

COSTING

1. COST SHEET

Particulars	(₹)
Opening stock of RM	
+ Purchase	
+ Freight (carriage inward)	
(-) Sale of Scrap of RM	
(-) Closing stock of RM	
RM Consumed.	
+ Direct wages	
+ Direct Expenses	
Prime Cost	
+ Factory OH	
(-) Sale of Scrap	
+ Opening stock of WIP	
(-) Closing stock of WIP	
Factory Cost	
+ Admin OH (related to prod ⁿ)	
Cost of Prod ⁿ	
+ Opening stock of FG	
(-) Closing stock of FG	
Cost of Goods Sold	
+ Admin OH	
+ Sales OH	
Cost of Sales	
+ Profit	
Sales.	

Factory OH = Prodⁿ OH : Manufacturing OH : Work OH

Page No. _____
Date _____

$$\Rightarrow \text{Sales} = \text{Opening Stock of FG} + \text{Production} - \text{Closing Stock of FG}$$

$$\Rightarrow \text{Valuation of Closing Stock of FG (£)}$$

$$= \frac{\text{Cost of Prod}^n}{\text{Quantity Produced}} \times \text{Closing Stock of FG}$$

2. Material Cost Control

$$\Rightarrow \text{EOQ} = \sqrt{\frac{2AO}{C}}$$

A - Annual Purchase Quantity

O - Cost per order

C - Carrying cost per unit (p.a)

$$\Rightarrow \text{No. of Orders} = \frac{A}{Q}$$

$$\Rightarrow \text{Inventory Cycle} = \frac{365/12/52}{\text{No. of orders}}$$

$$\Rightarrow \text{Total ordering cost} = \frac{A}{Q} \times O$$

$$\Rightarrow \text{Carrying cost total} = \frac{Q}{2} \times C$$

$$\Rightarrow \text{ROL} = \text{Max Consumption} \times \text{Max lead time}$$

$$\Rightarrow \text{Max level} = \text{ROL} + \text{ROQ} - (\text{Min Consumption} \times \text{Min lead time})$$

$$\Rightarrow \text{Mini level} = \text{ROL} - \text{Avg consumption} \times \text{Avg lead time}$$

$$\Rightarrow \text{Avg level} = \frac{\text{Max} + \text{Mini level}}{2}$$

$$\text{OR} \Rightarrow \text{Mini level} + \frac{1}{2} \text{ROQ}$$

$$\Rightarrow \text{Danger level} = \frac{\text{Avg consumption}}{(\text{Mini consumption})} \times \text{Emergency lead time}$$

Optimum Safety Stock —

- (i) Prob. of level of stock out
- (ii) Expected stock out cost
- (iii) Carrying cost of safety stock
- (iv) Mini cost = OSS

3. Labour Cost Control

Labour Turnover Ratio

$$\Rightarrow \text{Replacement Method} = \frac{\text{No. of employees Replaced}}{\text{Avg. no. of employees}} \times 100$$

$$\Rightarrow \text{Separation Method} = \frac{\text{No. of employees separated}}{\text{Avg no of employees}} \times 100$$

$$\Rightarrow \text{Fix Method} = \frac{\text{No. of employees separated} + \text{No. of Accessions}}{\text{Avg no of employee}} \times 100$$

$$\text{No. of Accessions} = \text{No. of employees Replaced} + \text{No. of new recruits}$$

⇒ Equivalent Annual Labour turnover Rate

$$= \frac{\text{Labour turnover rate of the period}}{\text{Day / Months in the period}} \times \frac{365}{12}$$

Impact of Labour turnover

- Cost of Rectification
- + Contribution loss due to Unproductive hrs
 - + Settlement cost
 - + Recruitment cost
 - + Selection cost
 - + Training cost

⇒ Labour Hour Rate =
$$\frac{\text{Labour Cost (Basic pay + Fr's contri)}}{\text{Effective hrs. (Actual hrs - normal / idel hrs)}}$$

⇒ Efficiency

$\frac{\text{Actual Output}}{\text{Std. Output}} \times 100$ (Time is same)	$\frac{\text{Std Time}}{\text{Actual Time}} \times 100$ (Output is same)
--	---

Efficiency

Taylor's Differential Piece Rate

< 100%
 ≥ 100%

Rate
 80% / 83%
 120% / 125%
 of Piece Rate

~~Max~~ Merrick

< 83%
 > 100%
 783% < 100%

Piece Rate
 120% / 130%
 110%
 of Piece Rate

Emerson Efficiency Plan

$< 66 \frac{2}{3} \%$
 $> 66 \frac{2}{3} \%$ $< 100\%$
 $> 100\%$

Time Rate
 Time Rate $\times 120\%$
 Time Rate $\times (120\% + \text{Efficiency above } 100\%)$

Gantt Task & Bonus System

$< 100\%$
 $\leq 100\%$
 $> 100\%$

Time Rate
 Time Rate $\times 120\%$
 Piece Rate $\times 120\%$

Bedeaux / Point Scheme

$$\text{Wages} = \left(\frac{\text{Time} \times \text{Rate}}{\text{Taken}} \right) + 75\% (\text{Time Saved} \times \text{Rate})$$

Halsey Plan

$$= \left(\frac{\text{Time} \times \text{Rate}}{\text{take}} \right) + 50\% (\text{Time Saved} \times \text{Rate})$$

Rowan Plan

$$= \left(\frac{\text{Time} \times \text{Rate}}{\text{taken}} \right) + \frac{\text{Time taken}}{\text{Time allowed}} (\text{Time saved} \times \text{Rate})$$

4. Absorption Costing & Overheads

Absorption

$$\Rightarrow \text{Output Method} = \frac{\text{Budgeted Factory O/H}}{\text{Budgeted output}} \quad (\text{Times})$$

$$\Rightarrow \text{Machine hour Rate} = \frac{\text{Budgeted Factory O/H}}{\text{Budgeted total machine hours}} \quad (\text{Times})$$

$$\Rightarrow \text{Labour hour Rate} = \frac{\text{Budgeted Factory O/H}}{\text{Budgeted total labour hours}} \quad (\text{Times})$$

$$\Rightarrow \text{Labour cost Method} = \frac{\text{Budgeted Factory O/H}}{\text{Budgeted labour cost}} \times 100$$

$$\Rightarrow \text{Material Cost Method} = \frac{\text{Budgeted Factory O/H}}{\text{Budgeted material cost}} \times 100$$

$$\Rightarrow \text{Prime cost Method} = \frac{\text{Budgeted Factory O/H}}{\text{Budgeted prime cost}} \times 100$$

How to solve the Question

- ① Selection of Method
- ② Calⁿ of O/H absorption rate
- ③ Recovered O/H = Actual level of activity $\times$ O/H absorption Rate
- ④ (Over)/under Recovery = Actual O/H - Recovered O/H
- ⑤ Disclosure in cost accounting

$$\text{Supplementary Rate} = \frac{\text{Under (over) recovery}}{\text{Actual level of activity}}$$

Overheads

- ↳ Direct Method
- ↳ Step ladder Method
- ↳ Continuous Method
- ↳ Equation Method.

5. Budgetary Control

$$\Rightarrow \text{Efficiency Ratio} = \frac{\text{Standard hrs}}{\text{Actual hrs}} \times 100$$

$$\Rightarrow \text{Activity Ratio} = \frac{\text{Standard hrs}}{\text{Budgeted hrs}} \times 100$$

$$\Rightarrow \text{Capacity Ratio} = \frac{\text{Actual hrs}}{\text{Budgeted hrs}} \times 100$$

$$\text{Budgeted hrs} - \text{Budgeted Prod}^n$$

$$\text{Actual hrs} - \text{Actual Prod}^n$$

$$\text{Standard hrs} - \text{Budgeted hr} - \text{Actual Prod}^n$$

$\Rightarrow$ Flexible Budget — aim — profit at diff. levels of Production.

Consider Fixed cost

Variable cost

& Semivariable cost

Variable + Fixed

~~the~~ Variable cost/unit. $\frac{\Delta \text{cost}}{\Delta \text{unit}}$

$$\text{Fixed cost} = \text{Total Cost} - \text{Total Variable cost.}$$

⇒ Functional Budget

1. ~~St~~ Sales Budget
2. Production Budget $[\text{Sales} + \text{Op. Stock} - \text{Closing Stock}]$
3. RM Consumption Budget $[\text{Production} \times \text{RM required}]$
 $+ \text{Op stock} - \text{Closing Stock}$
4. Purchase Budget $[\text{RM consumption} + \text{Op stock} - \text{Closing Stock}]$
5. Wages Budget $[\text{Required hrs} + \text{idle hrs} \times \text{Rate/hr}]$
 $\hookrightarrow \text{Normal} + \text{Overtime}$

6. Contract Costing

<u>Contract A/c</u>	
Particulars	Particular
To Material issued	By Work Certified (Contract Price)
To Wages	By work uncertified (cost)
To OH	By Stock of R/M
To Supervision	By material sold/ (at cost) Return
To Dep ⁿ on Plant	By Price escalation
To Notional Profit	
BF to Costing P/L	

xx

xx

→ Computation of work uncertified

$$\text{Cost of contract} = \text{Total debit} - \text{Stock of R/M / material sold / Returned.}$$

$$\text{Work Uncertified} = \text{Cost of contract} \times \text{Work Uncertified (\%)}%$$

→ Price escalation =
$$\frac{\text{Standard}}{\text{Quantity}} \left(\frac{\text{Actual} - \text{Standard}}{\text{Price} \quad \text{Price}} \right)$$

7. Job & Batch Costing

→ Job — Cost sheet for each Job
costing

→ Batch — Economic Batch Quantity =
$$\sqrt{\frac{2AS}{C}}$$

A — Annual Production

S — Setup cost / batch

C — Carrying cost per unit (P.a)

8. Process Costing

→ Cost/unit =
$$\frac{\text{Total cost} - \text{Scrap Value of normal loss}}{\text{Units introduced} - \text{normal loss}}$$

~~normal~~ normal loss — Scrap Value

Abnormal loss / Gain — cost/unit

→ Inter Process Profit

Particular	Process	A/c	Particular	Total Cost	Profit
To Op. WIP	Total cost	Profit	By units t/f to Process II		
+ To RIM					
+ To Wages					
	xx	✓			
(-) To Op. WIP					
To PRIME COST					
+ To Factory OH					
To Factory COST					
+ To Profit					
TRANSFER PRICE					

Closing WIP - Total (given) profit = ?
 Total xx → Profit ✓
 Total (given) → Profit ?

→ Valuation of WIP

FIFO (Divide Op. WIP + fully processed)

① Find Equivalent Production.

② Find Cost/unit

③ Finally valuation.

Weighted Avg
(Units transferred)

9. Joint

→ Apportion

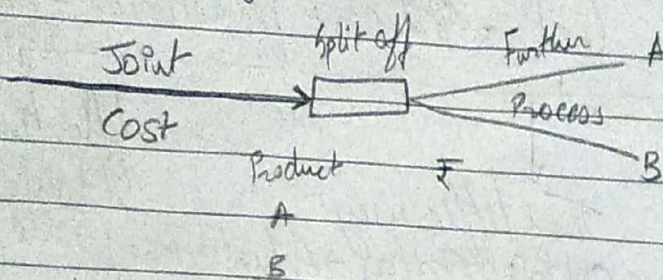
1. Physical

2. Sales

3. Estimation

4. Cost

9. Joint & By Product



⇒ Apportionment of Joint cost

1. Physical measure Basis — Ratio of units produced
2. Sales Value Basis — Sales value at split off
3. Estimate net realisable value Basis — final sales value — further costs
4. Constant Gross Margin Basis — Find company's gross margin
(Sales - Joint cost - further cost)
then — Product Sales value
 - (-) Margin
 - (-) further cost
 - Joint cost

10. Standard Costing

Material Variance

$$\text{Cost} = \text{Std cost of actual prod}^n - \text{Actual cost}$$

Price

= Actual Quantity
(Std - Actual)
Price

Usage = Std Price (Std - Actual)
Qty

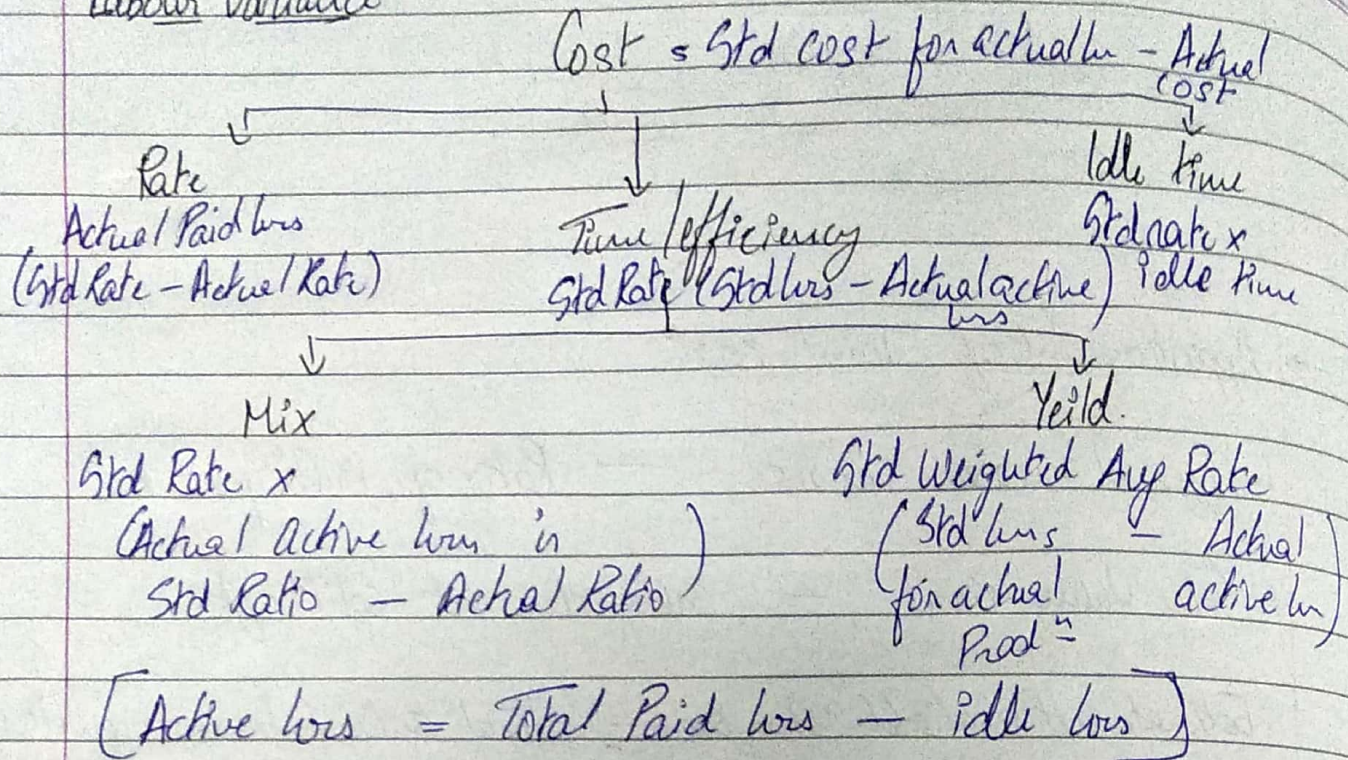
Mix

= Std Price
(Actual Input in Std Ratio - Actual Input)

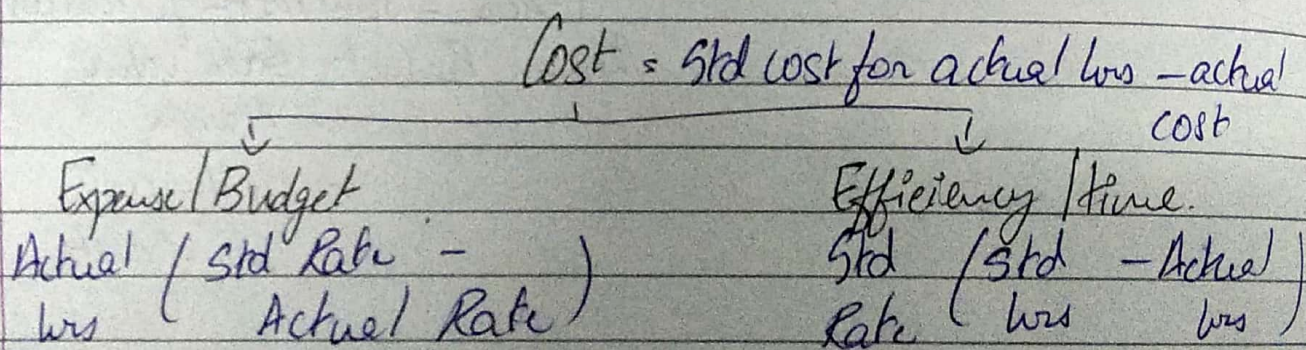
Yield

= Std weighted Avg Price
(Total Std - Actual)
input input

Labour Variance

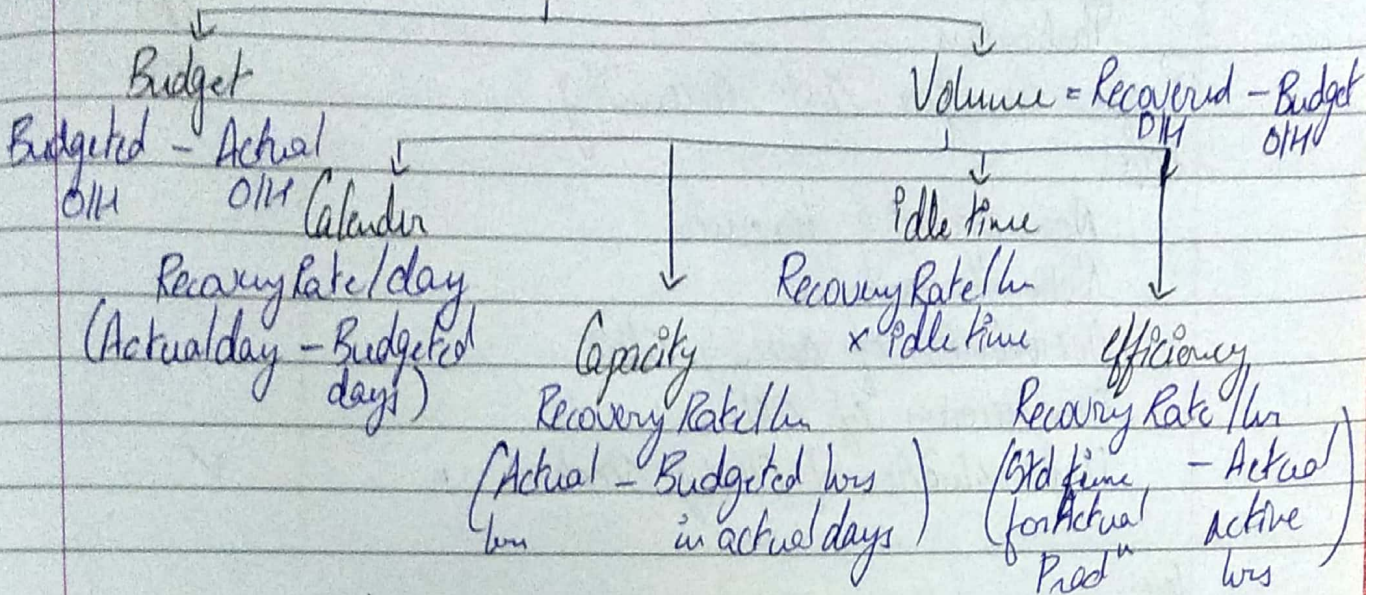


Variable Overhead Variance



Fixed Overhead's Variance

$$\text{Cost} = \text{Recovered O/H} - \text{Actual O/H}$$

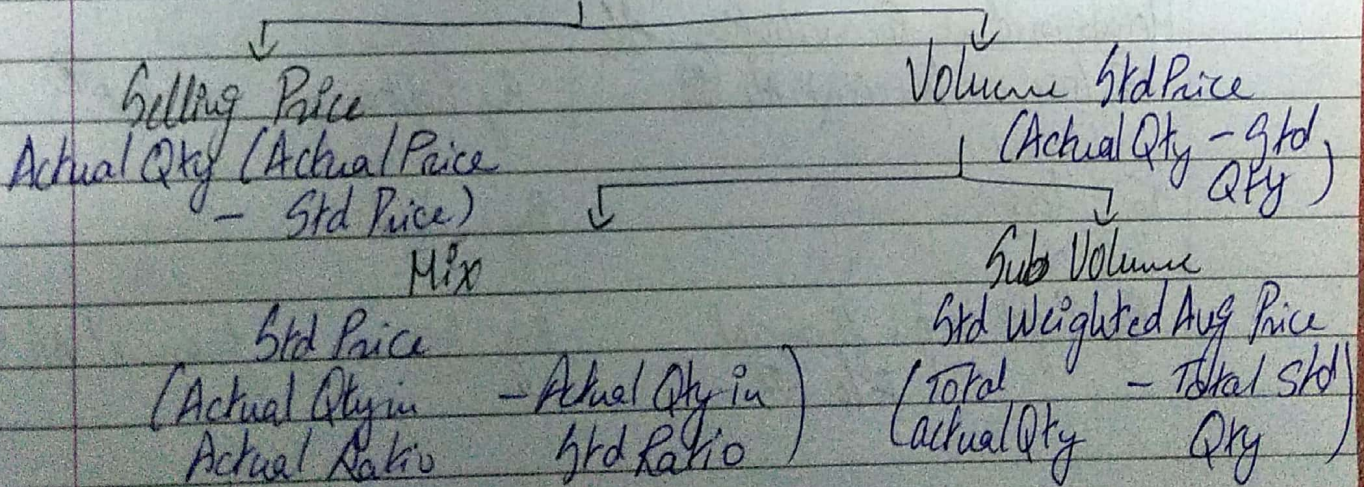


$$\text{Recovery Rate} \left(\frac{\text{Unit, days, hrs}}{\text{Unit, days, hrs}} \right) = \frac{\text{Budgeted fixed O/H}}{\text{Budgeted production, days, hrs}}$$

$$\text{Recovered O/H} = \text{Actual Production} \times \text{Recovery Rate/unit}$$

Sales Variance

$$\text{Sales} = \text{Actual Sales} - \text{Std Sales}$$



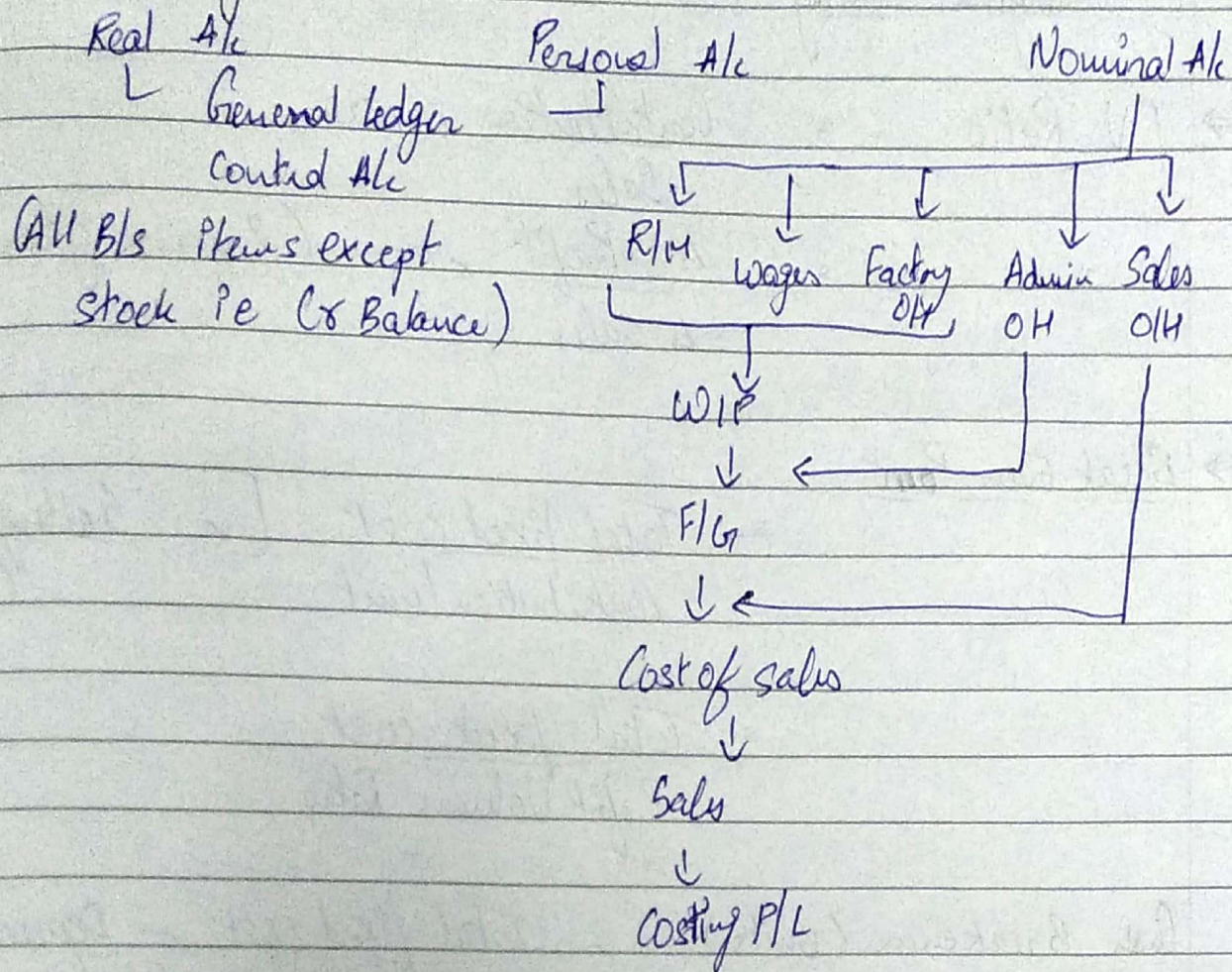
11. Cost Account System

Reconciliation Statement

Particulars	(₹)
Profit as per cost accounting	✓
<u>Add:</u>	
Non operating incomes	
Notional Expenses	
Overvaluation of opening stock	
Over recovery of OH	
Under valuation of closing stock	✓
<u>less:</u>	
Under Valuation of opening stock	
Under recovery of OH	
Over valuation of closing stock	
Non operating expenses	(✓)
Profit as per financial accounting	✓

Memorandum Reconciliation A/c

To loss as per cost A/c (*)	By Profit as per cost A/c (*)
To less:	By Add:
By Profit as per financial A/c (*)	By loss as per financial A/c (*)

Cost Accounting12. Service Costing

$$\Rightarrow \text{Total taking} = \text{Total cost} + \text{Profit}$$

Type of Industry
 Goods transport
 Passenger Transport
 Hotels
 Hospital

Unit of cost
 Tonne km
 Passenger km
 Room Days
 Bed Days OR Patient Days

13. Marginal Costing

$$\Rightarrow \text{PV Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$
$$= \frac{\Delta \text{ Profit}}{\Delta \text{ Sales}} \times 100 \quad (\text{2 years given})$$

$\Rightarrow$ Break Even Point

$$= \frac{\text{Total fixed cost}}{\text{Contribution/unit}} \left[\times \text{Selling Price/unit} \right. \\ \left. (\text{in rupees}) \right]$$
$$= \frac{\text{Total fixed cost}}{\text{Profit Volume Ratio}}$$

$$\text{Cash Breakeven (units)} = \frac{\text{Total fixed cost} - \text{Depreciation}}{\text{Contribution/unit}}$$

$$\text{Margin of Safety} = \text{Actual Sales} - \text{Break even sales}$$

$$\text{Desired Sales} = \frac{\text{Total fixed cost} + \text{Desired Profit}}{\text{PV Ratio}}$$

$$= \frac{\text{Total fixed cost} + \text{Desired Profit}}{\text{Contribution/unit}} \times \text{SP/unit}$$