# Akash Agarwal Classes

## CMA INTERMEDIATE
### Paper- 8 Cost & Management Accounting
### INDEX

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## 1. Operating Costing

### TRANSPORT SERVICE PROVIDERS

1. Transport of Passengers
2. Transport of Goods

Various Cost per unit shall be calculated as follows:-

| SERVICE PROVIDER | COST PER UNIT | FORMULA |
|---|---|---|
| Ola Cab / Taxi | Cost per Km. | $\dfrac{\text{Total Cost of operating}}{\text{Total Kms.run}}$ |
| School Bus, Chartered Bus, Railways, Airlines | Cost per passenger | $\dfrac{\text{Total Cost of operating}}{\text{Total Passengers}}$ |
| Metro, DTC Bus | Cost per passenger per km | $\dfrac{\text{Total Cost of operating}}{\text{Total Passengers-Kms}}$ |
| Goods Transport Service providers | Cost per tonne Per km | $\dfrac{\text{Total Cost of operating}}{\text{Total Tonne-Kms}}$ |

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

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 |

All expenses in 2 categories
a. Fixed Exp. / Standing Charges :- e.g. Salary to driver, Insurance, Road Tax etc
b. Running Charges / Variable Expense:- Purely dependent on running of vehicle like petrol exp. diesel, Repairs.

Note 1:- Dep. Of vehicle: Fixed if life is in years/ Variable if life is in kilometres/Fixed if nothing specified.

Note 2:- Repairs & Maintenance: Fixed if in form of AMC/ Otherwise variable

Tonne km are of 2 types:-
1. Absolute Tonne Km = Weight in tonne x km run
2. Commercial Tonne – Km = Total Km x Avg. Tonne Km

### SERVICE Costing for Hospital

- Hospital charging unit is "Rent per bed per day"
- Rent per patient per day = $\dfrac{\text{Total operating cost} + \text{Desired profit}}{\text{Total No. of patient days}}$
- Patient Days = No. of beds × No. of Days × Occupancy Rate

### SERVICE Costing for Financial Institutions

Loan to persons for buying a house, buying a car, buying Switzerland ticket etc.

Processing Cost per home loan application = $\dfrac{\text{Total Processing Cost in a year}}{\text{Total number of loan applications in a year}}$

### Break Even Points (In Number of patient Days)

- BEP Points ( No. of Units) = TFC / (S.p.p.u – V.Cost p.u.) = TFC / Contribution Per unit
- In case of hospital (unit means patient-day)
- No. of units = No. of patient Days
- V. cost per unit = V cost per patient Day

### SERVICE COSTING FOR CANTEEN COSTING

### SERVICE Costing for Lodge

- Same like Hotels. Charging unit is "Rent per room per day"
- Cost per room per day = $\dfrac{\text{Total operating cost}}{\text{Total number of room days}}$
- Total Room Days = No. of Rooms × Occupancy ratio × No. of Days

Fixed menu in Thali Cost per meal / Thali = $\dfrac{\text{Total Operating cost}}{\text{No. of meals}}$

## SERVICE COSTING FOR TOLL ROADS

Construction of Highway – 10 Year right to recover Toll from vehicles passing through 3 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.

Price per vehicle = Toll Rate per vehicle =

Formula 1:- Cost per vehicle + profit per vehicle

Cost per vehicle =

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

Formula 2:- $\dfrac{\text{Total Cost+Total Profit}}{\text{Total Number of chargeable Vehicles}}$

Cost per Km - Constructed =

$$\frac{\text{Total of capital cost+operating cost+maintenance cost}}{\text{Total Length of Road (Total Km)}}$$

## SERVICE Costing For Software Developing Companies

Cost is calculated on project-by-project basis.

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

## SERVICE Costing For POWER HOUSE

Generate electricity & calculate cost per unit of electricity generated Cost per unit of electricity generated =

$$\frac{\text{Total Cost}}{\text{Total chargeable Units Generated}}$$

## 2. Cost Sheet

| PARTICULARS | AMT (RS.) | TOTAL UNITS |
|---|---|---|
| Opening stock of raw material | XXX | |
| Add:- Purchase of raw material including carriage inwards | XXX | |
| less:- Closing stock of raw material | (XXX) | |
| Direct material consumed / DMC | XXX | Units produced |
| Direct Labour Cost | XXX | Units produced |
| Direct Expenses / Chargeable Expenses | XXX | Units produced |
| Prime Cost/Direct Cost | XXX | Units produced |
| factory/works/Manufacturing/Production overhead | XXX | |
| Plus Opening stock of WIP | XXX | |
| Less closing stock of WIP | (XXX) | |
| Factory Cost | XXX | Units produced |
| Quality Control Cost | XXX | |
| Research & Development Cost (Process Related) | XXX | |
| Adm. Overheads (Related to Production Activity) | XXX | |
| Less:- Credit for Recoveries / Scrap / By – Products / Misc. Income | (XXX) | |
| Primary Packing Cost | XXX | |

### SPECIAL FORMULAS

1. No. of units produced = Sales (units) + Closing Stock (units) – Opening Stock (units

2. No. of units Sold = Opening Stock (units) + produced (units) – closing Stock (units)

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

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

ii. Abnormal expenses

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

Method1 :- Conversion cost = direct labour cost + direct expenses + factory overheads

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

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

Meaning of Change in Labour efficiency & Its impact

Case 1:- When Labour Efficiency reduced

New DLC per unit

$$\frac{\text{Old DLC per unit}}{100\% - \text{Reduction in Effciency}}$$

Case 2:- When Labour Efficiency Increased

$$\text{New DLC per unit} = \frac{\text{Old DLC per unit}}{100 + \text{reduction in efficiency}}$$

## Impact of a word in Costing solution

Example 1 Semi-variable overheads per annum at 75% capacity is Rs. 60,000

Case 1:- (it will increase by Rs. 4,000 per annum for increase of every 5% of the capacity utilisation or any part thereof)Solution:-

| Capacity Level | Annual Semi-variable OH |
|---|---|
| 75% | 60000 |
| 80% | 60000+4000=64000 |
| 90% | 60000+4000x3=72000 |
| 86% | 60000+4000x3=72000 |

Case 2:- (it will increase by Rs. 4,000 per annum for increase of every 5% of the capacity utilisation thereof)

Solution:-

| CAPACITY LEVEL | ANNUAL SEMI-VARIABLE OH |
|---|---|
| 75% | 60000 |
| 80% | 60000+4000=64000 |
| 90% | 60000+4000x3=72000 |
| 86% | 60000+4000x2+4000x 1%/5%= 68800 |

### Example 2

| Particulars | Total Cost | Variable Cost | Fixed Cost |
|---|---|---|---|
| Administration OHs (75% Fixed) | 150000 | 150000 x 25% = 37500 | 150000 x 75% = 112500 |
| Administration OHs – Fixed (75%) | 150000 | $\dfrac{150000}{75\%} \times 25\% = 50000$ | 150000 |

## 3. Material Costing

### ECONOMIC ORDER QUANTITY (EOQ)

How Much to order in single order so that Carrying & Ordering cost are minimized Assuming Total Annual Purchase Cost remain Same.

1. Ordering cost (Cost of placing an order),
2. Carrying cost (cost of keeping material safe and usable till use in production) and
3. Purchase cost (Quantity purchased x price per unit)

Carrying Cost (%) = Insurance cost (%)+interest cost(%)+storage space cost(%)+ obsolescence cost rate (%)

- Carrying cost per unit per annum normally remain same.
- Carrying cost shall change if it is given as a % of material price and material price keeps on Changing.

Formula $Q \sqrt{\frac{2AO}{C}}$ = Derivation Covered in class

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

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

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

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

$(C) = \dfrac{Q \times C}{2}$

### FREQUENCY OF ORDER

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

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

### LEAD TIME:

it is time gap between date of placing the order with supplier and date of receipt of ordered material e.g. if order is placed on 4th Nov. 2016 and material is received on 8th Nov. 2016 then the lead time is 4 days.

## RE-ORDER LEVEL

- When to Order
- It is that level of stock of raw material at which a fresh order for raw material should be placed otherwise the firm may face stock-out situation. This level lies between maximum and minimum level.

A Car tank petrol normal full capacity is 25 litre. Reserve level is 5 litre.

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

## MAXIMUM LEVEL:

It is that level of stock above which stock in hand of raw material should not be allowed to exceed. Like 25 litre in car petrol.

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

## AVERAGE STOCK LEVEL

Formula 1:-

Avg. stock held by an organization

$$= \frac{Max. Stock\ Level + Minimum\ Stock\ Level}{2}$$

Formula 2 :-

$$= Min. stock\ level + \frac{Re\text{-}order\ Quanity}{2}$$

## MINIMUM LEVEL:

It is that level of stock below which stock in hand of raw material should not be allowed to fall.

Formula

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

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

OR

F3 - Safety Stock

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

## 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 = $\dfrac{\text{Raw material consumed during a year}}{\text{Avg.stock of raw material}}$

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

Turnover period = $\dfrac{\text{365 Days or 12 months}}{\text{Material Turnover Ratio}}$

It tell number of days material is kept (holded) in godown before further use.

- 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)

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

| | |
|---|---|
| Trade Discount | • Deduct from purchase price |
| Quantity Discount | • Deduct from purchase price |
| Cash Discount | • Do not deduct |
| Road Tax | • Add to purchase cost |
| GST | • Add to purchase cost (if ITC not availed: specifically mentioned in question) |
| Detention Charges/ Fine / Penalty | • deduct from purchase price since it is a penalty |
| Insurance Cost / Comm/ Freight Inwards | • Add to purchase cost |
| Cost of containers (if specifically charged) | • Add (non returnable) Ignore (if returnable) |
| Normal Loss | • Good units shall absorb cost of normal loss of material |

$$\text{Cost per unit} = \frac{\text{Total Cost}}{\text{Total units} - \text{normal loss units}}$$

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

**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

**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.

**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

### Treatment of normal and abnormal loss of units in valuation

a. Normal Loss in units:- Price per unit of remaining material shall be increased.
b. Abnormal loss in units:- it shall be treated as issue of material. Cost of material lost shall be charged to costing P&L A/c as loss.

If given in question "Shortage will be charged as overhead" then it means cost of such issues shall be treated as overhead cost (material Cost became indirect material cost). It is neither normal loss nor abnormal loss.

## ABC ANALYSIS

| steps | Practical steps to classify material in category A, B and C |
|---|---|
| 1 | Calculate value of each raw material by multiplying annual consumption of each raw material by its unit price |
| 2 | Calculate total value of all raw materials. |
| 3 | Calculate % of value of each raw material in relation to total value of all raw materials. |
| 4 | Assign ranking to above calculated % i.e. Rank 1 to highest %, Rank 2 to second highest % and so on. |
| 5 | Classify items having nearly 70% value under category A, 20% value under category B and 10% value under category C. |

## STOCK-OUT SITUATION

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

Stock-out ratio (Finished Goods) =

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

## INPUT-OUTPUT RATIO

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

Formula: $\dfrac{\text{input}}{\text{output}} \times 100$

If Input-output ratio is more than 100% then there is manufacturing loss and unfavourable if it is near 100% it is regarded as favourable

Material cost for 1 unit of output = Input – Output Ratio x Purchase price of RM

Inventory turnover ratio for FG (ITR for FG)

1. Inventory turnover ratio for finished goods = $\dfrac{\text{Cost of sales}}{\text{Average inventory of finshed goods}}$

2. Average inventory of finished goods = $\dfrac{\text{Opening stock of FG+closing stock of FG}}{2}$

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

Low ITR = high holding period= high holding cost = unfavourable

High ITR = low holding period = low holding cost = favourable

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

## 4. Job and Batch Costing

### JOB AND BATCH COSTING

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. 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.

Example:- Batch costing states that cost per unit shall be less as number of units increases and total cost of batch shall increase as number of units increases in a batch. Example Rs. 200 for 100 visiting cards while Rs.300 for 200 visiting cards etc

### JOB AND BATCH COSTING

Economic Batch Quantity (EBQ) (Similar as Economic order quantity)
EBQ refers to the optimum quantity batch at which Set up & Processing Costs and Carrying Costs are together minimised.

$$E.B.Q = \sqrt{\frac{2 \times \text{Annual Demand} \times \text{Set up cost per batch}}{\text{cost of carrying per unit of production per annum}}}$$

# 5 . Labour

Workers are paid wages based on

1. Time bases eg: daily, monthly, etc

2. Piece rate basis eg: Rs.20 per unit produced shall be paid as wages.

3. Piece rate wage system with guaranteed time wages.

| Particular | A (₹) | B (₹) | C (₹) |
|---|---|---|---|
| Actual Units to be produced | 40 | 80 | 50 |
| -Time Based wages (A) | 100 | 100 | 100 |
| -Piece Rate Method (B) (@ ₹ 2 p.u) | 80 (40 × 2) | 160 (80 × 2) | 100 (50 × 2) |
| | | | |
| Piece rate with guarantee time base Wages (higher of A & B) | 100 | 160 | 100 |

Time Basis > Piece Rate Then pay according to time basis whichever is higher.

Piece Rate > Time Basis Then Pay according to this.

Total earning under Time Based Wage System.

=Number of hours worked  x Wage Rate per hour

Total Earning under Piece Rate Wage System:

= Number of units produced x Wage Rate per unit

Various Bonus Scheme to boost up moral or workers.

**1] Halsey Scheme/Plan :**
Total Wages = Hours worked x Wage rate per hour + Hours saved x Wage rate per hour x 50%

**2] Rowan Scheme / Plan :**
Hours worked * wage rate per hour + Hours saved * wage rate per hour *
$$\frac{Time\ taken}{time\ allowed}$$

**3] Emerson scheme / plan :**
(Time Based Wages)
Total Wages = Time based wages + Bonus% as specific % of Time based Wages

Effective wage rate =
$$\frac{Total\ Wages}{Total\ Hours\ Worked}$$

**4]Taylor's Differential piece rate method:**
Total wage = Actual output x Differential piece rate

**5] Merrick piece rate (Mother scheme)**
Total wages = Actual output x Differential piece rate

**6] Bedeaux Scheme:**
Total wages = Time worked x wage rate + Time saved x wage rate x 75%

Time saved = Std. time for actual output - Actual time for actual output

**7] Grantt Task Scheme:**

**8] Barth Scheme:**
Total wages =
$$\sqrt{Std\ time\ \ x\ Actual\ time\ \ x\ \ wage\ rate}$$

**9] Halsey Weir Plan:**
Total wages = Time worked x Wage rate + Time saved x Wage rate x 30%

Contribution p.u =
Selling price p.u    -
Variable cost p. u

## Emerson scheme / plan

| Level of Efficiency (%) | % of Bonus |
|---|---|
| Upto 66.66% | NIL |
| More the 66.66 % but upto 100% | Bonus % shall vary from 0.01 % to 20 % (This information will be Given in the question) |
| More the 100 % | 20% + 1% extra for each 1% Extra efficiency above 100% |

## Grantt Task Scheme:

| LOE | Total Wages |
|---|---|
| Less than 100% | Time based wages |
| Equal to 100% | 120% of Time based wages |

## Taylor's Differential piece rate

| LOE | Differential Piece Rate |
|---|---|
| Less than 100% | 80% of Normal piece rate (Penalty of 20%) |
| 100% or more | 120% of normal piece rate (Reward -20%) |

## Merrick piece rate

| LOE | Differential Piece Rate |
|---|---|
| Less than 83% | 100% of normal piece |
| More than 83 % but upto 100% | 110% of normal piece rate |
| Above 100% | 120% of normal piece rate OR 130% of normal piece rate |

| More than 100% | Actual o/p | X | High |
| | piece rate | | |

## Control Ratios

- Activity Ratio = $\dfrac{\text{Std hrs for Actual output}}{\text{Budgeted hrs for budgeted output}} * 100$

- Capacity Ratio = $\dfrac{\text{Actual hours worked for actual output}}{\text{Budgeted hrs for budgeted output}} * 100$

- Efficiency Ratio = $\dfrac{\text{Std .hours for actual output}}{\text{Actual hours worked for actual output}} * 100$

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

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

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

When overtime working is always required due to shortage of labour. (Workers are not available in market hence overtime always needed by available workers)

- Overtime payment is charged to product using inflated wage rate.

When worker has to work overtime since customer was demanding production instantly.

- Overtime payment shall be charged to job (Recovered from custom

When sometimes company to work overtime to fulfill production requirements.

- Overtime payment is treated as production overhead. (Indirectly charged to products)

When company had to overtime since working during day stopped due to abnormal situations e.g. breakdown of machine.

- Overtime payment is charged as loss in costing profit and loss account.

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Labour Turnover Rate (LTR) means change in workers of company as follows

Labour turnover under separation method :-

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

Labour turnover under replacement method

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

Labour turnover under accession method

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

Labour turnover under Flux method

$$\frac{\text{No.of separtions in a year+ No.of accessions}}{\text{Average no.of workers on roll during the period}} * 100$$

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 if company opened a new factory (Called Fresh recruitment).

High LTR means high cost of replacement and training to workers hence company always desires Low LTR

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

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.

Accession (A) = Replacement + Fresh recruitment

## 6. Overheads

### ELEMENT OF COST

- MATERIAL COST
  - DIRECT MATERIAL
  - INDIRECT MATERIAL
- LABOUR COST
  - DIRECT LABOUR
  - INDIRECT LABOUR
- EXPENSES
  - DIRECT EXPENSES
  - INDIRECT EXPENSES

**OVERHEAD**

Company Departments
- Production Department → Production Overhead
- Service Department → Provide services to production department {Other Overhead}
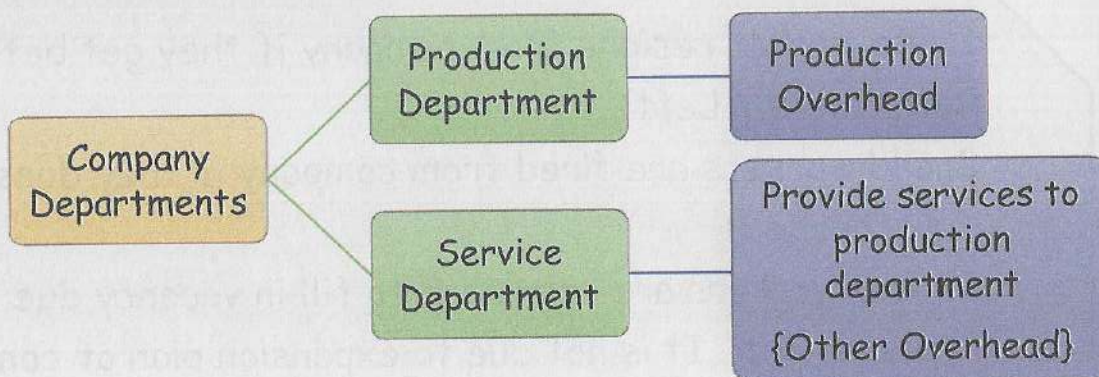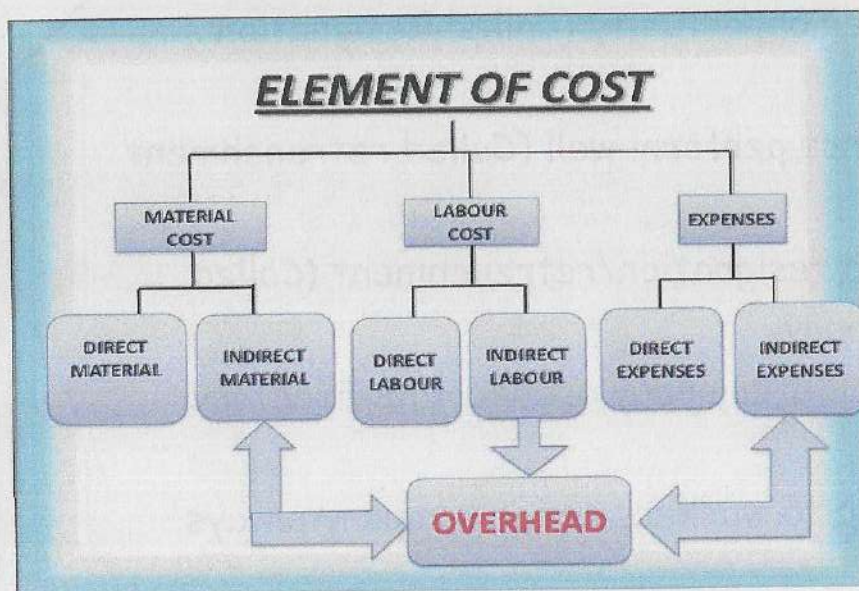
$$\% \text{ of DMC} = \frac{Production\ OH}{Total\ DMC} * 100$$

$$\% \text{ of DLC} = \frac{Total\ OH}{Total\ DLC} * 100$$

$$\% \text{ of Prime cost} = \frac{Total\ OH}{Total\ PC} * 100$$

$$\text{DL Hour Rate} = \frac{Total\ OH}{Total\ DL\ hour}$$

$$\text{Machine Hour Rate} = \frac{Total\ OH}{Total\ PC}$$

## Allocation of Overheads



**Production Department**

- PD 1
  - P1 supervisor (10000 pm)
- PD 2
  - P2 supervisor (12000 pm)
- PD 3
  - P3 supervisor (15000 pm)
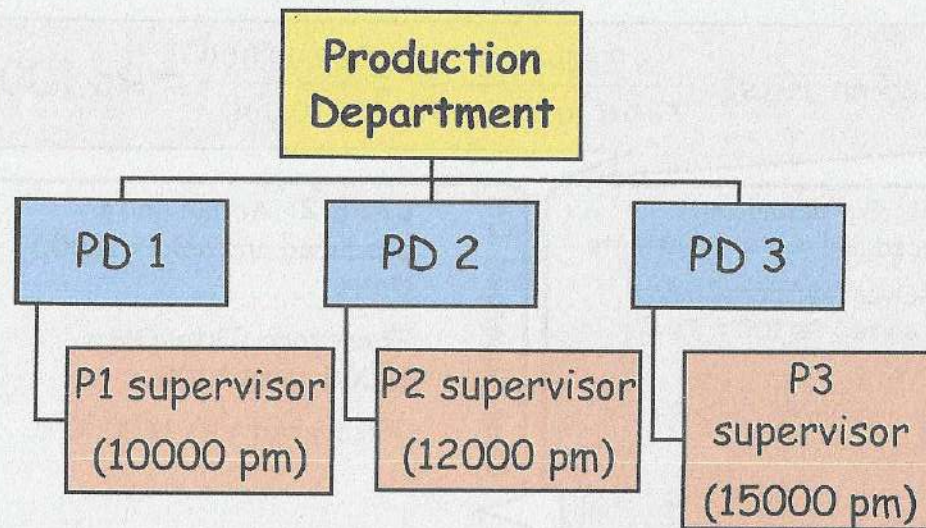
We will add salary of supervisor 1 in cost of product 1. It is technically called allocation of overheads.

## Apportionment of overheads

Common supervisor - Rs. 30000 p.m.
We will add salary of common supervisor into products. It will be divided on some "Logical Basis".

**Logical basis:**
- Equal ratio
- Supervisory hours ratio
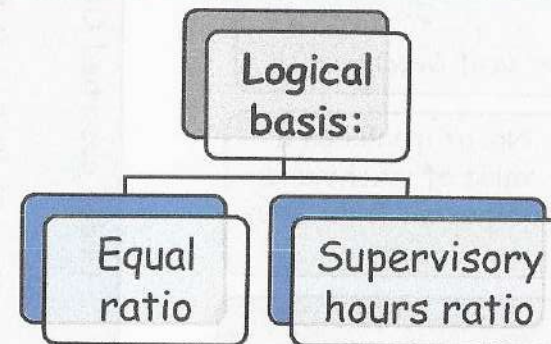
Dividing OH among products in a logical ratio is technically called apportionment of Overhead.

**Logical basis divide common overheads**
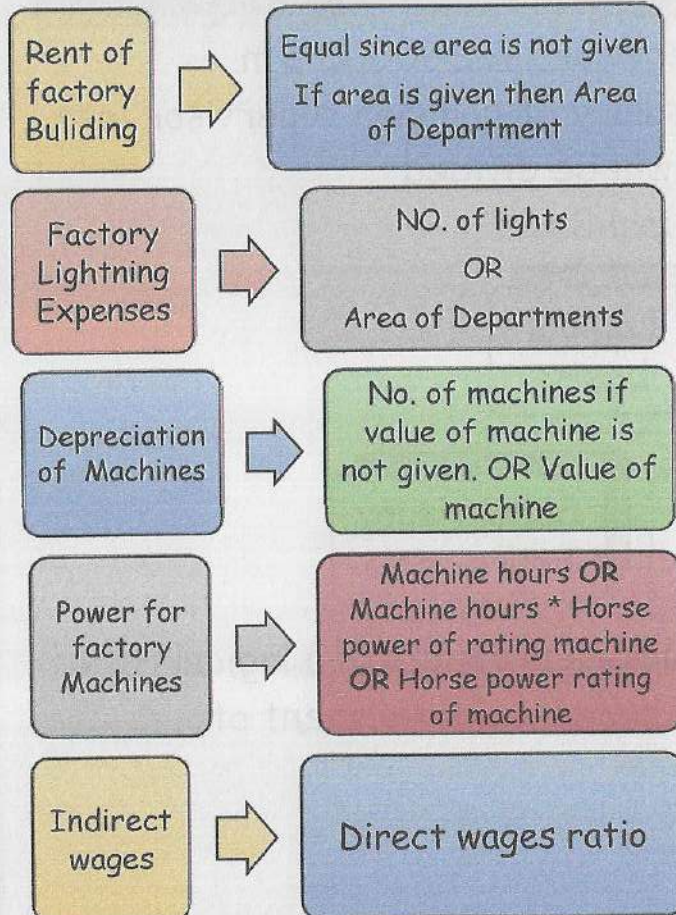
**Treatment of under-observed overhead or over- absorbed overhead**

| Rent of factory Building | ⟹ | Equal since area is not given<br>If area is given then Area of Department |
|---|---|---|
| Factory Lightning Expenses | ⟹ | NO. of lights<br>OR<br>Area of Departments |
| Depreciation of Machines | ⟹ | No. of machines if value of machine is not given. OR Value of machine |
| Power for factory Machines | ⟹ | Machine hours OR Machine hours * Horse power of rating machine OR Horse power rating of machine |
| Indirect wages | ⟹ | Direct wages ratio |

$$\text{ORR (Based on units)} = \frac{Total\ OH}{Total\ prod.units} = \frac{10,00,000}{10,000} = Rs.100$$

**Under absorbed OH**

**Case 1:** But actual units produced and sold = 9000 units.

Total Overhead recovered = 9000 units * Rs 100 = Rs 900000

Under-recovered OH = Rs 1000000 - 900000

Under absorbed OH = Rs 100000

**Over Absorbed OH**

**CASE 2:** Actual units produced and sold = 12000 Units

Therefore, Total OH = 12000 units * 100

Recovered = Rs 1200000

**Two methods to charge OH**

Under/over absorbed OH should be charged to costing P&L as loss or profit.

Under/over absorbed OH should be charged to WIP, FG & Units sold by:

Under Supplementary Ratio

In the Ratio of value of WIP, stock of FG and units sold

## Supplementary Ratio =

$$\frac{500 \text{ } equivalent \text{ } units over \text{ } absorption}{Total \text{ } production(units) \text{ } using \text{ } equivalent \text{ } units \text{ } of \text{ } WIP}$$

**NOTE 1:** Under absorbed OH amount relating to inefficiency, defective planning or defective production shall always be charged to as loss.

**NOTE 2:** While calculating actual Oh incurred we shall not include:

1. Amount paid to worker as per count order

2. Previous year's and expected booked to current year.

3. Wages paid to strike period.

4. Obsolute stores written off.

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

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

Machine hour Rate = $\dfrac{Amount \text{ } of \text{ } production \text{ } over \text{ } heads}{Machine \text{ } hours}$

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 hour $\dfrac{Total \text{ } Direct \text{ } wages}{Total \text{ } machine \text{ } hours}$

**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
(b) Power consumed cost / Electricity
(c) Repair & Maintenance
(d) Lubricating oil & Consumable stores
(e) Other running expenses

**C. Machine Hour Rate**

# Redistribution Of overheads

**Method 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 %.

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

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

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

**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.1 Original 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)

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

**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 Make2 equation 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 %.

**Method 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.

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

S3 provides services to P1, P2, P3 and S4.

S4 provides services to P1, P2 & P3.

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 & S2is distributed among P1, P2, P3 and S4.

S.4 Original Cost of S4 along with shared cost from S1, S2& S3is distributed among P1, P2 & P3.

| Different Capacity | It is expressed in terms of Units of product e.g. 100 cars per day [20 costing Question per day] & Production Hours e.g. 100 hours per day [Study 10 hours per day] |
|---|---|
| 1. Maximum / Rated Capacity | It refers to the maximum possible production capacity of a factory which can never be achieved practically and it is only a theoretical capacity.<br>Example A factory can work 8 hours per day.<br>Here, Maximum capacity = 365 days × 8 = 2,920 hours |
| 2. Practical Capacity | refers to the maximum capacity of a factory reduced by capacity lost due to Normal repairs& maintenance, Sundays, Holidays etc. Thus, Practical capacity = Maximum capacity – Normal loss of capacity<br>Example A factory can work 8 hours per day during a six day week and remains closed for 18 holidays (exclusive of Sundays) during a year. Average idle hours per month is 20 for cleaning and maintenance. |
| 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.<br>Example Actual Capacity during the last 5 years was: I 30,000 II 38,000, III 31,000 IV 30,800, V 26,900.<br>Here year II being two high and Year V being too low are to be ignored.<br>Hence, Normal Capacity = Average of (30,000 + 31,000 + 30,800) = 30,600 hours. |
| 4. Actual Capacity | It refers to the capacity actually utilised during a given period. |

# The Students Scored Successful Marks With AAC



**CMA INTERMEDIATE** — July 2023 Results
**Meet Our Group 1 Top Scorers**

- 267 Marks — Vaidik
- 252 Marks — Ratnakar
- 239 Marks — Mirayala
- 237 Marks — Abhishek
- 230 Marks — Tannu J.
- 228 Marks — Harsh S.
- 224 Marks — Riya Sata
- 217 Marks — Meenakshi
- 215 Marks — Ruchika
- 214 Marks — Rohit S.
- 210 Marks — Snehal
- 209 Marks — Shifa S.
- 209 Marks — Kirti P.
- 208 Marks — Zuveriya
- 207 Marks — Rahul S.
- 206 Marks — Unnati
- 206 Marks — Shweta G.
- 204 Marks — Baishnavi
- 203 Marks — Abhishek
- 201 Marks — Vicky S.
- 200 Marks — Yamini
- 200 Marks — Vedant M.
- 200 Marks — Suraj N.
- 200 Marks — Shreyansh
- 200 Marks — Yash D.

*heartiest congraulations.... and many more ...*

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**CMA INTERMEDIATE** — July 2023 Results
**Meet Our Top Scorers**

- AASHISH Y.
- ZAINAB
- SIDDHARTH
- NIKHIL P.
- ASHISH M.
- SATYAM K.
- ARCHIT G.
- BHARGAVI
- ABHIPSHA
- JAGDISH S.
- PRANAMI V.
- SHIVENDRA S.
- SRI DATTA
- MOH. MURSHID
- NATRAJAN S.
- RUGVEDI K.
- SAKSHI J.
- ASMITA B.
- SUBHO G.
- HARISUDA
- TULSI J.
- ARSHIYA T.
- BIBHUTI N.
- SARTHAK A.
- RISHABH J.

**Any Many More ...**

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"We came here with an idea of success batch that we are going to help CMA students to achieve their goal of becoming a SUCCESSFUL CMA ".

And

AAC achieving their goal by passing "THOUSANDS" of students every year.

NEXT CAN BE YOU.............

## 7. Standard Costing

### Variance

| AC Cost > Std. Cost - Adverse | AC. Cost < Std. Cost - favorable | AC. Sales > Std. Sales - favorable | AC. Sales < Std. sales -Adverse |
|---|---|---|---|

**Pyramid:**
- Material Variance
- Labour Variance
- Overhead variance
- Sales Variance
- Profit Variance

Budgeted output in budgeted input =

"Budgeted I/P"
"Bud I/P for 1 unit of O/P"

→

Budgeted O/P in actual I/P =
"Total actual I/P"
"Bud I/P for 1 unit of O/P"

→

Bud. I/P for Actual O/P = =Actual O/P x Budgeted I/P for 1 unit of output

**DM Cost Variance**
- DM Usage Variance
  - DM Usage Variance
    - DM Yield Variance
    - DM Mix Variance
  - DM Price Variance
- DM Price Variance

## Direct Material Variance

| Particulars | SP × SQAO | SP × RSQ | SP × AQ | AP × AQ |
|---|---|---|---|---|
| Material A | XX | XX | XX | XX |
| Material B | XX | XX | XX | XX |
| Total | XX | XX | XX | XX |
|  | M1 | M2 | M3 | M4 |

DMPV = (SP-AP) × Actual Quantity Purchased

| DM Cost Variance = M 1 - M 4 | DM Usage Variance = M 1- M 3 | DM Price Variance = M 3 - M 4 | DM Yield Variance = M 1 - M 2 | DM Mix Variance = M 2- M 3 |
|---|---|---|---|---|

DMYV = Formula = [Actual O/P – Std. O/P in actual I/P] × Std. Material Cost p.u of "output"

RSQ = We will divide total actual quantity in Std. material Mix Ratio.

SQAO = = Actual O/P × Budgeted I/P for one unit of O/P

Direct Labour Variances are calculated in 2 cases

Case 1: When workers do not sit Idle

Case 2: When workers have to sit idle

i.e without "abnormal" idle time

i.e. with "abnormal" idle time

CASE 1 - Direct Labour Cost Variance

Direct Labour Efficiency Variance

Direct Labour Rate Variance

Direct Labour Yeild Variance

Direct Labour Mix Variance

Direct Labour Mix Variance

CASE 2 - Direct Labour Cost Variance

Direct Labour Efficiency Variance

Abnormal Idle time variance

Direct Labour Rate Variance

Direct Labour Yeild Variance

Direct Labour Mix Variance

Direct Labour Mix Variance

## CASE 1 - Direct Labour Cost Variance

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

SHAO = Actual O/P x
$$\frac{\text{"Total Bud.lab hours"}}{\text{"Total Bud. O/P"}}$$
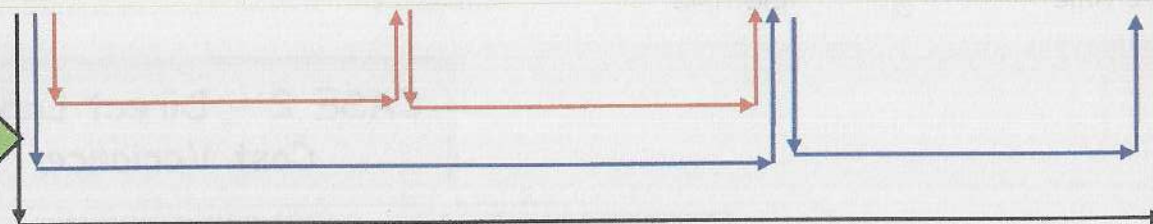
| DL Cost Variance = L1 - L 4 | DL Efficiency Variance = L1- L 3 | DL Rate Variance = L3 - L 4 | DL Yield Variance = L1 - L2 | DL Mix Variance = L2- L 3 |
|---|---|---|---|---|

## CASE 2 – Direct Labour Cost Variance

| Particulars | SR x SHAO | SR x RSH | SR x AHW | SR x AH | AR X AH |
|---|---|---|---|---|---|
| Skilled | XXX | XXX | XXX | XXX | XXX |
| Semi -skilled | XXX | XXX | XXX | XXX | XXX |
| Unskilled | XXX | XXX | XXX | XXX | XXX |
| Total | XXX | XXX | XXX | XXX | XXX |
| | L1 | L2 | L3 | L4 | L5 |

Lab. Efficiency Ratio =
$\dfrac{\text{'Std.hours for actual O/P'}}{\text{Actual Hours}}$

Std. lab cost =
$\dfrac{\text{Total std lab hours}}{\text{Total units produced}}$

Actual lab cost per unit =
$\dfrac{\text{Total actual lab hours}}{\text{Total units produced}}$

DL Cost Variance =
L1 - L5

DL Efficiency Variance =
L1- L3

DL Ab. Idle time Variance=
L 3 - L 4
(Always Adv)

DL Rate Variance =
L4 - L5

DL Yield Variance =
L1 - L2

DL Mix Variance =
L2- L 3

| Particular | Budget | Actual |
|---|---|---|
| Working Day | 25 | 26 |
| Hours | 30000 hrs | 33000 hrs |
| Output | 24000 units | 32500 units |
| Overhead | ₹ 45000 | ₹ 50000 |

Expected hours in Actual Days = Actual Days x Std. hrs in 1 day

Expected output in Actual Days (Possible Output) =

$$\frac{Actual\ hours}{"Bud.I/Pfor\ 1\ unit\ of\ O/P\ "}$$

Budgeted Days = 25days, Actual Days = 26

Budgeted hours=30000 , Actual hours = 33000

Budgeted O/P =24000 hrs , Actual O/P =32500 hrs

Budgeted OH=45000, Actual OH=50000

Budgeted OH p.u = $\frac{Bud\ OH}{Bud\ O/P} = \frac{45000}{24000} = 1.875$ p.unit

Actual OH p.u = $\frac{Actual\ OH}{Actual\ O/P} = \frac{50000}{32500}$ = 1.538 p.unit

Budgeted OH per hour = $\frac{Bud\ OH}{Bud\ Hours} = \frac{45000}{30000} =$ 1.50 per hour

Actual OH per hour = $\frac{Actual\ OH}{Actual\ Hour} = \frac{50000}{33000} =$ 1.5151 per hour

Std. hrs for actual O/P = Actual O/P x Bud. I/P for 1unit of O/P = $32500*\frac{30000}{24000} =$ 40625 hours

Expected O/P in Actual hrs = $\frac{Actual\ hours}{"Bud.I/Pfor\ 1\ unit\ of\ O/P\ "}$

| Particulars | Formula 1 | Formula 2 |
|---|---|---|
| 1. Output absorbed OH | Actual O/P x Bud. OH p.u<br>=32000 units x 1.875p.u<br>= ₹60937.5 | Std. hrs for actual x Bud. OH p.u<br>= 40625 hr x Rs. 1.5<br>= ₹ 60937.5 |
| 2. Input absorbed OH | Actual hr x Bud. OH per hr<br>= 33000hrs x Rs 1.5<br>= ₹ 49500 | Expected O/P in Actual hrs x Bud OH p.unit<br>= 26400 units x 1.875<br>= ₹ 49500 |
| 3. Possible OH | = Possible OP x Bud OH p.<br>= 24960 x 1.875<br>= ₹ 46800 | = Possible hrs x Bud OH p.hr<br>= 31200 x 1.5<br>= ₹ 46800 |
| 4. Bud OH<br>(Normally given in question) | = Bud o/p x Bud OH p.u.<br>= 24000 units x 1.875<br>= ₹45000 | = Bud hrs x bud OH per hr<br>= 30000 hr x 1.5<br>= ₹45000 |
| 5. Actual OH<br>(Normally given in question) | Actual O/P x Actual OH p.u.<br>= 32500 units x 1.5846<br>= ₹ 50000 | Actual Hrs x Actual OH per hr<br>= 33000 hrs x 1.515151<br>= ₹ 50000 |

V.OH Cost Variance

V.OH Effeciency Var
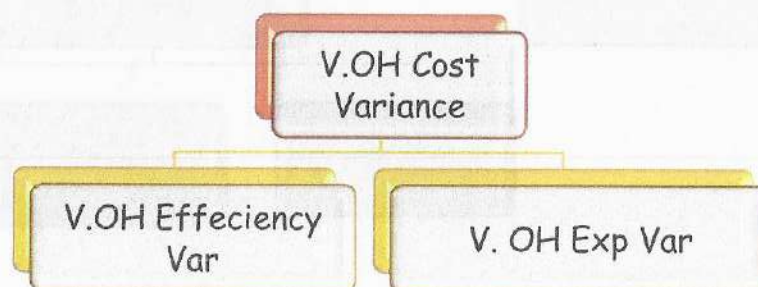
V. OH Exp Var

| Particulars | O/P x Absorbed V.OH | I/P x Absorbed V.OH | Actual V.OH |
|---|---|---|---|
| F1 / F2 | XX | XX | XX |
| Total | VO1 | VO2 | VO3 |
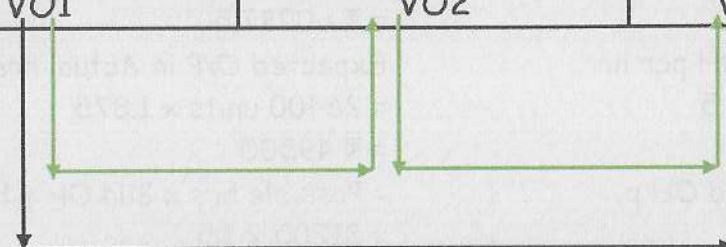
**V.OH Cost Var = VO 1 - VO 3**

**V.OH Eff. Var = VO 1 - VO 2**

**V.OH Exp. Var = VO 2 - VO 3**

**CASE 1 - F.OH Cost Variance**

- **F.OH Volume Variance**
  - F.OH Eff. Var.
  - F.OH Capacity Var.
- **F.OH Exp Var. OR Budget Var.**

**CASE 2 - F.OH Cost Variance**

- **F.OH Volume Variance**
  - F.OH Eff. Var.
  - F.OH Capacity Var.
  - F.OH Calendar Var.
- **F.OH Exp Var. OR Budget Var.**

| Particulars | O/p Absorbed F.OH | I/p Absorbed F.OH | Possible F.OH | Budgeted F.OH | Actual F.OH |
|---|---|---|---|---|---|
| F1 | XX | XX | XX | XX | XX |
| F2 | XX | XX | XX | XX | XX |
| Total | FO1 | FO2 | FO3 | FO4 | FO5 |

CASE 2 Calculation of F.OH Variance when budgeted Days & Actual Days are given in Ques.
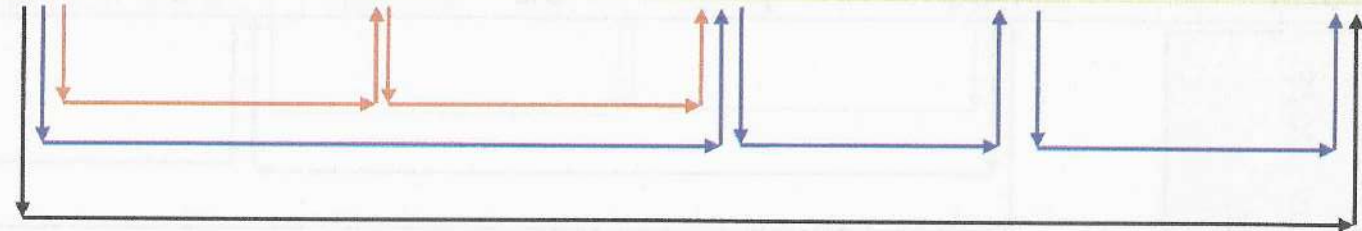
F.OH Cost Var. = FO 1 - FO5

F.OH Vol. Var. = FO 1 - FO 4

F.OH Exp. Var. = FO 4 - FO 5

F.OH Eff. Var. = FO 1 - FO 2

F.OH Cap. Var. = FO 2 - FO 3

F.OH calendar Var = FO3 - FO4

| Particulars | O/p Absorbed F.OH | I/p Absorbed F.OH | Budgeted F.OH | Actual F.OH |
|:---:|:---:|:---:|:---:|:---:|
| F1 | XX | XX | XX | XX |
| F2 | XX | XX | XX | XX |
| Total | FO1 | FO2 | FO3 | FO4 |

CASE 1   Calculation of F.OH Variance when budgeted Days & Actual Days are not given in Ques.

F.OH Cost Var
= FO1 - FO4

F.OH Vol. Var
= FO1 - FO3

F.OH Exp. Var
= FO3 - FO4

F.OH Eff. Var
= FO1 - FO2

F.OH Cap.Var
= FO2 - FO3

Sales Value Var.

Sales Vol. Var.          Sales Price Var.

Sales Qnty. Var.        Sales Mix Var.

Profit Value Var.

Profit Vol. Var.          Profit Price Var.

Profit Qty. Var.         Profit Mix Var.
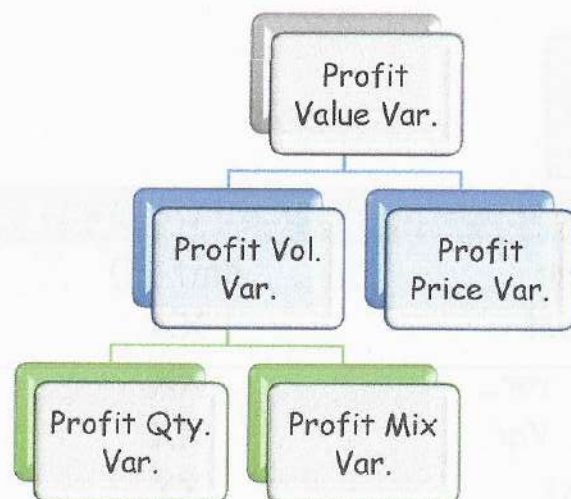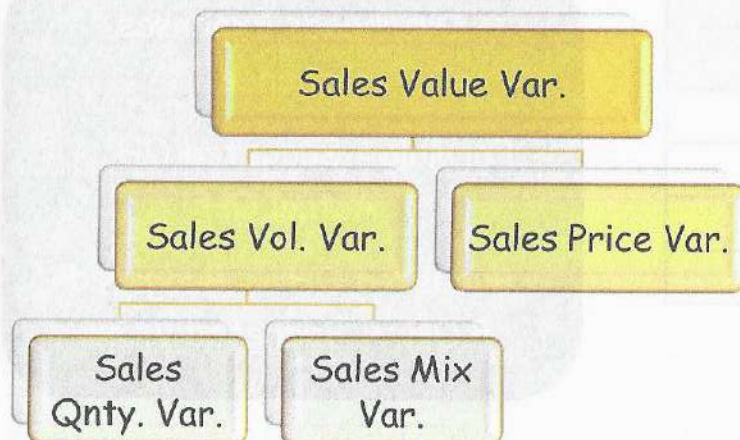
| Particular | B.S.P p.u x Bud. Qnty | B.S.P p.u x RSQ | B.S.P p.u x AQ sold | A.S.P p.u X AQ sold |
|---|---|---|---|---|
| Prod - A | XXX | XXX | XXX | XXX |
| Prod – B | XXX | XXX | XXX | XXX |
| Prod - C | XXX | XXX | XXX | XXX |
| Total | S1 | S2 | S3 | S4 |

Sales Value Var = S4 - S1

Sales price Var = S4 - S3

Sales Vol. Var. = S3 - S1

Sales Mix Var. = S3 - S2

Sales Qty Var = S2 - S1
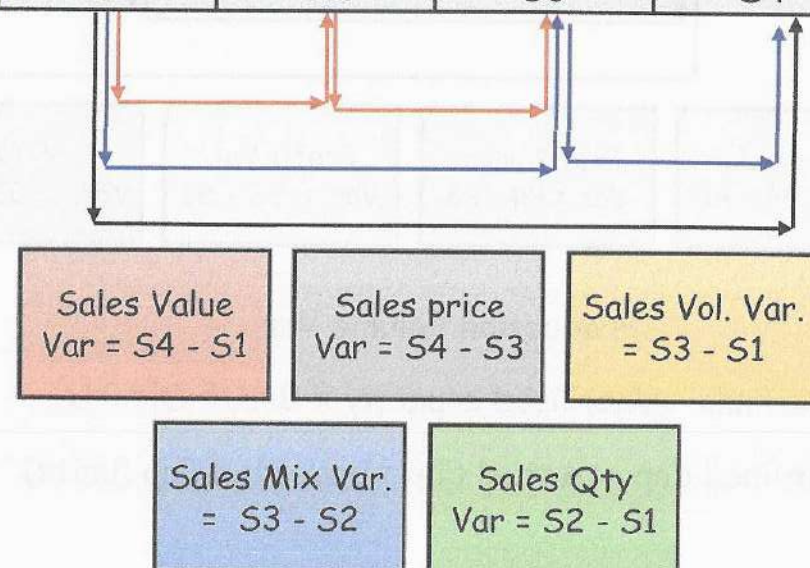
| Particulars | B. Profit p.u x Bud. Qnty | B. Profit p.u x RSQ | B. Profit p.u x AQ sold | A. Profit p.u X AQ sold |
|---|---|---|---|---|
| Prod-A | XXX | XXX | XXX | XXX |
| Prod-B | XXX | XXX | XXX | XXX |
| Total | XXX | XXX | XXX | XXX |
|  | P1 | P2 | P3 | P4 |

**Overheads Expenses Variance**

Formula = Budgeted OH - Actual OH

Budgeted OH = Budgeted F.OH + Budgeted V.OH
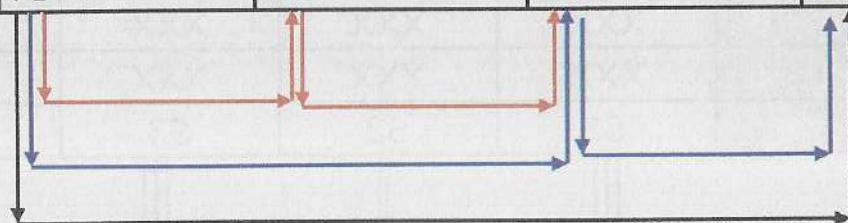
| Profit Value Var = P4 - P1 | Profit price Var = P4 - P3 | Profit Vol. Var. = S3 - S1 | Profit Mix Var. = S3 - S2 | Profit Qty Var = S2 - S1 |
|---|---|---|---|---|

**Production Volume Var**

Formula - Unutilised capacity x Bud. F.OH P.U

Unutilised Cap. = Actual Cap - budgeted Cap (units)

| Reconciliation of Std cost & Actual Cost - | |
|---|---|
| Particular | Amt (₹) |
| Actual Cost | XX |
| Cost -Adv. var. | XX |
| Cost - Fav. Var. | XX |
| Std Cost | XX |

## 8. Reconciliation Of Profit

```
                  Costing ——— Profit ——— Cost Sheet

Records

                                                            Cr.- All
                                                            Incomes.sales

                  Financial ——— Profit ——— TRADING &        Dr. -All
                                           P/L Account       Expenses

                                                            Opening- Dr
                                                            Closing - CR
```
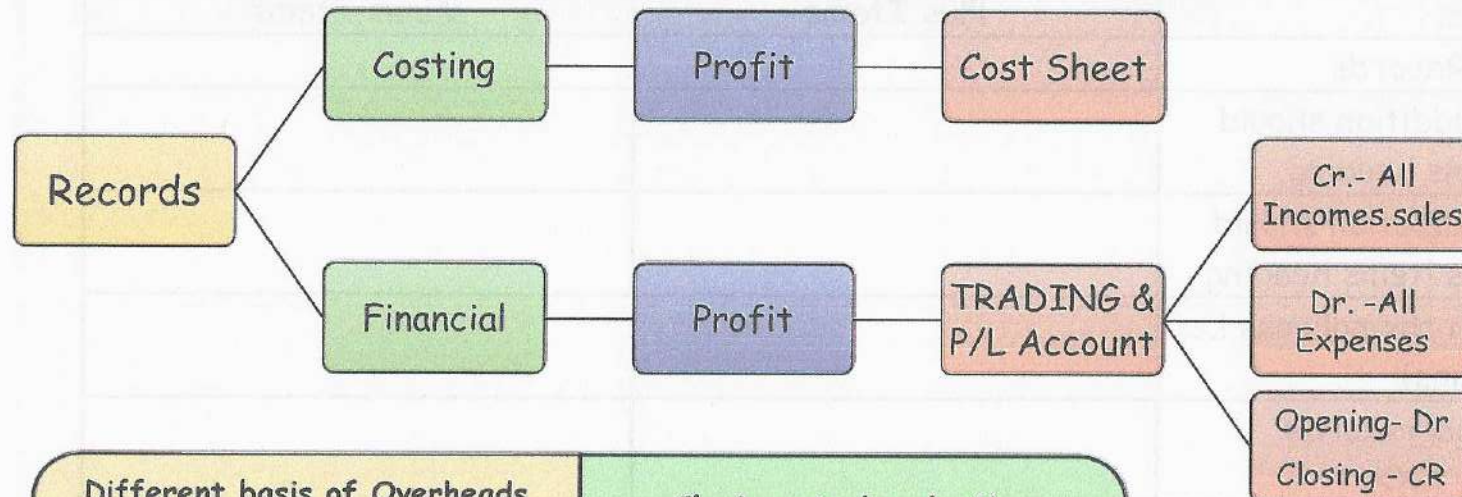
**Different basis of Overheads**

In Costing – Overheads absorbed are shown.

In Trading – Actual Overheads incurred are shown

**Closing stock valuation**

In Costing – Cl. Shock at cost

In Trading – Cost or Market Price whichever is lower

**Reasons of Difference**

**Depreciation on machine**

In Costing – based on life of machine or machine hours

In Trading – SLM Or WDV

Some Financial Items only in financial e.g. Interest income, Dividend Income, Rental Income

**Memorandum Reconciliation Account**

All Plus Column Items - ---- Credit Side of MRA

Minus Column Items -- -- Debit Side of MRA

Difference shall be profit / loss as per financial records.

| Format to Make Reconciliation | | |
|---|---|---|
| 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 | | |

| Expense Side | | |
|---|---|---|
| | Amount (RS) | Implication (Other Items Assumed Constant) |
| An Exp. Charged in Cost | 30,000 | Profit as per costing will be less by Rs.10000 |
| Same Exp. Charged in Trading | 20,000 | Profit as per financial will be more by Rs.10000 |
| Difference | 10,000 | |

**Treatment**

- If we use costing profit as starting point then we need to Add Rs.10000
- If we use trading profit as starting point then we need to Reduce Rs.10000

| Revenue Side | | |
|---|---|---|
| | Amount (RS) | Implication (Other Items Assumed Constant) |
| An Revenue Item in Cost | Zero | Profit as per costing will be less by Rs.20,000 |
| Same Revenue Item in Financial. | 20,000 | Profit as per financial will be more by Rs.20,000 |
| Difference | 20,000 | |

**Treatment**

- If we use costing profit as starting point then we need to Add Rs.20000
- If we use trading profit as starting point then we need to Reduce Rs.20000

DCP approach

**Rule 1**: Always take profit or loss of cost records as starting point

**Rule 2**: Always check all items (debit items or credit items) from excess point of view. (ज्यादा कहा पर है)

Debit Items

Excess in Cost Records (+)

Excess in finance records (-)

Credit Items

Excess in Cost Records (-)

Excess in finance records (+)
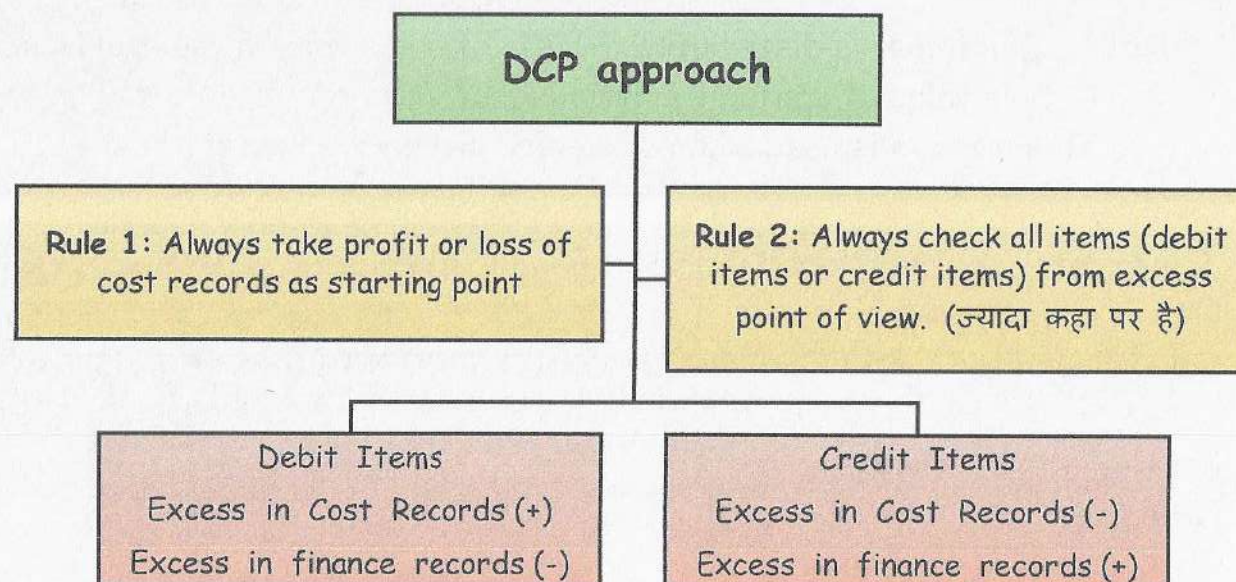
## 9. Joint Products And By-Products

How to apportion total processing cost among different joint products arising out of 1 process?
Joint products means when 2 or more products of almost equal importance are produced simultaneously using same raw material in same process e.g. Oil refining industry, joint products are kerosene and petrol etc.

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

| 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. |
|---|---|

**Net realizable value (NRV) method**

Joint costs are apportioned in the ratio of net realizable values of joint products
NRV is calculated as follows:-

| | |
|---|---|
| Sale value after further processing | XXX (No. of units manufactured x Sellingprice) |
| Less:- Further processing costs | (XXX) |
| 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

**Average unit cost method**

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

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

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

**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

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

Constant gross margin % NRV method (Extension of NRV method)= Joint cost of joint products is calculated as bal fig

## 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 Ratio) | (XXX) | (XXX) |
| 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 |

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

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.

| 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. | |

## 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.

# CMA INTERMEDIATE

## JAN 2023 GROUP 1

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SUCCESS MARKS WITH AAC

| FINANCIAL ACCOUNT | | | |
|---|---|---|---|
| Trishir | 83 | G.sampath | 69 |
| Siddhi | 80 | Pramanik | 69 |
| Anamika | 79 | Aditi | 68 |
| Shweta | 78 | Vinita | 68 |
| Venkatesh | 78 | Jeni | 67 |
| Sejal | 77 | Ankush | 66 |
| Kanan | 76 | Diksha | 66 |
| Asmita | 75 | Narasimha | 66 |
| Yash | 74 | Jaym | 66 |
| Anahu | 73 | Kavya | 66 |
| Himali | 73 | Aamir | 64 |
| Subramanyam | 72 | Harsh | 64 |
| Ayush | 71 | Harnish | 63 |
| Gaurav | 71 | Romana | 62 |
| Shahid | 69 | Lohith | 62 |

AND MANY MORE..........

# CMA INTERMEDIATE

## JAN 2023 GROUP 1

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SUCCESS MARKS WITH AAC

| COST ACCOUNTING | | | |
|---|---|---|---|
| Asmita | 72 | Shriya | 56 |
| Kanan | 71 | Siddharth | 56 |
| Aamir | 69 | Shahil | 56 |
| Aditya | 68 | Shravani | 56 |
| Anamika | 66 | Seema | 56 |
| Priyansh | 64 | Shweta | 56 |
| Kanishk | 63 | Anahu | 56 |
| Shubhangi | 60 | Dhara | 56 |
| Tanvi | 60 | Hrishikesh | 56 |
| Ayush | 59 | Himali | 56 |
| Aditi | 58 | Divya | 56 |
| Yogitha | 58 | Geet | 56 |
| Ankush | 57 | Divya | 56 |
| Shahid | 56 | Harsh | 56 |
| Siddhi | 56 | R. C. Deepak | 56 |

AND MANY MORE..........

# CMA INTERMEDIATE

JAN 2023 GROUP 1

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SUCCESS MARKS WITH AAC

## DIRECT TAX

| Name | Marks | Name | Marks |
|------|-------|------|-------|
| Venkatesh | 82 | Trishir | 65 |
| Ayush | 81 | Asmita | 64 |
| Jaym | 77 | Priyansh | 64 |
| R. C. Deepak | 75 | Siddhi | 63 |
| Megha | 72 | Hrishikesh | 63 |
| Yash | 72 | Yash | 63 |
| Kanishk | 72 | Shriya | 62 |
| Shahid | 71 | Jeni | 62 |
| Bhavya | 71 | Siddharth | 61 |
| Harsh | 70 | Harnish | 61 |
| Aditi | 69 | Abhishek | 60 |
| Kanan | 68 | Diksha | 60 |
| Tanvi | 67 | Diksha | 60 |
| Hrithik | 66 | Praveen | 60 |
| Anahu | 65 | Md Nesab | 60 |

AND MANY MORE..........

# CMA INTERMEDIATE

JAN 2023 GROUP 1

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SUCCESS MARKS WITH AAC

## LAW&ETHICS

| Name | Marks | Name | Marks |
|------|-------|------|-------|
| Chitra | 76 | Divya | 60 |
| Shriya | 75 | Romana | 60 |
| Trishir | 70 | Amrit | 58 |
| Varsha | 69 | Arghya | 58 |
| Nadeem | 66 | R. C. Deepak | 58 |
| Shahil | 65 | P.Poojitha | 58 |
| Hrithik | 65 | Sneha | 58 |
| Jaym | 65 | Priyansh | 57 |
| Ayush | 64 | Siya | 57 |
| Venkatesh | 63 | Sejal | 56 |
| Tanishka | 63 | Siddharth | 56 |
| Shahid | 62 | Anahu | 56 |
| Bogi | 62 | Aditya | 56 |
| Kanishk | 62 | Diksha | 56 |
| Aditi | 60 | Piyush | 56 |

AND MANY MORE..........

## 10. Budgetary Control

### Control Ratio

#### Activity Ratio

$$\frac{\text{std hours for actual output obtained}}{\text{budgeted hours for budgeted production}} \times 100$$

#### Capacity ratio

$$\frac{\text{actual hours worked}}{\text{budgeted hours for budgeted production}} \times 100$$

#### Efficiency ratio

$$\frac{\text{std.hours for actual output obtained}}{\text{actual hours worked}} \times 100$$

### ZERO BASE BUDGETING (ZBB)

--Make budget Future based (Not Past Based)

### DIFFERENT BUDGETS

#### Sales Budget

- Sales target (In units & In Amount)
- Actual Sales compared with Budgeted
- Analyse Sales Variances

#### Production Budget

- Units to be produced
- Budgeted production = budgeted Sales + closing stock of finished goods – opening stock of finished goods

#### Raw Material Budget

- Raw material to be purchased = budgeted production x raw material requirement per unit

#### Production Cost Budget

- Cost which should have been incurred for the budgeted production level.
-Budgeted production cost is compared with actual production cost
- Analyse variance

## Flexible Budget

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 = Neither Variable Exp. Nor Fixed Exp.

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

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

## CASH BUDGET

- Estimated cash inflows and outflows during the budgeted period.

- Cash account is maintained for past cash inflows and cash outflows.

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

## 11. Marginal Costing

### CONTRIBUTION

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

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

Formula 3:- Contribution = Fixed Cost + Profit (Derivation covered in class)

Formula 4:- Contribution = Fixed Cost – Loss (Derivation covered in class)

### Contribution To Sales Ratio

$$P/V \text{ ratio} = \frac{\text{sales - variable cost}}{\text{sales}} \times 100 = \frac{\text{fixed cost + profit}}{\text{sales}} \times 100$$

$$= \frac{\text{fixed cost - loss}}{\text{sales}} \times 100$$

Fixed Cost is ignored in Decision Making

### Break Even Point Sales

BEP Sales means "No Loss Sales" OR "Survival Sales"

$$BEP \text{ (In units)} = \frac{\text{Fixed Cost}}{\text{contribution per unit}}$$

$$BEP \text{ Sales in rupees} = \frac{\text{Fixed Cost}}{p/v \text{ ratio}}$$

### P/V Ratio When Break-Even Sales Given

$$P/v \text{ ratio} = \frac{\text{fixed cost + profit}}{\text{sales}} \times 100$$

At BEP, Profit = Zero & Sales means BEP Sales P/V Ratio =

$$\frac{\text{fixed cost}}{\text{break even sales}} \times 100$$

Calculating P/V Ratio when profit and sales volume of 2 periods are given

$$P/V \text{ Ratio} = \frac{\text{difference in profit}}{\text{difference in sales}}$$

## Margin of safety sales

Sales generating profit

- MOS sales means excess of actual sales over break-even point sales

$$\text{MOS Sales units} = \frac{profit}{contribution\ per\ unit}$$

$$\text{MOS Sales in Rs.} = \frac{profit}{pv\ ratio}$$

## Break Even Sales Ratio and MOS Sales Ratio

Break Even Sales ratio + MOS Sales Ratio = 100%

## Variable cost to sales ratio

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

If variable cost to sales ratio is 60% then it means that if sales is made for Rs. 100 the variable cost of Rs. 60 is incurred

## Relation between PV Ratio & Variable Cost to Sales Ratio

Relation between PV Ratio & Variable Cost to Sales Ratio

P/V Ratio + variable cost to sales ratio = 100%

## Required sales level to earn desired profit

Desired level of Sales (In units) = $\frac{fixed\ cost + profit}{contribution\ per\ unit}$ (Sum of BEP Sales and MOS Sales Formula)

Desired level of Sales (In Rs.) = $\frac{fixed\ cost + profit}{p/v\ ratio}$

(Sum of BEP Sales and MOS Sales Formula)

## 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

$$\text{P/V Ratio of merged co.} = \frac{\text{Total contribution of all co.at 100\% capacity}}{\text{Total sales of all co.at 100\% capacity}} \times 100$$

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

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

$$\text{Desired sales to earn given profit} = \frac{\text{Fixed cost of merged co.+desired profit}}{\text{PV Ratio of merged co.}} \times 100$$

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

## Cash BEP

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

$$\text{Cash BEP in units} = \frac{\text{Cash Fixed cost}}{\text{contribution per unt}}$$

$$\text{Cash BEP in rupees} = \frac{\text{cash Fixed cost}}{\text{PV ratio}}$$

Cash fixed cost = Total FC – Non-FC
Non-cash FC are those which do not involve cash outflow e.g. depreciation

## Shut down Point

Decision as to whether Produce or discontinue loss making product
FC is divided in 2 category :-
Unavoidable FC :- FC which has to be incurred whether or not item is produced.
Avoidable FC :- FC which can be avoided by stopping production.

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

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

Avoidable FC = Total FC – Unavoidable FC

Income statement under Marginal costing approach

| Particulars | Amount (Rs.) |
|---|---|
| Variable (Direct Material Cost) | XX |
| Variable (Direct Labour Cost) | XX |
| Variable (Direct Expenses) | XX |
| Variable Factory OH | XX |
| Variable manufacturing cost of Quantity Produced | XX |
| | XX |
| Add:- Opening FG | (XX) |
| Less:- Closing FG | XX |
| Variable manufacturing cost of Quantity Sold | XX |
| Add:- Variable Office & Admin OH | XX |
| Add:- Variable Selling & Distribution OH | XX |
| Variable Cost of Sales (A) | XX |
| Sales (B) | XX |
| Contribution (B – A) | (XX) |
| Less:- Fixed Factory OH | (XX) |
| Fixed Office and Admin OH | (XX) |
| Fixed Selling & Distribution OH | |
| 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 absorbed 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 |
| Less:- Over absorbed OH (OH absorbed – Actual OH incurred) | (XX) |
| 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 costing | XXX |
| Less:- Opening stock Excess in absorption Costing | (XXX) |
| Closing stock Excess in Marginal costing | (XXX) |
| Profit under absorption costing | XXX |

## 12. Contract Costing

**Notional Profit = Value of work certified - Cost of work certified**

### Value of work certified

- 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 %)

### 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
- Example:- suppose in above example, if Rs. 5 Lakh has been paid by contractee to contractor then retention money shall be 1 lakh.

### Cost of work uncertified

Cost of work uncertified = Total cost incurred till date – Cost of work certified
Total Work Done (Total Cost incurred)

| Work certified (Cost incurred) | Work uncertified (Cost incurred) |
|---|---|
| Add:- Profit | Add:- Nothing |
| = Value of work certified | = Cost of work uncertified |

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

### Estimated Total Profit =

Total Contract Price – Estimated Total Cost

### Estimated Total Cost =

Cost of Contract upto date + Costs to be incurred

Treatment of notional loss and estimated total loss

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

Escalation clause does not cover increase in cost caused due to inefficiency or wrong estimation on part of contractor.

**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.

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

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

Reversely, de-escalation clause, contract price is reduced by downward trend in price of materials and rates of labour etc.

| Accounting Entries | |
|---|---|
| Material issued from stores to contract Account | Contract A/c (Contract Number) Dr.<br>    To Stores ledger control Account |
| Material Purchased directly from supplier & used in contract Account | Contract A/c (Contract Number) Dr.<br>    To General Ledger control Account |
| Material Returned to stores | Store ledger Control Account Dr.<br>    To Contract Account |
| Material Returned to supplier | General Ledger Control A/c Dr.<br>    To Contract Account |
| Employee Labour Cost | Contract A/c Dr.<br>    To Wages Control Account |
| Direct Expenses of contract | Contract A/c Dr.<br>    To Direct Expenses Account |
| Indirect Expenses of contract | Contract A/c Dr.<br>    To Overhead Account |
| Depreciation on Plant & Machinery | Contract A/c Dr.<br>    To Dep. On P&M A/c |

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

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

## Contract A/c (For 1st Accounting Period) Format 2

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

## Contract A/c (For 2nd year)

| Particulars | RS | Particulars | RS |
|---|---|---|---|
| To Work-in-progress b/d | | | |
| Value of Work Certified ...... | XXX | | |
| Cost of Work Uncertified ...... | XXX | | |
| Remaining Portion same as in previous format | | | |

**Note:** Fines & Penalties are not shown in the Contract Account.

| 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: — | |
| Contractee Cr. Balance | XXX | At Stores ...... | XXX |
| | | At Site | XXX |
| | | Work-in-progress: | |
| | | Value of work certified ............... XXX | |
| | | Cost of work uncertified ............. XXX | XXX |
| | | Cash & Bank Balance | XXX |
| | | Prepaid Expenses | XXX |

# CMA INTERMEDIATE

## JAN 23 GROUP 2

## STUDENTS ACHEIVING EXEMPTIONS !

### OM SM

| | | | |
|---|---|---|---|
| PRATIK | 87 | JATIN | 69 |
| TAPAN | 82 | ADITI | 68 |
| SHIVANI | 81 | DEEPAM | 67 |
| HETANSEE | 81 | BISWARANJAN | 67 |
| SAHIL | 81 | DEVESH | 67 |
| RAHUL | 80 | JENI | 67 |
| MADHAV | 78 | GAURAV | 65 |
| BHAGESH | 76 | SYED | 65 |
| SHAHID | 75 | JUHI | 65 |
| RUCHI | 74 | MAHAK | 64 |
| TRISHIR | 74 | YASH | 64 |
| SONU | 74 | SURAJ | 64 |
| KAVITA | 74 | SHREYA | 63 |
| KUSUM | 74 | RUNNU | 63 |
| KAJAL | 71 | NEHA | 63 |
| ANUBHAV | 70 | SUCHISMITA | 63 |
| MUNAZIR | 70 | JYOTIKA | 63 |

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# CMA INTERMEDIATE

## JAN 2023 GROUP 2

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### SUCCESS MARKS WITH AAC

| COMPANY ACCOUNT AND AUDIT | | | |
|---|---|---|---|
| Chandani | 74 | Narayan | 58 |
| Tapan | 71 | Munazir | 58 |
| Trishir | 68 | Varun | 58 |
| Ruchi | 67 | Aamir | 57 |
| Anubhav | 65 | Tanishka | 57 |
| Hetansee | 64 | Sonu | 57 |
| Pravallika | 63 | Biswaranjan | 56 |
| S Barma | 62 | Prasant | 56 |
| Kshitiz | 61 | Sahil | 56 |
| Pratik | 60 | Syed | 56 |
| Rahul | 60 | Shahil | 55 |
| Siddhi | 58 | Mirza | 55 |
| Baishnavi | 58 | Shreya | 54 |
| Hemlata | 58 | Shahid | 54 |
| Prashanth | 58 | Shubh | 54 |

AND MANY MORE........

# CMA INTERMEDIATE

## JAN 2023 GROUP 2

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SUCCESS MARKS WITH AAC

| COSTING AND FM | | | |
|---|---|---|---|
| Kavita | 57 | Sahil | 56 |
| Shivani | 56 | Munazir | 56 |
| Shahid | 56 | Neha | 56 |
| Shreya | 56 | Md | 56 |
| Shobha | 56 | Mahak | 56 |
| Shahil | 56 | Yash | 56 |
| Siddhi | 56 | Trishir | 56 |
| Sanyam | 56 | Karan | 56 |
| Amar | 56 | Meghana | 56 |
| Aamir | 56 | Biswaranjan | 54 |
| Deepam | 56 | Prashanth | 54 |
| Baishnavi | 56 | Runnu | 54 |
| Arjav | 56 | Mirza | 54 |
| Chandani | 56 | Narayan | 54 |
| Hetansee | 56 | Hemlata | 52 |
| | | AND MANY MORE......... | |

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## JAN 2023 GROUP 2

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SUCCESS MARKS WITH AAC

| INDIRECT TAX | | | |
|---|---|---|---|
| Sahil | 69 | Pratik | 58 |
| Aditi | 66 | Tuba | 57 |
| Deepam | 65 | Shahil | 56 |
| Hetansee | 65 | Chandani | 56 |
| Trishir | 63 | Bhagesh | 56 |
| Md yusuf | 62 | Suraj | 56 |
| Jeni | 62 | Jatin | 55 |
| Shreya | 61 | Neha | 55 |
| Sakshi | 61 | Kavita | 55 |
| Vikram | 61 | Kshitiz | 55 |
| Syed | 61 | Rahul | 54 |
| Karan | 61 | Siddhi | 53 |
| Shivani | 59 | Shubh | 53 |
| Madhav | 59 | Sanyam | 53 |
| Shahid | 58 | Shrinivaasan | 53 |
| | | AND MANY MORE........ | |

## 13. Process costing

### Why we need to make process A/c?

Process costing is applicable when 2 or more process are required in mfd a product.
<u>We need it to calculate</u>
- All cost incurred in each process.
- Cost of FG transferred to next process.
- Cost of FG directly sold in market & held as stock

### 2 types of losses arise in process costing:-

| 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 |
|---|---|
| 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. |

Following A/cs are prepared in process costing

## 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) | abnormal gain units | =scrap value |
| | | | By abnormal gain A/c | XX | = Bal. Fig. |
| | XXX | XXX | | XXX | XXX |

### 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 |

## 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.

| 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 |

SOME SPECIAL POINTS

(a) No Selling & distribution OH, Adm. OH Since it is internal transfer of goods.

(b) Opening & closing stock in process 1 shall not include any profit since it has not been transferred from any previous process.

(c) Profit included in opening stock of process II and onwards is normally given in question. Hence we need not to calculate it.

(d) Costing Profit and loss Account

a. Shall be credited by unrealized profit on opening stock.

b. Shall be debited by unrealized profit on closing stock

c. Shall be credited by profit of process A/c & finished goods A/c. d. Bal. Fig. shall be net profit / loss

## PREPARE PROCESS A/C WHEN OPENING & CLOSING WIP IS GIVEN COST ITEM WISE

We need to prepare additional 3 statements as follows:-

Statement 1: Prepare Statement of Equivalent Production

Statement 2: Prepare Statement of Cost per Equivalent Unit

Statement 3: Prepare Statement of Evaluation

St. of equivalent production Equivalent production units (EPU) = No. of units x degree (%) of completion performed in current period 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 90 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 = 90 units x 80% = 72 units

EPU for labour cost = 90 units x 70% = 63 units

EPU for OH Cost = 90 units x 30% = 27 units

Explanation:-

Material cost of 90 incomplete units = material cost of 72 completed units.

Labour cost of 90 incomplete units = labour cost of 63 completed units.

OH cost of 90 incomplete units = overheads of 27 completed units.

| INPUT | UNITS | OUTPUT | CASE 1 - UNITS | CASE 2 - UNITS |
|---|---|---|---|---|
| Opening WIP | 200 | Opening WIP now Completed | 200 | 200 |
| Units introduced in current year | 1000 | Units introduced in current period and completed | 800 | 800 |
| | | Closing WIP | 100 | 150 |
| | | Normal loss 8% of current period input | 80 | 80 |
| | | Abnormal loss | 20 (bal fig) | |
| | | Abnormal gain | | 30 (bal fig) |
| Total | 1200 | Total | 1200 | 1200 |

### Calculation Of Normal Loss Units

| | |
|---|---|
| Opening WIP | XXX |
| Add:- Units Introduced | XXX - |
| Total input units | XXX |
| Less:- Closing Stock | (XXX) |
| Units Processed / Production | XXX |

### St. Of Cost Per Equivalent Production:

Material cost per equivalent unit, labour cost per equivalent unit and overhead cost per equivalent unit is calculated

$$Formula = \frac{Total\ cost}{Total\ equivalent\ units}$$

St. of evaluation = No. of equivalent units x cost per equivalent unit.

### Method 1 FIFO METHOD

FIFO means units transferred as 100% complete shall comprise all opening WIP and balance from units introduced in current period. Units Transferred = Opening WIP + Units Introduced and completed.

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

## 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 |
| | | Abnormal Gain | (XXX) | 100% | XXX-13 | 100% | (XXX)-14 | 100% | (XXX)-15 |
| Total | XXX | | 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 Elements | Equivalent 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 | |
| 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 |

**Method 2 – Weighted Average Method** Average method is used when it is not possible to identify opening WIP units in units transferred to next process . Average cost per equivalent unit is calculated =

Cost incuured in previous period on Opening WIP+Cost Incurred in current period@-Scrap value of normal loss units
Total Equivalent Units

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

## Statement 2 Statement of Cost per Equivalent 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) | XXX | 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 |

## Statement3 Statement of Evaluation:

| Particulars | Elements | Equivalent UnitsA | Cost per Equivalent Unit Rs. B | Cost of Equivalent Units Rs ( 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 | |
| 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 |

## 14. Integrated and non-integrated accounts

| 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 (Also Called Factory Cost) | Warehouse | Factory | FG Ledger control A/c Dr To WIP Ledger control A/c |
| On Transferring FG from Warehouse to | Shop | Warehouse | Cost of Sales A/c Dr To Finished Goods Ledger control A/c |

| | |
|---|---|
| RAW MATERIAL/ STORES | • Store ledgercontrol a/c |
| WAGES | • wages control A/C |
| FACTORY | • WIP ledger control A/C |
| WAREHOUSE | • FG ledger control A/C |
| Shop/ showroom | • Cost of sales A/C |
| TRANSFER FROM FACTORY TO WAREHOUSE | • Factory cost |

| Showroom (Also Called Cost of goods Sold ) | | | | |
|---|---|---|---|---|
| On transferring Actual cost of Sales to Costing P&L A/c (Also Called Cost of Sales) | | | Costing P&L A/c          Dr<br>    To Cost of Sales A/c | |

**TRANSFER FROM WAREHOUSE TO SHOP** · Cost of goods sold

**TRANSFER FROM SHOP TO COSTING P&L A/C** · Cost of sales

General Ledger Adjustment A/c (GLA A/c) OR Cost Ledger Control A/c OR Nominal ledger control A/c
GLA account shall be used in place of account not opened while preparing cost sheet

## Treatment of under and over recovery of overheads

Option 1 of Treatment :- Carry Forword & Set Off Next Year
· No Accounting Entry is made for this

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.
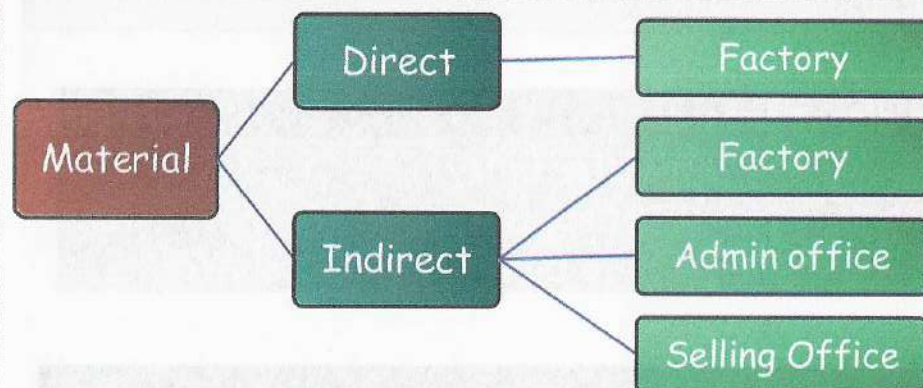
Journal Entry for Under – Recovery (Loss)

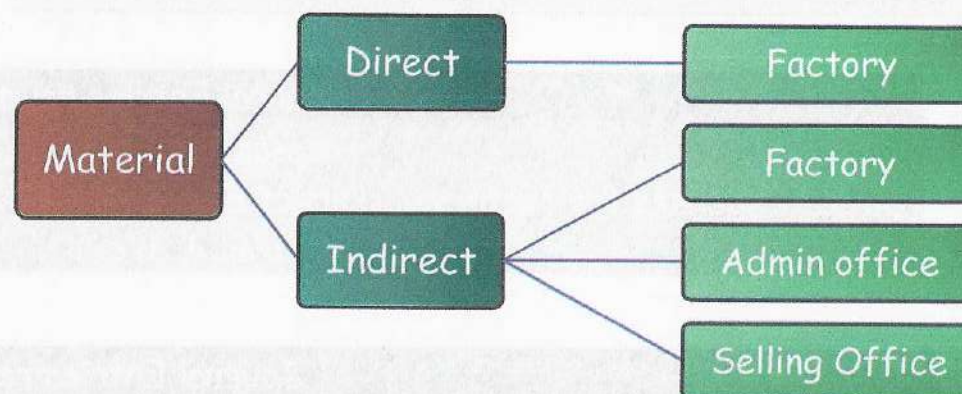Costing P&L A/c Dr.                                           XXX
To Factory OH / Admin OH / Selling & Dist. OH A/c     XXX

Just reverse entry for over-recovery.

## JOURNAL ENTRIES RELATING TO MATERIAL

## JOURNAL ENTRIES RELATING TO WAGES

Material → Direct → Factory

Material → Indirect → Factory / Admin office / Selling Office

Material → Direct → Factory

Material → Indirect → Factory / Admin office / Selling Office

| | Transaction Entry | Transfer Entry |
|---|---|---|
| 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. | Stores ledger Control A/c Dr. To GLA A/c | Factory OH Control A/c Dr. Office & Admin OH Control A/c Dr. |

| | Transaction Entry | Transfer Entry |
|---|---|---|
| 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 | Wages Control A/c Dr. To GLA A/c | Factory OH Control A/c Dr. Office & Admin OH Control A/c Dr. |

| Office /<br>Selling<br>Office | | Selling OH Control A/c Dr.<br>To Stores ledger Control<br>A/c | Office /<br>Selling<br>Office | | Selling OH Control A/c Dr<br>To Wages Control A/c |
|---|---|---|---|---|---|

## Journal Entries relating to direct expenses

| | Transaction Entry | | Transfer Entry | |
|---|---|---|---|---|
| Direct Expenses for factory | Direct Exp. Control A/c<br>To GLA A/c | Dr. | WIP Ledger Control A/c<br>To Direct exp. control A/c | Dr |

## Journal Entries relating to Overheads

| Particulars | Transaction Entry | | Transfer Entry<br>- Overheads charged/Recovered | |
|---|---|---|---|---|
| Factory Overheads | Factory OH Control A/C<br>To GLA A/C | Dr | WIP Ledger Control A/C<br>To Factory OH Control A/C | Dr |
| Office & Admin overhead | Office & Admin OH Control A/C<br>To GLA A/C | Dr | FG Ledger Control A/C<br>To Admin OH Control A/C | Dr |
| Selling & Distribution | Selling & Distribution OH control A/C<br>To GLA A/C | Dr | Cost Of Sales A/C<br>To Selling OH Control A/C | Dr |