when total estimated cost of contract is more than total contract price.





- Excess of estimated total loss over and above notional loss is called anticipated loss.

The whole amount of notional loss and anticipated loss shall be recognized as loss & TF to costing P&L A/c.

Concept 10:-Escalation clause:- under this clause of a contract, rise in price of material and labour beyond standard price fixed is paid by contractee as extra amount along with contract price.

Formula to Calculate escalation:-

For material:- Standard quantity x (Actual Price – Std. Price)

For labour:- Standard labour hours x (Actual Price – Standard Price)

Escalation clause does not cover increase in cost caused due to inefficiency or wrong estimation on part of contractor. Reversely, de-escalation clause, contract price is reduced by downward trend in price of materials and rates of labour etc.





Concept 11:-Contract account and Balance sheet is prepared in the following manner:-

Contract A/c (For 1st Accounting Period) – Format 1

Particulars	Rs.	Particulars	Rs.
To Materials Issued to site	XX X	By Materials at site (Closing Stock)	XXX
To Wages incurred (Paid + O/s – Prepaid)	XX X	By Materials returned from site i.e. returned to stores	XXX
To Direct Expenses (Paid + O/s – Prepaid)	XX X	By Bank A/c (Sale of Materials)	XXX
To Depreciation on Plant & Equipments	XX X	By Costing P&L A/c (Loss on sale)	XXX
To Office & Adm. Exp. Incurred (Paid + O/s – Prepaid)	XX X	By Cost of Contract c/d	XXX
	XX X		XXX
To Cost of Contract b/d	XX X	By Work-in-progress	XXX
To Notional Profit c/d	XX X	— Value of Work certified (Like Sale)	XXX
	XX X	— Cost of Work Uncertified (Like closing stock)	XXX
	XX X		XXX
To Profit & Loss A/c	XX	By Notional Profit b/d	XXX





	X		
To Reserve A/c	XX		XXX
	X		
	XX		XXX
	X		

BALANCE SHEET (Extract)			
Liabilities	Rs.	Assets	Rs.
Capital	XXX	Land & Building (Less: Depreciation)	XXX
Profit & Loss A/c	XXX	Plant & Equipment (Less: Depreciation):	XXX
Outstanding Expenses	XXX	Materials : —	
		At Stores	XXX
		At Site	XXX
		Work-in-progress :	
		Value of work certified XXX	
		Cost of work uncertified XXX	
		Less: Contractee's Cr. Balance(XXX)	
		Less: Reserve against WIP.....(XXX)	XXX
		Cash & Bank Balance	XXX
		Prepaid Expenses	XXX





CHAPTER - PROCESS COSTING

1. When 2 or more process are required in mfd a product then concepts of process costing chapter are used to calculate

- All cost incurred in each process.
- Cost of FG transferred to next process.
- Cost of FG directly sold in market & held as stock

Hence a process account is prepared for each process for above purposes.

There are 3 process in becoming a CA i.e. to pass CPT, IPCC & Final.

In process costing, output of each process becomes input of next process and output of last process is called FG.

Process 1	Process 2	Process 3
-----------	-----------	-----------

2 types of losses arise in process costing:-

1. Normal loss:- loss which arise generally. Suppose 10,000 units are introduced in process & 2% is normal loss then 200 units will be normal loss units.





2. Abnormal loss:- if Actual loss is above normal loss. If in above example, 300 units are lost in processing then 100 units are abnormal loss.

Sometimes actual loss is less than normal loss. If in above example, only 150 units are lost in processing then 50 units are treated as **abnormal gain**.

Following A/cs shall be prepared in process costing:-

1. Process A/c
2. Finished goods A/c
3. Normal loss A/c
4. Abnormal loss A/c
5. Abnormal gain A/c
6. P&L Account
7. Any other A/c as required in question.

Process Account

Particulars	Units	Amount	Particulars	Units	Amount
To material input	XX	XX	By normal loss A/c	XX	= Scrap value
To All Expenses incurred		XX	By abnormal loss A/c	XX	= Cost of





					good units
To Rectification cost of normal loss units		XX	By Next process A/c (units TF to next process)	XX	= Cost of good units
To Abnormal gain A/c	XX	= Cost of good units	By finished goods A/c (units held as stock + units sold in mkt)	XX	= Cost of good units
	XXX	XXX		XXX	XXX

Finished goods A/c / Finished stock A/c

Particulars	Units	Amount	Particulars	Units	Amount
To process A/c (TF from process A/c)	XX	= Cost of good units	By Sales	XX	= Sale value
To P&L A/c		Profit on sale	By balance C/d	XX	= Cost of good units
	XXX	XXX		XXX	XXX

Normal loss A/c

Particulars	Units	Amount	Particulars	Units	Amount
To process A/c (TF from process A/c)	XX	=scrap value	By Bank A/c (Note 1)	XX - abnormal gain units	=scrap value
			By abnormal gain	XX	= Bal.





			A/c		Fig.
	XXX	XXX		XXX	XXX

Note 1:- Sale of normal loss units cannot exceed actual loss units.

Abnormal loss A/c

Particulars	Units	Amount	Particulars	Units	Amount
To process A/c (TF from process A/c)	XX	= cost of good units	By Bank A/c	XX	= scrap value
			By P&L A/c		= Bal. Fig.
	XXX	XXX		XXX	XXX

Abnormal gain A/c

Particulars	Units	Amount	Particulars	Units	Amount
To normal loss A/c (TF from normal loss A/c)	XX	XX	By process A/c (TF from process A/c)	XX	= cost of good units
To P&L A/c		= Bal. Fig.			
	XXX	XXX		XXX	XXX

2. How to prepare Process A/c when output of one process is transferred to next process at an amount higher than its cost.





Inter-process profit:- when output of one process is transferred to next process not at cost but at transfer price. Transfer price means cost plus some profit. In such case, transferor process makes some profit. Under inter-process profit, we shall make 3 columns in process and finished goods a/c i.e. cost, profit and total.

Under cost column, all cost are shown as incurred by company.

Under profit column, profit included in opening stock, closing stock and transfer is shown

Under total column, total of both cost and profit is shown.

Transfer price is calculated as shown below for valuation of inventory at prime cost

Particulars	Cost (A)	Profit (B)	Transfer Price (A+B)
Opening stock	XXX	XXX	XXX
Add:-			
Direct Material cost	XXX		XXX





Direct Labour cost	XXX		XXX
Dierct Expenses	XXX		XXX
Cost from previous process	XXX		XXX
Prime Cost	XXX (D)	XXX	XXX (E)
Less closing stock	XXX (D X F / E)	XXX (Bal. Fig)	XXX (F)
Net Balance	XXX	XXX	XXX
Add:- Factory Overhead	XXX		XXX
Total Cost	XXX	XXX	XXX
Add: - costing P&L A/c (Profit)		XXX	XXX
Grand Total	XXX	XXX	XXX

3. How to prepare process A/c when Opening and closing work in progress (not 100% complete) is given cost item wise.

Method 1:- When FIFO method is used

Method 2:- When average method is used





In both above methods, we have to prepare additional 3 statements in addition to process A/c, Finished goods A/c, normal loss A/c, Abnormal loss A/c etc. as follows:-

Statement 1: Prepare Statement of Equivalent Production

Statement 2: Prepare Statement of Cost per Equivalent Unit

Statement 3: Prepare Statement of Evaluation

Under statement 1:- St. of equivalent production

- (a) We calculate equivalent production units for incomplete units using following formula:-

Equivalent production units (EPU) = No. of units x degree (%) of completion **performed in current period**

- (b) EPU is calculated separately for each element of cost e.g. material, labour & OH because % of completion with regard to each element of cost is different.





Example: Suppose 900 units are incomplete at end of year (Closing WIP) & degree of completion is:

Material 80%, Labour 70%, Overheads 30% then EPU of closing WIP shall be

- ✓ EPU for material cost = $900 \text{ units} \times 80\% = 720 \text{ units}$
- ✓ EPU for labour cost = $900 \text{ units} \times 70\% = 630 \text{ units}$
- ✓ EPU for OH Cost = $900 \text{ units} \times 30\% = 270 \text{ units}$

Explanation:-

- ✓ Material cost of 900 incomplete units = material cost of 720 completed units.
- ✓ Labour cost of 900 incomplete units = labour cost of 630 completed units.
- ✓ OH cost of 900 incomplete units = overheads of 270 completed units.

(c) Input units = Output units shall be "**Guru Mantra**" to prepare St. 1

Input units = Opening WIP + units introduced in current period





Output units = Opening WIP now completed + units introduced in current period and completed + Units introduced in current period and not 100% complete till end i.e. Closing WIP + Normal loss units + abnormal loss units – abnormal gain units

(d) **Degree (%) of completion performed** in current period shall be

- ✓ (100% - degree of completion **performed in previous period**) for Opening WIP.
- ✓ 100% for units introduced in current period and completed
- ✓ As given in question for closing WIP
- ✓ Always ZERO for normal loss units
- ✓ As given in question for abnormal loss units. (100% if not given in question)
- ✓ Always 100% for abnormal gain units





Under statement 2:- St. of cost per equivalent production

(a) We calculate cost per equivalent unit e.g. material cost per equivalent unit, labour cost per equivalent unit and overhead cost per unit.

(b) Formula =
$$\frac{\text{Total cost}}{\text{Total equivalent units}}$$

Under statement 3:- St. of evaluation

(a) We calculate value of units completed, closing WIP, abnormal loss units and abnormal gain units.

(b) Formula = No. of equivalent units x cost per equivalent unit.

Case 1:- Preparation of Process A/c when opening and closing WIP is given and FIFO method is followed

(a) FIFO means units transferred as 100% complete shall comprise all opening WIP and balance from units introduced in current period.

Units Introduced and completed = Units Transferred - Opening WIP





Total Cost of units Transferred to next process = Cost incurred in previous period on opening WIP + Cost incurred in current period on Opening WIP + Cost incurred in current period on units introduced & completed

Case 1:-

Statement 1 -> Statement of Equivalent Production:-

Input		Output		Material		Labour		Overheads	
Particulars	Units	Particulars	Units	% Completion	Units	% Completion	Units	% Completion	Units
Opening WIP	XXX	Opening WIP completed	XXX	XXX *	XXX - 1	XXX *	XXX - 2	XXX *	XXX - 3
Units introduced	XXX	Units introduced and completed [Units Transferred – Op.WIP]	XXX	100%	XXX - 4	100%	XXX - 5	100%	XXX - 6
		Closing WIP	XXX	XXX	XXX - 7	XXX	XXX - 8	XXX	XXX - 9
		Normal loss	XXX	---	----	----	----	----	----
		Abnormal Loss	XXX	XXX	XXX - 10	XXX	XXX - 11	XXX	XXX - 12
		Abnormal Gain	(XXX)	100%	(XXX) - 13	100%	(XXX) - 14	100%	(XXX) - 15
Total	XXX	Total	XXX		XXX - 16		XXX - 17		XXX - 18

*100% – Degree of Completion of Opening WIP in previous period





Statement 2 Statement of Cost per Equivalent unit

Particulars	Net Material cost (Rs) *	Labour Cost (Rs.)	Overheads (Rs.)
Cost (Rs.) (A)	XXX	XXX	XXX
Equivalent units (B)	XXX - 16	XXX --- 17	XXX --- 18
Cost per equivalent unit (A/B)	XXX - 19	XXX --- 20	XXX --- 21

* Net Material Cost = Material Cost – Scrap Value of Normal Loss

Statement3 Statement of Evaluation:

Particulars	Cost Element s	Equival ent Units A	Cost per Equivalent UnitRs. B	Cost of Equivalent UnitsRs (A x B)	TotalRs. (A X B)
Opening WIP					
Cost incurred in previous period				XXX	
Cost incurred in current period :	Material	XXX - 1	XXX – 19	XXX	
	Labour	XXX - 2	XXX – 20	XXX	
	Overhead	XXX - 3	XXX - 21	XXX	
Units introduced & completed	Material	XXX - 4	XXX – 19	XXX	
	Labour	XXX - 5	XXX – 20	XXX	
	Overhead	XXX - 6	XXX - 21	XXX	
Total Cost of Units t/f to next process:					XXX - 22
Closing WIP	Material	XXX - 7	XXX – 19	XXX	
	Labour	XXX - 8	XXX – 20	XXX	





	Overhead	XXX - 9	XXX - 21	XXX	XXX - 23
Abnormal Loss	Material	XXX - 10	XXX - 19	XXX	
	Labour	XXX - 11	XXX - 20	XXX	
	Overhead	XXX - 12	XXX - 21	XXX	XXX - 24
Abnormal gain	Material	XXX - 13	XXX - 19	XXX	
	Labour	XXX - 14	XXX - 20	XXX	
	Overhead	XXX - 15	XXX - 21	XXX	XXX - 25

Process Account

Particulars	Units	Rs.	Particulars	Units	Rs.
To Opening WIP	XXX	XXX	By Normal Loss	XXX	Scrap Value
To Direct Material		XXX	By Abnormal Loss	XXX	XXX - 24
To Direct Labour		XXX	By Process II A/c (Transfer to next process)	XXX	XXX - 22
To Factory Overheads		XXX	By Closing WIP	XXX	XXX - 23
To abnormal gain	XXX	XXX - 25			
	XXX	XXX		XXX	XXX





Case 2:- Prepare Process A/c - opening and closing WIP is given and average method is followed.

- (a) Average method is used when it is not possible to identify opening WIP units in units transferred to next process. Hence it is not possible to bifurcate Units Transferred into opening WIP and units introduced & completed.
- (b) Average cost per equivalent unit is calculated =

$$\frac{\text{Cost incurred in previous period on Opening WIP} + \text{Cost Incurred in current period} - \text{Scrap value of normal loss units}}{\text{Total Equivalent Units}}$$

- (c) Total Cost of units Transferred to next process = Equivalent Units x Average Cost per unit

Statement 1 -> Statement of Equivalent Production:-

Input		Output		Material		Labour		Overheads	
Particulars	Units	Particulars	Units	% Completion	Units	% Completion	Units	% Completion	Units
Opening WIP	XXX	Units transferred to next process	XXX	100%	XXX - 4	100%	XXX - 5	100%	XXX - 6
Units introduced	XXX	Closing WIP	XXX	XXX	XXX - 7	XXX	XXX - 8	XXX	XXX - 9
		Normal loss	XXX	---	----	----	----	----	----
		Abnormal Loss	XXX	XXX	XXX - 10	XXX	XXX - 11	XXX	XXX - 12





		Abnormal Gain	(XXX)	100%	(XXX)	100%	(XXX)	100%	(XXX)
					- 13		- 14		- 15
Total	XXX	Total	XXX		XXX -16		XXX -17		XXX - 18

Statement 2 Statement of Cost per Equivalent per unit

Particulars	Net Material Cost	Labour Cost	Overhead cost
Opening WIP – Cost (A)	XXX	XXX	XXX
Cost incurred in current period (B)	XXX	XXX	XXX
Less Scrap value of normal loss (C)	(XXX)	---	---
Total Cost (A+B-C)	XXX	XXX	XXX
Equivalent units	XXX -- 16	XXX - 17	XXX -- 18
Cost per equivalent unit	XXX -- 19	XXX - 20	XXX -- 21

Statement 3 -> Statement of Evaluation

Particulars	Elements	Equivalent Units A	Cost per Equivalent Unit Rs. B	Cost of Equivalent UnitsRs (A x B)	Total Rs.
Units transferred to next process	Material	XXX - 4	XXX – 19	XXX	
	Labour	XXX - 5	XXX – 20	XXX	
	Overhead	XXX - 6	XXX - 21	XXX	XXX - 22
Closing WIP	Material	XXX - 7	XXX – 19	XXX	
	Labour	XXX - 8	XXX – 20	XXX	





	Overhead	XXX - 9	XXX - 21	XXX	XXX - 23
Abnormal Loss	Material	XXX - 10	XXX - 19	XXX	
	Labour	XXX - 11	XXX - 20	XXX	
	Overhead	XXX - 12	XXX - 21	XXX	XXX - 24
Abnormal gain	Material	XXX - 13	XXX - 19	XXX	
	Labour	XXX - 14	XXX - 20	XXX	
	Overhead	XXX - 15	XXX - 21	XXX	XXX - 25

Process Account

Particulars	Units	Rs.	Particulars	Units	Rs.
To Opening WIP	XXX	XXX	By Normal Loss	XXX	Scrap Value
To Direct Material		XXX	By Abnormal Loss	XXX	XXX - 24
To Direct Labour		XXX	By Process II A/c (Transfer to next process)	XXX	XXX - 22
To Overheads		XXX	By Closing WIP	XXX	XXX - 23
To abnormal gain	XXX	XXX - 25			
	XXX	XXX		XXX	XXX





Special Note:- If question is silent about method of valuation (FIFO / Average Method), Use following guidelines:-

Case No.	Opening WIP Given	Degree of completion of Opening WIP Given	Method to follow
1	Yes	Yes	FIFO
2	Yes	No.	Average
3	No	N.A.	FIFO

Difference between FIFO and Average Method

FIFO	Average Method
Equivalent units of opening WIP are shown separately in Statement 1.	Equivalent units of opening WIP are not shown separately in Statement 1. It is assumed to be merged in units transferred with 100% work performed in current period.
Cost incurred in previous period on Opening WIP is not	Cost incurred in previous period on Opening WIP is





shown separately in statement 2.	added separately in statement 2.
Total cost of units transferred to next process is sum of • Cost incurred in previous period on opening WIP. • Cost incurred in current period on opening WIP. • Cost incurred in current period on units introduced & completed.	Total cost of units transferred to next process is equal to • Equivalent units x average cost per equivalent unit.

CHAPTER - JOINT PRODUCTS AND BY-PRODUCTS

Concept 1:- Distribution of joint cost among the joints products.
For this purpose, following methods may be adopted:-

Method No. 1





Physical unit method:- **Joint cost is distributed in ratio of quantity manufactured.**

Method No. 2

Sale value at separation point method:- **Joint cost is distributed in ratio of sales value at split off point.**

Sale value at split off point = No. of units produced x selling price

This method is used when sale price per unit is known at split off point.

Method No. 3

Net realizable value (NRV) method:-**Joint costs are apportioned in the ratio of net realizable values** of joint products at separation point. NRV is calculated as follows:-

Sale value after further processing	XXX
(No. of units manufactured x Selling price)	
Less:- Further processing costs	<u>(XXX)</u>
NRV	XXX





This method is used when

- C. 1. Sale value at split off point is not known and
- C.2. Product is sold after further processing.

Note:- No. of units manufactured = Sold units + closing stock

Method No. 4

Average unit cost method:- under this method, first average cost per unit is calculated using following formula:-

$$\text{Average cost per unit} = \frac{\text{Total Joint Costs}}{\text{Total No. of units of joint products}}$$

Share of each product in joint cost = No. of units of each product
X Average cost per unit

Method No. 5 Contribution margin method

- Under this method, joint costs are divided into variable cost and fixed cost.
- Variable cost portion of joint cost is divided among products on the basis of physical units (Quantity / Units Ratio)





- Fixed cost portion of joint cost is divided among products on the basis of contribution ratio.

Contribution = Sales – Total variable cost

$$\text{Contribution Ratio} = \frac{\text{Contribution of an individual product}}{\text{Total contribution of all products}} \times 100$$

Method No. 6 Constant gross margin % NRV method(Extension of NRV method)

Joint cost of joint products is calculated as balancing figure.

St. of joint cost apportionment

Particulars	Product A	Product B
Sale value after further processing (No. of units manufactured x Selling price)	XXX	XXX
Less further processing cost	(XXX)	(XXX)
Less Gross Margin (Sales x G. Margin	(XXX)	(XXX)





Ratio)		
Joint cost apportioned	XXX	XXX

Format to Calculate Overall Gross Margin %

Sale value after further processing of all joint products	XXX
Less joint cost and Further processing costs of all joint products	(XXX)
Gross Margin / Profit	XXX

$$\text{Gross Margin (\%)} = \frac{\text{gross margin}}{\text{total sales value}} \times 100$$

Note:- Joint cost calculated under this method may be negative sometimes since balancing figure.

Note:- Joint cost calculated among all methods need not to be same.

Concept No. 2 :- Decision as to go for further processing or not.





Yes process if incremental sales < incremental cost i.e. if Profit increases.

St. showing incremental profit / loss

Particulars	Amount (Rs.)
Sales value after further processing (A)	XXX
Sales value at split off point (B)	XXX
Incremental Sales revenue (C)={ (A)-(B) }	XXX
Further processing cost: (D)	XXX
Profit (Loss) arising due to further processing {(C) – (D)}	XXX

Decision:- Go for further processing if profit increase as a result of further processing otherwise don't go for further processing.





Concept No. 3 - How to calculate joint cost of main products and by-products

When 2 or more products arise from same process using same raw material and almost of equal importance they are called joint products but when any product has less selling price in market. It is called by-products.

Step 1:- Calculate Joint cost of by-product using following formula

Particulars	Amount (Rs.)
Sales value of by products	XXX
Less:-	
Cost incurred after separation	(XXX)
Estimated Profit	(XXX)
Estimated Expenses	(XXX)
Joint Cost	XXX





Step 2:- Calculate Joint cost of main product = Total joint cost of all products - Net joint cost of all by-product.

CHAPTER - STANDARD COSTING

- Full Topic contains discussion over “should be” and “Actual happened”.
- Variance means comparison of actual and standard and their difference.
- Variance may be Favourable or Adverse (unfavourable).
- We will study mainly 5 types of variance
 - 1) Material variances
 - 2) Labour variances
 - 3) Overhead variances
 - 4) Sales variances
 - 5) Profit variances
- Actual cost if more than standard cost then Adverse variance & vice-versa.
- Actual Sales & profit if more than standard sales & profit then favourable variance & vice-versa





- Example A student set standard time to study each day as 8 hour while actual time studied is 6 hour then 2 hour shall be variance. In this example, variance is unfavourable.

We will follow 8 box approach for standard costing chapter formula learning. Boxes are as follows:-

1. Material Variances
2. Labour Variances (Without Idle Time)
3. Labour Variances (With Idle Time)
4. Variable Overhead Variances
5. Fixed Overhead Variances (Without Calender Variance)
6. Fixed Overhead Variances (With Calender Variance)
7. Sales Variances
8. Profit Variances

Budgeted Output in budgeted input	$= \frac{\text{total budgeted input}}{\text{budgeted input for 1 unit of ouput}}$
Budgeted output in actual input	$= \frac{\text{total actual input}}{\text{budgeted input for 1 unit of output}}$
Budgeted input for actual output	Actual output x budgeted input for 1 unit of output





Trick to learn

1. Numerator shall always be same.
2. Input me divide and output me multiply karenge.

Concept No. 1 Direct material variances:- 5 Types

1. DMCV = Arise when total std material cost and total actual material cost is different.
2. DMUV = Arise when std material quantity and actually used material qty is different.
3. DMPV = Arise when std. price per unit and actual price per unit is different.
4. DMYV & DMMV = Arise when direct material is of 2 types or more **and** standard material mix ratio is not followed. Example Std Qty ratio for RM1 & RM2 1:1 while Actual Qty Ratio 3:1 (Raw material mix ratio)

$$\text{DMCV} = \text{DMUV} + \text{DMPV}$$

$$\text{DMUV} = \text{DMYV} + \text{DMMV}$$





Computation of Material Variances

Particulars	SP X SQAQO	SP X RSQ	SP X AQ	AP X AQ
Material A				
Material B				
Total	M1	M2	M3	M4

SP = Std Price, AP = Actual Price, AQ = Actual Quantity consumed, RSQ = Revised Std Qty, SQAQO = Std quantity for actual output

SQAQO = Actual output x budgeted input for 1 unit of output =

Actual output x $\frac{\text{Total Budgeted Material Kg}}{\text{Total budgeted Output}}$

RSQ = Revised standard quantity = it means **total actual input** in **standard quantity ratio**.





$$\text{DMCV} = \text{M1} - \text{M4}$$

$$\text{DMUV} = \text{M1} - \text{M3}$$

$$\text{DMPV} = \text{M3} - \text{M4}$$

$$\text{DMYV} = \text{M1} - \text{M2}$$

$$\text{DMMV} = \text{M2} - \text{M3}$$

1. Production manager is responsible for DMUV thereby for DMYV and DMMV.
2. Purchase manager is responsible for DMPV

Concept 2:- Material Price Variance at time of purchase:-DMPV is computed for the actual quantity of material consumed. If AQ consumed is replaced by AQ Purchased then the result is known Direct material purchase price variance(MPPV). Formula:-
$$\text{MPPV} = \text{SP} \times \text{AQP} - \text{AP} \times \text{AQP}$$

Where AQP = Actual Quantity purchased





Concept 3:- ALTERNATIVE WAY TO CALCULATE DMYV

$$\text{DMYV} = \frac{\sum M_1}{\text{Actual output}} \times \left(\text{Actual output} - \frac{\text{Actual input}}{\text{budgeted input for 1 unit of output}} \right)$$

Concept No. 4 Direct Labour variances

Labour variances	
Case 1:- Workers do not sit idle (Without Idle Time)	Case 2:- Worker sometimes sit idle (With Idle Time)

Case 1 Without Idle Time

Example if a worker is paid for 10 hours but he worked only for 8 hours then difference 2 hours will be idle time.

Idle time means workers kept on sitting without working but has been paid.





Labour variances is of 5 types:-

1. DLCV = Arise when total std labour cost and total actual labour cost is different
2. DLEV = Arise when labour do not work efficiently (Take more time to do work)
3. DLRV = Arise when std wage rate and actual wage rate is different.
4. DLYV & DMMV = Arise when labour is of 2 types or more **and** std. labour mix ratio is not followed. Example Std Skilled & Unskilled labour for 1 job is 1 skilled labour : 2 unskilled labour while actual used was 1 skilled labour : 3 unskilled labour

$$\text{DLCV} = \text{DLEV} + \text{DLRV}$$

$$\text{DLEV} = \text{DLYV} + \text{DLMV}$$





Computation of Labour variances

Particulars	SR X SHAO	SR X RSH	SR X AH	AR X AH
Skilled				
Semi-skilled				
Unskilled				
Total	L1	L2	L3	L4

SR = Std Rate, AR = Actual Rate, AH = Actual Hours paid / Worked, RSH = Revised std. hours, SHAO = Std hours for actual output

SHAO = Actual output x budgeted input for 1 unit of output =

Actual output x $\frac{\text{Total Budgeted labour hours}}{\text{Total budgeted output}}$

RSH = Total of actual hours **paid** in standard labour mix ratio





$$\text{DLCV} = L1 - L4$$

$$\text{DLEV} = L1 - L3$$

$$\text{DLRV} = L3 - L4$$

$$\text{DLYV} = L1 - L2$$

$$\text{DLMV} = L2 - L3$$

Case 2 When worker sometimes sit idle i.e. With idle time

Idle Time = Actual hours Paid (AHP) – Actual hours worked (AHW)

Labour variances is of 6 types:-

Computation of Labour variances

Particulars	SR X SHAO	SR X RSH	SR X AHW	SR X AHP	AR X AHP
Skilled					
Semi-skilled					





Unskilled					
Total	L1	L2	L3	L4	L5

AHW = Actual hours worked

AHP = Actual hours paid

DLCV = L1 – L5

DLEV = L1 – L3

IDLE TIME VARIANCE = L3 – L4 (Always Adverse)

DLRV = L4 – L5

DLYV = L1 – L2

DLMV = L2 – L3

Concept No. 5 Labour Efficiency Ratio

Link to ACE (Activity, Capacity, Efficiency) ratio = SAS / BBA

Labour Efficiency Ratio = $\frac{\text{Standard hours}}{\text{Actual hours}} \times 100$





$$\text{Standard labour cost per unit} = \frac{\text{Standard cost}}{\text{No.of units produced}}$$

$$\text{Actual labour cost per unit} = \frac{\text{Actual Cost}}{\text{No.of units produced}}$$

Concept No. 6 Overhead variance

- Overhead means all indirect cost. Indirect cost means cost which is not directly connected to production.
- Overhead is of 2 types
 1. Variable OH e.g. Electricity consumed on running of machine
 2. Fixed OH e.g. Factory Rent.

$$1) \text{Budgeted OH per unit} = \frac{\text{Budgeted OH}}{\text{Budgeted Output}}$$

$$\text{Actual OH per unit} = \frac{\text{Actual OH}}{\text{Actual Output}}$$

$$2) \text{Budgeted OH per hour} = \frac{\text{Budgeted OH}}{\text{Budgeted Hours}}$$

$$\text{Actual OH per hour} = \frac{\text{Actual OH}}{\text{Actual Hours}}$$





3) Standard Hour for Actual Output = Actual Output x Std hour required for 1 unit of output

$$= \text{Actual Output} \times \frac{\text{Total Standard Hours}}{\text{Total output (units)}}$$

Expected Output in Actual Hours = Actual hours x Std output (units) produced in 1 hour

$$\frac{\text{Actual hours}}{\text{Budgeted input for 1 unit of output}}$$

Expected Output in Actual Days = Actual Days x Std. Output in 1 Day (Also Called Possible Output)

$$\frac{\text{Actual days}}{\text{Budgeted input for 1 unit of output}}$$

Expected Hrs. in actual Days = Actual Days x Std Hrs. in 1 Day
(Also Called Possible Hrs) = Actual Days x

$$\frac{\text{Total budgeted Hrs.}}{\text{Total budgeted Days}}$$

Calculation of Different Amount as required in calculation of OH variance





Particulars	Formula 1	Formula 2
1. Output absorbed OH	$\text{= Actual O/P} \times \text{Budgeted OH per unit}$	$\text{= Std Hrs for actual O/P} \times \text{budgeted OH per Hr}$
2. Input absorbed OH	$\text{= Actual Hrs.} \times \text{Budgeted OH per Hr}$	$\text{= Expected O/P in Actual Hrs} \times \text{Budgeted OH p. unit}$
3. Possible OH	$\text{= Possible Output} \times \text{Budgeted OH p.u.}$	$\text{= Possible Hrs.} \times \text{Budgeted OH per Hr}$
4. Budgeted OH (Normally directly given in Question)	$\text{= Budgeted O/P} \times \text{Budgeted OH p.u.}$	$\text{= Budgeted Hrs.} \times \text{Budgeted OH per Hr}$
5. Actual OH (Normally directly given in Question)	$\text{= Actual O/P} \times \text{Actual OH p.u.}$	$\text{= Actual Hrs.} \times \text{Actual OH per unit}$





- Overhead variances are of 2 Types
 - Variable OH Variances
 - Fixed OH variances

Variable OH variances

Computation of Variable Overheads variances

Particulars	Output absorbed V. OH	Input absorbed V. OH	Actual V. OH
	VO 1	VO 2	VO 3

$$\text{VOCV} = \text{VO 1} - \text{VO 3}$$

$$\text{VO Eff. V} = \text{VO 1} - \text{VO 2}$$

$$\text{VO Exp. V} = \text{VO 2} - \text{VO 3}$$

$$\text{VOH Cost Var.} = \text{VOH Efficiency Var.} + \text{VOH Exp. Var.}$$

VOH Cost Var = Arise when Std VOH and Actual VOH is different. (Machine hours taken





VOH Eff. Var = Arise when VOH generating facilities e.g. electricity is utilised less or more efficiently.

VOH Exp. Var = Arise when Std Electricity rate & actual electricity rate is different.

Case 1:- Fixed OH Variances (Without calender variance):-

Identification of calender variance:- when information about budgeted days and actual days is given in question then calender variance is to be calculated. It is covered in case 3.

Computation of Fixed Overheads variances

Output absorbed F. OH	Input absorbed F. OH	Budgeted F. OH	Actual F. OH
FO 1	FO 2	FO 3	FO 4

$$\text{FOCV} = \text{FO 1} - \text{FO 4}$$

$$\text{FOVV} = \text{FO 1} - \text{FO 3}$$





$$\text{FO Exp. V} = \text{FO 3} - \text{FO 4}$$

$$\text{FO Eff. V} = \text{FO 1} - \text{FO 2}$$

$$\text{FO Cap. V} = \text{FO 2} - \text{FO 3}$$

$$\text{FOH Cost Var.} = \text{FOH Volume Var.} + \text{FOH Exp. Var.}$$

$$\text{FOH Volume Var.} = \text{FOH Efficiency Var.} + \text{FOH Capacity Var.}$$

Case 2 Fixed OH(with Calendar Variance):-.

Computation of Fixed Overheads variances

Output absorbed F. OH	Input absorbed F. OH	Possible F. OH	Budgeted F. OH	Actual F. OH
FO 1	FO 2	FO 3	FO 4	FO 5

$$\text{FOCV} = \text{FO 1} - \text{FO 5}$$

$$\text{FOVV} = \text{FO 1} - \text{FO 4}$$

$$\text{FO Exp. V} = \text{FO 4} - \text{FO 5}$$

$$\text{FO Eff. V} = \text{FO 1} - \text{FO 2}$$

$$\text{FO Cap. V} = \text{FO 2} - \text{FO 3}$$





FO Cal. V = FO 3 – FO 4

FOH Cost Var. = FOH Volume Var. + FOH Exp. Var.

FOH Volume Var. = FOH Efficiency Var. + FOH Capacity Var. +
FOH Calender Var.

Calender variance:- A student planned to study for 24 days in a month & actually studied for 20 days. This is calender variance.

Capacity variance:- A student planned to study for 10 hours in a day & actually studied 8 hours. This is capacity variance.

Efficiency variance:- A student studied 8 hours & completed 10 costing questions while these 10 questions must have been studied in 5 hours. This is efficiency variance.

Concept No. 7Sales

1. Sales Value Var. = Arise when budgeted sales value & actual sales value is different. Budget – Sale for Rs. 200 but Actual Sales for Rs. 150 then Rs. 50 is sales value var.





2. Sales volume var. = Arise when budgeted sales volume & actual sales volume is different. Budget – Sale for 200 units but Actual Sales for 150 units then 50 units is sales volume var.
3. Sales price var. = Arise when budgeted selling price & actual selling price per unit is different. Budget – selling price for a unit is Rs. 100 but Actual – selling price for a unit is Rs. 60 then Rs. 40 is sales price var.
4. Sales Qty & MIX var. = Arise when product sold is of 2 types or more and budgeted sales (units) ratio is not followed.

Budgeted S.P. per unit x Budgeted Qty	Budgeted S.P. per unit x Revised Std. Qty	Budgeted S.P. per unit x Actual Qty	Actual S.P. per unit x Actual Qty
S1	S2	S3	S4





RSQ = Total of Actual quantity of Sales in budgeted sales (units) ratio.

$$S \text{ Val. V} = S4 - S1$$

$$SPV = S4 - S3$$

$$S. \text{ Vol. V} = S3 - S1$$

$$SMV = S3 - S2$$

$$SQV = S2 - S1$$

Sales Value Var. = Sales Volume Var. + Sales Price Var.

Sales Volume Var. = Sales Qty Var. + Sales Mix var.

Concept No.8 Profit variances :-5 Types

Profit = Margin = Selling Price per unit – cost per unit

1. Profit Value Var. = Arise when budgeted value of profit & actual value of profit is different.
2. Profit price Var. = Arise when profit changes due to difference in budgeted selling price & actual selling price p.u.





3. Profit Volume Var. = Arise when profit changes due to difference in budgeted sales Qty & actual sales Qty.
4. Profit Qty & Mix Var. = Arise when sold product is of 2 types or more and budgeted sales (units) ratio is not followed.

Budgeted <u>Margin</u> per unit x Budgeted Qty	Budgeted <u>Margin</u> per unit x Revised Std. Qty	Budgeted <u>Margin</u> per unit x Actual Qty	Actual <u>Margin</u> per unit x Actual Qty
P1	P2	P3	P4

$$P \text{ Val. V} = P4 - P1$$

$$PPV = P4 - P3$$

$$P \text{ Vol. V} = P3 - P1$$

$$P \text{ Mix V} = P3 - P2$$

$$PQV = P2 - P1$$

Profit Value Var. = Profit Volume Var. + Profit Price Var.

Profit Volume Var. = Profit Qty Var. + Profit MIX Var.





Concept No. 9 Production Volume Variance

- It is that part of budgeted Fixed OH which is related to unutilised capacity of factory.
- Formula = Unutilised capacity x Budgeted FOH per unit
- Unutilised capacity = Actual capacity – budgeted capacity

Concept No. 10 OH exp. Variance

- It is difference between total budgeted OH cost (Fixed & variable) and actual OH cost (Fixed & variable).
- Formula = budgeted OH – Actual OH
- Budgeted OH = budgeted FOH for budgeted production capacity + budgeted VOH for actual production capacity





8 BOX APPROACH

Computation of Material Variances				Computation of Labour Variances (Without Idle Time)				
SP x SQAQ	SP x RSQ	SP x AQ	AP x AQ	SR X SHAO	SR X RSH	SR X AHP	AR X AHP	
M1	M2	M3	M4	L1	L2	L3	L4	
Cost = M1 – M4 Usage = M1 – M3 Price = M3 – M4 Yield = M1 – M2 Mix = M2 – M3				Cost = L1 – L4 Efficiency = L1 – L3 Rate = L3 – L4 Yield = L1 – L2 Mix = L2 – L3				
Computation of Labour Variances (With Idle Time)				Computation of Variable Overheads				
SR X SHAO	SR X RSH	SR X AHW	SR X AHP	AR X AHP	Output absorbed Var. OH	Input absorbed Var. OH	Actual Var. OH	
L1	L2	L3	L4	L5	V1	V2	V3	
Cost = L1 – L5 Efficiency = L1 – L3 Idle Time = L3 – L4 (Always Adverse) Rate = L4 – L5 Yield = L1 – L2 Mix = L2 – L3				Cost = VO 1 – VO 3 Efficiency = VO 1 – VO 2 Expense = VO 2 – VO 3				
Computation of Fixed Overhead Variances (Without Calender Variance)				Computation of Fixed Overhead Variances (With Calender Variance)				
Output absorbed Fixed OH	Input absorbed Fixed OH	Budgeted Fixed OH	Actual Fixed OH	Output absorbed Fixed OH	Input absorbed Fixed OH	Possible Fixed OH	Budgeted Fixed OH	Actual Fixed OH
F1	F2	F3	F4	F1	F2	F3	F4	F5
Cost = FO 1 – FO 4 Volume = FO 1 – FO 3 Exp. =FO 3 – FO 4 Efficiency = FO 1 – FO 2 Capacity =FO 2 – FO 3				Cost = FO 1 – FO 5 Volume = FO 1 – FO 4 Exp. = FO 4 – FO 5 Efficiency =FO 1 – FO 2 Capacity = FO 2 – FO 3 Calender =FO 3 – FO 4				
Computation of Sales Variances				Computation of Profit Variances				
Budgeted Selling Price P.U. x Budgeted Qty	Budgeted Selling Price P.U. x Revised Std. Qty	Budgeted Selling Price P.U. x Actual Qty	Actual Selling Price P.U. x Actual Qty	Budgeted Profit Price P.U. x Budgeted Qty	Budgeted Profit Price P.U. x Revised Std. Qty	Budgeted Profit Price P.U. x Actual Qty	Actual Profit Price P.U. x Actual Qty	
S1	S2	S3	S4	P1	P2	P3	P4	
Value = S4 – S1 Price = S4 – S3 Volume =S3 – S1 Mix = S3 – S2 Quantity = S2 – S1				Value = P4 – P1 Price = P4 – P3 Volume =P3 – P1 Mix =P3 – P2 Quantity = P2 – P1				





Some Additional Points

1. DMYV = std. cost per unit of output x (Actual output – expected output in actual input)

$$= \frac{\sum M1}{\text{Actual output}} \times \left(\text{Actual output} - \frac{\text{Actual input}}{\text{budgeted input for 1 unit of output}} \right)$$
2. Budgeted Output in budgeted input = $\frac{\text{total budgeted input}}{\text{budgeted input for 1 unit of output}}$
3. Budgeted output in actual input = $\frac{\text{total actual input}}{\text{budgeted input for 1 unit of output}}$
4. Budgeted input for actual output = Actual output x budgeted input for 1 unit of output
5. Material Price Variance at time of purchase = SP x AQP – AP x AQP
6. SQAQ = Actual output x budgeted input for 1 unit of output = Actual output x $\frac{\text{Total Budgeted Material Kg}}{\text{Total budgeted Output}}$
7. SHAO = Actual output x budgeted input for 1 unit of output = Actual output x $\frac{\text{Total Budgeted labour hours}}{\text{Total budgeted output}}$
8. Output absorbed Overhead
 - a. Formula 1:- = Actual O/P x Budgeted OH per unit
 - b. Formula 2:- = Std Hrs for actual O/P x budgeted OH per Hr
9. Input absorbed Overhead
 - a. Formula 1:- = Actual Hrs. x Budgeted OH per Hr





- b. Formula 2:- = Expected O/P in Actual Hrs x Budgeted OH p. unit
10. Possible OH
- a. Formula 1:- = Possible Output x Budgeted OH p.u
- b. Formula 2:- = Possible Hrs. x Budgeted OH per Hr
11. Budgeted OH
- a. Formula 1:- = Budgeted O/P x Budgeted OH p.u.
- b. Formula 2:- = Budgeted Hrs. x Budgeted OH per Hr
12. Actual OH
- a. Formula 1:- = Actual O/P x Actual OH p.u.
- b. Formula 2:- = Actual Hrs. x Actual OH per unit
13. Production Volume Variance = (Actual capacity – budgeted capacity) x Budgeted FOH per unit
14. OH exp. Variance =
- Budgeted FOH x budgeted production capacity + budgeted VOH x actual production capacity – Actual OH





CHAPTER - BUDGETARY CONTROL

Concept No. 1 Budget :- it means the establishment of future targets on the basis of past experience and other relevant factors.

Concept No. 2 Control Ratio:- All 3 formulae are time based.

$$\text{❖ Activity Ratio} = \frac{\text{std hours for actual output obtained}}{\text{budgeted hours for budgeted production}} \times 100 = \frac{S}{B}$$

$$\text{❖ Capacity ratio} = \frac{\text{actual hours worked}}{\text{budgeted hours for budgeted production}} \times 100 = \frac{A}{B}$$

$$\text{❖ Efficiency ratio} = \frac{\text{std.hours for actual output obtained}}{\text{actual hours worked}} \times 100 = \frac{S}{A}$$

Activity ratio = Capacity ratio x efficiency ratio

Concept No. 3 Sales Budget

1. This budget shows the sales target to be achieved by the business organisation. It shows the quantity and amount of sales which is to be achieved during the budgeted period.





2. At the end of period, the budgeted sales are required to be compared with actual sales for the purpose of determination of sales variance.
3. When sales variance are identified, the reasons for such variance are also analysed and it is the responsibility of the management to ensure that the negative variances are not repeated in future.

Concept No. 4 production Budget

1. This budget shows the production which should have been obtained in the budgeted period.
2. This budget is prepared with the help of following equation
$$\text{Budgeted production} = \text{budgeted Sales} + \text{closing stock of finished goods} - \text{opening stock of finished goods}$$
3. Raw material to be purchased = budgeted production x raw material requirement per unit

Concept No. 5 PRODUCTION COST BUDGET

1. This budget shows the cost which should have been incurred for the budgeted production level. In future, this budgeted





production cost is compared with actual production cost to compute variances.

Concept No. 6 Zero base budgeting (ZBB) (No Practical question – only theory)

1. Under conventional budgeting, the target of next year are established on the basis of past performance however under ZBB, the future target are established purely on the basis of future projection and completely ignoring the past performance. In other words, there is no base in the establishment of future targets.

Concept No. 7 Flexible Budget

1. This budget is prepared at different level of production. We divide all types of expenses into 3 categories while making this budget
 - a. Variable expense = Feature (variable cost remain same at per unit at all levels)
 - b. Fixed expenses = Feature (Fixed cost in totality remain same at all levels)





c. Semi-variable expenses =

Variable portion in semi-variable cost =

$$\frac{\text{Difference in total semi-variable cost}}{\text{Difference in units}}$$

Fixed portion in semi variable cost = Total semi variable cost –
Total variable portion in semi-variable cost.

Concept No. 8 Cash budget

❖ This budget represents estimated cash inflows and outflows during the budgeted period. Cash account is maintained for past cash inflows and cash outflows. this budget is based on future cash inflows and outflows. This budget is prepared with the help of following equation:-

Opening cash balances + estimated cash receipts – estimated cash payments = closing cash balance





Non-integrated Accounts & Integrated Accounts

Concept No. 1:- Meaning of integrated and non-integrated Accounts

- Under non-integrated accounts - 2 sets of books are maintained. Cost records are maintained separate while financial records are maintained separate.
- Under integrated accounts, only 1 set of book is maintained & entries are made both for cost and financial records e.g. Financial entries like cash paid to creditor and cash received from debtors shall also be passed.
- Most accounts are added with word “Control Account”.

Concept No. 2:- Red Light Approach

Under Red Light Approach, We will prepare accounts in pre-determined sequence.

Name Changed as follows:-

1. Raw Material / Stores – Stores Ledger Control Account.
2. Wages – Wages Control Account.
3. Factory – WIP Ledger Control Account.





4. Warehouse – Finished goods Ledger control Account.

5. Shop – Cost of Sales Account

3 golden rules of accounting

1. Debit the receiver and credit the giver
2. Debit what comes in and credit what goes out
3. Debit all exp. & losses and credit all revenues & incomes

Particulars	Receiver	Giver	Entry
Logic behind Above Entries			Debit the receiver Credit the Giver
On Transferring Direct Raw Material from store to Factory	Factory	Stores	WIP Ledger Control A/c Dr. To Stores Ledger Control A/c
On Transferring Finished Goods from factory to Warehouse	Warehouse	Factory	FG Ledger control A/c Dr. To WIP Ledger control A/c





On Transferring FG from Warehouse to Showroom	Shop	Warehouse	Cost of Sales A/c Dr. To Finished Goods Ledger control A/c
---	------	-----------	--

Concept No. 3:- General Ledger Adjustment A/c (GLA A/c) **OR** Cost Ledger Control A/c **OR** Nominal ledger control A/c

Financial entries are not considered in cost sheet e.g. cash paid to creditors and cash received from customers but in real world, these transactions happens. GLA account shall be used in place of account not opened while preparing cost sheet e.g. share capital, reserve and surplus, debtors, creditors etc. For Example

Particulars	Logic behind Entry	Entry
On Purchase of raw material	Raw material Expense A/c Dr. To Cash / creditors A/c	Stores Ledger Control A/c Dr. To GLA A/c (In place of Cash /Creditors A/c)





Concept No. 4:- Treatment of under and over recovery of overheads:-

Option 1 of Treatment:-

- If management decides to carry forward the amount of under/over recovery of overheads in **next year** then current year's under-recovery shall be adjusted against over-recovery of next year and vice-versa.
- No Accounting Entry is made for this.

Funny Explanation:- “AGLE SAAL KARARA JAWAAB MILEGA”

Option 2 of Treatment:-

- If management decides to charge the amount of under/over recovery of overheads in **current year** then current year's under/over recovery shall be transferred to current year's profit & loss account.
- Journal Entry for Under – Recovery (Loss)

Costing P&L A/c Dr.

XXX



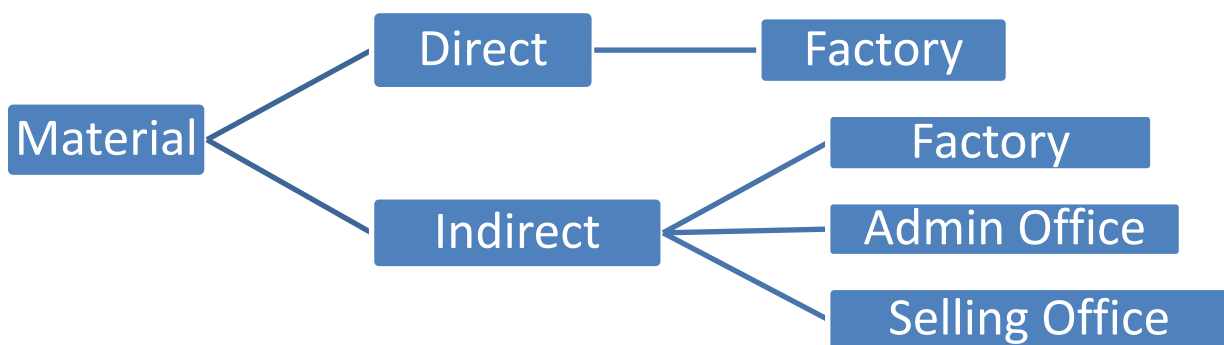


To Factory OH / Admin OH / Selling & Dist. OH A/c
XXX

- Just reverse entry for over-recovery.

Funny Explanation:- “JO HUA SO HUA, USE BHUL JA”

Concept No. 5:- Journal Entries relating to Material



	Transaction Entry – Material purchased on credit / cash	Transfer Entry - Issued
Logic behind Entry	Raw material A/c Dr. To Creditors / Cash A/c	Respective A/c Dr. To Raw material A/c

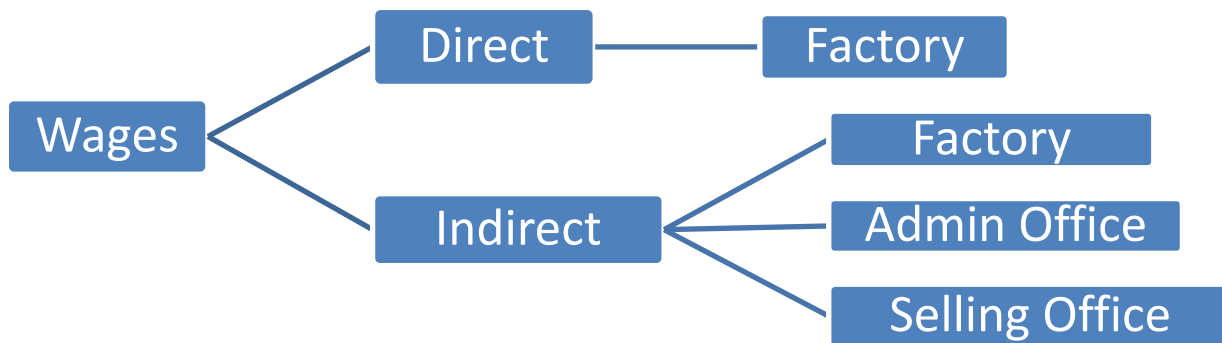




Direct Material to factory	Stores ledger Control A/c Dr. To GLA A/c	WIP Ledger Control A/c Dr. To Stores ledger Control A/c (Wages incurred for production)
Indirect material at Factory / Admin. Office / Selling Office	Stores ledger Control A/c Dr. To GLA A/c	Respective OH Control A/c Dr. To Stores ledger Control A/c

Concept No.6:- Journal Entries relating to wages





	Transaction Entry – Wages Paid	Transfer Entry
Logic behind Entry	Wages A/c Dr. To Cash A/c	Respective A/c Dr. To wages A/c
Direct Wages to factory	Wages Control A/c Dr. To GLA A/c	WIP Ledger Control A/c Dr. To Wages Control A/c (Wages incurred for production)
Indirect Wages at Factory / Admin. Office / Selling Office	Wages Control A/c Dr. To GLA A/c	Respective Control A/c Dr. To Wages Control A/c





Concept No.7:- Journal Entries relating to direct expenses

	Transaction Entry – Direct Exp. Paid	Transfer Entry
Logic behind Entry	Direct Exp. A/c Dr. To Cash A/c	Factory A/c Dr. To Direct Exp. A/c
Direct Expenses for factory	Direct Exp. Control A/c Dr. To GLA A/c	WIP Ledger Control A/c Dr. To Direct exp. control A/c

Concept No.8:- Journal Entries relating to Overheads

Particulars	Transaction Entry – Overheads Incurred	Transfer Entry – Overheads charged / Recovered
Logic	Respective Exp. A/c Dr.	Red Light 1 /2 /3





	To Cash A/c	
Factory Overheads	Factory OH Control A/c Dr. To GLA A/c	WIP Ledger Control A/c Dr. To Factory OH Control A/c
Office & Admin Overheads	Office & Admin OH Control A/c Dr. To GLA A/c	FG Ledger Control A/c Dr. To Admin OH Control A/c
Selling & distribution Overheads	Selling & distribution OH Control A/c Dr. To GLA A/c	Cost of Sales A/c Dr. To Selling OH Control A/c

Concept No. 9:- Important control accounts maintained in following sequence as follows (Link it from concept No. 2):-

1. Stores Ledger control A/c
2. Wages control A/c
3. Factory OH control A/c
4. WIP Ledger control A/c





5. Admin OH control A/c
6. FG ledger control A/c
7. Selling OH control A/c
8. Cost of Sales A/c
9. Costing P&L A/c
10. GLA A/c

Concept No. 10- Shortage in raw material

- When raw material balance on physical checking is found to be less than raw material balance as per books then difference is called shortage.
- Treatment as follows:-

If shortage is due to normal loss	Factory OH A/c Dr. To Stores Ledger Control A/c
If shortage is due to abnormal loss	Costing P&L A/c Dr. To Stores Ledger Control A/c
If shortage is due to non-recording of actual consumption	WIP Ledger control A/c Dr. To Stores Ledger





	Control A/c
--	-------------

Note:- In case of surplus, just reverse the entries.

CONCLUSION OF INTEGRATED AND NON-INTEGRATED ACCOUNTS

(Link from **Red light approach**)

Account No. 1:- SLC Accounts is like material purchase account hence it is

- ❖ Debited with opening stock of raw material and purchase of material
- ❖ Credited with issue of material and closing stock of material.

Account No. 2:- WC accounts is like expenditure account hence it is

- ❖ Debited with wages incurred (Both direct and indirect)





- ❖ Credited with charging of wages to WIP and Overheads A/c (No closing Balance)

Account No.3:- F. Overhead A/c is

- ❖ Debited with Overhead incurred
- ❖ Credited with overhead recovered
- ❖ Diff. is either “Over/Under Recovery” **OR** “Closing Balance”

Account No.4:- WIP Account is

- ❖ Debited with opening balance of WIP, Direct material cost, Direct labour Cost, Direct Exp. and factory Overhead **recovered** (Link with Red-Light Approach - Concept No. 2)
- ❖ Credited with “TF to warehouse” and closing balance of WIP.

Account No.5:- Office and Admin OH is

- ❖ Debited with OH incurred
- ❖ Credited with OH recovered





- ❖ Diff is either “Over / Under Recovery” OR “Closing Balance”.

Account No.6:- FG account is debited

- ❖ Opening balance of FG, TF from factory and Office & admin overhead **recovered** (Link from Red Light Approach -
- ❖ Credited with “TF to Shop” and closing balance of FG.

Account No.7:- Selling and distribution OH account is

- ❖ Debited with OH incurred
- ❖ Credited with OH recovered
- ❖ Diff is Either “Over/Under Recovery” OR “Closing Balance”

Account No.8:- COS Account is

- ❖ Debited with opening balance of FG and S&D OH Recovered (Link from Concept No.2)
- ❖ Credited with “TF to Costing P&L Account”





Account No.9:- Costing P&L Account is

- ❖ Debited with “TF from shop” and under-recovery of OH
- ❖ Credited with Sales and “Over-recovery of OH”

Account No.10:- GLA Account is

- ❖ Credited with “Opening balance of GLA”, Payment made for material purchase / wages / all Overheads and net profit earned
- ❖ Debited with sales and closing balance of GLA.





Activity Based Costing (ABC)

Concept No. 1:- Under Absorption Technique:- Overhead cost is allocated over products on Single recovery rate. This overhead recovery rate is calculated on the basis of

- Budgeted Output (Overhead Recovery Rate = $\frac{\text{Budgeted Overhead}}{\text{Budgeted Output}}$)
- Budgeted Labour hours (Overhead Recovery Rate = $\frac{\text{Budgeted Overhead}}{\text{Budgeted Labour Hours}}$)
- Budgeted machine hours (Overhead Recovery Rate = $\frac{\text{Budgeted Overhead}}{\text{Budgeted Machine Hours}}$)
- Budgeted material cost (Overhead Recovery Rate = $\frac{\text{Budgeted Overhead}}{\text{Budgeted Material Cost}} \times 100$)
- Budgeted Labour cost (Overhead Recovery Rate = $\frac{\text{Budgeted Overhead}}{\text{Budgeted Labour Cost}} \times 100$)
- Budgeted prime cost (Overhead Recovery Rate = $\frac{\text{Budgeted Overhead}}{\text{Budgeted Prime Cost}} \times 100$)





This absorption technique is also called traditional / conventional method.

Under ABC Costing, Overhead costs (Indirect Costs) is apportioned over different products on some reasonable basis.

All overheads are divided into 2 parts:-

1. Overhead which is activity oriented i.e. overhead which increases or decreases on increase or decrease in number of activities i.e. set-up cost is indirect cost (OH) which will increase if number of set-ups on machine increases and vice-versa. Inspection charges will increase if inspection in factory is conducted more times.
2. Overhead which is not activity oriented i.e. overhead which is not affected by increase or decrease in number of activities e.g. factory rent, depreciation on machine on SLM. This overhead is apportioned among products using single recovery rate.

Steps in ABC system

1. Statement of Car Pool (Car Allocation) :- Group of overhead
2. Statement of Cost





Statement of Cost Pool

Overhead	Amount	Basis	No. of Activities	Cost per activity
Set up Cost	XX	No. of Set Ups	XX	XX
Inspection Cost	XX	No. of inspections	XX	XX
Stores Cost	XX	Material Cost	XX	XX
Other Cost	XX	Method of absorption (Output)	XX	XX

Traditional way is called absorption while modern way is called ABC





SERVICE Costing for Hospital

$$\text{Rent per patient day} = \frac{\text{Total operating cost} + \text{Desired profit}}{\text{Total No. of patient days}}$$

Patient Days = No. of beds x No. of Days x Occupancy Rate

Break Even Points (In Number of patient Days)

1. Break Even Points means a point at which there shall be no profit no loss.

Hence Total Revenue = Total Cost

Selling Price x No. of Units sold = TFC + Variable Cost per unit x No. of Units Sold

No. of Units Sold = $\text{TFC} / (\text{Selling Price} - \text{V. Cost}) = \text{TFC} / \text{Contribution Per unit}$

In case of hospital

- No. of units = No. of patient Days
- V. cost per unit = V cost per patient Day





CANTEEN COSTING

This is applicable for mess or canteen where all items to be served in a thali are fixed hence Objective is to calculate the cost of providing meals so that price per meal / Thali can be fixed.

$$\text{Cost per meal / Thali} = \frac{\text{Total Operating cost}}{\text{No.of meals}}$$

SERVICE Costing for Lodge

$$\text{Cost per room – day} = \frac{\text{Total operating cost}}{\text{Total number of room days}}$$

$$\text{Total Room Days} = \text{No. of Rooms} \times \text{No. of Days}$$

SERVICE Costing for Software Developing companies

Cost of project = Cost per project = Specific Cost involved for project + Overhead cost absorbed (Normally on the basis of salaries).





SERVICE Costing for Toll Roads

Government gives contract to contractor for construction of Highway. In such case Contractor incurs 2 types of expenditure:-

- Capital cost = Huge amount incurred in beginning in construction of Road
- Operating Cost = salary of persons involved in collecting tolls
- Maintenance Cost = Cost incurred in maintain repairs every year.

Cost per vehicle =

$$\frac{\text{Total of capital cost+operating cost+maintenance cost}}{\text{Total number of vehicles estimated to be passing through this highway}}$$

SERVICE Costing for Financial Institutions

Processing Cost per home loan application =

$$\frac{\text{Total Processing Cost in a year}}{\text{Total number of loan applications in a year}}$$





CA Purushottam Aggarwal (Faculty of Costing Paper at CA Inter & CA Final)

SERVICE Costing for POWER HOUSE

$$\text{Cost per unit of electricity generated} = \frac{\text{Total Cost}}{\text{Total Units Generated}}$$

