

- a) I, CA Navneet Mundhra, present to you this summary module for Costing
- b) The module contains summary of all the chapters.
- c) This module will help you to revise the topics as and when you wish with minimum efforts and maximum coverage.
- d) The module also covers the important theoretical aspects of chapters so as to ensure full coverage.

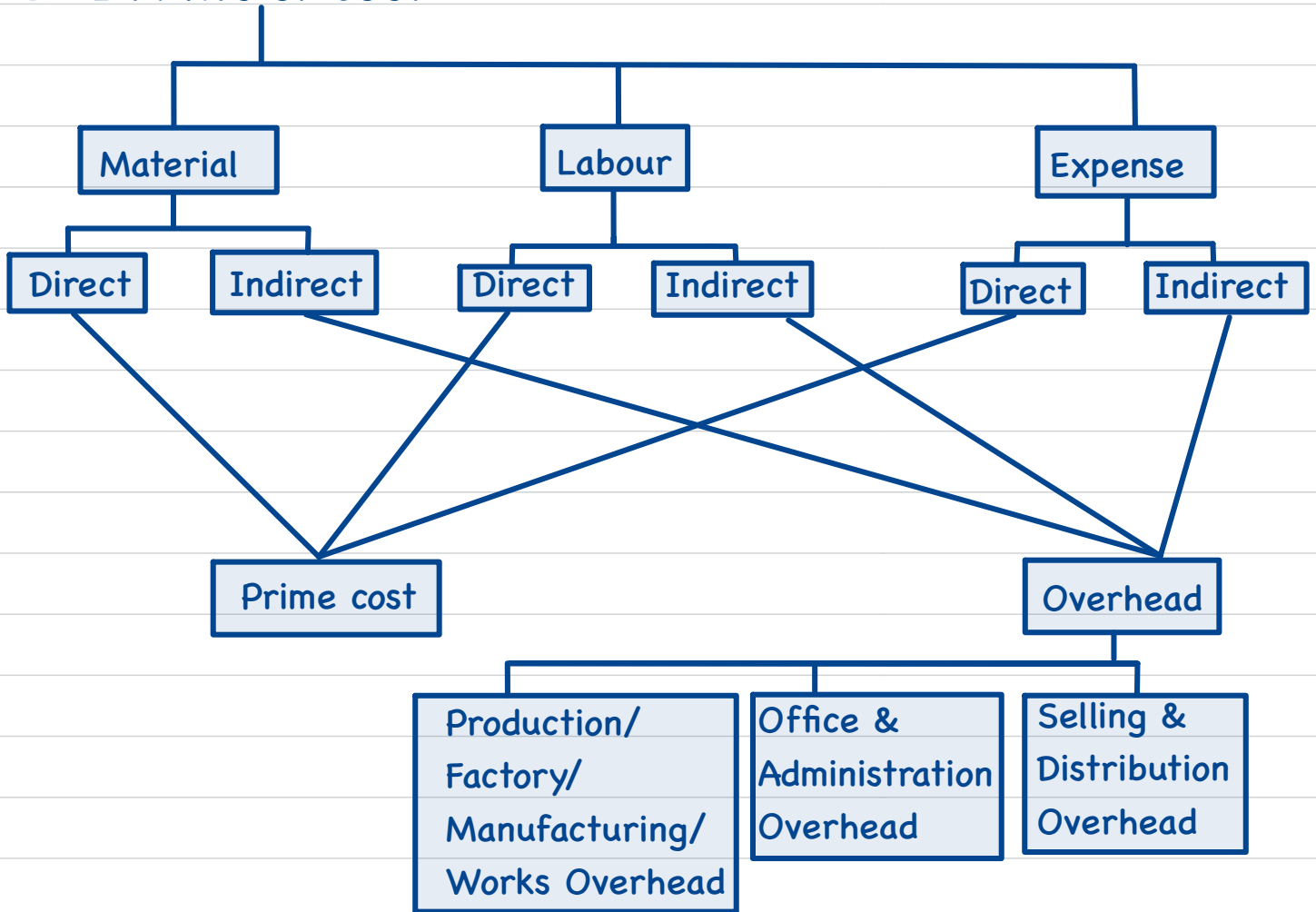


CA NAVNEET MUNDHRA

Navneet Mundhra, qualified as Chartered Accountant at the age of 20 along with 8 papers cleared in actuaries from IAI, is a co-founder of Navin Classes. He is 1st division B. Com(H) graduate from St. Xavier's College, Kolkata and was only student to secure 100 out of 100 in Mathematics in B.Com(H) among 750 students. He provides qualitatively superior coaching facility for professional such as CA, CS and CMA. He plays with numbers and mesmerize students with his expertise.

COST SHEET

1. ELEMENTS OF COST:



2. OLD STATEMENT OF COST SHEET:

Particulars	Amount	Amount
Opening stock of raw material	xxx	
Add: purchases and costs related to it	xxx	
Less: Closing stock of raw material	<u>(xxx)</u>	
Raw material consumed		xxx
Direct labour or productive wages		xxx
Direct expenses or chargeable expenses		<u>xxx</u>
Prime cost		xxx
Production/manufacturing/factory/works overhead		<u>xxx</u>
Gross factory cost of FG and WIP		xxx
Less: sale of indirect material/scrap		<u>(xxx)</u>
Net factory cost of FG and WIP		xxx
Add: Opening stock of WIP		xxx
Less: Closing stock of WIP		<u>(xxx)</u>
Net factory cost of FG		xxx
Office and administrative overhead		<u>xxx</u>
Cost of production		xxx
Add: Opening stock of FG		xxx
Less: Closing stock of FG		<u>(xxx)</u>
Cost of goods sold		xxx
Selling and distribution overhead		<u>xxx</u>
Cost of sales		xxx
Add: Profit		<u>xxx</u>
Sales		<u><u>xxx</u></u>

3. NEW STATEMENT OF COST SHEET:

Particulars	Amount	Amount
Opening stock of raw material	xxx	
Add: purchases and costs related to it	xxx	
Less: Closing stock of raw material	<u>(xxx)</u>	
Raw material consumed		xxx
Direct labour or productive wages		xxx
Direct expenses or chargeable expenses		<u>xxx</u>
Prime cost		xxx
Production/manufacturing/factory/works overhead		<u>xxx</u>
Gross factory cost of FG and WIP		xxx
Add: Opening stock of WIP		xxx
Less: Closing stock of WIP		<u>(xxx)</u>
Net factory cost of FG		xxx
Office and administrative overhead(production nature)		xxx
Research and development cost & Quality test cost		xxx
Primary packing		xxx
Less: sale of scrap		<u>(xxx)</u>
Cost of production		xxx
Add: Opening stock of FG		xxx
Less: Closing stock of FG		<u>(xxx)</u>
Cost of goods sold		xxx
Selling and distribution overhead		xxx
Office & Administrative overhead (General or marketing nature)		<u>xxx</u>
Cost of sales		xxx
Add: Profit		<u>xxx</u>
Sales		<u><u>xxx</u></u>

4. SPECIAL ITEMS TREATMENT:

A) PACKING COST: packing cost are divided into two types according to their nature namely primary packing cost and secondary packing cost. In simple terms primary packing cost are those packing cost without which the product cannot be sold whereas secondary packing cost are those cost which are incurred to market or brand the product. In old cost sheet statement primary packing is included in either raw material consumed or direct expenses depending upon whether they are produced or brought from outside respectively whereas in New cost sheet statement primary packing is included in cost of production. In both old and new cost sheet statement secondary packing is included in selling and distribution overheads.

B) ABNORMAL COSTS: Any abnormal cost shall not be included in cost sheet statement. Example of abnormal costs car cost arising out of pandemic or cost associated with employees due to sudden lockdown, etc.

C) SUBSIDY / GRANT / INCENTIVES: Any such type of amount received or receivable are reduced from the cost objects to which such amount pertains. Say for example if the subsidy is received for raw material then the amount of subsidy shall be reduced from the cost of raw material.

D) PENALTY, FINE, DAMAGES AND DEMURRAGE: These types of expenses are not included in cost sheet statement.

E) INTEREST AND OTHER FINANCIAL COST: If any interest or financial cost are incurred due to loan taken from third party for acquisition of any asset related to production then such cost shall be included in office and administrative overheads of general nature that is it shall be shown as a separate item in COS. Interest or financial cost of borrowed funds for capital structure purpose shall not be the part of cost statement.

5. ADVANTAGES OF COST SHEET:

A) It provides the total cost figure as well as cost per unit of production figure.

B) It helps in cost comparison.

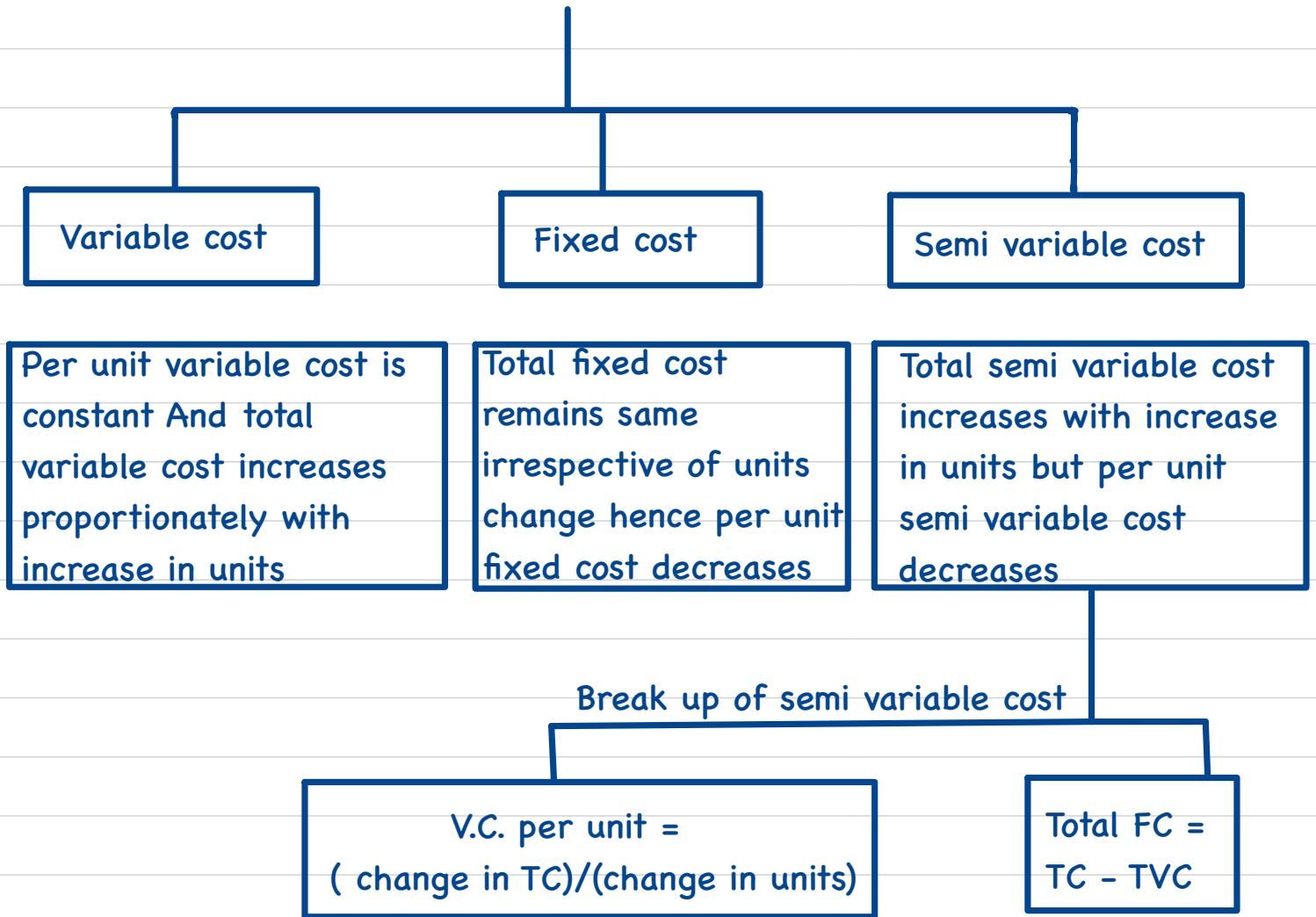
C) It facilitates the preparation of cost estimates required for submitting tenders.

D) It provides sufficient help in arriving at the figure of selling price.

E) It facilitates cost control by disclosing operational efficiency.

BUDGET

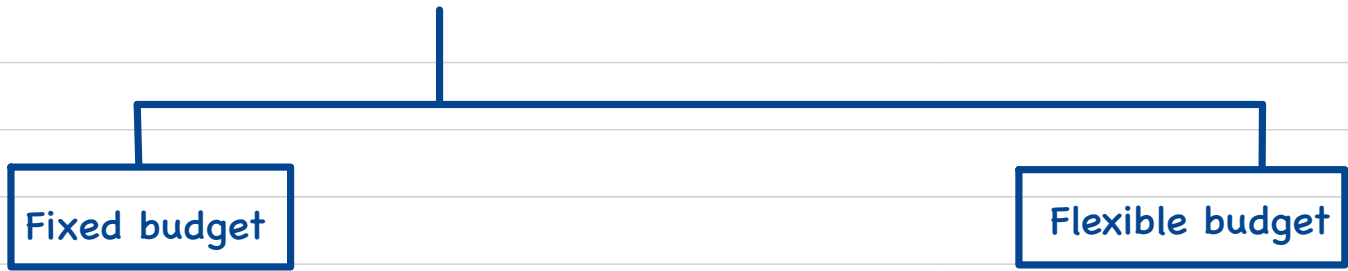
1. COST ON THE BASIS OF VARIABILITY:



2. TYPES OF BUDGETS:



3. CAPACITY WISE BUDGET:



budget designed to remain unchanged irrespective of the level of activity actually attained

budget which, by recognizing the difference between fixed, semi-variable and variable costs is designed to change in relation to the level of activity attained

4. FUNCTIONAL WISE BUDGET:

The various types of functional budgets to be prepared will vary according to the size and nature of the business.

The various commonly used functional budgets are:

- (i) Sales budget
- (ii) Production budget
- (iii) Plant utilisation budget
- (iv) Direct-material usage budget
- (v) Direct-material purchase budget
- (vi) Direct-labour (personnel) budget
- (vii) Factory overhead budget
- (viii) Production cost budget
- (ix) Ending-inventory budget
- (x) Cost-of-goods-sold budget
- (xi) Selling and distribution cost budget
- (xii) Administration expenses budget
- (xiii) Research and development cost budget
- (xiv) Capital expenditure budget
- (xv) Cash budget

5. MASTER BUDGET:

the summary budget, incorporating its component functional budgets, which is finally approved, adopted and employed." When all the necessary functional budgets have been prepared, the budget officer will prepare the master budget which may consist of budgeted profit and loss account and budgeted balance sheet. These are in fact the budget summaries. When the master budget is approved by the board of directors, it represents a standard for the achievement of which all the departments will work

Format of master budget-

Particulars	Amount
Sales	xxx
Less: COGS (as done in cost sheet)	(xxx)
Gross profit	xxx
Less: Selling and distribution overheads	(xxx)
Less: General and marketing nature Office and administration overheads	(xxx)
Operating profit or EBIT	xxx
Less: Interest	(xxx)
Net profit before tax or EBT	xxx
Less: Tax	(xxx)
Net profit after tax or EAT	xxx

6. PERIOD WISE BUDGET:



Long term budgets is a budget prepared covering a period of more than a year. The Budgets are prepared to depict long term planning of the business. The period of long term Budgets varies between three to ten years. These budgets are useful for those industries where gestation period is long i.e., the business entities manufacturing machinery, electricity etc

Short term budgets are generally for one or two years and are in the form of monetary terms. The consumer's good industries like Sugar, Cotton, and textile use short term budgets

Current budget is a budget which is created which is established for use over a short period of time and is related to current conditions

7. BUDGETARY RATIOS:

Budget ratios provide information about the performance level, i.e., the extent of deviation of actual performance from the budgeted performance and whether the actual performance is favourable or unfavorable. If the ratio is 100% or more, the performance is considered as favourable and if ratio is less than 100% the performance is considered as unfavourable. The following ratios are usually used by the management to measure development from budget.

Capacity Usage Ratio: This relationship between the budgeted number of working hours and the maximum possible number of working hours in a budget period.

Standard Capacity Employed Ratio: This ratio indicates the extent to which facilities were actually utilized during the budget period.

Level of Activity Ratio: This may be defined as the number of standard hours equivalent to work produced expressed as a percentage of the budget of standard hours.

Efficiency Ratio: This ratio may be defined as standard hours equivalent of work produced expressed as a percentage of the actual hours spent in producing the work.

Calendar Ratio: This ratio may be defined as the relationship between the number of working days in a period and the number of working as in the relative budget period.

(i) Efficiency Ratio = Standard Hours / Actual Hours

(ii) Activity Ratio = Standard Hours / Budgeted Hours

(iii) Calendar Ratio = Available working days / Budgeted working days

(iv) Standard Capacity Usage Ratio = Budgeted Hours / Max. possible hours
in the budgeted period

(v) Actual Capacity Usage Ratio = Actual Hours worked / Max. possible
working hours in a period

(vi) Actual Usage of Budgeted Capacity Ratio = Actual working Hours /
Budgeted Hours

8. ZERO BASED BUDGETING(ZBB):

Zero-based Budgeting (ZBB) is defined as a method of budgeting which requires each cost element to be specifically justified, though the activities to which the budget relates are not being undertaken for the first time. The cost of each activity has to be justified and without justification, the budget allowance is zero.

Zero based budgeting differs from the conventional system of budgeting because it mainly starts from scratch or zero and not on the basis of trends or historical levels of expenditure. In the customary budgeting system, the last year's figures are accepted as they are, or cut back or increases are granted. Zero based budgeting on the other hand, starts with the premise that the budget for next period is zero so long the demand for a function, process, project or activity is not justified for each rupee from the first rupee spent.

Zero-based Budgeting (ZBB) is an emergent form of budgeting which arises to overcome the limitations of incremental (traditional) budgeting system. ZBB is an activity based budgeting system where budgets are prepared for each activities rather than functional department. Justification in the form of cost benefits for the activity is required to be given. The activities are then evaluated and prioritized by the management on the basis of factors like synchronisation with organisational objectives, availability of funds, regulatory requirement etc.

ZBB is suitable for both corporate and non-corporate entities. In case of non-corporate entities like Government department, local bodies, not for profit organisations, where these entities need to justify the benefits of expenditures on social programmes like mid-day meal, installation of street lights, provision of drinking water etc.

In case of corporate entities, ZBB is best suited for discretionary costs like research and development cost, training programmes, advertisement etc.

9. PERFORMANCE BUDGET(PB):

Performance budgeting (PB) involves evaluation of the performance of an organisation in the context of both specific as well as overall objectives of the organisation. This requires complete clarity about both the short-term as well as long-term organisational objectives. The responsibility of the various levels of management should be predetermined in terms of results expected from them and the authority vested in them. In other words, performance budgeting requires fixing of the responsibility of each executive in organisation and the continuous appraisal of his performance. It is, therefore, considered to be synonymous with responsibility accounting.

Performance Budgeting provide a meaningful relationship between estimated inputs and expected outputs as an integral part of the budgeting system. A performance budget is one which presents the purposes and objectives for which funds are required, the costs of the programmes proposed for achieving those objectives, and quantitative data measuring the accomplishments and work performed under each programme. Thus PB is a technique of presenting budgets for costs and revenues in terms of functions. Programmes and activities are correlating the physical and financial aspect of the individual items comprising the budget.

10. BUDGETARY CONTROL:

It is the system of management control and accounting in which all the operations are forecasted and planned in advance to the extent possible and the actual results compared with the forecasted and planned results.

Budgetary Control Involves:

1. Establishment of budgets
2. Continuous comparison of actuals with budgets for achievement of targets.
3. Revision of budgets after considering the changes in the circumstances.
4. Fixation of the responsibility for failure to achieve the budget targets.

The following steps are necessary for establishing a good budgetary control system:

1. Determining the objectives to be achieved, over the budget period, and the policy or policies that might be adopted for the achievement of these objectives.
2. Determining the activities that should be undertaken for the achievement of the objectives.
3. Drawing up a plan or a scheme of operation in respect of each class of activity, in quantitative as well as monetary terms for the budget period.
4. Laying out a system of comparison of actual performance by each person, or department with the relevant budget and determination of causes for the variation, if any.
5. Ensuring that corrective action will be taken where the plan has not been achieved and, if that is not possible, for the revision of the plan.

11. BUDGET COMMITTEE AND BUDGET OFFICER:

The budget committee is a group of representatives of various functions in an organisation. As all functions are inter-related and as any change in one's target will have its impact on that of the other, it is necessary to discuss the targets so that a mutually agreed programme is finally decided. This is called coordination in budget-making. It is a powerful force in knitting together various activities of the business and enforcing real control over operations. The Chief Executive is ultimately responsible for the budget programme but it will be better if the large part of the supervisory responsibility is delegated to an official designated as Budget Officer. The budget Officer should have knowledge of the technical side of the business and should report to the president or CEO of the business entity.

The responsibility for successfully introducing and implementing Budgetary Control System rests with the Budget Committee acting through the Budget Officer. The Budget Committee would be composed of all functional heads and a member from the Board to preside over and guide the deliberations.

The main responsibilities of the Budget Committee/Budget Officer are to:

1. Assist in the preparation of the separate budget for various departments by coordinating the work of the accounts department, which is normally responsible to compile the budgets—with the relevant functional departments like Sales, Production, Plant maintenance etc.;
2. Forward the budget to the individual departments' heads who are responsible to implement the budget. The Budget Officer should guide them in overcoming any practical difficulties, in its working;
3. Prepare the periodical budget reports for circulation to the individuals concerned;
4. Follow-up action to be taken on the budget reports;
5. Prepare an overall budget working report for discussion at the Budget Committee meetings and to ensure follow-up on the lines of action suggested by the Committee;
6. Prepare periodical reports for the Board meeting. Comparing budgeted Profit and Loss Account and the Balance Sheet with the actual results attained.

It is necessary that every budget should be thoroughly discussed with the functional heads before it is finalised.

It is the duty of the Budget Officer to see that the periodical budget reports are supplied to the recipients at regular intervals so as to enable them to take remedial action.

The efficiency of the Budget Officer, and through him of the Budget Committee, will be judged more by the smooth working of the system and the agreement between the actual figures and the budgeted figures.

Budgets provides basis for giving an incentive for better performance, It is up to the Budget Officer to see that attention of the different functional heads is drawn to the deviations so as to face the challenge in a successful manner.

12. BUDGET MANUAL:

The budget manual is a booklet specifying the objectives of an organisation in relation to its strategy. The budget is made to decide how much an organisation would earn and spend and in what manner. In the budget, the organisation sets its priorities too.

CIMA, London, defines budget manual as, "A document which sets out the responsibilities of the persons engaged in, the routine of, and the forms and records required for, budgetary control."

Effective budgetary planning relies on the provision of adequate information to the individuals involved in the planning process. Many of these information needs are contained in the budget manual. A budget manual is a collection of documents that contains key information for those involved in the planning process.

MARGINAL COSTING

1. SIMPLE INCOME STATEMENT UNDER MARGINAL COSTING:

Particulars	Amount	Amount
Revenue (A)		xxx
Product Cost:		
- Direct Materials	xxx	
- Direct employee (labour)	xxx	
- Direct expenses	xxx	
- Variable manufacturing overheads	xxx	
Product (Inventoriable) Costs: (B)	<u> </u>	<u>xxx</u>
Product Contribution Margin {A - B}		xxx
- Variable Administration overheads	xxx	
- Variable Selling & Distribution overheads	<u>xxx</u>	<u>xxx</u>
Contribution Margin: (C)		xxx
Fixed Manufacturing expenses	xxx	
Fixed non-manufacturing expenses	xxx	
Period Cost: (D)	<u> </u>	xxx
Profit/ (loss) {C - D}		<u><u>xxx</u></u>

Sales/Revenue	xxx
V.C.	<u>(xxx)</u>
Contribution	xxx
F.C.	<u>(xxx)</u>
Profit	xxx

2. MARGINAL COSTING v/s ABSORPTION COSTING:

Marginal costing	Absorption costing
1. Only variable costs are considered for product costing and inventory valuation.	Both fixed and variable costs are considered for product costing and inventory valuation.
2. Fixed costs are regarded as period costs. The Profitability of different products is judged by their P/V ratio.	Fixed costs are charged to the cost by production. Each product bears a reasonable share of fixed cost thus the profitability of a product is influenced by the apportionment of fixed costs.
3. Cost data presented highlight the total contribution of each product.	Cost data are presented in conventional pattern. Net profit of each product is determined after subtracting fixed cost along with their variable costs.
4. The difference in the magnitude of opening stock and closing stock does not affect the unit cost of production.	The difference in the magnitude of opening stock and closing stock affects the unit cost of production due to the impact of related fixed cost.
5. In case of marginal costing the cost per unit remains the same, irrespective of the production as it is valued at variable cost.	In case of absorption costing the cost per unit reduces, as the production increases as it is fixed cost which reduces, whereas, the variable cost remains the same per unit.

The above two approaches will compute the different profit because of the difference in the stock valuation. This difference is explained as follows in different circumstances.

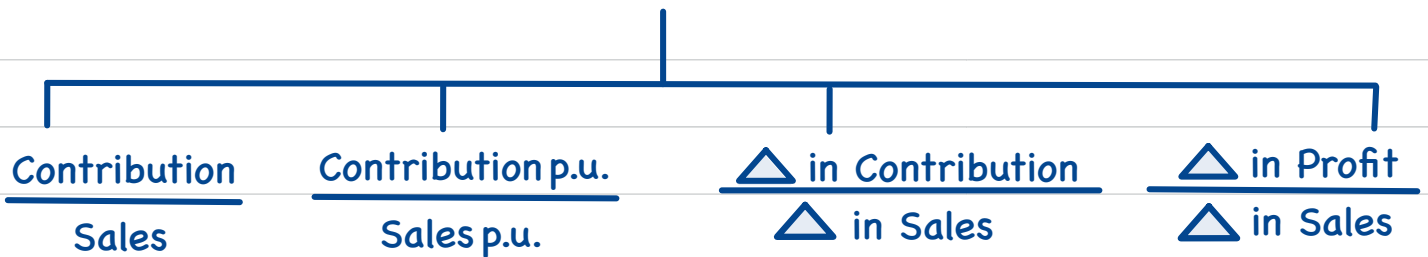
- 1. No opening and closing stock:** In this case, profit / loss under absorption and marginal costing will be equal.
- 2. When opening stock is equal to closing stock:** In this case, profit / loss under two approaches will be equal provided the fixed cost element in both the stocks is same amount.
- 3. When closing stock is more than opening stock:** In other words, when production during a period is more than sales, then profit as per absorption approach will be more than that by marginal approach. The reason behind this difference is that a part of fixed overhead included in closing stock value is carried forward to next accounting period.
- 4. When opening stock is more than the closing stock:** In other words, when production is less than the sales, profit shown by marginal costing will be more than that shown by absorption costing. This is because a part of fixed cost from the preceding period is added to the current year's cost of goods sold in the form of opening stock.

3. INCOME STATEMENT MARGINAL COSTING & ABSORPTION COSTING:

Sales	Sales
Less: Variable manufacturing costs	Less: Production cost
Direct material consumed	Direct material consumed
Direct labour	Direct labour cost
Variable manufacturing overhead	Variable manufacturing overhead
	Fixed manufacturing overhead
Cost of Goods Produced	Cost of Production
Add: Opening stock of finished goods (Value at cost of previous period)	Add: Opening stock of finished goods (Value at cost of previous period's production)
Less: Closing stock of finished goods (Value at current variable cost)	Less: Closing stock of finished goods (Value at production cost of current period)
Cost of Goods Sold	Cost of Goods Sold
Add: Variable administration, selling and dist. overhead	Add: (or less) Under (or over) absorption of fixed Manufacturing overhead
Total Variable Cost	
Contribution (Sales – Total variable costs)	Add: Administration costs Selling and distribution costs
Less: Fixed costs (Production, admin., selling and dist.)	Total Cost
Profit	Profit (Sales – Total cost)

4. IMPORTANT TERMS:

Profit Volume Ratio



Cost Profit Volume (CVP) Theory

Assumptions

1. Selling price per unit is constant irrespective of number of units
2. Variable cost per unit is constant irrespective of number of units
3. Total fixed cost is constant irrespective of number of units

Analysis

1. PV ratio does not depend upon number of units
2. PV ratio does not depend upon total fixed cost
3. PV ratio changes due to change in selling price per unit or variable cost per unit or any combination of it

Break even Point (BEP) or Break even Sales (BES)

$$\frac{\text{TFC}}{\text{Contribution p.u.}}$$

| in units

$$\frac{\text{TFC}}{\text{PV Ratio}}$$

| in ₹

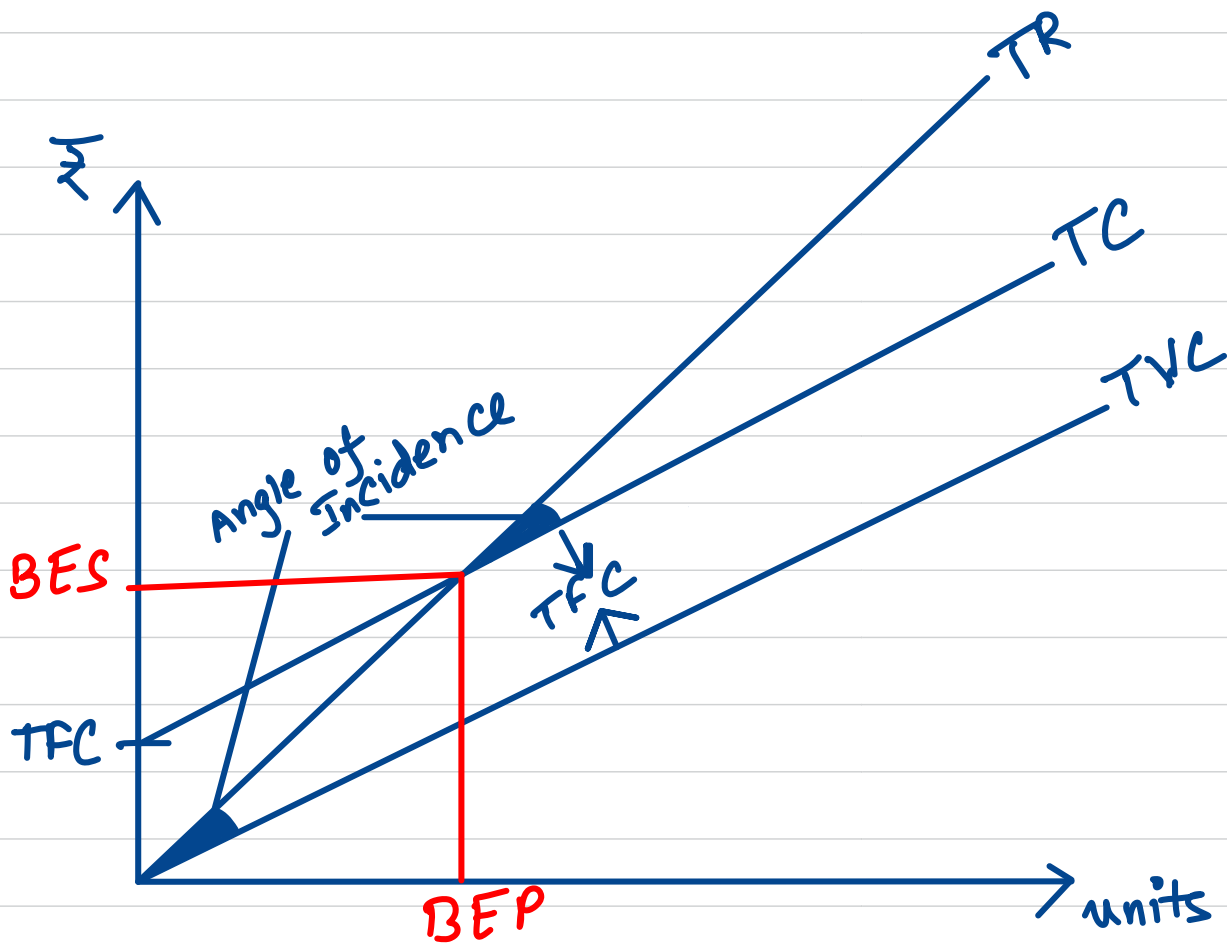
MARGINAL COSTING

Margin of safety (MOS)

in units	in ₹
Profit	Profit
Contribution p.u.	PV Ratio

$100\% \text{ of Total Sales} = \% \text{ of BES} + \% \text{ of MOS}$

Angle of incidence



$$\text{Angle of incidence} = \frac{\Delta \text{ in TR}}{\Delta \text{ in TC/TVC}}$$

5. WHAT IF:

A) There are two or more products:

In such case overall PV ratio would be calculated using weighted average technique where weights of each PV ratio of each product would be its total sales value.

B) There is any limiting factor:

What is a Limiting Factor?

Limiting factor is anything which limits the activity of an entity. The factor is a key to determine the level of sale and production, thus it is also known as Key factor. From the supply side the limiting factor may either be Men (employees), Materials (raw material or supplies), Machine (capacity), or Money (availability of fund or budget) and from demand side it may be demand for the product, other factors like nature of product, regulatory and environmental requirement etc. The management, while making decisions, has objective to optimise the key resources upto maximum possible extent.

Now say if labour hours are limiting factor then we would first calculate contribution per labour hour for every product and then rank them in descending order i.e. rank 1 to highest contribution per labour hour.

Allocate the available labour hours to rank one product and then rank two and so on until the labour hours gets exhausted. Hence we would get the optimum product mix.

STANDARD COSTING

1. WHAT IS STANDARD COSTING & WHY:

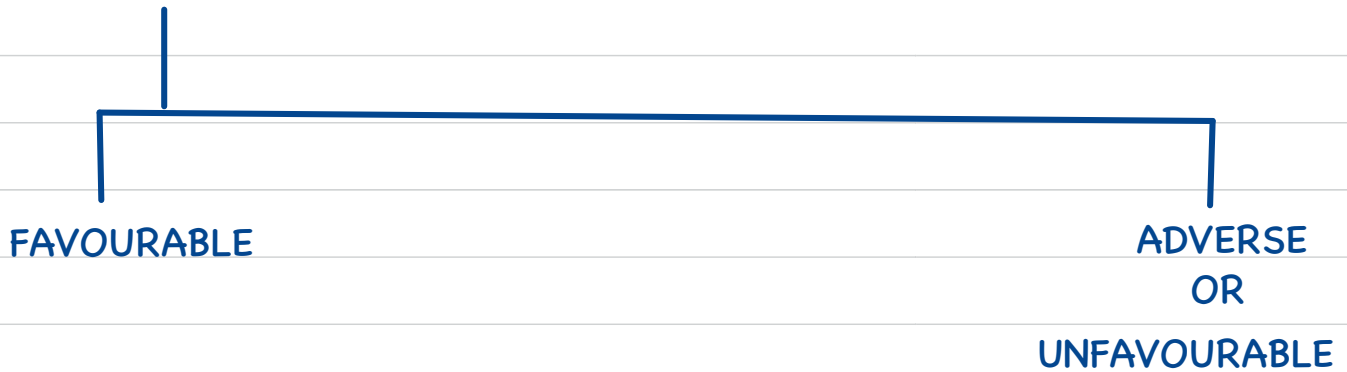
Standard costing is a method of cost and management accounting which starts with setting of standards and ends with reporting of variances to management for taking corrective actions. The Official Terminology of CIMA, London defines standard costing as "Control technique that reports variances by comparing actual costs to pre-set standards so facilitating action through management by exception."

Standards or Standard costs are established to evaluate performance of a responsibility centre. Apart from performance evaluation and cost control, standard costs are also used to value inventory where actual figures are not reliably available and to determine selling prices particularly while preparing quotations.

2. COST CARD:

ITEMS	BUDGET/ STANDARD	STANDARD FOR ACTUAL	ACTUAL
	INPUT RATE AMT	INPUT RATE AMT	INPUT RATE AMT
	Budgeted data for budgeted output	Budgeted data for actual output	Actual data for actual output

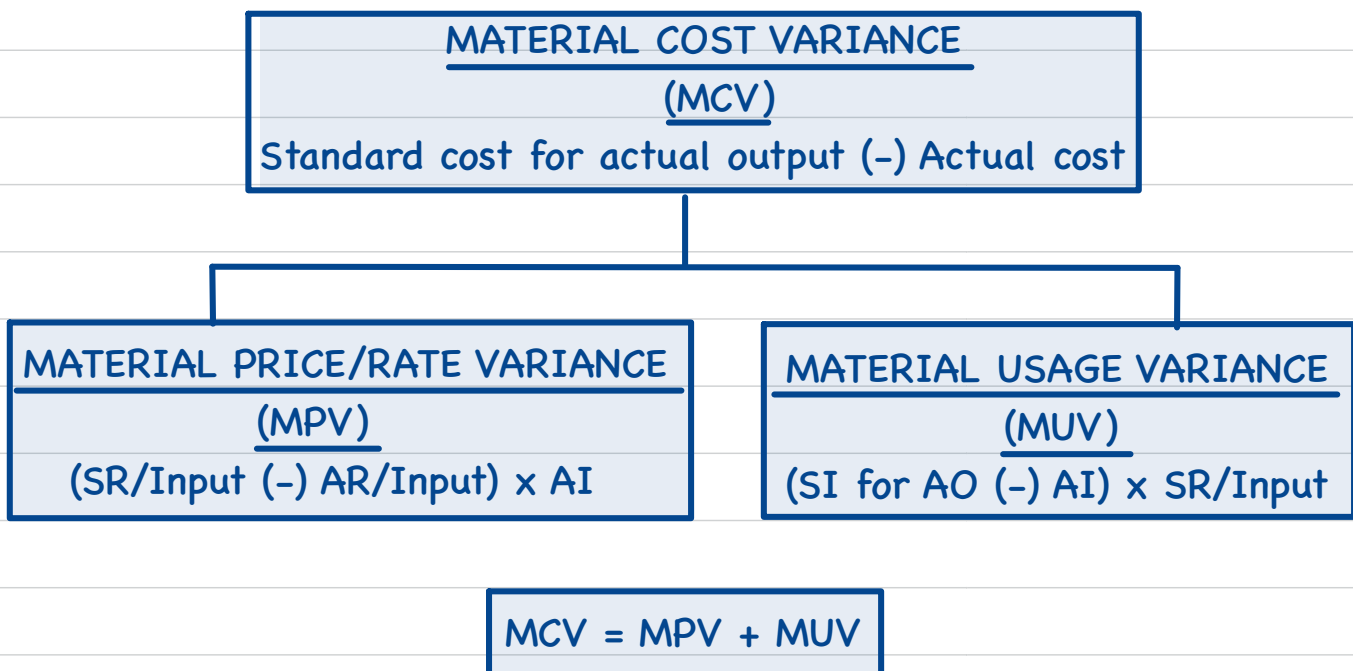
3. VARIANCES:



Favourable variances are those which are profitable for the company and adverse variances are those which causes loss to the company. While computing cost variances favourable variance means actual cost is less than standard cost. On the other hand, adverse variance means actual cost is exceeding standard cost.

Favourable variance in short denoted by capital 'F' and adverse variances by capital 'A'.

4. MATERIAL RELATED VARIANCES:



NOTE: SR means Standard Rate

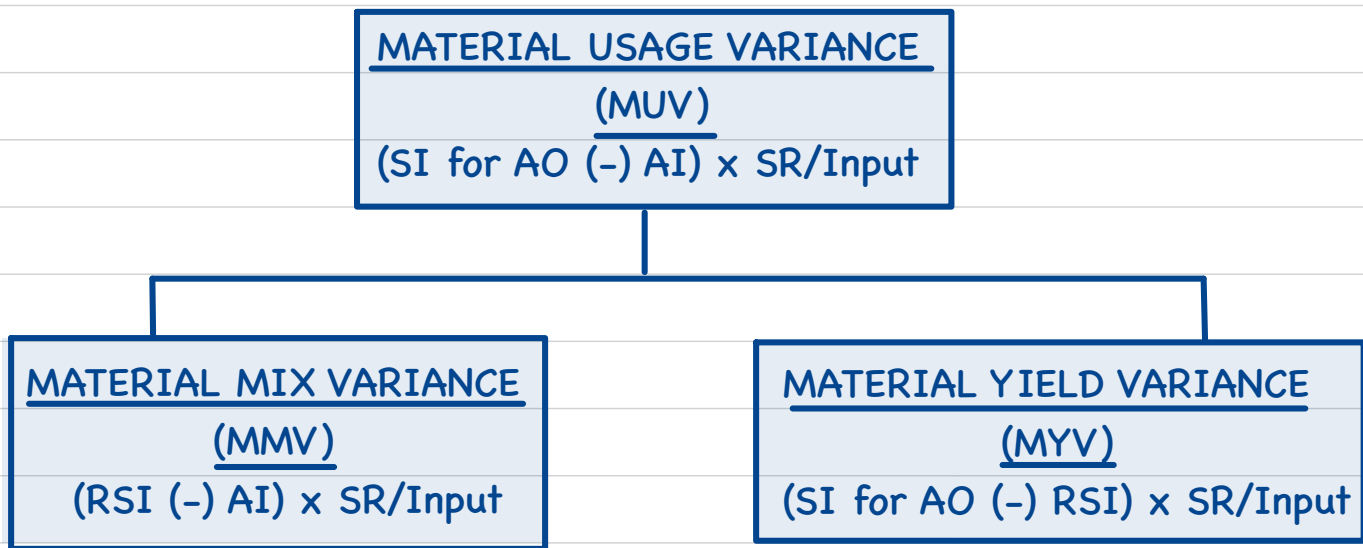
AR means Actual Rate

SI means Standard Input

AI means Actual Input

AO means Actual Output

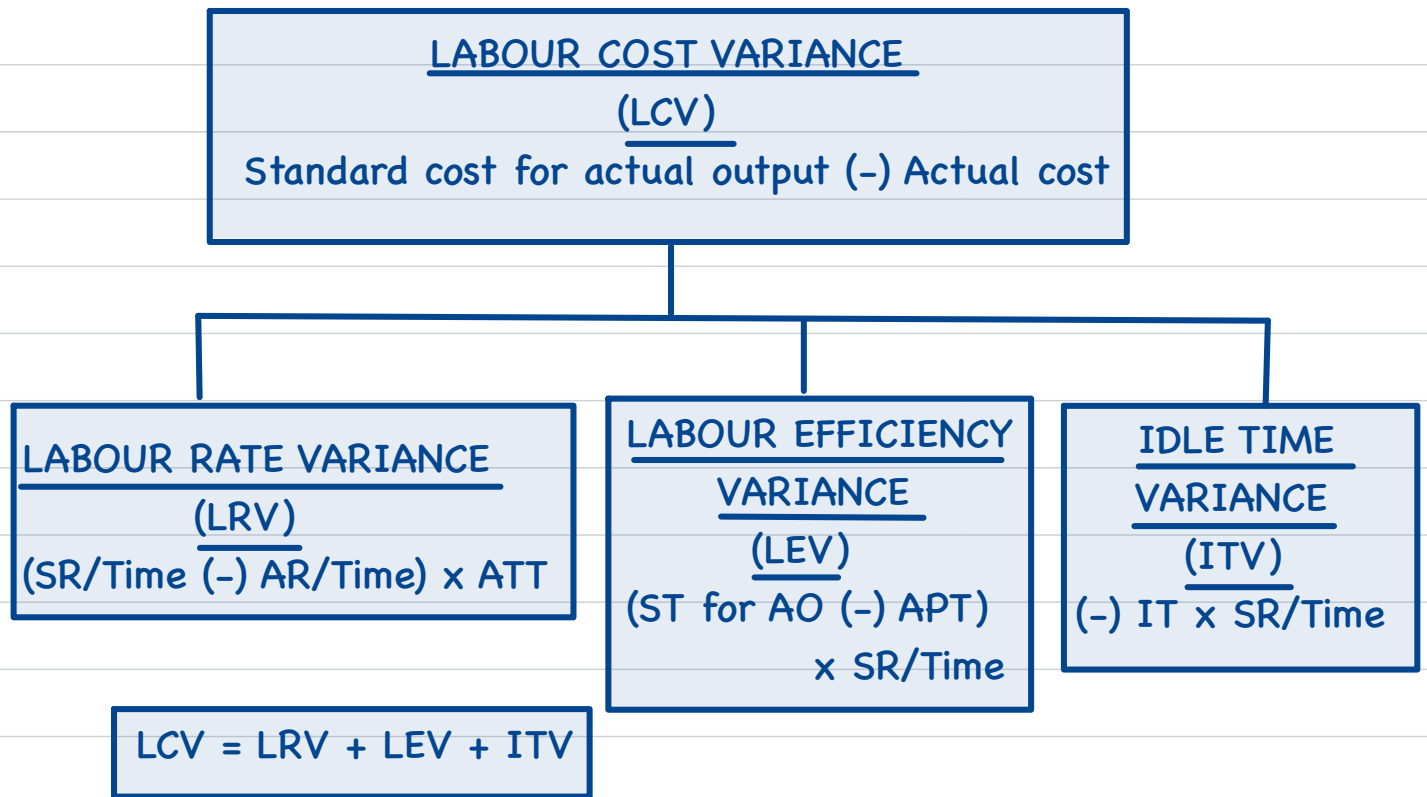
Now if there are 2 or more types of materials:



NOTE: RSI means Revised Standard Input i.e. Total actual input in the ratio of Standard input

$$MUV = MMV + MYV$$

5. LABOUR RELATED VARIANCES:



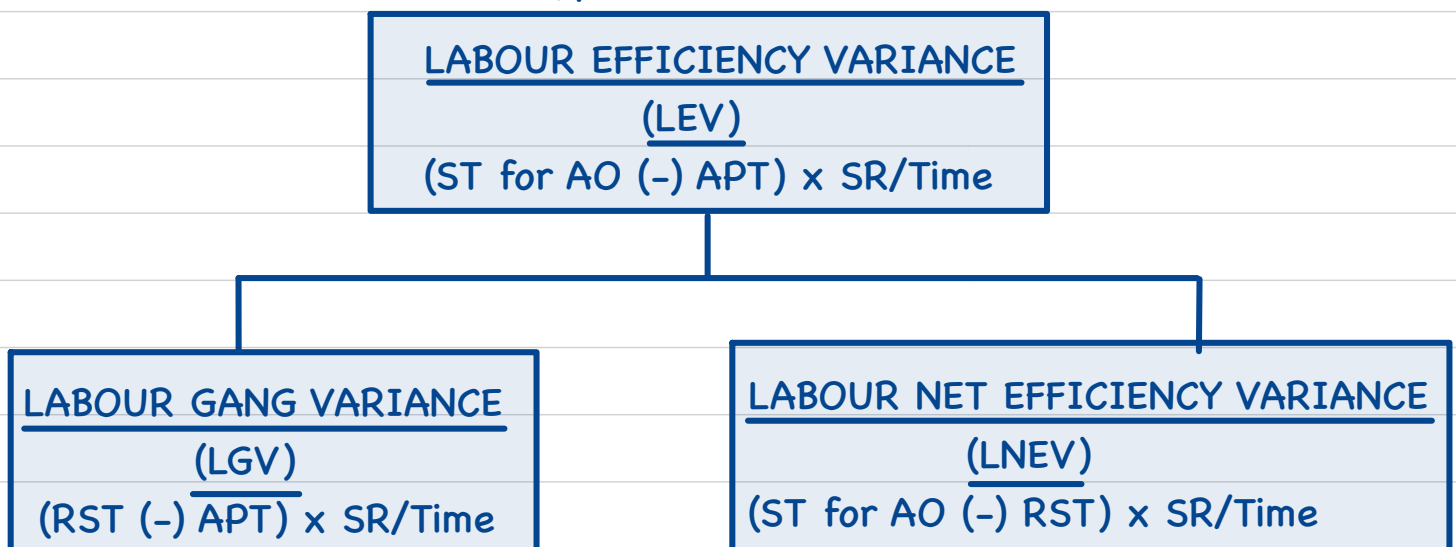
NOTE: ATT means Actual Total Time = APT + IT

APT means Actual Productive Time

IT means Idle Time

ST means Standard Time

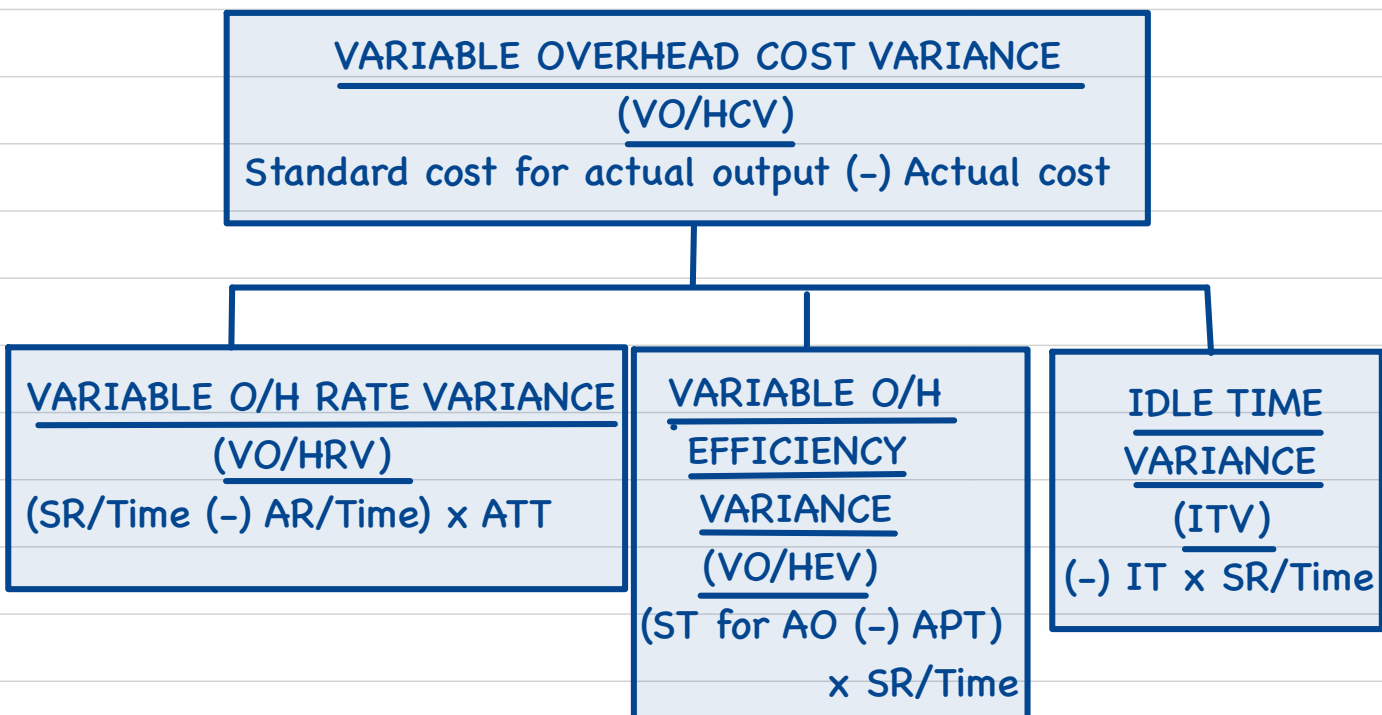
Now if there are 2 or more types of labour:



NOTE: RST means Revised Standard Time i.e. Actual Productive Time in the ratio of Standard Time

$$\text{LEV} = \text{LGV} + \text{LNEV}$$

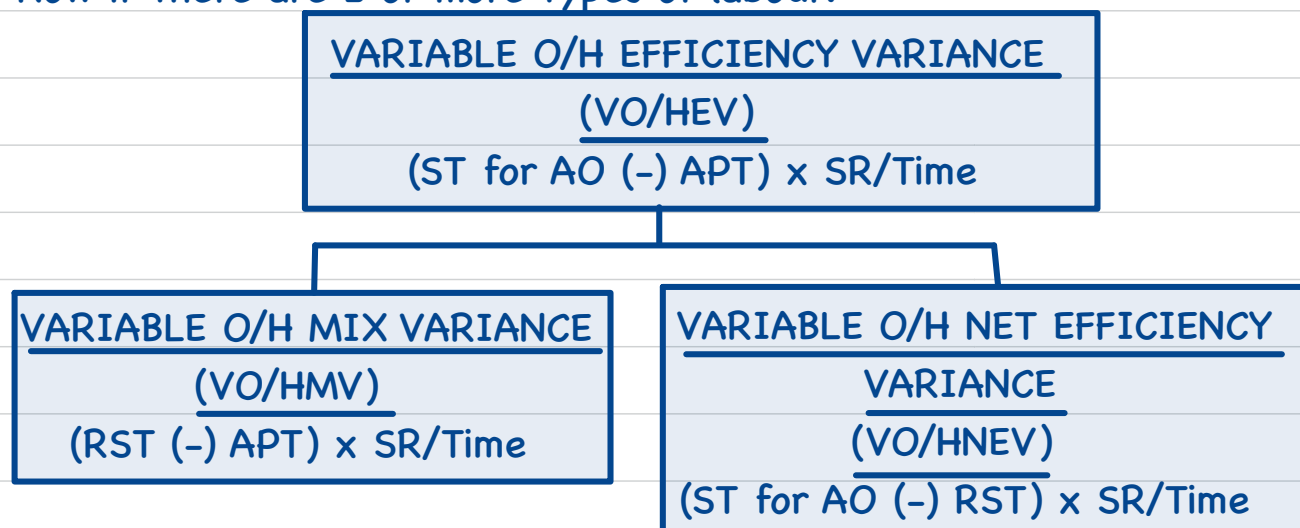
6. VARIABLE OVERHEAD RELATED VARIANCES:



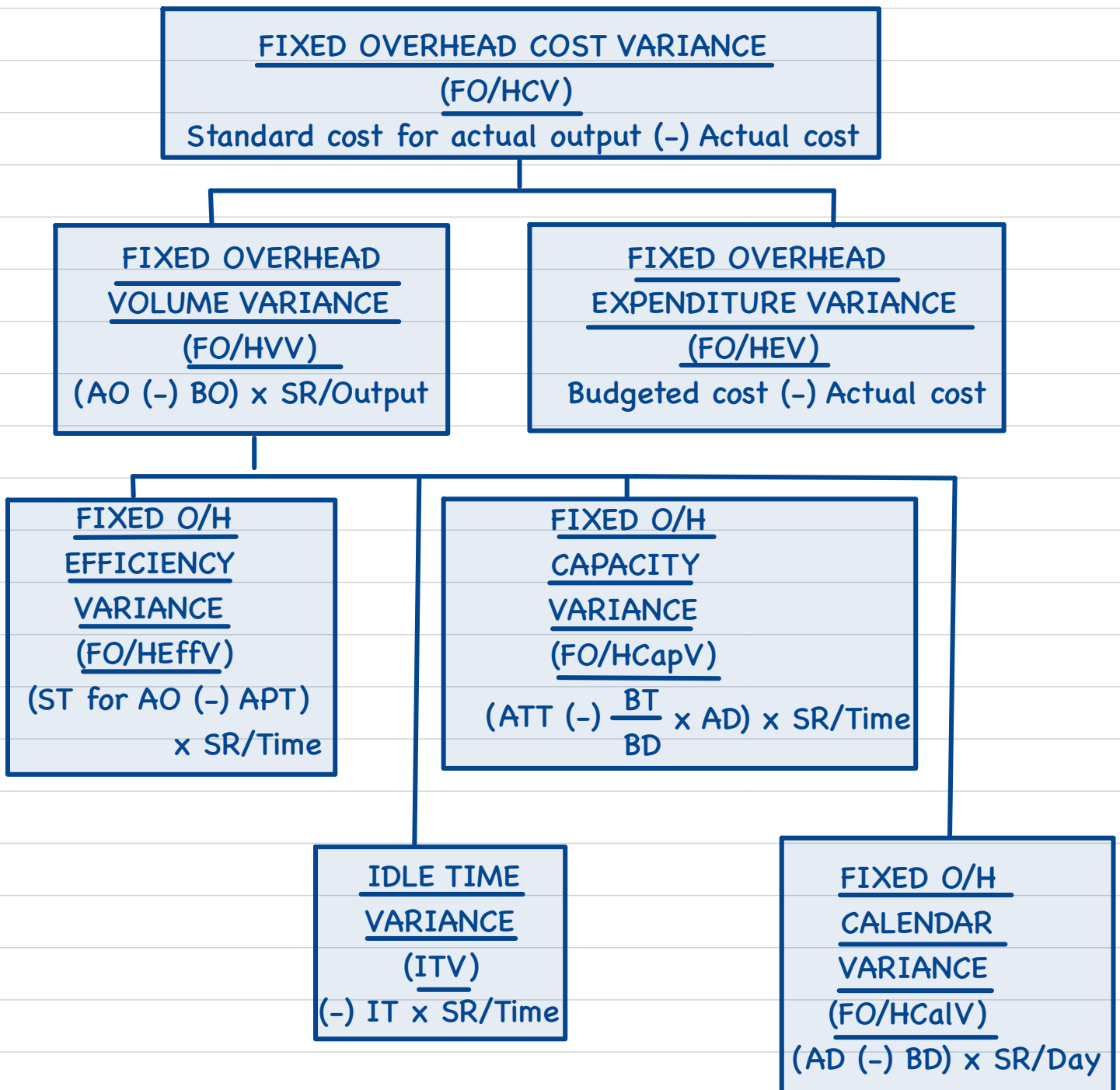
$$\text{VO/HCV} = \text{VO/HRV} + \text{VO/HEV} + \text{ITV}$$

$$\text{VO/HEV} = \text{VO/HMV} + \text{VO/HNEV}$$

Now if there are 2 or more types of labour:



7. FIXED OVERHEAD RELATED VARIANCES:



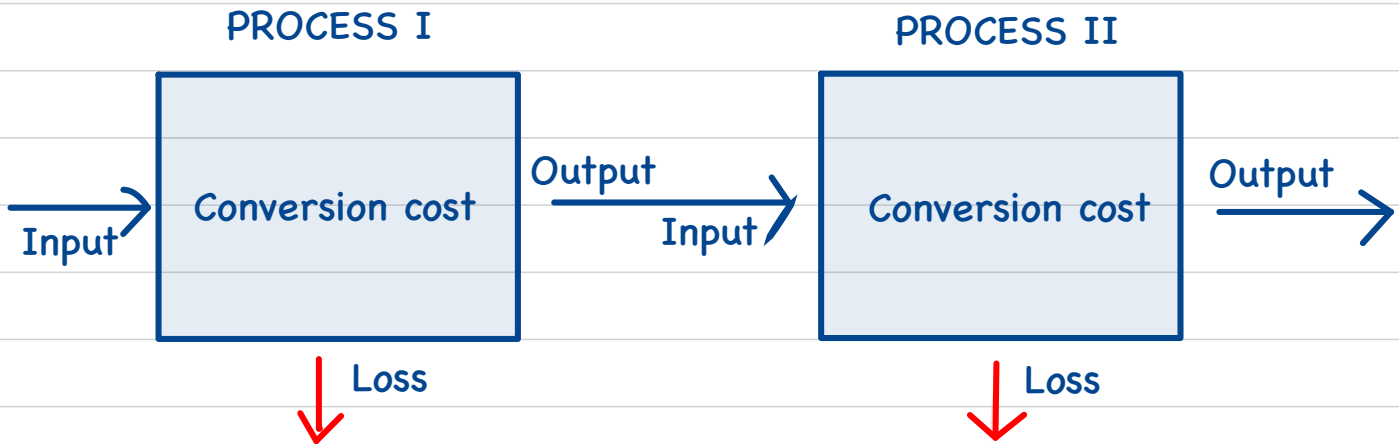
$$FO/HCV = FO/HVV + FO/HEV$$

$$FOHVV = FO/HEffV + ITV + FO/HCapV + FO/HCalV$$

PROCESS COSTING

PROCESS COSTING

1. WHAT IS PROCESS COSTING:



2. PROCESS A/C WITHOUT WIP:

If NL = AL		If NL < AL				If NL > AL											
Q	R	T	Q	R	T	Q	R	T									
Input	x	x	x	NL	x	x	x	Input	x	x	x	NL	x	x	x		
CC		x	Output	x	x	x	CC		x	Output	x	x	x	Ab NL	x	x	x
x			x			x			x			x					

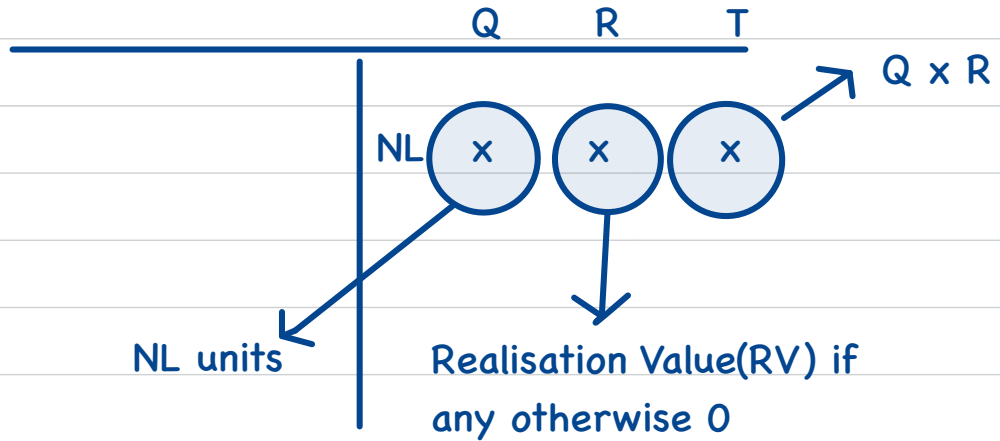
NOTE ON INPUT: Material (DM/RM/T/F from previous process)

NOTE ON OUTPUT: T/F to next process or F.G.

RATE OF OUTPUT:
$$\frac{\text{Total Cost (-) NL scrap realisation}}{\text{Input units (-) NL units}}$$

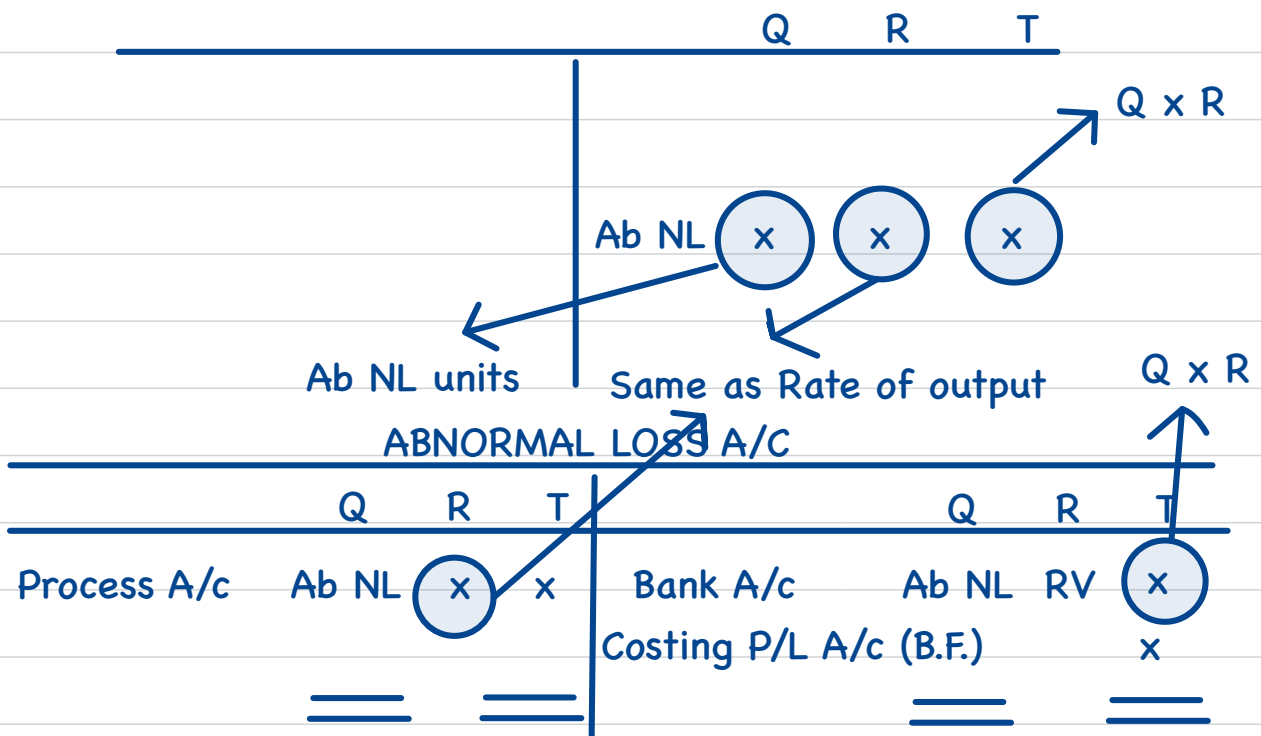
PROCESS COSTING

NOTE ON NORMAL LOSS(NL): The loss which arises normally during a process. It is generally a fixed percentage of input.

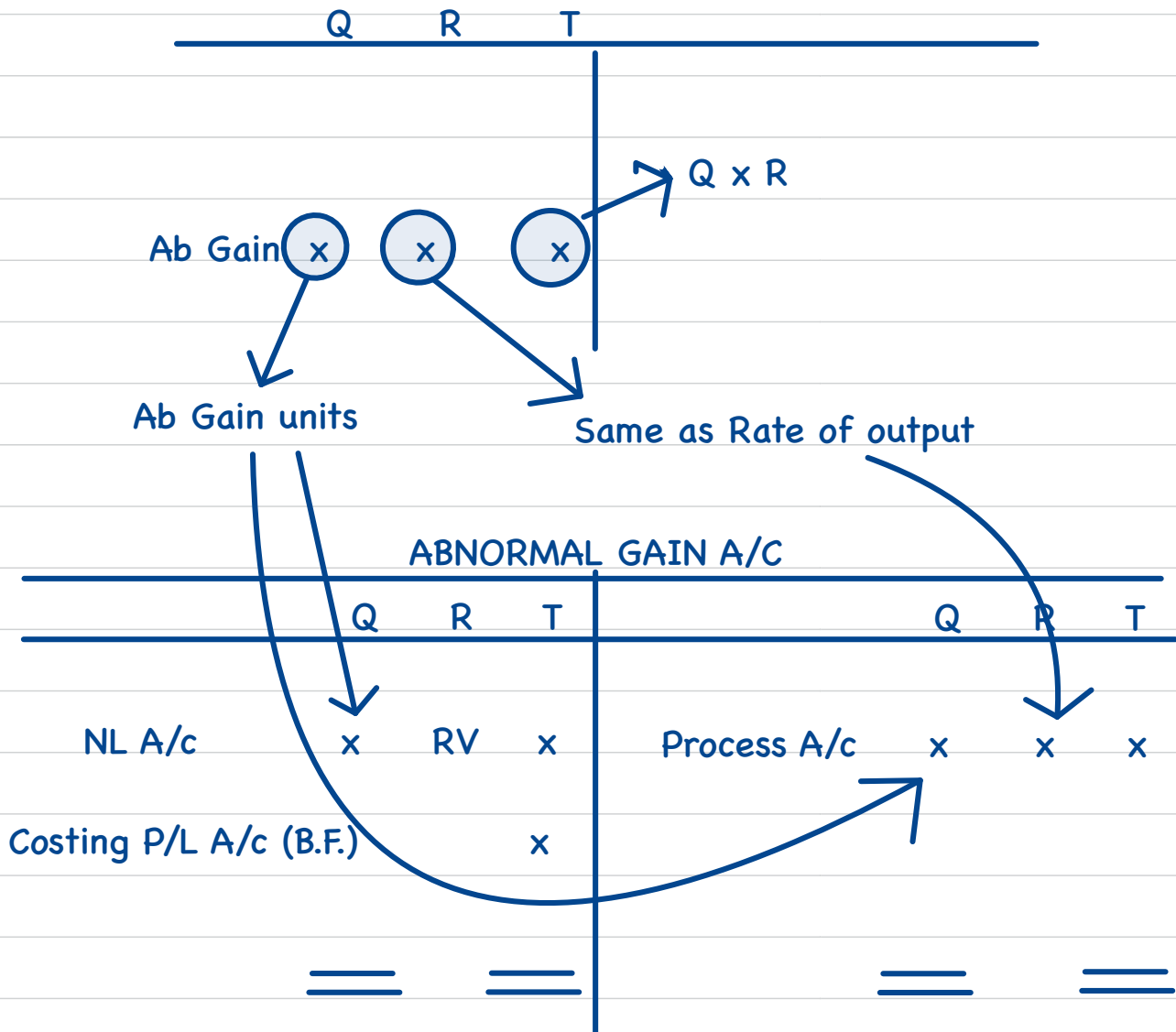


NORMAL LOSS A/C							
Q R T			Q R T				
Process A/c	NL	RV	x	Bank A/c	NL	RV	x
	==	==			==	==	

NOTE ON ABNORMAL LOSS(Ab NL): Total Actual loss (-) NL units



NOTE ON ABNORMAL GAIN (Ab Gain): NL units (-) total Actual loss



NORMAL LOSS A/C (if there is Ab Gain)

			NORMAL LOSS A/C (if there is Ab Gain)					
			Q	R	T	Q	R	T
Process A/c	NL			RV	x			
Bank A/c						Actual loss	RV	x
						Abnormal gain A/c	x	x
			=			=		
						(Extra realised amount)		

3. PROCESS A/C WITH CLOSING WIP:

CASE I - No Opening WIP

Step 1: Calculation of Equivalent units

Input	units	Output	units	Material		Conversion Cost(CC)	
				DOC(%)	Eq units	DOC(%)	Eq units
New mat or T/f from previous process	✓	T/f to next process or F.G	✓				
		Cl WIP	✓				
				Total			

Notes: 1)Eq units = output units x DOC(%)

2)DOC = Degree of completion

3)DOC of output t/f to next process or F.G. is always 100% in all respect

4)DOC of Closing WIP would be given in question (if not assume 100% for Material and 50% for CC)

5)If DOC for DM and RM or Labour and Factory O/H is different then make separate column for each

Step 2: Calculation of cost per Eq units

Particulars	Total Cost (a)	Eq units (b)	Cost / Eq units (a/b)
Material CC	From process A/c	From Step 1	✓

Step 3: Calculation of Value of output and Closing WIP

Particulars	Eq units (a)	Cost / Eq units (b)	Value (axb)
Output T/F or FG	Mat ✓	✓	✓
	CC ✓	✓	✓
			Total ✓
Cl WIP	Mat ✓	✓	✓
	CC ✓	✓	✓
			Total ✓

CASE II - With Opening WIP (using FIFO Method)

Step 1: Calculation of Equivalent units

Input	units	Output	units	Material		Conversion Cost(CC)	
				DOC(%)	Eq units	DOC(%)	Eq units
Op WIP	✓	T/f to next process or F.G					
New mat or T/f from previous process	✓	- from Op WIP	✓				
		- from Current Production	✓				
		Cl WIP	✓				
				Total			

- Notes:
- 1) Eq units = output units \times DOC(%)
 - 2) DOC = Degree of completion
 - 3) DOC of output t/f to next process or F.G. from current production is always 100% in all respect and DOC of output from Op WIP is [100% - DOC of Op WIP]
 - 4) DOC of Closing WIP would be given in question (if not assume 100% for Material and 50% for CC)
 - 5) If DOC for DM and RM or Labour and Factory O/H is different then make separate column for each

Step 2: Calculation of cost per Eq units

Particulars	Total Cost (a)	Eq units (b)	Cost / Eq units (a/b)
Material CC	From process A/c only of current Production	From Step 1	✓

Step 3: Calculation of Value of output and Closing WIP

Particulars	Eq units (a)	Cost / Eq units (b)	Value (axb)
Output T/F or FG	Material ✓	✓	✓
	CC ✓	✓	✓
		(+) Op WIP Value	→ ✓
			Total ✓
Cl WIP	Material ✓	✓	✓
	CC ✓	✓	✓
			Total ✓

CASE III - With Opening WIP (using Weighted Average Method)

Step 1: Calculation of Equivalent units

Input	units	Output	units	Material		Conversion Cost(CC)	
				DOC(%)	Eq units	DOC(%)	Eq units
Op WIP	✓	T/f to next process or F.G					
New mat or T/f from previous process	✓	- from Op WIP	✓				
		- from Current Production	✓				
		Cl WIP	✓				
				Total			

Notes: 1)Eq units = output units x DOC(%)

2)DOC = Degree of completion

3)DOC of output t/f to next process or F.G. from current production and DOC of output from Op WIP both is always 100% in all respect

4)DOC of Closing WIP would be given in question (if not assume 100% for Material and 50% for CC)

5)If DOC for DM and RM or Labour and Factory O/H is different then make separate column for each

Step 2: Calculation of cost per Eq units

Particulars	Total Cost (a)	Eq units (b)	Cost / Eq units (a/b)
Material			
– Op WIP Value	✓		
– Current Cost	<u>✓</u>		
	✓	✓	✓
CC			
– Op WIP Value	✓	✓	✓
– Current Cost	<u>✓</u>		
	✓		

Step 3: Calculation of Value of output and Closing WIP

Particulars	Eq units (a)	Cost / Eq units (b)	Value (axb)
Output T/F or FG	Mat ✓	✓	✓
	CC ✓	✓	✓
			<u>✓</u>
			Total ✓
CI WIP	Mat ✓	✓	✓
	CC ✓	✓	✓
			<u>✓</u>
			Total ✓

CASE IV – Treatment of NL and Abnormal loss or Abnormal gain in above cases

Normal loss:

- 1) While calculating equivalent units normal loss units must be considered in output column but not in Equivalent unit column
- 2) Recovery of normal loss that is realisable value of normal loss must be reduced from the main input cost

Abnormal loss:

- 1) While calculating equivalent units abnormal loss units must be considered in output column as well as in Equivalent unit column
- 2) DOC(%) of Abnormal loss would be that of unit scrapped (if not given take 100% in all respect)
- 3) The recovery of abnormal loss is directly recorded into abnormal loss account so it will not be included in above calculation

Abnormal Gain:

- 1) While calculating equivalent units abnormal gain units must be reduced from output column as well as from Equivalent unit column
- 2) DOC(%) of Abnormal gain would be always 100% in all respect

4. INTER PROCESS PROFIT:

To control cost and to measure performance, different processes within an organization are designated as separate profit centres. In this type of organizational structure, the output of one process is transferred to the next process not at cost but at market value or cost plus a percentage of profit. The difference between cost and the transfer price is known as inter-process profits.

The advantages and disadvantages of using inter-process profit, in the case of process type industries are as follows:

Advantages:

1. Comparison between the cost of output and its market price at the stage of completion is facilitated.
2. Each process is made to stand by itself as to the profitability.

Disadvantages:

1. The use of inter-process profits involves complication.
2. The system shows profits which are not realised because of stock not sold out.

Under this type of sums we draw process account as follows:

PROCESS A/C							
	Cost	Profit	Total		Cost	Profit	Total

5. OPERATION COSTING:

This product costing system is used when an entity produces more than one variant of final product using different materials but with similar conversion activities. Which means conversion activities are similar for all the product variants but materials differ significantly. Operation Costing method is also known as Hybrid product costing system as materials costs are accumulated by job order or batch wise but conversion costs i.e. labour and overheads costs are accumulated by department, and process costing methods are used to assign these costs to products. Moreover, under operation costing, conversion costs are applied to products using a predetermined application rate. This predetermined rate is based on budgeted conversion costs.

For example, a company is manufacturing two grades of products, Product-Deluxe and Product- Regular. Both the products pass through a similar production process but require different quality and quantities of raw materials. The cost of raw material is accumulated on the basis of job or batches or units of two variants of products. But the costs for the conversion activities need not to be identified with the product variants as both the Products requires similar activities for conversion. Hence, conversion activity costs are accumulated on the basis of departments or processes only. Example of industries are ready made garments, Shoe making, jewelry etc.

JOINT & BY PRODUCT

1. WHAT IS JOINT PRODUCT/ BY PRODUCT/ CO PRODUCT :

Joint Products - Joint products represent "two or more products separated in the course of the same processing operation usually requiring further processing, each product being in such proportion that no single product can be designated as a major product".

In other words, two or more products of equal importance, produced, simultaneously from the same process, with each having a significant relative sale value are known as joint products. For example, in the oil industry, gasoline, fuel oil, lubricants, paraffin, coal tar, asphalt and kerosene are all produced from crude petroleum. These are known as joint products.

By-Products - These are defined as "products recovered from material discarded in a main process, or from the production of some major products, where the material value is to be considered at the time of severance from the main product."

Thus by-products emerge as a result of processing operation of another product or they are produced from the scrap or waste of materials of a process. In short a by-product is a secondary or subsidiary product which emanates as a result of manufacture of the main product.

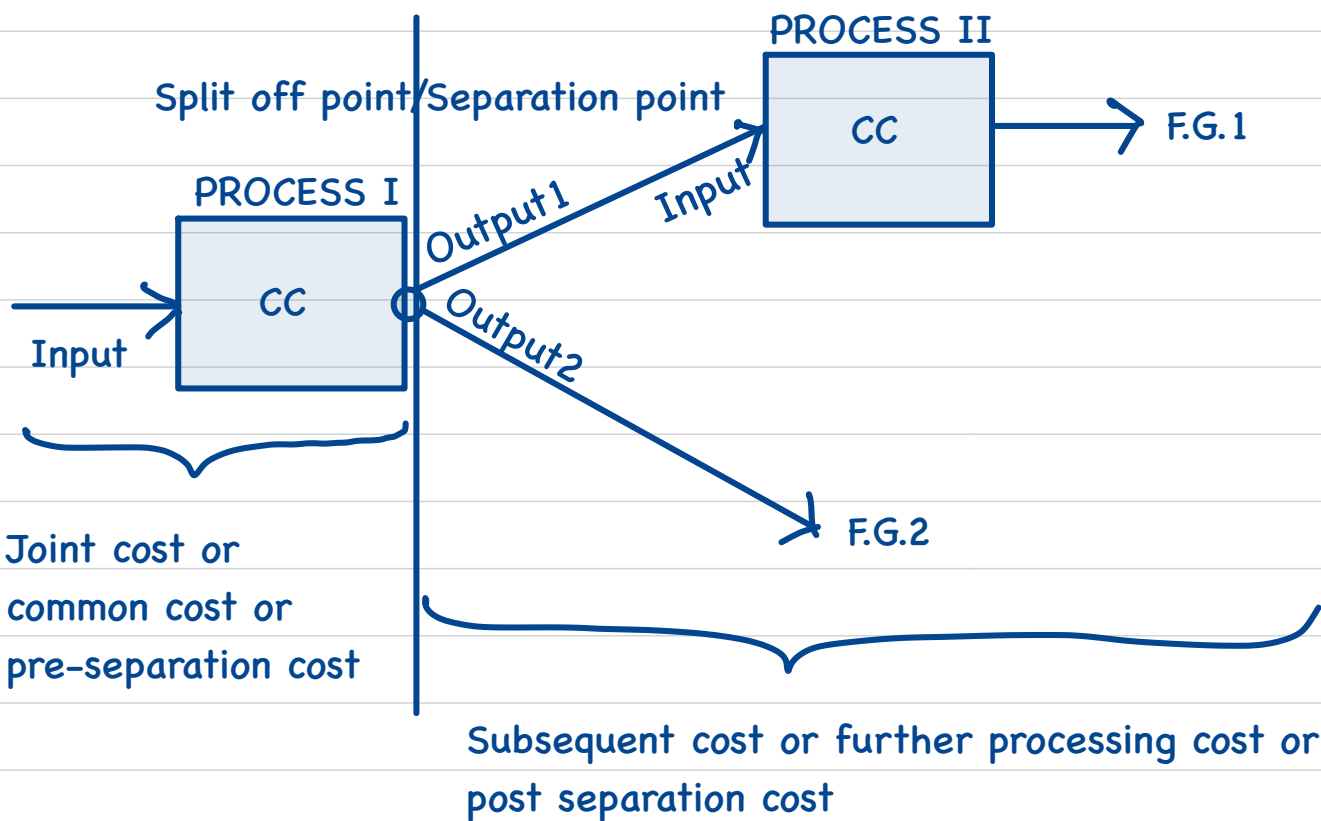
Examples of by-products are molasses in the manufacture of sugar, tar, ammonia and benzole obtained on carbonisation of coal and glycerin obtained in the manufacture of soap.

The main points of distinction as apparent from the definitions of Joint Products and By-Products are:

- (a) Joint products are of equal importance whereas by-products are of small economic value.
- (b) Joint products are produced simultaneously but the by-products are produced incidentally in addition to the main products.

JOINT & BY PRODUCT

Co-Products - Joint products and co-products are used synonymously in common parlance, but strictly speaking a distinction can be made between two. Co-products may be defined as two or more products which are contemporary but do not emerge necessarily from the same material in the same process. For instance, wheat and gram produced in two separate farms with separate processing of cultivation are the co-products. Similarly, timber boards made from different trees are co-products.



2. TREATMENT OF JOINT COST AMONG JOINT PRODUCTS:

(i) Physical Unit Method: This method is based on the assumption that the joint products are capable of being measured in the same units. Accordingly, joint costs here are apportioned on the basis of some physical base, such as weight, numbers etc. In other words, the basis used for apportioning joint cost over the joint products is the physical volume of material present in the joint products at the point of separation. Any loss arises during the joint production process is also apportioned over the products on the same basis. This method cannot be applied if the physical units of the two joint products are different. The main defect of this method is that it gives equal importance and value to all the joint products.

(ii) Average Unit Cost Method: Under this method, total process cost (upto the point of separation) is divided by total units of joint products produced. On division average cost per unit of production is obtained.

$$\text{Average unit cost} = \frac{\text{Total process cost (upto the point of separation)}}{\text{Total units of joint product produced.}}$$

This is a simple method. The effect of application of this method is that all joint products will have uniform cost per unit. If this method is used as the basis for price fixation, then all the products may have more or less the same price. Under this method customers of high quality items are benefitted as they have to pay less price on their purchase.

(iii) Contribution Margin Method: According to this method, joint costs are segregated into two parts – variable and fixed. The variable costs are apportioned over the joint products on the basis of units produced (average method) or physical quantities. In case the products are further processed after the point of separation, then all variable cost incurred be added to the variable costs determined earlier. In this way total variable cost is arrived which is deducted from their respective sales values to ascertain their contribution. The fixed costs are then apportioned over the joint products on the basis of the contribution ratios.

(iv) Market value at the point of separation: This method is used for the apportionment of joint costs to joint products upto the split off point. It is difficult to apply this method if the market value of the products at the point of separation is not available. It is a useful method where further processing costs are incurred disproportionately.

To determine the apportionment of joint costs over joint products, a factor known as multiplying factor is determined. This multiplying factor on multiplication with the sales values of each joint product gives rise to the proportion of joint cost.

$$\text{Multiplying factor} = \frac{\text{Joint Cost}}{\text{Total Sales Revenue}} \times 100$$

(v) Market value after further processing: Here the basis of apportionment of joint cost is the total sales value of finished products and involves the same principle as discussed above.

The use of this method is unfair where further processing costs after the point of separation are disproportionate or when all the joint products are not subjected to further processing. The net realisable value method which is discussed as below overcomes the shortcoming of this method.

(vi) Net Realisable Value at Split-off Point Method: In this method of joint cost apportionment the followings are deducted from the sales value of joint products at final stage i.e. after processing:

- (a) Estimated profit margins,
- (b) Selling and distribution expenses, if any, and
- (c) Post split-off costs.

The resultant figure so obtained is known as net realisable value of joint products. Joint costs are apportioned in the ratio of net realisable value.

The net realisable value at split-off point method is widely used in the industries.

This method is used when the realisable value of joint products at split-off is not known.

3. TREATMENT OF JOINT COST AMONG BY PRODUCTS:

The following methods may be adopted for the accounting of by-products and arriving at the cost of production of the main product:

(i) Net Realisable Value method: The realisation on the disposal of the by-product may be deducted from the total cost of production so as to arrive at the cost of the main product. For example, the amount realised by the sale of molasses in a sugar factory goes to reduce the cost of sugar produced in the factory.

When the by-product requires some additional processing and expenses are incurred in making it saleable to the best advantage of the concern, the expenses so incurred should be deducted from the total value realised from the sale of the by-product and only the net realisations should be deducted from the total cost of production to arrive at the cost of production of the main product.

Separate accounts should be maintained for collecting additional expenses incurred on:

- (a) further processing of the by-product, and
- (b) selling, distribution and administration expenses attributable to the by-product.

(ii) Standard cost in Technical Estimates: By-products may be valued at standard costs. The standard may be determined by averaging costs recorded in the past and making technical estimates of the number of units of original raw material going into the main product and the number forming the by-product or by adopting some other consistent basis.

This method may be adopted where the by-product is not saleable in the condition in which it emerges or comparative prices of similar products are not available.

(iii) Comparative price: Under this method, the value of the by-product is ascertained with reference to the price of a similar or an alternative material.

Suppose in a large automobile plant, a blast furnace not only produces the steel required for the car bodies but also produces gas which is utilised in the factory. This gas can be valued at the price which would have been paid to a gas company if the factory were to buy it from outside sources.

(iv) Re-use basis: In some cases, the by-product may be of such a nature that it can be reprocessed in the same process as part of the input of the process. In that case the value put on the by-product should be same as that of the materials introduced into the process. If, however, the by-product can be put into an earlier process only, the value should be the same as for the materials introduced into the process.

4. TREATMENT OF BY PRODUCTS IN COST ACCOUNTING:

By-product cost can be dealt in cost accounting in the following ways:

(a) When they are of small total value: When the by-products are of small total value, the amount realised from their sale may be dealt in any one the following two ways:

1. The sales value of the by-products may be credited to the Costing Profit and Loss Account and no credit be given in the Cost Accounts. The credit to the Costing Profit and Loss Account here is treated either as miscellaneous income or as additional sales revenue.

2. The sale proceeds of the by-product may be treated as deductions from the total costs. The sale proceeds in fact should be deducted either from the production cost or from the cost of sales.

(b) When the by-products are of considerable total value: Where by-products are of considerable total value, they may be regarded as joint products rather than as by-products. To determine exact cost of by-products the costs incurred upto the point of separation, should be apportioned over by-products and joint products by using a logical basis. In this case, the joint costs may be divided over joint products and by-products by using relative market values; physical output method (at the point of split off) or ultimate selling prices (if sold).

(c) Where they require further processing: In this case, the net realisable value of the by-product at the split-off point may be arrived at by subtracting the further processing cost from the realisable value of by-products.

If total sales value of by-products at split-off point is small, it may be treated as per the provisions discussed above under (a).

In the contrary case, the amount realised from the sale of by-products will be considerable and thus it may be treated as discussed under (b).

MATERIAL COST

1. WHAT IS MATERIAL COST:

The general meaning of material is all commodities/ physical objects used to make the final product. It may be direct or indirect.

(i) Direct Materials: Materials, cost of which can be directly attributable to the end product for which it is being used, in an economically feasible way.

(ii) Indirect Materials: Those materials which are not directly attributable to a particular final product.

Direct Materials constitute a significant part for manufacturing and production of goods. Being an input and a significant cost element, it requires adequate management attention.

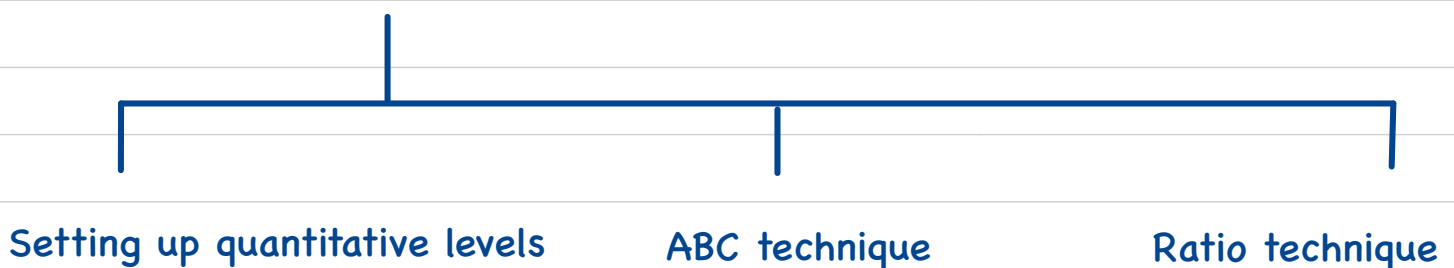
2. COMPUTATION OF MATERIAL COST:

	₹
Price/unit before taxes x No of Material Purchased	xxx
(-) Trade Discount	(xxx)
(-) Quantity Discount	(xxx)
(-) Subsidy/Grant/Incentives	(xxx)
(+) IGST/CGST & SGST/Custom Duties(ie Indirect taxes) (If input credit is not available)	xxx
(+) Toll tax/Road tax	xxx
(+) Insurance charges	xxx
(+) Commission or Brokerage	xxx
(+) Loading & unloading charges and Freight Inward	xxx
(+) Cost of non returnable containers	xxx
Material Cost	xxx

NOTE: Following items are not considered above:

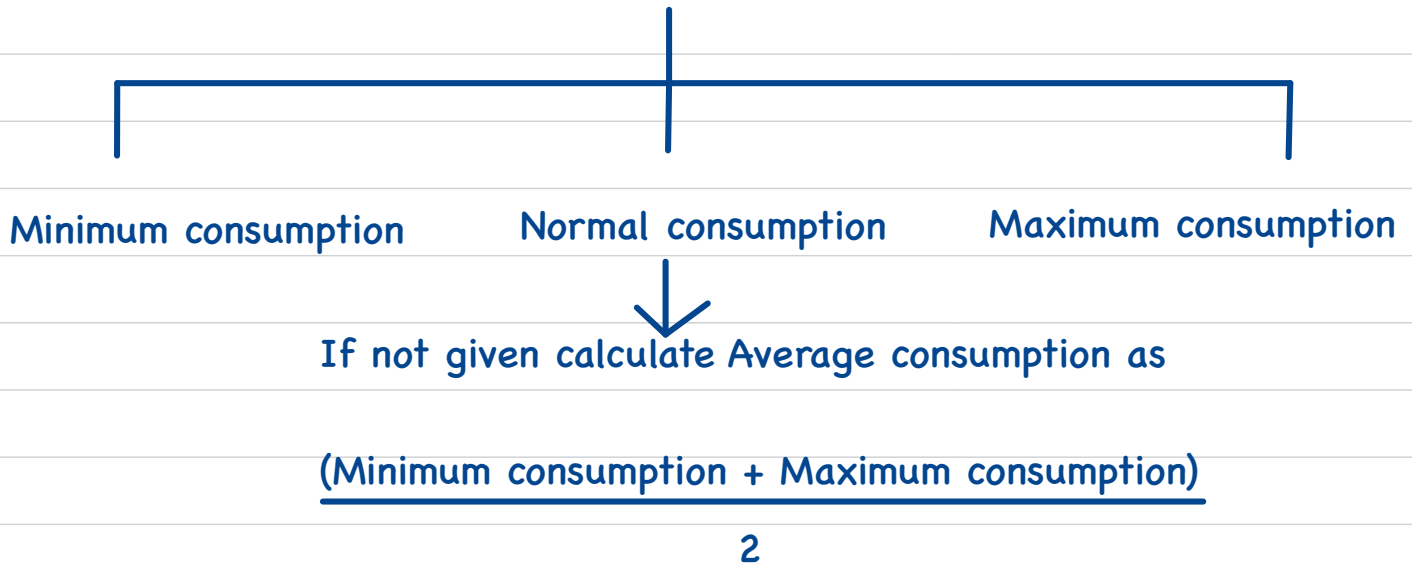
1. Cash Discount: It is treated as interest and finance charges. It is ignored.
2. Indirect taxes: If input credit is available.
Unless mentioned specifically IT is not added with the cost of purchase.
3. Demurrage: Demurrage is a penalty imposed by the transporter for delay in unloading or offloading of materials. It is an abnormal cost and not included with cost of purchase
4. Detention charges/Fine: Detention charges/fines imposed for non-compliance of rule or law by any statutory authority. It is an abnormal cost and not included with cost of purchase
5. Penalty: Penalty of any type is not included with the cost of purchase.
6. Cost of Returnable Containers: If the containers are returned and their costs are refunded, then cost of containers should not be considered in the cost of purchase.

3. INVENTORY CONTROL:

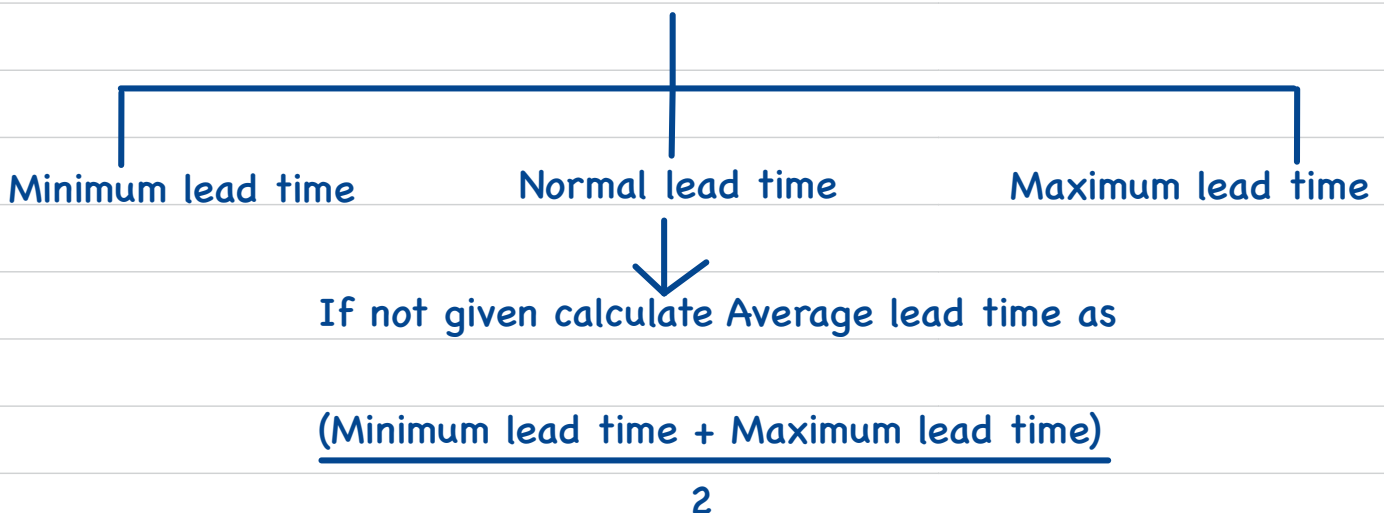


4. SETTING UP QUANTITATIVE LEVELS:

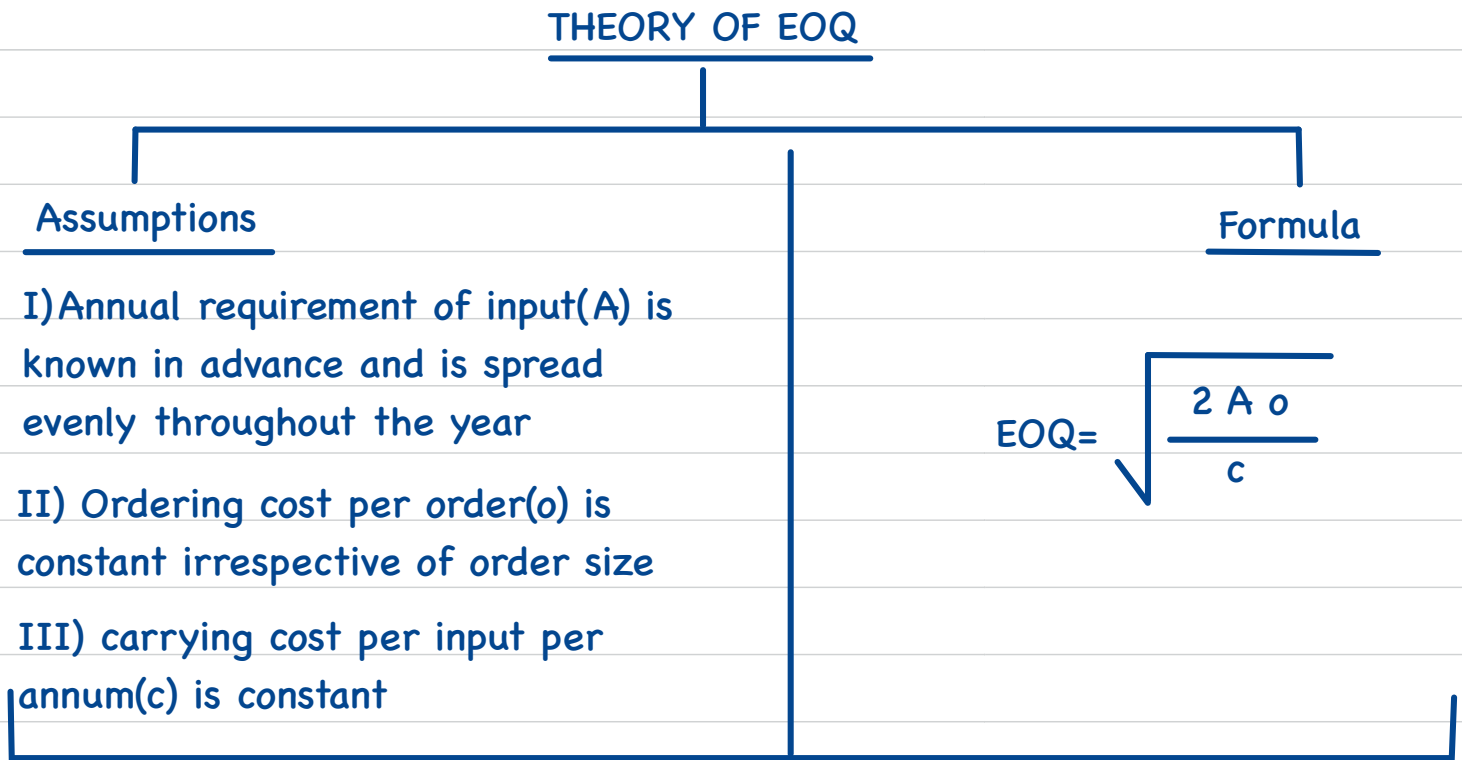
(a) Consumption or usage per time period: How much direct material is required to produce finished goods in that particular time period



(b) Lead time/Delivery time/Reorder period: Time gap between date of place of order to supplier and date of receipt of order from supplier



(c) Reorder Quantity(ROQ): How much to order (it would be given in question if not use Economic Reorder Quantity Theory by Wilson to calculate EOQ and use EOQ as ROQ)

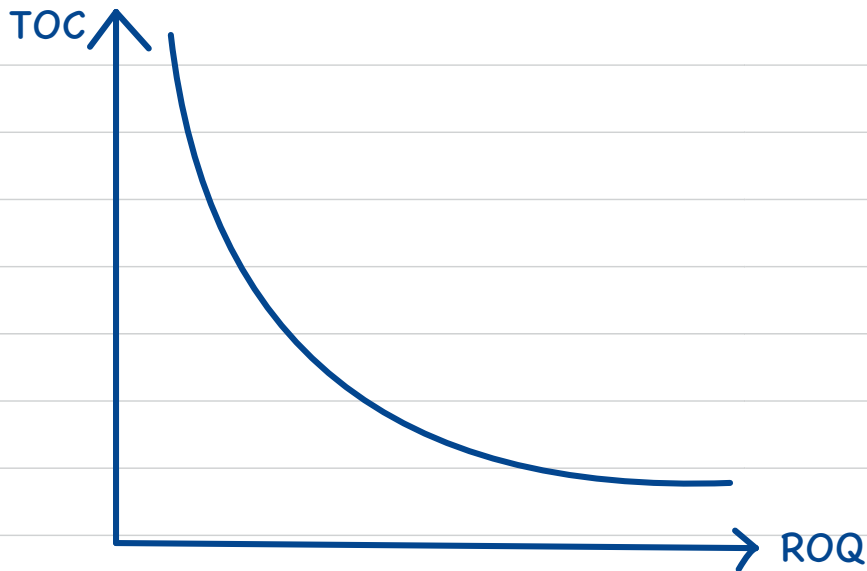


Some interpretations and inferences

- A would be given or can be calculated by two methods:
 - (1) Annual demand of output x Input required/unit of output
 - (2) Normal Consumption per time period x no of time period per annum
 Method 2 is preferred for exam purpose
- o would be given in ₹/order
- c would be given ₹/input/annum or if given in % then calculate it as Purchase cost x carrying cost %
- Total Ordering Cost(TOC) are the costs which are associated with the purchase or order of materials such as cost to invite quotations, documentation works like preparation of purchase orders, employee cost directly attributable to the procurement of material, transportation and inspection cost etc.

TOC = No of order per annum x Ordering cost per order

$$= \frac{A}{ROQ} \times o$$



- Total Carrying Cost(TCC) are the costs for holding/ carrying of inventories in store such as the cost of fund invested in inventories, cost of storage, insurance cost, obsolescence etc.

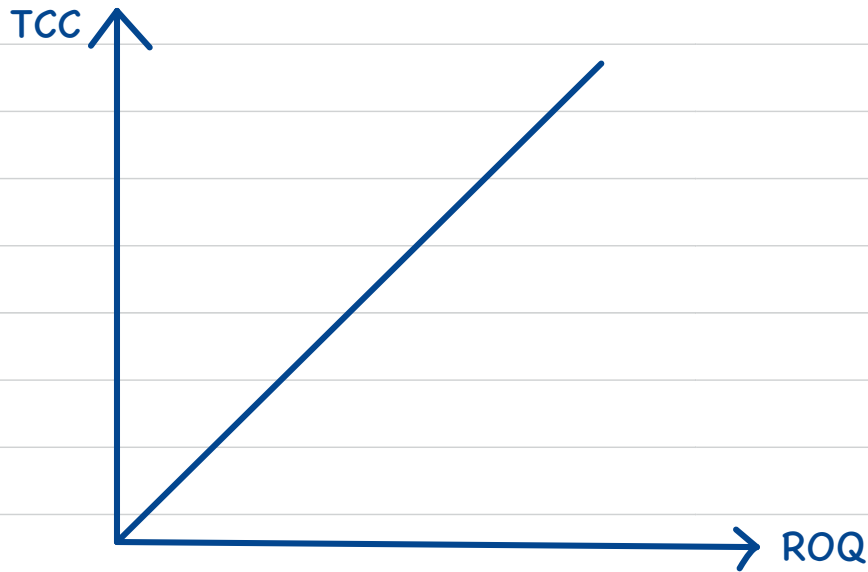
TCC = Average inventory of input x carrying cost per input per annum

$$= \frac{\text{Opening stock} + \text{closing stock}}{2} \times c$$

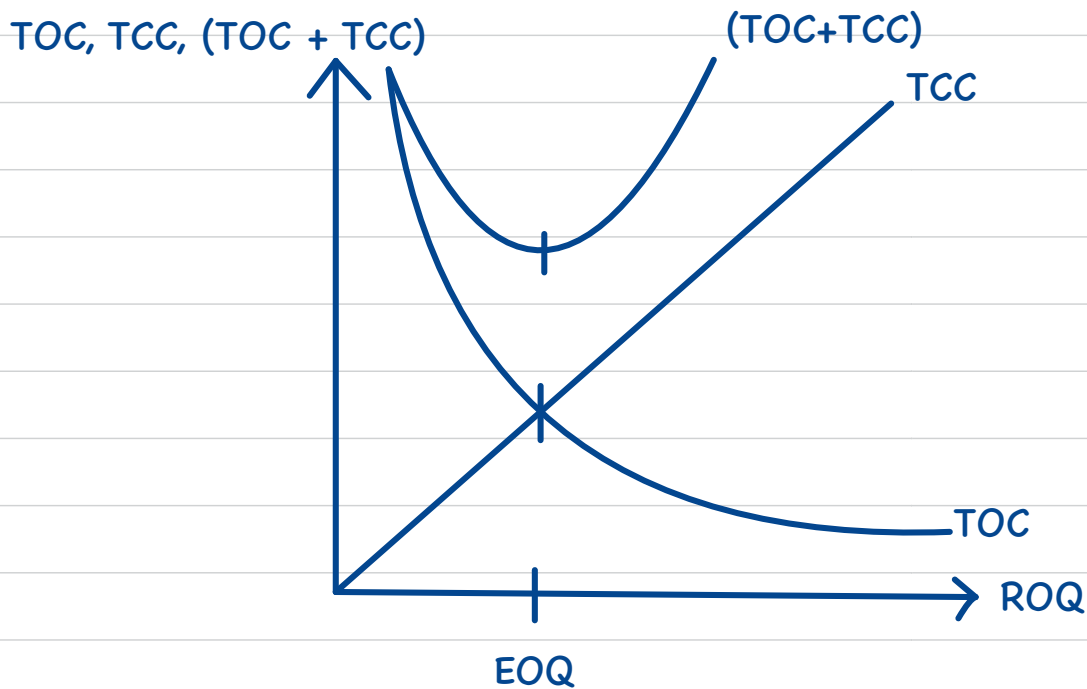
$$= \frac{ROQ + 0}{2} \times c$$

$$= \frac{ROQ}{2} \times c$$

MATERIAL COST



- At EOQ , TOC + TCC together is minimum and both are equal



- Total Cost = Total Purchase Cost + Total Ordering Cost + Total Carrying Cost

(d) Reorder level(ROL): When to order i.e. at what quantity level we should order

$ROL = \text{maximum consumption per time period} \times \text{Maximum lead time period}$

(e) Maximum Stock level: Highest stock level at a point of time in the year

$\text{Maximum stock level} = ROQ/EOQ + ROL - (\text{Minimum consumption per time period} \times \text{Minimum lead time period})$

(f) Minimum Stock level/ Safety Stock: Lowest practical stock level at a point of time in the year.

$\text{Minimum Stock level/ Safety Stock} = ROL - (\text{Normal consumption per time period} \times \text{Normal lead time period})$

(g) Average Stock level: This is the quantity of material that is normally held in stock over a period. It is also known as normal stock level. It can be calculated by 2 methods:

$$1) \quad \frac{\text{Maximum stock level} + \text{minimum stock level}}{2}$$

$$2) \quad \text{Minimum stock level} + \frac{ROQ/EOQ}{2}$$

(h) Danger Stock level: It is the level at which normal issues of the raw material inventory are stopped and emergency issues are only made.

$\text{Danger Stock level} = \text{minimum consumption/time period} \times \text{emergency lead time}$

(i) Buffer Stock: Some quantity of stock may be kept for contingency to be used in case of sudden order, such stock is known as buffer stock.

5. ABC TECHNIQUE:

This system exercises discriminating control over different items of inventory on the basis of the investment involved. Usually the items are classified into three categories according to their relative importance, namely, their value and frequency of replenishment during a period.

(i) 'A' Category: This category of items consists of only a small percentage i.e., about 10% of the total items handled by the stores but require heavy investment about 70% of inventory value, because of their high prices or heavy requirement or both. Items under this category can be controlled effectively by using a regular system which ensures neither over-stocking nor shortage of materials for production. Such a system plans its total material requirements by making budgets. The stocks of materials are controlled by fixing certain levels like maximum level, minimum level and re-order level.

(ii) 'B' Category: This category of items is relatively less important; they may be 20% of the total items of material handled by stores. The percentage of investment required is about 20% of the total investment in inventories. In the case of these items, as the sum involved is moderate, the same degree of control as applied in 'A' category of items is not warranted. The orders for the items, belonging to this category may be placed after reviewing their situation periodically.

(iii) 'C' Category: This category of items does not require much investment; it may be about 10% of total inventory value but they are nearly 70% of the total items handled by store. For these category of items, there is no need of exercising constant control. Orders for items in this group may be placed either after six months or once in a year, after ascertaining consumption requirements. In this case the objective is to economies on ordering and handling costs.

6. RATIO TECHNIQUE:

Inventory Turnover Ratio: Computation of inventory turnover ratios for different items of material and comparison of the turnover rates provides a useful guidance for measuring inventory performance. High inventory turnover ratio indicates that the material in the question is a fast moving one. A low turnover ratio indicates over-investment and locking up of the working capital in inventories.

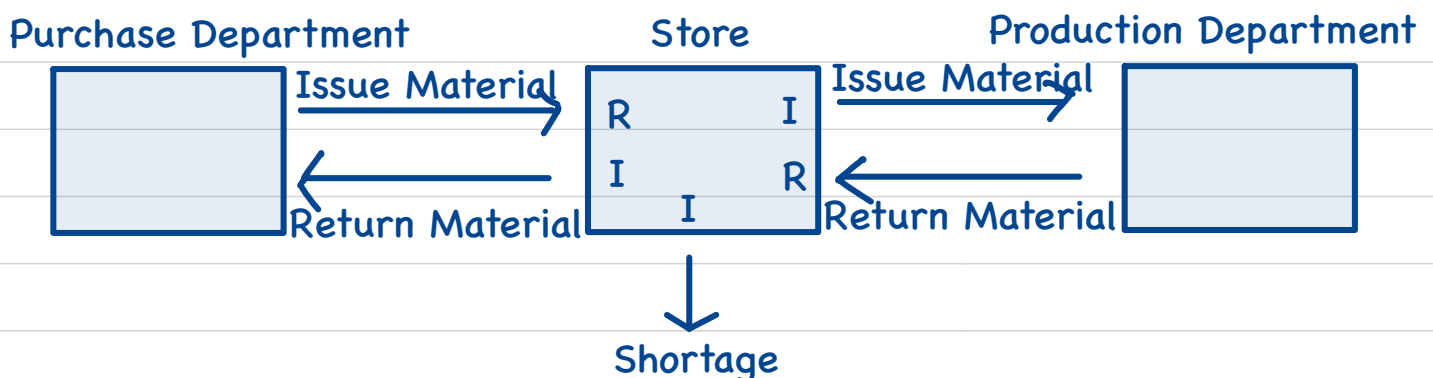
$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of materials consumed during the period}}{\text{Cost of average stock held during the period}}$$

$$\text{Average stock} = \frac{1}{2} (\text{opening stock} + \text{closing stock})$$

$$\text{Average no. of days of Inventory holding} = \frac{365 \text{ days}}{\text{Inventory Turnover Ratio}}$$

By comparing the number of days in the case of two different materials, it is possible to know which is fast moving and which is slow moving. On this basis, attempt should be made to reduce the amount of capital locked up, and prevent over-stocking of the slow moving items.

7. STORE LEDGER ACCOUNT:



STORE LEDGER ACCOUNT

DATE	RECEIPT			ISSUE			BALANCE		
	Qty	Rate	Amount	Qty	Rate	Amount	Qty	Rate	Amount

Receipt from purchase department would be recorded at the rate of purchase

Receipt from production department in form of return would be recorded as per original transaction recorded rate

Issue to production department would be recorded at the rate calculated using valuation technique like FIFO or LIFO or simple average or weighted average

Issue to purchase department in form of return would be recorded as per the original transaction recorded rate

Shortage or deficiency would be recorded under issued column as per valuation technique followed

8. IMPORTANT SHORT NOTES:

Bin Cards: It is a quantitative record of inventory which shows the quantity of inventory available in a particular bin. Bin refers to a box/ container/ space where materials are kept. Card is placed with each of the bin (space) to record the details of material like receipt, issue and return. It is maintained by store department.

Stock Control Cards: It is also a quantitative record of inventory maintained by stores department for every item of material. In other words, it is a record which shows the overall inventory position in store. Recording includes receipt, issue, return, in hand and order given.

Inventory Stock- Out: Stock out is said to be occurred when an inventory item could not be supplied due to insufficient stock in the store. The stock- out situation costs to the entity not only in financial terms but in non-financial terms also. Due to stock out an entity not only loses overheads costs and profit but reputation (goodwill) also due to non- fulfilment of commitment. Though it may not be a monetary loss in short term but in long term it could be a reason for financial loss.

While deciding on the level of inventory, a trade-off between the stock out cost and carrying cost is made so that overall inventory cost can be minimized.

Just in Time (JIT) Inventory Management: JIT is a system of inventory management with an approach to have a zero inventories in stores. According to this approach material should only be purchased when it is actually required for production. JIT is based on two principles

- (i) Produce goods only when it is required and
- (ii) the products should be delivered to customers at the time only when they want.

It is also known as 'Demand pull' or 'Pull through' system of production. In this system, production process actually starts after the order for the products is received. Based on the demand, production process starts and the requirement for raw materials is sent to the purchase department for purchase.

LABOUR COST

1. WHAT IS LABOUR COST:

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

Employee cost are broadly classified as direct and indirect employee cost.

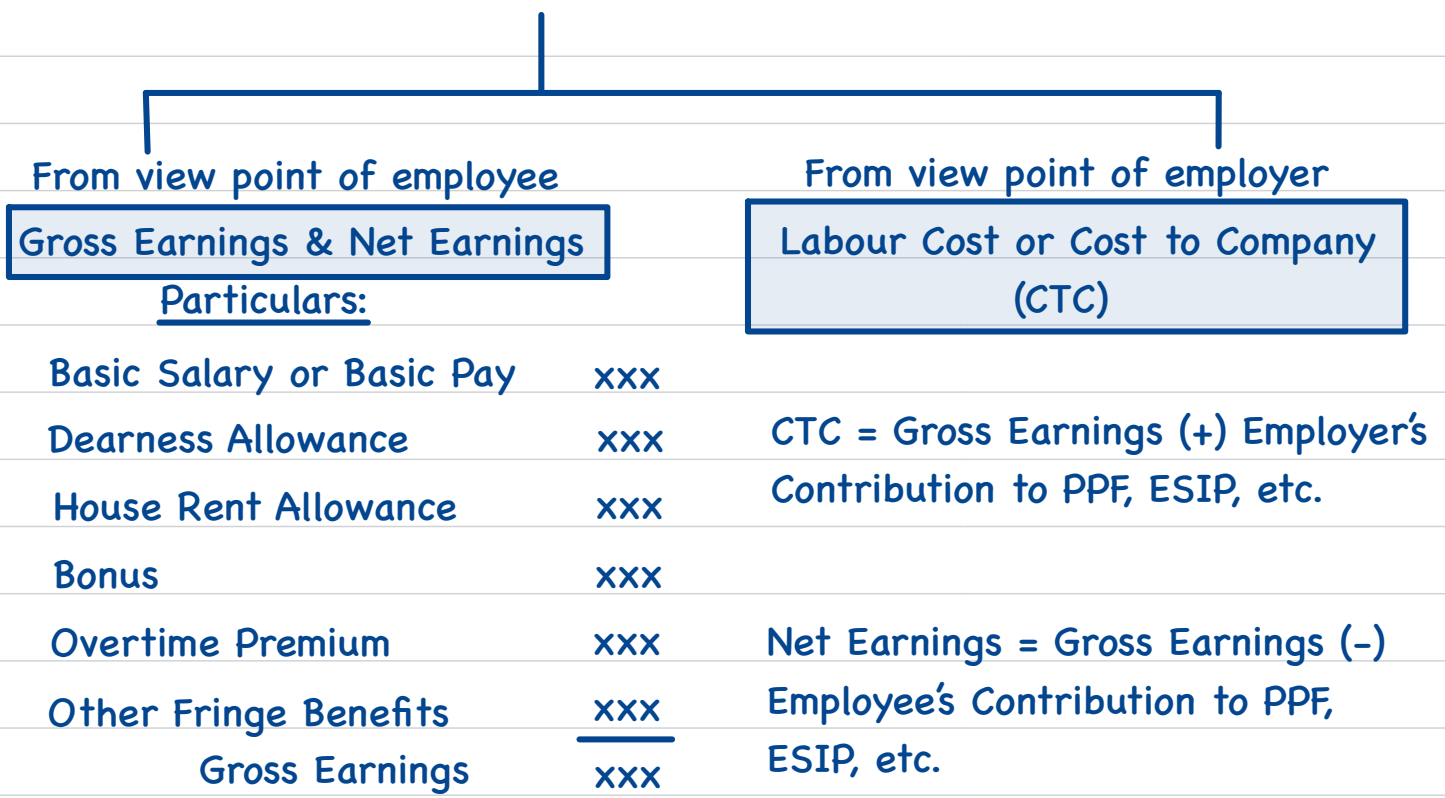
(i) Direct Employee (Labour) Cost

Benefits paid or payable to the employees which can be attributed to a cost object in an economically feasible manner. This can be easily identified and allocated to an activity, contract, cost centre, customer, process, product etc.

(ii) Indirect Employee (Labour) Cost

Benefits paid or payable to the employees, which cannot be directly attributable to a particular cost object in an economically feasible manner.

2. COMPUTATION OF LABOUR COST:



3. MEANING & COMPUTATION OF BASIC PAY:

Normal wages paid to employee for actual hours worked. It can be fixed sum on time basis or fixed rate on per time basis or as per piece basis. Generally it is as per fixed rate per time (hours) basis.

$$\begin{aligned} \text{Basic Pay} &= \text{Normal Rate/Hour} \times \text{Actual hours worked} \\ &\text{or} \\ &\text{Normal lump sum amount per time period} \\ &\text{or} \\ &\text{Normal piece rate} \times \text{No of output produced} \end{aligned}$$

4. MEANING & COMPUTATION OF DEARNESS ALLOWANCE:

Extra amount paid over & above basic pay to employee to counter the effect of inflation. It can be a fixed sum on time basis or a percentage of basic pay or can be calculated as per cost of living index.

$$\begin{aligned} \text{Dearness Allowance} &= \% \text{ of basic pay} \\ &\text{or} \\ &\text{lump sum amount} \\ &\text{or} \\ &\text{Basic pay} \times \frac{(\text{Current year index} - \text{Base year index})}{\text{Base year index}} \end{aligned}$$

5. MEANING & COMPUTATION OF HOUSE RENT ALLOWANCE:

Amount paid for house rent. It can be a fixed sum or a percentage of basic pay.

House Rent Allowance = % of basic pay
or
lump sum amount

6. MEANING & COMPUTATION OF BONUS:

It is an incentive scheme for workers for working efficiently. It is calculated as per one of the two schemes one given by Halsey and other given by Rowan.

NOTE:

1) Bonus is given if and only if workers are efficient i.e. $TT < TA$

2) Time taken (TT): Actual hours worked = Actual hrs/Output x Actual output

3) Time allowed (TA): Standard hours or time to be taken =
Standard or Budgeted hrs/Output x Actual output

4) Time saved (TS): $TA - TT$

Bonus as per Halsey Scheme = 30% - 70% of TS x Basic Rate/hour
= 50% (generally) of TS x Basic Rate/hour

Bonus as per Rowan Scheme = TT/TA of TS x Basic Rate/hour

7. MEANING & COMPUTATION OF OVERTIME PREMIUM:

Work done beyond normal working hours is known as 'overtime work'.

Overtime payment is the amount of wages paid for working beyond normal working hours. Overtime payment consist of two elements-

- (i) Normal wages for overtime work and
- (ii) Premium payment for overtime work.

NOTE: For sums element (i) is included in Basic pay amount as we calculate Basic pay for actual total hours worked

Overtime premium amount = Overtime worked x Premium Rate/Hour

Overtime worked = Total time worked (-) Normal Time to be worked as per
the contract

Premium Rate/hour = Basic Rate/hour x Premium

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

8. MEANING OF OTHER FRINGE BENEFITS:

Non-monetary benefits which an employee receives by virtue of employment.

Such non-monetary benefits may include:

- (i) Medical facilities;
- (ii) Educational and training facilities;
- (iii) Recreational and sports facilities;
- (iv) Housing and social welfare; and
- (v) Cost of subsidised canteen and co-operative societies.

Such benefits are generally given in an industrial establishment. In some cases, the provision of benefits is compulsory. Therefore, while computing the wage cost per worker, the monetary value of such non-monetary benefits should also be taken into account.

IMP NOTE: $\text{Effective Rate} = \frac{\text{Net Earnings}}{\text{Actual time taken}}$

9. LABOUR TURNOVER RATIOS:

Employee turnover or labour turnover in an organisation is the rate of change in the composition of employee force during a specified period measured against a suitable index.

The standard of usual employee turnover in the industry or locality or the employee turnover rate for a past period may be taken as the index or norm against which actual turnover rate is compared.

Methods to calculate labour turnover ratios:

A) Separation method:

$$\frac{\text{Number of workers separated}}{\text{Average number of workers}} \times 100\%$$

B) Replacement method:

$$\frac{\text{Number of workers replaced}}{\text{Average number of workers}} \times 100\%$$

C) New Recruitment method:

$$\frac{\text{Number of workers newly recruited}}{\text{Average number of workers}} \times 100\%$$

D) Flux or Summation method:

Addition of all the above possible methods as per question

NOTES:

1) Number of workers separated/discharged/left = Number of workers retired (+) Number of workers retrenched (+) Number of workers resigned (+) Number of workers died

2) Number of workers replaced are those against number of workers separated therefore worker replaced and newly recruited are different

3) Average number of workers =

$$\frac{\text{Opening no of workers (+) Closing no of workers}}{2}$$

4) Closing number of workers = Opening number of workers (-) Number of workers separated (+) Number of workers replaced (+) Number of workers newly recruited

5) Number of accession or no of workers recruited and joined = Number of workers replaced (+) Number of workers newly recruited

6) Annual effective turnover rate =

$$\frac{\text{Any of the above ratio}}{\text{Specified period}} \times \text{No of period in a year}$$

10. TIME KEEPING:

It refers to correct recording of the employees attendance time. Correct recording of employees attendance time is of utmost importance where payment is made on the basis of time worked.

Where payment is made by results viz; straight piece work, it would still be necessary to correctly record attendance for the purpose of ensuring that proper discipline and adequate rate of production are maintained.

The objectives of time- keeping are as follows:

- (i) For the preparation of payrolls.
- (ii) For calculating overtime.
- (iii) For ascertaining and controlling employee cost.
- (iv) For ascertaining idle time.
- (v) For disciplinary purposes.
- (vi) For overhead distribution.

Methods of Time-keeping: Attendance Register method, Metal Disc/ Token method, Punch Card Attendance, Bio- Metric Attendance system, etc.

11. TIME BOOKING:

Time keeping just records the time spent by an employee in the premises for production but it does not show how much time a person spent on a particular job. Time booking refers to a method wherein each activity of an employee is recorded. This data recorded is further used for measure the time spent on a particular job for costing, measurement of efficiency, fixation of responsibility etc.

For the collection of all such data, a separate record, generally known as Time (or Job) card, is kept.

The time (or job) card can be of two types:

One containing analysis of time with reference to each job and the other with reference to each employee

12. IDLE TIME:

The time during which no production is carried-out because the worker remains idle but are paid. In other words, it is the difference between the time paid and the time booked. Idle time can be normal or abnormal. The time for which employees are paid includes holidays, paid leaves, allowable rest or off time etc.

Normal idle time: It is the time which cannot be avoided or reduced in the normal course of business.

Abnormal idle time: Apart from normal idle time, there may be factors which give rise to abnormal idle time.

Causes of Normal Idle Time

1. The time lost between factory gate to production place,
2. The interval between one job and another,
3. The setting up time for the machine,
4. Normal rest time, break for lunch etc.

Treatment of Normal Idle Time Cost

It is treated as a part of cost of production. Thus, in the case of direct workers an allowance for normal idle time is considered setting of standard hours or standard rate.

In case of indirect workers, normal idle time is considered for the computation of overhead rate.

Causes of Abnormal Idle Time

1. Idle time may also arise due to abnormal factors like lack of coordination
2. Power failure, Breakdown of machines
3. Non-availability of raw materials, strikes, lockouts, poor supervision, fire, flood etc.

Treatment of Abnormal Idle Time Cost

Abnormal idle time cost is not included as a part of production cost and is shown as a separate item in the Costing Profit and Loss Account. The cost of abnormal idle time should be further categorised into controllable and uncontrollable. For each category, the break-up of cost due to various factors should be separately shown. This would help the management in fixing responsibility for controlling idle time. Management should aim at eliminating controllable idle time and on a long- term basis reducing even the normal idle time. This would require a detailed analysis of the causes leading to such idle time.

OVERHEADS

1. WHAT IS OVERHEADS:

Overheads are the expenditure which cannot be conveniently traced to or identified with any particular cost unit. Such expenses are incurred for output generally and not for a particular work order e.g., wages paid to watch and ward staff, heating and lighting expenses of factory etc.

Overheads also represent expenses that have been incurred in providing certain ancillary facilities or services which facilitate or make possible the carrying out of the production process; by themselves these services are not of any use.

2. SOME IMPORTANT TERMS:

(a) DEPARTMENT:

There are 2 departments:

Production department & Service department

Production departments are those departments which directly take part in the production of goods or providing services & service departments are those departments which do not directly take part in the production of goods or providing services. Such departments provide auxiliary services across the entity and renders services to other cost centres and in some cases to outside parties. Examples of service departments are engineering, quality control and assurance, laboratory, canteen, stores, time office, dispensary etc.

(b) COST ALLOCATION: The term 'allocation' refers to the direct assignment of cost to a cost object which can be traced directly. It implies relating overheads directly to the various departments. The estimated amount of various items of manufacturing overheads should be allocated to various cost centres or departments. For example- if a separate power meter has been installed for a department, the entire power cost ascertained from the meter is allocated to that department.

(c) COST APPORTION: There are some items of estimated overheads (like the salary of the works manager) which cannot be directly allocated to the various departments and cost centres. Such unallocable expenses are to be spread over the various departments or cost centres

To apportioning these overheads over different departments benefiting thereby, it is necessary at first to determine the proportion of benefit received by each department and then distribute the total expenditure proportionately on that basis. But the same basis of apportionment cannot be followed for different items of overheads since the benefit of service to a department in each case has to be measured differently. Some of the bases that may be adopted for the apportionment of expenses are stated below:

Overhead Cost	Bases of Apportionment
Rent and other building expenses	Floor area or floor space
Supervision & Labour welfare General overhead	Number of workers
Depreciation, Repairs and maintenance & Insurance	Capital values
Lighting expenses (light)	No. of light points
Electric power (machine operation)	Horse power of machines
Material handling & Stores overhead	Value of materials

(d) REAPPORTIONMENT: The process of assigning service department overheads to production departments is called reassignment or re-apportionment. At this stage, all the factory overheads are collected under production departments.

The cost allocation & cost apportionment is called primary distribution & re-apportionment of the service department cost to the production department is known as secondary distribution.

Methods for Re-apportionment: The re-apportionment of service department expenses over the production departments may be carried out by using any one of the following methods:

- (i) Direct re-distribution method.
- (ii) Step method of secondary distribution or non-reciprocal method.
- (iii) Reciprocal Service method.

(e) ABSORPTION: After completing the distribution as stated above the overheads charged to department are to be recovered from the output produced in respective departments. This process of recovering overheads of a department or any other cost center from its output is called recovery or absorption.

The overhead expenses can be absorbed by estimating the overhead (as assigned above) and then working out an absorption rate. When overheads are estimated, their absorption is carried out by adopting a pre-determined overhead absorption rate.

As the actual accounting period begins, each unit of production automatically absorbs a certain amount of factory overheads through pre-determined rates. During the year a certain amount will be absorbed over the various products. This is known as the total amount of absorbed overheads.

3. FORMAT OF PRIMARY DISTRIBUTION:

ITEMS	BASIS	Production dept		Service dept		Total
		P1	P2	S1	S2	
DM DL DE	Allocated	✓	✓	✓	✓	✓
Overheads	Allocated or Apportioned	✓	✓	✓	✓	✓
	Total	✓	✓	✓	✓	✓

4. DIRECT REDISTRIBUTION METHOD:

Service department costs under this method are apportioned among production department only, ignoring services rendered by one service department to others

Basics of reappointment would be given in sums

5. NON RECIPROCAL METHOD:

This method gives cognizance to the services rendered by service department to another service department. The sequence here begins with the department that renders maximum number of services to the other service department(s). In other words, the cost of the service department that serves the largest number of services to the other service department(s)

and production department(s) is distributed first. After this, the cost of service department serving the next largest number of departments is apportioned.

This process continues till the cost of last service department is apportioned. The cost of last service department is apportioned among production departments only.

Suppose two or more service departments provides service to equal number of departments or service department renders to a service department and receives service from same service department then we must re-apportion the cost of that service department whose overhead value is maximum and then that service department is not allowed to receive any other service.

6. RECIPROCAL METHOD:

This method recognises the fact that where there are two or more service departments they may render services to each other and, therefore, these inter-departmental services are to be given due weight while re-distributing the expenses of the service departments.

6(a) Repeated Distribution Method:

Under this method, service departments' costs are distributed to other service and production departments on agreed percentages and this process continues to be repeated, till the figures of service departments are either exhausted or reduced to too small a figure.

For exam purpose we must carry on the distribution till 3 cycles unless otherwise stated. Overheads of the last service department of the last cycle should be reapportioned only among production departments

6(b) Simultaneous Equation Method:

According to this method firstly, the costs of service departments are ascertained. These costs are then re-distributed to production departments on the basis of given percentages.

Step 1: Frame the equations and solve them to get the total cost

Total cost of a service department after reapportionment =
 Cost before reapportionment + given % of service received from other service department

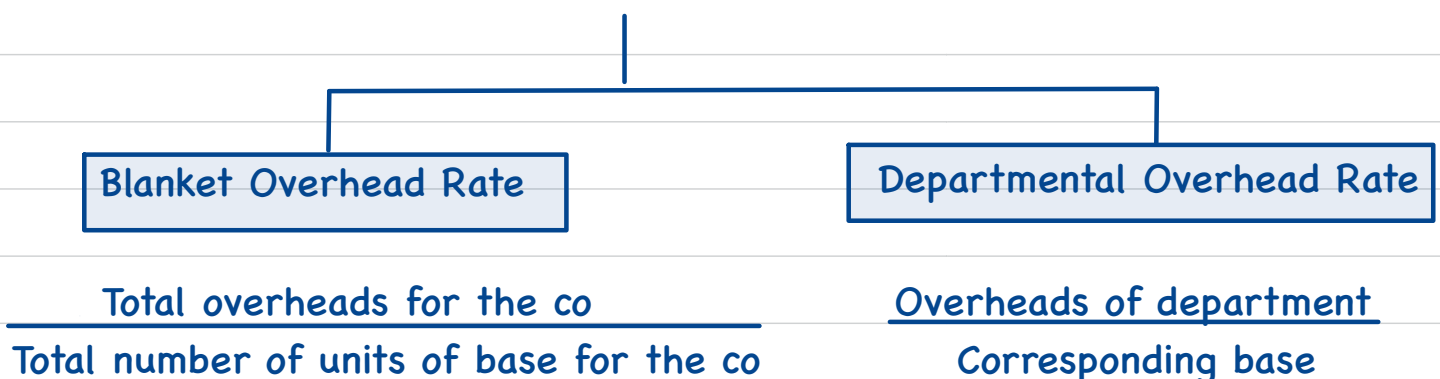
Step 2: Reapportionment

Reapportion the total cost in the given ratio or percentage

7. RECOVERY RATE:

This rate is determined in advance by estimating the amount of the overhead for the period in which it is to be used. It is computed by the following formula:

Pre-determined Rate = Budgeted amount of overheads / Budgeted base



Base depends upon industry. It can be Labour Hours, Machine Hours, % of Direct Labour, % of prime cost, etc.

8. UNDER OR OVER RECOVERY OF OVERHEADS:

<u>Under Recovery</u>	<u>Over Recovery</u>
O/H Absorbed < Actual O/H Incurred	O/H Absorbed > Actual O/H Incurred

<u>Amount of Under Recovery</u>	<u>Amount of Over Recovery</u>
Actual O/H Incurred - O/H Absorbed	O/H Absorbed - Actual O/H Incurred

NOTES:

(a) O/H Absorbed or O/H Recovered or O/H Charged or O/H Applied =
Recovery rate x Actual Base

(b) Actual O/H Incurred is the normal nature actual overhead cost. Abnormal nature actual overheads are not taken here as it is a costing P/L item.

Treatment of under or over recovery

The general view is that if the balances are small they should be transferred to the Costing Profit and Loss Account and the cost of individual products should not be increased or reduced as these would be representing normal cost.

Where, however the difference is large and due to wrong estimation, it would be desirable to adjust the cost of products manufactured, as otherwise the cost figures would convey a misleading impression. Such adjustments usually take the form of supplementary rates. Supplementary rate is calculated as below:

$$\frac{\text{Under or Over absorbed O/H}}{\text{Equivalent Units produced}}$$

Supplementary overhead rate as calculated above is applied to finished goods, semi-finished goods (WIP) and goods finished and sold. Therefore, under/ over absorbed overheads are distributed among the unsold stock of finished goods, semi-finished goods (WIP) and cost of sales (goods produced and sold).

The accounting is done as follows:

In case of Under-absorption

Finished goods stock	Debit	Finished stock units x Supplementary rate
No impact on current year profit		

Stock of WIP	Debit	Equivalent completed units x Supplementary rate
No impact on current year profit		

Cost of Sales	Debit	Units sold x Supplementary rate
Current year profit is reduced by such amount		

In case of Over-absorption

Finished goods stock	Credit	Finished stock units x Supplementary rate
No impact on current year profit		

Stock of WIP	Credit	Equivalent completed units x Supplementary rate
No impact on current year profit		

Cost of Sales	Credit	Units sold x Supplementary rate
Current year profit is increased by such amount		

However, over or under recovery of overheads due to abnormal reasons (such as abnormal over or under capacity utilisation) should be transferred to the Costing Profit and Loss Account.

9. MACHINE HOUR RATE (MHR):

By the machine hour rate method, manufacturing overhead expenses are charged to production on the basis of number of hour machines are used on jobs or work orders. Here each machine or group of machines is treated as a cost centre.

$$\text{MHR} = \frac{\text{Budgeted O/H}}{\text{Effective Machine Hours}}$$

The above costs are further divided into fixed cost or standing charges and variable cost. Costs which remain constant irrespective of operation of machine are treated as fixed cost or standing charges. Examples of fixed cost include insurance premium for machine, rent for premises, supervisor's salary, depreciation (if relates to effluxion of time) etc.

Costs which vary with the operation of the machine are treated as variable cost. Examples of variable cost include cost for power, cost for consumables (lubricants, oils etc.), repairs and maintenance, depreciation (if it relates to activity) etc.

NOTE ON OPERATOR WAGES

Some people even prefer to add the wages paid to the machine operator in order to get a comprehensive rate of working a machine for one hour. Hence such MHR is called Comprehensive MHR.

Effective Machine Hours = Total MH (-) Unproductive Setup & Maintenance time

ACTIVITY BASED COSTING

1. WHAT IS ACTIVITY BASED COSTING:

Activity Based Costing is an accounting methodology that assigns costs to activities rather than products or services. This enables resources & overhead costs to be more accurately assigned to products & services that consume them. ABC is a technique which involves identification of cost with each cost driving activity and making it as the basis for apportionment of costs over different cost objects/ jobs/ products/ customers or services.

2. SOME IMPORTANT TERMS:

(a) Activity – Activity, here, refers to an event that incurs cost.

(b) Cost Object–It is an item for which cost measurement is required
e.g. a product or a customer.

(c) Cost Driver–It is a factor that causes a change in the cost of an activity.

(d) Cost Pool–It represents a group of various individual cost items. It consists of costs that have same cause and effect relationship. Example machine set-up.

Some of the examples of cost drivers for different activity pools in a production department are stated below:

Activity Cost Pools	Related Cost Drivers
Ordering and Receiving Materials cost	Number of purchase orders
Setting up machines costs	Number of set-ups
Machining costs	Machine hours
Assembling costs	Number of parts
Inspecting and testing costs	Number of tests
Painting costs	Number of parts
Supervising Cost	Direct labour hours

3. ABSORPTION COSTING V/S ACTIVITY BASED COSTING:

In traditional absorption costing overheads are first related to cost centres (Production & Service Centres) and then to cost objects, i.e., products. In ABC overheads are related to activities or grouped into cost pools. Then they are related to the cost objects, e.g., products. The two processes are, therefore, very similar, but the first stage is different, as ABC uses activities instead of functional departments (cost centres). The problem with functional departments is that they tend to include a series of different activities, which incur a number of different costs that behave in different ways. Activities also tend to run across functions; for instance, procurement of materials often includes raising a requisition note in a manufacturing department or stores. It is not raised in the purchasing department where most procurement costs are incurred. Activity costs tend to behave in a similar way to each other i.e., they have the same cost driver. Therefore, ABC gives a more realistic picture of the way in which costs behave.

JOB & CONTRACT COSTING

1. WHAT IS JOB COSTING & ITS FORMAT:

According to this method, costs are collected and accumulated according to jobs, contracts, products or work orders. Each job or unit of production is treated as a separate entity for the purpose of costing. Job costing is carried out for the purpose of ascertaining cost of each job and takes into account the cost of materials, employees and overhead etc.

Job Cost Sheet	
DM, DL & DE ie Prime Cost	xxx
Add: Factory O/H(based on budgeted absorption rate)	xxx
FC/WC	xxx
Add: Ofc & Adm O/H (of production nature)	xxx
COP/COGS	xxx
Add: Ofc & Adm O/H (of general nature)	xxx
Add: Selling & Dist O/H	xxx
COS	xxx
Add: Profit	xxx
Sales	xxx

Job which are of Short Period ie less than or equal to one year are ascertained through Job Cost Sheet. The basic principles enunciated for the job costing method are valid essentially for all types of industry. For example, printing; furniture; hardware; ship-building; heavy machinery; interior decoration, repairs and other similar work.

2. WHAT IS CONTRACT COSTING & ITS FORMAT:

Contract costing is a form of specific order costing where job undertaken is relatively large and normally takes period longer than a year to complete. Contract costing is usually adopted by the contractors engaged in any type of contracts like construction of building, road, bridge, erection of tower, setting up of plant etc.

A contract takes longer period to complete and the result of the contract can be known only after the completion of the contract. To have a better control over the contract and cost, it is necessary to have an idea of profitability of contracts at regular intervals or atleast in a year. For this purpose, a contractor needs to calculate expected profit or notional profit for a contract. It also helps in profit comparison for a period and provide a good basis for performance measurement and evaluation of those who are engaged in the contract. The expected or notional profit in respect of each contract in progress (i.e. incomplete contracts) is transferred to the costing profit and loss account (consolidated) for the year to determine overall profitability of the contractor.


In the books of Contractor

Start date _____

Contract no. _____

Expected End date _____

Contractee Name _____

Dr.	Contract Account	Cr.
To Opening WIP(WC+WUC)		By Material returned to store or supplier (at cost)
To Opening Stock of Material		By Material transferred to other project or sale of material at cost + profit/(loss)]
To Material received from store, supplier or other projects		By Costing P/L (loss from t/f of material)
To Costing P/L (profit from t/f of material)		By Costing P/L (Abnormal loss of material) [Note: No treatment of NL]
		By Closing Stock of Material
To Wages & other expenses (on accrual basis)		By Costing P/L (Abnormal idle time) [Note: No treatment of NIT]
To Purchase or Opening WDV of FA		By Closing WDV of FA
 Or		
To Depreciation on FA		
		By COWTD (bal fig)
<hr style="width: 100px; margin: 0 auto;"/> <hr style="width: 100px; margin: 0 auto;"/>		<hr style="width: 100px; margin: 0 auto;"/> <hr style="width: 100px; margin: 0 auto;"/>

To COWTD b/d	By Closing WIP – WC – WUC
To Notional Profit (bal fig)	Or By Notional Loss (bal fig)

NOTES:

1) $WC = \text{Contract Price} \times \% \text{ of Work Certified (done by contractee)}$

2) $WUC = \frac{\text{COWTD}}{\% \text{ of Work done (as per contractor)}} \times \% \text{ of WC}$

3) $\% \text{ of WUC} = \% \text{ of Work done (-) \% \text{ of Work Certified}$

4) $\text{Retention Money} = \text{Value of work certified} - \text{Payment actually made}$

5) $\text{Estimated Profit} = \text{Contract Price (-) COWTD (-) Further estimated cost}$

6) **Escalation Clause:** Escalation clause in a contract empowers a contractor to revise the price of the contract in case of increase in the prices of inputs due to some macro- economic or other agreed reasons. A contract takes longer period to complete and the factors based on which price negotiation is done at the time of entering into the contract may change till the contract completes. This protect the contractor from adverse financial impacts and empowers the contractor to recover the increased prices. As per this clause, the contractor increases the contract price if the cost of materials, employees and other expenses increase beyond a certain limit. Inclusion of such a clause in a contract deed is called an "Escalation Clause".

$\text{Escalation Claim Amount} = (\text{AR} - \text{SR}) \times \text{Standard Input}$

UNIT & BATCH COSTING

1. WHAT IS UNIT COSTING:

Unit costing is that method of costing where the output produced is identical and each unit of output requires identical cost. Unit costing is synonymously known as single or output costing, but these are sub-division of unit costing method. This method of costing is followed by industries which produce single output or few variants of a single output. Under this method costs, are collected and analysed element wise and then total cost per unit is ascertained by dividing the total cost with the number of units produced.

This method of costing, therefore finds its application in industries like paper, cement, steel works, mining, breweries etc. These types of industries produce identical products and therefore have identical costs.

2. WHAT IS BATCH COSTING:

Batch Costing is a type of specific order costing where articles are manufactured in predetermined lots, known as batch. Under this costing method, the cost object for cost determination is a batch for production rather output as seen in unit costing method.

A batch consists of certain number of units which are processed simultaneously to be for manufacturing operation. Under this method of manufacturing, the inputs are accumulated in the assembly line till it reaches minimum batch size. Soon after a batch size is reached, all inputs in a batch is processed for further operations.

Reasons for batch manufacturing may be either technical or economical or both. For example, in pen manufacturing industry, it would be too costly to manufacture one pen of a particular design at a time to meet the demand of one customer. On the other hand, the production, of say 10,000 pens, of the same design will reduce the cost to a sizeable extent.

3. ECONOMIC BATCH QUANTITY (EBQ):

As the product is produced in batches or lots, the lot size chosen will be critical in achieving least cost of operation. Primarily, the total production cost under batch production comprises of two main costs, namely,

1. Machine Set Up Costs and
2. Inventory holding costs.

If the size is higher, the set up cost may decline due to lesser number of set ups required; but units in inventory will go up leading to higher holding costs. If the lot size is lower, lower inventory holding costs are accomplished but only with higher set up costs. Economic batch quantity is the size of a batch where total cost of set-up and holding costs are at minimum.

The economic batch size or Economic Batch Quantity may be determined by calculating the total cost for a series of possible batch sizes and checking which batch size gives the minimum cost. Alternatively, a formula can be derived which is similar to determination of Economic Order Quantity (EOQ). The objective here being to determine the production lot (Batch size) that optimizes on both set up and inventory holding costs formula. The mathematical formula usually used for its determination is as follows:

$$EBQ = \sqrt{\frac{2DS}{C}}$$

D = Annual demand for the product

S = Setting up cost per batch

C = Carrying cost per unit of production

OPERATING COSTING

1. WHAT IS OPERATING OR SERVICE COSTING:

It is application of cost concepts in ascertainment of cost or providing services.

2. WHAT IS SERVICE COST UNIT:

To compute the Service cost, it is necessary to understand the unit for which the cost is to be computed. All the costs incurred during a period are collected and analyzed and then expressed in terms of a cost per unit of service.

One specific issue with service costing is the difficulty in defining a realistic cost unit that represents a suitable measure of the service provided. The cost unit to be applied needs to be defined carefully and frequently, a composite cost unit may be deemed more appropriate.

Service industry	Unit of cost
Transport Services	Passenger- km., (In public transportation) Quintal- km., or Ton- km. (In goods carriage)
Hotels	Guest Days or Room Days
Hospital	Patient per day or room per day
Educational Institutes	Per course, per student, per batch, per lecture
Electricity Supply service	Kilowatt- hour (kWh)
IT & ITES	Cost per project
Insurance	Per policy
Toll services	Per km or per vehicle
Cinema	Per ticket
Bank or Financial Institutions	Per transaction, per services (e.g. per letter of credit, per application, per project etc.)

NOTE:

In case of goods transportation services there are 2 types of tonne-km –

A) Absolute Tonne-km =

$$\Sigma(\text{Weight Carried} \times \text{Distance})_1 + (\text{Weight Carried} \times \text{Distance})_2 + \dots + (\text{Weight Carried} \times \text{Distance})_n$$

B) Commercial Tonne-km =

$$\Sigma(\text{Distance}_1 + \text{Distance}_2 + \dots + \text{Distance}_n) \times \frac{(W_1 + W_2 + \dots + W_n)}{n}$$

3. TOTAL COST & TOTAL REVENUE PER SERVICE COST UNIT :

For preparing a statement of cost or a cost sheet for service sector, costs are usually collected and accumulated for a specified period viz. A month, quarter or a year, etc. The cost statement for services may be prepared either on the basis of functional classification as done for product costing or on the basis of variability. Cost sheet on the basis of variability is prepared classifying all the costs into three different heads:

1. Fixed costs or Standing charges
2. Variable costs or Operating expenses
3. Semi-variable costs or Maintenance expenses

NOTES:

1) In the absence of information about semi-variable costs, the costs would be shown under fixed and variable heads only.

2) Treatment of Depreciation– fixed or variable?

If related to effluxion of time or calculated on time basis, will be treated as fixed. However, if the depreciation is calculated on the basis of activity level or usage, it will be treated as variable cost.

3) Treatment of Interest:

Interest and finance charges shall be presented in the cost statement as a separate item of cost of sales. In general, interest is treated as fixed cost, unless otherwise given.

$$4) \text{ Revenue or Fee} = \text{Cost} + \text{Markup or Margin}$$

4. SHORT NOTE ON BOT APPROACH:

In recent years a growing trend emerged among Governments in many countries to solicit investments for public projects from the private sector under BOT scheme. BOT is an option for the Government to outsource public projects to the private sector.

With BOT, the private sector designs, finances, constructs and operate the facility and eventually, after specified concession period, the ownership is transferred to the Government. Therefore, BOT can be seen as a developing technique for infrastructure projects by making them amenable to private sector participation.

The fundamental principle in determining user levy is, 'if the price for a transport facility is set at a level that reflects the benefit, each user gains from improvements in the facility, it will result in traffic flow levels that equate social costs with user benefits.'

COST ACCOUNTING SYSTEM

1. DIFFERENT COST ACCOUNTING SYSTEMS:

To operate business operations efficiently and successfully, it is necessary to make use of an appropriate accounting system. Such a system should state in clear terms whether cost and financial transactions should be integrated or kept separately (Non-integrated). Where cost and financial accounting records are integrated, the system so evolved is known as integrated or integral accounting system. In case cost and financial transactions are kept separately, the system is called Non-Integrated Accounting system or Cost Control System. While non-integrated system of accounting necessitates reconciliation between financial and cost accounts but no reconciliation is required under integrated accounting system.

2. NON INTEGRATED ACCOUNTING SYSTEM:

It is a system of accounting under which separate ledgers are maintained for both cost and financial accounts. This system is also known as cost ledger accounting system. Under this system the cost accounts restrict itself to recording only those transactions which relate to the product or service being supplied. Items of expenses which are related to sales, production or other matters of factory management are the ones dealt with in such accounts. This leads to the exclusion of certain expenses like interest, bad debts and revenue/income from 'other than the sale of product or service'.

Non-Integrated Accounting Systems contain fewer accounts as compared to financial accounting system due to the exclusion of purchases, expenses and also Balance Sheet items like fixed assets, debtors and creditors. Items of accounts which are excluded are represented by an account known as Cost ledger control account.

The main accounts which are usually prepared when a separate Cost Ledger is maintained are as follows:

- (1) Cost Ledger Control Account – This account is also known as General Ledger Adjustment Account. This account is made to complete double entry. All items of expenditure are credited to this account. Sales are debited to this account and net profit/loss from Costing Profit & Loss Account is transferred to this account. The balance in this account at the end of the particular period represents the net total of all the balances of the impersonal accounts.
- (2) Stores Ledger Control Account – This account is debited for the purchase of material and credited for issue of materials from the stores. The balance in this account indicates the total balance of all the individual stores accounts. Abnormal losses or gains if any in this account are transferred to Costing Profit & Loss Account. Entries are made on the basis of goods received notes and stores requisitions etc.
- (3) Wages Control Account – This account is debited with total wages paid (direct and indirect). Direct wages are further transferred to Work-in-Process Control Account and indirect wages to Production Overhead; Administration Overhead or Selling & Distribution Overhead Control Accounts, as the case may be. Wages paid for abnormal idle time are transferred to Costing Profit & Loss Account either directly or through Abnormal Loss Account.
- (4) Manufacturing/Production/Works/ Factory Overhead Control Account – This account is debited with indirect costs of production such as indirect material, indirect employee, indirect expenses (carriage inward etc.). Overhead recovered is credited to this Account. The difference between overhead incurred and overhead recovered (i.e. Under Absorption or Over Absorption of Overheads) is transferred to Overheads Adjustment Account.

(5) **Work-in-Process Control Account** - This account is debited with the total cost of production, which includes—direct materials, direct employee, direct expenses, production overhead recovered, and is credited with the amount of finished goods completed and transferred. The balance in this account represents total balances of jobs/works-in-process, as shown by several job accounts.

(6) **Administrative Overhead Control Account** - This account is debited with overheads incurred and credited with overhead recovered. The overhead recovered are debited to Finished Goods Control Account, if administrative overhead is related with production activities otherwise to Cost of Sales A/c. The difference between administrative overheads incurred and recovered is transferred to Overhead Adjustment Account.

(7) **Finished Goods Control Accounts** - This account is debited with the value of goods transferred from Work-in-process Control Account and administration costs recovered (if relates to production activities). This account is credited with Cost of Sales Account. The balance of this account represents the value of goods unsold at the end of the period.

(8) **Selling and Distribution Overhead Control Account** - This account is debited with selling and distribution overheads incurred and credited with the selling and distribution overheads recovered. The difference between overheads incurred and recovered is transferred usually to Overhead Adjustment Account.

(9) **Cost of Sales Account** - This account is debited with the cost of finished goods transferred from Finished Goods Control Account for sale, General Administrative overhead recovered, Selling and distribution overhead recovered. The balance of this account is ultimately transferred to Sales Account or Costing Profit & Loss Account.

(10) Costing Profit & Loss Account – This account is debited with cost of sales, under-absorbed overheads and abnormal losses and is credited with sales value, over-absorbed overhead and abnormal gains. The net profit or loss in this account is transferred to Cost Ledger Control Account.

(11) Overhead Adjustment Account – This account is to be debited for under-recovery of overhead and credited with over-recovery of overhead amount. The net balance in this account is transferred to Costing Profit & Loss Account.

Note: Sometimes, Overhead Adjustment Account is dispensed with and under/over absorbed overheads is directly transferred to Costing Profit & Loss Account from the respective overhead accounts.

3. INTEGRATED ACCOUNTING SYSTEM:

Integrated Accounts is the name given to a system of accounting, whereby cost and financial accounts are kept in the same set of books. Obviously, then there will be no separate sets of books for Costing and Financial records. Integrated accounts provide or meet out fully the information requirement for Costing as well as for Financial Accounts. For Costing it provides information useful for ascertaining the cost of each product, job, process and operation of any other identifiable activity and for carrying necessary analysis. Integrated accounts provide relevant information which is necessary for preparing profit and loss account and the balance sheet as per the requirement of law and also helps in exercising effective control over the liabilities and assets of its business.

In non-integrated system, a cost ledger control account or general ledger adjustment account is used in cost ledger. But in the integrated accounting system, general ledger adjustment account is eliminated and detailed accounts for assets and liabilities are maintained. In other words, following accounts are used for "General Ledger Adjustment Account/ Cost Ledger Control Account" of non-integrated system:

- (a) Bank account
- (b) Receivables (Debtors) account
- (c) Payables (Creditors) account
- (d) Provision for depreciation account etc.

In integrated system, all accounts necessary for showing classification of cost will be used but the cost ledger control account of non-integrated accounting is replaced by use of following accounts:

- (a) Bank account
- (b) Receivables (Debtors) account
- (c) Payables (Creditors) account
- (d) Provision for depreciation account
- (e) Fixed assets account
- (f) Share capital account

4. RECONCILIATION OF COST AND FINANCIAL ACCOUNTS:

The reconciliation of the balances of two sets of accounts is possible by preparing a Memorandum Reconciliation Account. In this account, the items charged in one set of accounts but not in the other or those charged in excess as compared to the other are identified and collected. These items of differences are either added or subtracted from the profit as shown by one of the accounts. Finally the profits from two sets of accounts are reconciled.

Causes of differences in Financial and Cost Accounts:

1. Items included in Financial Accounts only:

(a) Purely Financial Expenses:

- (i) Interest on loans or bank mortgages.
- (ii) Expenses and discounts on issue of shares, debentures etc.
- (iii) Other capital losses i.e., loss by fire not covered by insurance etc.
- (iv) Losses on the sales of fixed assets and investments
- (v) Goodwill written off
- (vi) Preliminary expenses written off
- (vii) Income tax, donations, subscriptions
- (viii) Expenses of the company's share transfer office, if any.

(b) Purely Financial Income

- (i) Interest received on bank deposits, loans and investments
- (ii) Dividends received
- (iii) Profits on the sale of fixed assets and investments
- (iv) Transfer fee received.
- (v) Rent receivables

2. Item included in Cost Accounts only (notional expenses):

- (i) Charges in lieu of rent where premises are owned
- (ii) Interest on capital at notional figure though not incurred
- (iii) Salary for the proprietor at notional figure though not incurred
- (iv) Notional Depreciation on the assets fully depreciated for which book value is nil.



COST ACCOUNTING SYSTEM



3. Items whose treatment is different in the two sets of accounts:

The objective of cost accounting is to provide information to management for decision making and control purposes while financial accounting conforms to external reporting requirements. Hence there are chances that certain items are treated differently in the two sets of accounts. For example, LIFO method is not allowed for inventory valuation in India as per the Accounting Standard 2 issued by the Council of the ICAI. However, this method may be adopted for cost accounts as it is more suitable for arriving at costs which may be used as a base for deciding selling prices. Similarly cost accounting may use a different method of depreciation than what is allowed under financial accounting.

4. Varying basis of valuation:

It is another factor which sometimes is responsible for the difference. It is well known that in financial accounts stock are valued either at cost or market price, whichever is lower. But in Cost Accounts, stocks are only valued at cost.

5. Under or over recovery of Overheads



SELF NOTES





SELF NOTES



अंतिम अध्याय

COSTING CHAKRA

COVERING 360° OF COSTING THEORY

CA INTER COSTING THEORY**CONTENT**

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CHAPTER- 1

INTRODUCTION TO COST AND MANAGEMENT ACCOUNTING

Q 1. Differentiate between "Cost Accounting and Management Accounting".

Difference between Cost Accounting and Management Accounting

	Basis	Cost Accounting	Management Accounting
(i)	Nature	It records the quantitative aspect only.	It records both qualitative and quantitative aspect.
(ii)	Objective	It records the cost of producing a product and providing a service.	It provides information to management for planning and co-ordination.
(iii)	Area	It only deals with cost Ascertainment.	It is wider in scope as it includes financial accounting, budgeting, taxation, planning etc.
(iv)	Recording of data	It uses both past and present figures.	It is focused with the projection of figures for future.
(v)	Development	Its development is related to industrial revolution.	Its development is related to the need of modern business world.
(vi)	Rules and Regulation	It follows certain principles and procedures for recording costs of different products.	It does not follow any specific rules and regulations.

Q 2. Give any five examples of the impact of use of Information Technology in Cost Accounting.

Example of Impact of Information Technology in cost accounting may include the following:

(i) After the introduction of ERPs, different functional activities get integrated and as a consequence a single entry into the accounting system provides custom made reports for every purpose and saves an organisation from preparing different sets of documents. Reconciliation process of results of both cost and financial accounting systems become simpler and less sophisticated.

(ii) A move towards paperless environment can be seen where documents like Bill of Material, Material Requisition Note, Goods Received Note, labour

utilisation report etc. are no longer required to be prepared in multiple copies, the related department can get e-copy from the system.

(iii) Information Technology with the help of internet (including intranet and extranet) helping in resource procurement and mobilisation. For example, production department can get materials from the stores without issuing material requisition note physically. Similarly, purchase orders can be initiated to the suppliers with the help of extranet. This enables an entity to shift towards Just-in-Time (JIT) approach of inventory management and production.

(iv) Cost information for a cost centre or cost object is ascertained with accuracy in timely manner. Each cost centre and cost object is codified and all related costs are assigned to the cost objects or cost centres using assigned codes. This automates the cost accumulation and ascertainment process. The cost information can be customised as per the requirement. For example, when an entity manufacture or provide services, are able to know information job-wise, batch-wise, process-wise, cost centre wise etc.

(v) Uniformity in preparation of report, budgets and standards can be achieved with the help of IT. ERP software plays an important role in bringing uniformity irrespective of location, currency, language and regulations.

(vi) Cost and revenue variance reports are generated in real time basis which enables the management to take control measures immediately.

(vii) IT enables an entity to monitor and analyse each process of manufacturing or service activity closely to eliminate non value added activities.

Q 3. Why are cost and management accounting information are required by the staff at operational level? Describe.

Operational level staffs- The operational level staffs like supervisors, foreman, team leaders are requiring information

(i) to know the objectives and performance goals for them

(ii) to know product and service specifications like volume, quality and process etc.

(iii) to know the performance parameters against which their performance is measured and evaluated.

(iv) to know divisional (responsibility centre) profitability etc.

Q 4. Explain Opportunity Cost.

Opportunity Cost - This cost refers to the value of sacrifice made or benefit of opportunity foregone in accepting an alternative course of action. For example, a firm financing its expansion plan by withdrawing money from its bank deposits. In such a case the loss of interest on the bank deposit is the opportunity cost for carrying out the expansion plan.

Q 5. Mention and explain types of responsibility centres.

There are four types of responsibility centres:

(i) Cost Centres: The responsibility centre which is held accountable for incurrence of costs which are under its control. The performance of this responsibility centre is measured against pre-determined standards or budgets. The cost centres are of two types:

(a) Standard Cost Centre and (b) Discretionary Cost Centre

(ii) Revenue Centres: The responsibility centres which are accountable for generation of revenue for the entity. Sales Department for example, is the responsible for achievement of sales target and revenue generation. Though, revenue centres does not have control on the all expenditures it incurs but some time expenditures related with selling activities like commission to sales person etc. are incurred by revenue centres.

(iii) Profit Centres: These are the responsibility centres which have both responsibility of generation of revenue and incurrence of expenditures. Since, managers of profit centres are accountable for both costs as well as revenue, profitability is the basis for measurement of performance of these responsibility centres. Examples of profit centres are decentralised branches of an organisation.

(iv) Investment Centres: These are the responsibility centres which are not only responsible for profitability but also has the authority to make capital investment decisions. The performance of these responsibility centres is measured based on Return on Investment (ROI) besides profit.

Q 6. Specify the types of Responsibility centres under the following situations:

- (i) Purchase of bonds, stocks, or real estate property.
- (ii) Ticket counter in a Railway station.
- (iii) Decentralized branches of an organization.
- (iv) Maharana, Navratna and Miniratna public sector undertaking (PSU) of Central Government.
- (v) Sales Department of an organization.

Particulars	Types of Responsibility Centre
(i) Purchase of bonds, stocks, or real estate property.	Investment Centre
(ii) Ticket counter in a Railway station	Revenue Centre
(iii) Decentralized branches of an organization.	Profit Centre
(iv) Maharatna, Navratna and Miniratna public sector undertaking (PSU) of Central Government.	Investment Centre
(v) Sales Department of an organization.	Revenue Centre

Q 7. State the Method of Costing to be used in the following industries:

- (i) Real Estate (ii) Motor repairing workshop (iii) Chemical Industry
- (iv) Transport service (v) Assembly of bicycles (vi) Biscuits manufacturing Industry (vii) Power supply Companies (viii) Car manufacturing Industry
- (ix) Cement Industry (x) Printing Press

Method of costing used in different industries:

S. No.	Industries	Method of Costing
(i)	Real Estate	Contract Costing
(ii)	Motor Repairing Workshop	Job Costing
(iii)	Chemical Industry	Process Costing
(iv)	Transport Service	Service/Operating Costing
(v)	Assembly of Bicycles	Unit/ Single/Output/Multiple Costing
(vi)	Biscuits Manufacturing Industry	Batch Costing
(vii)	Power Supply Companies	Service/Operating Costing
(viii)	Car Manufacturing Industry	Multiple Costing
(ix)	Cement Industry	Unit/Single/Output Costing
(x)	Printing Press	Job Costing

Q 8. Identify the methods of costing from the following statements:

- (i) Costs are directly charged to a group of products.
- (ii) Nature of the product is complex and method cannot be ascertained.
- (iii) Costs ascertained for a single product.
- (iv) All costs are directly charged to a specific job.
- (v) Costs are charged to operations and averaged over units produced.

Method of costing followed:

Situation	Method of costing
(i) Costs are directly charged to a group of products.	Batch costing
(ii) Nature of the product is complex and method cannot be ascertained.	Multiple costing
(iii) Cost is ascertained for a single product.	Unit/ Single/Output costing
(iv) All costs are directly charged to a specific job	Job costing
(v) Costs are charged to operations and averaged over units produced.	Process costing

Q 9. State the method of costing that would be most suitable for:

- (i) Oil Refinery (ii) Interior Decoration (iii) Airlines Company (iv) Advertising (v) Car Assembly

S. No.	Industry	Method of Costing
(i)	Oil Refinery	Process Costing
(ii)	Interior Decoration	Job Costing
(iii)	Airlines Company	Operation/ Service Costing
(iv)	Advertising	Job Costing
(v)	Car Assembly	Multiple Costing

Q 10. Explain 'Job Costing' and 'Batch Costing'.

Job costing: In this method of costing, cost of each job is ascertained separately. It is suitable in all cases where work is undertaken on receiving a customer’s order like a printing press, motor work shop, etc. This method of costing is used for non- standard and non- repetitive products produced as per customer specifications and against specific orders. Jobs are different from each other and independent of each other. Each Job is unique.

Batch Costing: It is the extension of Job costing. Homogeneous products are produced in a continuous production flow in lots. A batch may represent a number of small orders passed through the factory in batch. Each batch here is treated as a unit of cost and thus separately costed. Here cost per unit is determined by dividing the cost of the batch by number of units produced in the batch.

Q 11. Mention the Cost Unit of the following Industries: (i) Electricity (ii) Automobile (iii) Cement (iv) Steel (v) Gas (vi) Brick Making (vii) Coal Mining (viii) Engineering (ix) Professional Services (x) Hospital

S. No.	Industry	Cost Unit Basis
(i)	Electricity	Kilowatt-hour (kWh)
(ii)	Automobile	Number
(iii)	Cement	Ton/ per bag etc.
(iv)	Steel	Ton
(v)	Gas	Cubic feet
(vi)	Brick making	1,000 bricks
(vii)	Coal mining	Tonne/ton
(viii)	Engineering	Contract, job
(ix)	Professional services	Chargeable hour, job, contract
(x)	Hospital	Patient day

Q 12. Mention the cost units (physical measurements) for the following Industry/product:

- (i) Automobile (ii) Gas (iii) Brick works (iv) Power (v) Steel
(vi) Transport (by road) (vii) Chemical (viii) Oil (ix) Brewing (x) Cement**

Industry or Product	Cost Units
Automobile	Number
Gas	Cubic feet
Brick works	1,000 bricks
Power	Kilo-watt hour (kWh)
Steel	Tonne
Transport (by road)	Passenger- kilometer or Tonne-kilometer
Chemical	Litre, gallon, kilogram, tonne etc.
Oil	Barrel, tonne, litre
Brewing	Barrel
Cement	Ton/ per bag etc.

Q 13. Differentiate between Cost Control and Cost Reduction.

Difference between Cost Control and Cost Reduction

Cost Control	Cost Reduction
Cost control aims at maintaining the costs in accordance with the established standards.	Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to improvise them continuously
Cost control seeks to attain lowest possible cost under existing conditions.	Cost reduction recognises no condition as permanent, since a change will result in lower cost.
In case of cost control, emphasis is on past and present.	In case of cost reduction, it is on present and future.
Cost control is a preventive function	Cost reduction is a corrective function. It operates even when an efficient cost control system exists
Cost control ends when targets are achieved.	Cost reduction has no visible end and is a continuous process.

Q 14. Briefly explain the essential features of a good Cost Accounting System.

The essential features, which a good cost accounting system should possess, are as follows:

- (a) **Informative and simple:** Cost accounting system should be tailor-made, practical, simple and capable of meeting the requirements of a business concern. The system of costing should not sacrifice the utility by introducing inaccurate and unnecessary details.
- (b) **Accurate and authentic:** The data to be used by the cost accounting system should be accurate and authenticated; otherwise it may distort the output of the system and a wrong decision may be taken.
- (c) **Uniformity and consistency:** There should be uniformity and consistency in classification, treatment and reporting of cost data and related information. This is required for benchmarking and comparability of the results of the system for both horizontal and vertical analysis.
- (d) **Integrated and inclusive:** The cost accounting system should be integrated with other systems like financial accounting, taxation, statistics and operational research etc. to have a complete overview and clarity in results.
- (e) **Flexible and adaptive:** The cost accounting system should be flexible enough to make necessary amendment and modifications in the system to incorporate changes in technological, reporting, regulatory and other requirements.
- (f) **Trust on the system:** Management should have trust on the system and its output. For this, an active role of management is required for the development of such a system that reflects a strong conviction in using information for decision making.

Q 15. Define cost objects and give examples of any four cost objects.

Cost object is anything for which a separate measurement of cost is required. Cost object may be a product, a service, a project, a customer, a brand category, an activity, a department or a programme etc.

Examples of cost objects are:

Product	Smart phone, Tablet computer, SUV Car, Book etc.
Service	An airline flight from Delhi to Mumbai, Concurrent audit assignment, Utility bill payment facility etc.
Project	Metro Rail project, Road projects etc.
Activity	Quality inspection of materials, Placing of orders etc.
Process	Refinement of crudes in oil refineries, melting of billets or ingots in rolling mills etc.
Department	Production department, Finance & Accounts, Safety etc.

Q 16. Briefly explain the 'techniques of costing'.

Techniques	Description
Uniform Costing	When a number of firms in an industry agree among themselves to follow the same system of costing in detail, adopting common terminology for various items and processes they are said to follow a system of uniform costing. Advantages of such a system are: i. A comparison of the performance of each of the firms can be made with that of another, or with the average performance in the industry. ii. Under such a system, it is also possible to determine the cost of production of goods which is true for the industry as a whole. It is found useful when tax-relief or protection is sought from the Government.
Marginal Costing	It is defined as the ascertainment of marginal cost by differentiating between fixed and variable costs. It is used to ascertain effect of changes in volume or type of output on profit.
Standard Costing and Variance Analysis	It is the name given to the technique whereby standard costs are pre-determined and subsequently compared with the recorded actual costs . It is thus a technique of cost ascertainment and cost control. This technique may be used in conjunction with any method of costing. However, it is especially suitable where the manufacturing method involves production of standardised goods of repetitive nature.
Historical Costing	It is the ascertainment of costs after they have been incurred. This type of costing has limited utility. • Post Costing: It means ascertainment of cost after production is completed. • Continuous costing: Cost is ascertained as soon as the job is completed or even when the job is in progress.
Absorption Costing	It is the practice of charging all costs, both variable and fixed to operations, processes or products. This differs from marginal costing where fixed costs are excluded.
Direct costing	Direct costing is a specialized form of cost analysis that only uses variable costs to make decisions. It does not consider fixed costs, which are assumed to be associated with the time periods in which they are incurred.

CHAPTER - 2MATERIAL COST**Q 17. Explain 'Just In Time' (JIT) approach of inventory management.**

JIT is a system of inventory management with an approach to have a zero inventories in stores. According to this approach material should only be purchased when it is actually required for production.

JIT is based on two principles

- (i) Produce goods only when it is required and
- (ii) the products should be delivered to customers at the time only when they want.

It is also known as 'Demand pull' or 'Pull through' system of production. In this system, production process actually starts after the order for the products is received. Based on the demand, production process starts and the requirement for raw materials is sent to the purchase department for purchase. This can be understood with the help of the following diagram:



Q 18. Which system of inventory management is known as 'Demand pull' or 'Pull through' system of production? Explain. Also, specify the two principles on which this system is based.

Just in Time (JIT) Inventory Management is also known as 'Demand pull' or 'Pull through' system of production. In this system, production process actually starts after the order for the products is received. Based on the demand, production process starts and the requirement for raw materials is sent to the purchase department for purchase.

It is a system of inventory management with an approach to have a zero inventories in stores. According to this approach material should only be purchased when it is actually required for production.

JIT is based on two principles

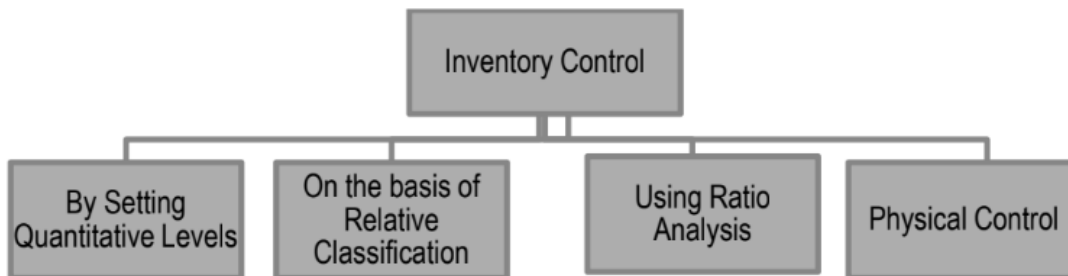
- (i) Produce goods only when it is required and
- (ii) the products should be delivered to customers at the time only when they want.

Q 19. Define Inventory Control and give its objectives.

List down the basis to be adopted for Inventory Control.

Inventory Control: The Chartered Institute of Management Accountants (CIMA) defines Inventory Control as "The function of ensuring that sufficient goods are retained in stock to meet all requirements without carrying unnecessarily large stocks."

The **objective** of inventory control is to make a balance between sufficient stock and over-stock. The stock maintained should be sufficient to meet the production requirements so that uninterrupted production flow can be maintained. Insufficient stock not only pause the production but also cause a loss of revenue and goodwill. On the other hand, Inventory requires some funds for purchase, storage, maintenance of materials with a risk of obsolescence, pilferage etc. A trade-off between Stock-out and Over-stocking is required. The management may employ various methods of Inventory control to have a balance. Management may adopt the following **basis** for Inventory control:



Q 20. Write a short note on VED analysis of Inventory Control.

Vital, Essential and Desirable (VED): Under this system of inventory analysis, **inventories are classified on the basis of its criticality for the production function and final product.** Generally, this classification is done for spare parts which are used for production.

- (i) **Vital-** Items are classified as vital when its **unavailability can interrupt the production process and cause a production loss.** Items under **this category are strictly controlled by setting re-order level.**
- (ii) **Essential-** Items under this category are essential but not vital. **The unavailability may cause sub standardisation and loss of efficiency in production process.** Items under this category are reviewed periodically and get the second priority.
- (iii) **Desirable-** Items under this category are optional in nature; **unavailability does not cause any production or efficiency loss.**

Q 21. Explain FIFO and LIFO method of store issue.

First-in First-out (FIFO) method: It is a method of pricing the issues of materials, in the order in which they are purchased. In other words, the materials are issued in the order in which they arrive in the store or the items longest in stock are issued first. Thus each issue of material only recovers the purchase price which does not reflect the current market price. This method is considered suitable in times of falling price because the material cost charged to production will be high while the replacement cost of materials will be low.

Last-in-First-out (LIFO) method: It is a method of pricing the issues of materials. This method is based on the assumption that the items of the last batch (lot) purchased are the first to be issued. Therefore, under this method the prices of the last batch (lot) are used for pricing the issues, until it is exhausted, and so on. If however, the quantity of issue is more than the quantity of the latest lot than earlier (lot) and its price will also be taken into consideration. During inflationary period or period of rising prices, the use of LIFO would help to ensure that the cost of production determined on the above basis is approximately the current one.

Q 22. State how the following items are treated in arriving at the value of cost of material purchased: (i) Detention Charges/Fines (ii) Demurrage (iii) Cost of Returnable containers (iv) Central Goods and Service Tax (CGST) (v) Shortage due to abnormal reasons.

S.No.	Items	Treatment
(i)	Detention charges/ Fine	Detention charges/ fines imposed for noncompliance of rule or law by any statutory authority. It is an abnormal cost and not included with cost of purchase.
(ii)	Demurrage	Demurrage is a penalty imposed by the transporter for delay in uploading or offloading of materials. It is an abnormal cost and not included with cost of purchase.
(iii)	Cost of returnable containers	Treatment of cost of returnable containers are as follows: Returnable Containers: If the containers are returned and their costs are refunded, then cost of containers should not be considered in the cost of purchase. If the amount of refund on returning the container is less than the amount paid, then, only the short fall is added with the cost of purchase.
(iv)	Central Goods and Service Tax (CGST)	Central Goods and Service Tax (CGST) is paid on manufacture and supply of goods and collected from the buyer. It is excluded from the cost of purchase if the input credit is available for the same. Unless mentioned specifically CGST is not added with the cost of purchase.
(v)	Shortage due to abnormal reasons	Shortage arises due to abnormal reasons such as material mishandling, pilferage, or due to any avoidable reasons are not absorbed by the good units. Losses due to abnormal reasons are debited to costing profit and loss account.

Q 23. Write down the treatment of following items associated with purchase of materials. (i) Cash discount (ii) IGST (iii) Demurrage (iv) Shortage (v) Basic Custom Duty

S. No.	Items	Treatment
(i)	Cash Discount	Cash discount is not deducted from the purchase price. It is treated as interest and finance charges. It is ignored
(ii)	Integrated Goods and Service Tax (IGST)	Integrated Goods and Service Tax (IGST) is paid on interstate supply of goods and provision of services and collected from the buyers. It is excluded from the cost of purchase if credit for the same is available . Unless mentioned specifically it should not form part of cost of purchase.
(iii)	Demurrage	Demurrage is a penalty imposed by the transporter for delay in uploading or offloading of materials. It is an abnormal cost and not included with cost of purchase
(iv)	Shortage	Shortage in materials are treated as follows: Shortage due to normal reasons: Good units absorb the cost of shortage due to normal reasons. Losses due to breaking of bulk, evaporation, or due to any unavoidable

		conditions etc. are the reasons of normal loss. Shortage due to abnormal reasons: Shortage arises due to abnormal reasons such as material mishandling, pilferage, or due to any avoidable reasons are not absorbed by the good units. Losses due to abnormal reasons are debited to costing profit and loss account.
(v)	Basic Custom Duty	Basic Custom duty is paid on import of goods from outside India. It is added with the purchase cost.

Q 24. Explain obsolescence and circumstances under which materials become obsolete. State the steps to be taken for its treatment.

Obsolescence: Obsolescence is defined as “the loss in the intrinsic value of an asset due to its supersession”.

Materials may become obsolete under any of the following **circumstances:**

- (i) where it is a spare part, or a component of a machinery used in manufacture and that machinery becomes obsolete;
- (ii) where it is used in the manufacture of a product which has become obsolete;
- (iii) where the material itself is replaced by another material due to either improved quality or fall in price.

Treatment: In all three cases, the value of the obsolete material held in stock is a total loss and immediate steps should be taken to dispose it off at the best available price. The loss arising out of obsolete materials on abnormal loss does not form part of the cost of manufacture.

Q 25. What is Bill of Material? Describe the uses of Bill of Material in following departments: (i) Purchases Department (ii) Production Department (iii) Stores Department (iv) Cost/Accounting Department

Bill of Material: It is a detailed list specifying the standard quantities and qualities of materials and components required for producing a product or carrying out of any job.

Uses of Bill of Material in different department:

Purchase Department	Production Department	Stores Department	Cost/Accounting Department
Materials are procured (purchased) on the basis of specifications mentioned in it.	Production is planned according to the nature, volume of the materials required to be used. Accordingly, material requisition lists are prepared	It is used as a reference document while issuing materials to the requisitioning department.	It is used to estimate cost and profit. Any purchase, issue and usage are compared/verified against this document.

CHAPTER - 3

EMPLOYEE COST

Q 26. Discuss the steps involved in setting labour time standards.

The following are the steps involved in setting labour standards:

- (a) **Standardisation:** Products to be produced are decided based on production plan and customer's order.
- (b) **Labour specification:** Types of labour and labour time is specified. Labour time specification is based on past records and it takes into account normal wastage of time.
- (c) **Standardisation of methods:** Selection of proper machines to use proper sequence and method of operations.
- (d) **Manufacturing layout:** A plan of operation for each product listing the operations to be performed is prepared.
- (e) **Time and motion study:** It is conducted for selecting the best way of completing the job or motions to be performed by workers and the standard time which an average worker will take for each job. This also takes into account the learning efficiency and learning effect.
- (f) **Training and trial:** Workers are trained to do the work and time spent at the time of trial run is noted down.

Q 27. Explain the treatment of Overtime Premium in following situations:

- (i) **SV & Co. wants to grab some special orders, and overtime is required to meet the same.**
- (ii) **Dept. X has to work overtime to make up a shortfall in production due to some fault of management in dept. Y.**
- (iii) **S Ltd. has to work overtime regularly throughout the year as a policy due to the workers' shortage.**
- (iv) **Due to flood in Odisha, RS Ltd. has to work overtime to complete the job.**
- (v) **A customer requested the company MN Ltd. to expedite the job because of his urgency of work.**

Treatment of Overtime premium in different situations

Situation	Treatment
(i) SV & Co. wants to grab some special orders, and overtime is required to meet the same.	If overtime is required to cope with general production programmes or for meeting urgent orders, the overtime premium should be treated as overhead cost of the particular department or cost centre which works overtime.
(ii) Dept. X has to work overtime to make up a shortfall in production due to some fault of management in dept. Y.	If overtime is worked in a department due to the fault of another department, the overtime premium should be charged to the latter department (Y).
(iii) S Ltd. has to work overtime regularly throughout the year as a policy due to the workers' shortage.	The overtime premium is treated as a part of employee cost and job is charged at an effective average wage rate.

(iv) Due to flood in Odisha, RS Ltd. has to work overtime to complete the job.	Overtime worked on account of abnormal conditions such as flood, earthquake etc., should not be charged to cost, but to Costing Profit and Loss Account.
(v) A customer requested the company MN Ltd. to expedite the job because of his urgency of work.	Where overtime is worked at the request of the customer, overtime premium is also charged to the job/ customer directly.

Q 28. Rowan Premium Bonus system does not motivate a highly efficient worker as a less efficient worker and a highly efficient worker can obtain same bonus under this system. Discuss with an example.

Rowan Premium Plan: According to this system a standard time allowance is fixed for the performance of a job and bonus is paid if time is saved.

Under Rowan System, the bonus is that proportion of the time wages as time saved bears to the standard time.

$$\text{Bonus} = \text{Time Saved} / \text{Time Allowed} \times \text{Time taken} \times \text{Rate per hour}$$

Example explaining highly efficient worker and less efficient worker obtaining same bonus:

Time rate (per Hour) ₹ 60

Time allowed 8 hours.

Time taken by 'X' 6 hours.

Time taken by 'Y' 2 hours.

$$\text{Bonus} = \text{Time Saved} / \text{Time Allowed} \times \text{Time taken} \times \text{Rate per hour}$$

$$\text{For 'X'} = 2 \text{ hours} / 8 \text{ hours} \times 6 \text{ hours} \times ₹ 60 = ₹ 90$$

$$\text{For 'Y'} = 6 \text{ hours} / 8 \text{ hours} \times 2 \text{ hours} \times ₹ 60 = ₹ 90$$

From the above example, it can be concluded that a highly efficient worker may obtain same bonus as less efficient worker under this system.

Q 29. Discuss any four objectives of 'Time keeping' in relation to attendance and payroll procedures.

The objectives of time-keeping in relation to attendance and payroll procedures are as follows:

- (i) For the preparation of payrolls. (ii) For calculating overtime. (iii) For ascertaining and controlling employee cost. (iv) For ascertaining idle time. (v) For disciplinary purposes. (vi) For overhead distribution

Q 30. How does the high employee turnover increase the cost of production? Explain.

High employee turnover increases the cost of production in the following ways:

- (i) Even flow of production is disturbed; (ii) Efficiency of new workers is low; productivity of new but experienced workers is low in the beginning; (iii) There is increased cost of training and induction; (iv) New workers cause increased breakage of tools, wastage of materials, etc. (v) Cost of recruitment and training increases.

CHAPTER - 4

OVERHEADS

Q 31. Explain Blanket Overhead Rate and Departmental Overhead Rate. How they are calculated? State the conditions required for the application of Blanket Overhead Rate.

Blanket Overhead Rate: Blanket overhead rate refers to the computation of one single overhead rate for the whole factory.

This overhead rate is computed as follows:

$$\text{Blanket Rate} = \frac{\text{Total overheads for the factory}}{\text{Total number of units of base for the factory}}$$

Departmental Overhead Rate: It refers to the computation of one single overhead rate for a particular production unit or department.

This overhead rate is determined by the following formula:

$$\text{Departmental overhead Rate} = \frac{\text{Overheads of department or cost centre}}{\text{Corresponding base}}$$

Conditions required for the Application of Blanket Overhead:

A blanket rate should be applied in the following cases:

- (1) Where only one major product is being produced.
- (2) Where several products are produced, but
 - (a) All products pass through all departments; and
 - (b) All products are processed for the same length of time in each department.

Q 32. State the bases of apportionment of following overhead costs: (i) Air-conditioning (ii) Time keeping (iii) Depreciation of plant and machinery (iv) Power/steam consumption (v) Electric power (Machine operation)

Overhead Cost	Bases of Apportionment
(i) Air- conditioning	Floor area, or volume of department
(ii) Time keeping	Number of workers
(iii) Depreciation of plant and machinery	Capital values
(iv) Power/steam consumption	Technical estimates
(v) Electric power (machine operation)	Horse power of machines, or Number of machine hour, or value of machines or units consumed. Kilo-watt hours.

Q 33. Explain what is meant by Practical capacity and Normal capacity. How is normal capacity determined?

Practical capacity: It is defined as **actually utilised capacity of a plant. It is also known as operating capacity.** This capacity takes into account loss of time due to repairs, maintenance, minor breakdown, idle time, set up time, normal delays, Sundays and holidays, stock taking etc. Generally, practical capacity is taken between 80 to 90% of the rated capacity. It is also used as a base for determining overhead rates. Practical capacity is also called net capacity or available capacity.

Normal capacity: Normal capacity is the **volume of production or services achieved or achievable** on an average over a period under normal circumstances taking into account the reduction in capacity resulting from planned maintenance.

Normal capacity is determined as under:

Installed capacity		xxx
Adjustments for:		
(i) Time lost due to scheduled preventive or planned maintenance	xxx	
(ii) Number of shifts or machine hours or man hours		
(iii) Holidays, normal shut down days, normal idle time	xxx	
(iv) Normal time lost in batch change over	xxx	xxx
Normal Capacity		xxx

Q 34. Suggest one basis of re-apportionment of service department overheads over production departments in the following instances:

Cost of Service Department	Basis
(i) Maintenance and Repair Shop	
(ii) Hospital and Dispensary	
(iii) Fire Protection	
(iv) Stores Department	
(v) Transport Department	
(vi) Computer Section	
(vii) Power House (electric power cost)	
(viii) Inspection	
(ix) Tool room	
(x) Time-keeping	

Cost of Service Department	Basis
(i) Maintenance and Repair Shop	Direct labour hours, Machine hours
(ii) Hospital and Dispensary	No. of employees
(iii) Fire Protection	Capital values
(iv) Stores Department	No. of requisitions, Weight or value of Materials issued
(v) Transport Department	Crane hours, Truck hours, Truck mileage, Truck tonnage
(vi) Computer Section	Computer hours, Specific allocation to departments
(vii) Power House (electric power cost)	Horse power, Kwh, Horse power × Machine hours, Kwh × Machine hours
(viii) Inspection	Inspection hours
(ix) Tool room	Direct labour hours, Machine hours
(x) Time-keeping	No. of workers

CHAPTER - 5

ACTIVITY BASED COSTING

Q 35. PP Limited is in the process of implementation of Activity Based Costing System in the organisation. For this purpose, it has identified the following Business Functions in its organisation:

(i) Research and Development

(ii) Design of Products, Services and Procedures

(iii) Customer Service

(iv) Marketing

(v) Distribution. You are required to specify two cost drivers for each Business Function Identified above.

Business functions	Cost Driver
Research and Development	<ul style="list-style-type: none"> • Number of research projects • Personnel hours on a project • Technical complexities of the project
Design of products, services and procedures	<ul style="list-style-type: none"> • Number of products in design • Number of parts per product • Number of engineering hours
Customer Service	<ul style="list-style-type: none"> • Number of service calls • Number of products serviced • Hours spent on servicing products
Marketing	<ul style="list-style-type: none"> • Number of advertisements • Number of sales personnel • Sales revenue
Distribution	<ul style="list-style-type: none"> • Number of units distributed • Number of customers • Weight of items distributed

(Any two cost drivers of each business function)

Q 36. Describe the various levels of activities under 'ABC' methodology.

Level of Activities	Meaning
1. Unit level activities	These are those activities for which the consumption of resources can be identified with the number of units produced.
2. Batch level activities	The activities such as setting up of a machine or processing a purchase order are performed each time a batch of goods is produced. The cost of batch related activities varies with number of batches made, but is common (or fixed) for all units within the batch.
3. Product level activities	These are the activities which are performed to support different products in product line.
4. Facilities level activities	These are the activities which cannot be directly attributed to individual products. These activities are necessary to sustain the manufacturing process and are common and joint to all products manufactured.

Q 37. What is meant by Activity Based Management (ABM) and discuss how Activity Based Management can be used in the business?

The term Activity based management (ABM) is used to describe the cost management application of ABC. **The use of ABC as a costing tool to manage costs at activity level is known as Activity Based Cost Management (ABM).** ABM is a discipline that focuses on the efficient and effective management of activities as the route to continuously improving the value received by customers. ABM utilizes cost information gathered through ABC.

Activity based management can be used in the following ways in business

(i) **Cost Reduction:** ABM helps the organisation to identify costs against activities and to find opportunities to streamline or reduce the costs or eliminate the entire activity, especially if there is no value added.

(ii) **Business Process Re-engineering:** Business process re-engineering **involves examining business processes and making substantial changes to how organisation currently operates.** ABM is a powerful tool for measuring business performance, determining the cost of business output and is used as a means of identifying opportunities to improve process efficiency and effectiveness.

(iii) **Benchmarking:** Benchmarking is a process of **comparing of ABC-derived activity costs of one segment of company with those of other segments.** It requires uniformity in the definition of activities and measurement of their costs.

(iv) **Performance Measurement:** Many organisations are now focusing on activity performance as a means of facing competitors and managing costs by monitoring the efficiency and effectiveness of activities.

Area	Measure
Quality of purchased component	Zero defects
Quality of output	% yield
Customer awareness	Orders; number of complaints

CHAPTER - 6**COST SHEET**

Q 38. Explain Direct Expenses and how these are measured and their treatment in cost accounting.

Direct Expense: Expenses other than direct material cost and direct employee cost, which are incurred to manufacture a product or for provision of service and can be directly traced in an economically feasible manner to a cost object. The following costs are examples for direct expenses:

- (i) Royalty paid/ payable for production or provision of service;
- (ii) Hire charges paid for hiring specific equipment;
- (iii) Cost for product/ service specific design or drawing;
- (iv) Cost of product/ service specific software;
- (v) Other expenses which are directly related with the production of goods or provision of service.

The above list of expenses is not exhaustive; any other expenses which are directly attributable to the production or service are also included as direct expenses.

Measurement of Direct Expenses

The direct expenses are measured at invoice or agreed price net of rebate or discount but includes duties and taxes (for which input credit not available), commission and other directly attributable costs.

In case of sub-contracting, where goods are get manufactured by job workers independent of the principal entity, are measured at agreed price. Where the principal supplies some materials to the job workers, the value of such materials and other incidental expenses are added with the job charges paid to the job workers.

Treatment of Direct Expenses

Direct Expenses forms part the prime cost for the product or service to which it can be directly traceable and attributable. In case of lump-sum payment or one time payment, the cost is amortised over the estimated production volume or benefit derived. If the expenses incurred are of insignificant amount i.e. not material, it can be treated as part of overheads.

CHAPTER - 7**COST ACCOUNTING SYSTEM****Q 39. Explain integrated accounting system and state its advantages.**

Integrated Accounting System: Integrated Accounts is the name given to a system of accounting, whereby cost and financial accounts are kept in the same set of books. Obviously, then there will be no separate sets of books for Costing and Financial records. Integrated accounts provide or meet out fully the information requirement for Costing as well as for Financial Accounts. For Costing it provides information useful for ascertaining the cost of each product, job, and process, operation of any other identifiable activity and for carrying necessary analysis. Integrated accounts provide relevant information which is necessary for preparing profit and loss account and the balance sheets as per the requirement of law and also helps in exercising effective control over the liabilities and assets of its business.

Advantages of Integrated Accounting System

The main advantages of Integrated Accounts are as follows:

- (i) **No need for Reconciliation** - The question of reconciling costing profit and financial profit does not arise, as there is only one figure of profit.
- (ii) **Less efforts** - Due to use of one set of books, there is a significant saving in efforts made.
- (iii) **Less time consuming** - No delay is caused in obtaining information as it is provided from books of original entry.
- (iv) **Economical process** - It is economical also as it is based on the concept of "Centralisation of Accounting function".

Q 40. Explain what are the pre-requisites of integrated accounting.**The essential pre-requisites for integrated accounts include the following steps:**

- The management's decision about the extent of integration of the two sets of books. Some concerns find it useful to integrate up to the stage of prime cost or factory cost while other prefer full integration of the entire accounting records.
- A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.
- An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for preparation of interim accounts.
- Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.
- Under this system there is no need for a separate cost ledger. Of course, there will be a number of subsidiary ledgers; in addition to the useful Customers' Ledger and the Bought Ledger, there will be:
(a) Stores Ledger; (b) Stock Ledger and (c) Job Ledger.

Q 41. Indicate, for following items, whether to be shown in the Cost Accounts or Financial Accounts:

- (i) Preliminary expenses written off during the year**
- (ii) Interest received on bank deposits**
- (iii) Dividend, interest received on investments**
- (iv) Salary for the proprietor at notional figure though not incurred**
- (v) Charges in lieu of rent where premises are owned**
- (vi) Rent receivables**
- (vii) Loss on sale of Fixed Assets**
- (viii) Interest on capital at notional figure though not incurred**
- (ix) Goodwill written off**
- (x) Notional Depreciation on the assets fully depreciated for which book value is Nil.**

S. No.	Items	Accounts
(i)	Preliminary expenses written off during the year	Financial Accounts
(ii)	Interest received on bank deposits	Financial Accounts
(iii)	Dividend, interest received on investments	Financial Accounts
(iv)	Salary for the proprietor at notional figure though not incurred	Cost Accounts
(v)	Charges in lieu of rent where premises are owned	Cost Accounts
(vi)	Rent receivables	Financial Accounts
(vii)	Loss on the sales of Fixed Assets	Financial Accounts
(viii)	Interest on capital at notional figure though not incurred	Cost Accounts
(ix)	Goodwill written off	Financial Accounts
(x)	Notional Depreciation on the assets fully depreciated for which book value is nil	Cost Accounts

CHAPTER – 8**UNIT AND BATCH COSTING****Q 42. Distinguish between Job costing and Batch Costing.**

S. No.	Job Costing	Batch Costing
1	Method of costing used for non-standard and non-repetitive products produced as per customer specifications and against specific orders.	Homogeneous products produced in a continuous production flow in lots.
2	Cost determined for each Job	Cost determined in aggregate for the entire Batch and then arrived at on per unit basis.
3	Jobs are different from each other and independent of each other. Each Job is unique.	Products produced in a batch are homogeneous and lack of individuality.

CHAPTER - 9**JOB COSTING AND CONTRACT COSTING****Q 43. Distinguish between Job costing and Process Costing.**

Job Costing	Process Costing
(i) A Job is carried out or a product is produced by specific orders.	The process of producing the product has a continuous flow and the product produced is homogeneous.
(ii) Costs are determined for each job.	Costs are compiled on time basis i.e., for production of a given accounting period for each process or department.
(iii) Each job is separate and independent of other jobs.	Products lose their individual identity as they are manufactured in a continuous flow.
(iv) Each job or order has a number and costs are collected against the same job number.	The unit cost of process is an average cost for the period.
(v) Costs are computed when a job is completed. The cost of a job may be determined by adding all costs against the job.	Costs are calculated at the end of the cost period. The unit cost of a process may be computed by dividing the total cost for the period by the output of the process during that period.
(vi) As production is not continuous and each job may be different, so more managerial attention is required for effective control.	Process of production is usually standardized and is therefore, quite stable. Hence control here is comparatively easier.

CHAPTER - 10**PROCESS & OPERATION COSTING**

Q 44. How will you treat normal loss, abnormal loss and abnormal gain in process costing? Explain.

Normal Loss: It is also known as normal wastage. It is defined as the **loss of material which is inherent in the nature** of work. Such a loss can be reasonably anticipated from the nature of the material, nature of operation, the experience and technical data. It is unavoidable because of nature of the material or the process. It also includes units withdrawn from the process for test or sampling.

Treatment in Cost Accounts: The cost of **normal process loss in practice is absorbed by good units produced** under the process. The amount realised by the sale of normal process loss units should be credited to the process account.

Abnormal Loss: It is also known as abnormal wastage. It is defined as the **loss in excess of the pre-determined loss** (Normal process loss). This type of loss may occur due to the carelessness of workers, a bad plant design or operation, sabotage etc. Such a loss cannot obviously be estimated in advance. But it can be kept under control by taking suitable measures.

Treatment in Cost Accounts: The cost of an abnormal process loss unit is equal to the cost of a good unit. The total cost of abnormal process loss is credited to the process account from which it arises. Cost of abnormal process loss is not treated as a part of the cost of the product. In fact, **the total cost of abnormal process loss is debited to costing profit and loss account.**

Sometimes, loss under a process is less than the anticipated normal figure. In other words, **the actual production exceeds the expected figures.** Under such a situation the difference between actual and expected loss or actual and expected production is known as abnormal gain or yield. So, abnormal gain may be defined as an unexpected gain in production under the normal conditions. This arises due to over- estimation of process loss, improvements in work efficiency of workers, use of better technology in production etc.

Treatment in Cost Accounts: The process account under which abnormal gain arises is debited with the abnormal gain and credited to abnormal gain account which will be closed by transferring to the Costing Profit and Loss account. The cost of abnormal gain is computed on the basis of normal production.

CHAPTER - 11**JOINT PRODUCTS & BY PRODUCTS**

Q 45. Narrate the terms 'Joint Products' and 'By-Products' with an example of each term.

Joint Products - Joint products represent "two or more products separated in the course of the same processing operation usually requiring further processing, each product being in such proportion that no single product can be designated as a major product".

In other words, two or more products of equal importance, produced, simultaneously from the same process, with each having a significant relative sale value are known as joint products.

For example, in the oil industry, gasoline, fuel oil, lubricants, paraffin, coal tar, asphalt and kerosene are all produced from crude petroleum. These are known as joint products.

By-Products - These are defined as "products recovered from material discarded in a main process, or from the production of some major products, where the material value is to be considered at the time of severance from the main product." Thus, by - products emerge as a result of processing operation of another product or they are produced from the scrap or waste of materials of a process. In short, a by-product is a secondary or subsidiary product which emanates as a result of manufacture of the main product.

The point at which they are separated from the main product or products is known as split-off point. The expenses of processing are joint till the split –off point.

Examples of by-products are molasses in the manufacture of sugar, tar, ammonia and benzole obtained on carbonisation of coal and glycerine obtained in the manufacture of soap.

Q 46. How are By-products treated in Costing?

Treatment of by-product cost in Cost Accounting:

By-product cost can be dealt in cost accounting in the following ways:

(a) **When they are of small total value:** When the by-products are of small total value, the amount realised from their sale may be dealt in any one the following two ways:

1. The sales value of the by-products may be credited to the Costing Profit and Loss Account and no credit be given in the Cost Accounts. The credit to the Costing Profit and Loss Account here is treated either as miscellaneous income or as additional sales revenue.

2. The sale proceeds of the by-product may be treated as deductions from the total costs. The sale proceeds in fact should be deducted either from the production cost or from the cost of sales.

(b) **When the by-products are of considerable total value:** Where by-products are of considerable total value, they may be regarded as joint products rather than as by-products. To determine exact cost of by-products the costs incurred upto the point of separation, should be apportioned over by-products and joint products by using a logical basis.

(c) **Where they require further processing:** In this case, the net realisable value of the by-product at the split-off point may be arrived at by subtracting the further processing cost from the realisable value of by-products.

CHAPTER - 12**SERVICE COSTING**

Q 47. Describe Composite Cost unit as used in Service Costing and discuss the ways of computing it.

Composite Cost Unit: Sometime two measurement units are combined together to know the cost of service or operation. These are called composite cost units. For example, a public transportation undertaking would measure the operating cost per passenger per kilometre.

Examples of Composite units are Ton- km., Quintal- km, Passenger-km., Patient-day etc.

Composite unit may be computed in two ways:

(i) Absolute (Weighted Average) basis.

(ii) Commercial (Simple Average) basis.

In both bases of computation of service cost unit, weightage is also given to qualitative factors rather quantitative (which are directly related with variable cost elements) factors alone.

(i) **Weighted Average or Absolute basis** – It is summation of the products of qualitative and quantitative factors. For example, to calculate absolute Ton-Km for a goods transport is calculated as follows.:

$$\Sigma (\text{Weight Carried} \times \text{Distance})_1 + (\text{Weight Carried} \times \text{Distance})_2 + \dots + (\text{Weight Carried} \times \text{Distance})_n$$

Similarly, in case of Cinema theatres, price for various classes of seats are fixed differently. For example–

First class seat may be provided with higher quality service and hence charged at a higher rate, whereas Second Class seat may be priced less. In this case, appropriate weight to be given effect for First Class seat and Second Class seat – to ensure proper cost per composite unit.

(ii) **Simple Average or Commercial basis** – It is the product of average qualitative and total quantitative factors. For example, in case of goods transport, Commercial Ton-Km is arrived at by multiplying total distance km., by average load quantity.

$$\Sigma (\text{Distance}_1 + \text{Distance}_2 + \dots + \text{Distance}_n) \times [(W_1 + W_2 + \dots + W_n)/n]$$

In both the example, variable cost is dependent of distance and is a quantitative factor. Since, the weight carried does not affect the variable cost hence and is a qualitative factor.

Q 48. What do you understand by Build-Operate-Transfer (BOT) approach in Service Costing? How is the Toll rate computed?

Build-Operate-Transfer (BOT) Approach: In recent years a growing trend emerged among Governments in many countries to solicit investments for public projects from the private sector under BOT scheme. **BOT is an option for the Government to outsource public projects to the private sector.**

With BOT, the private sector designs, finances, constructs and operate the facility and eventually, after specified concession period, the ownership is transferred to the Government. Therefore, BOT can be seen as a developing technique for infrastructure projects by making them amenable to private sector participation.

Toll Rate: In general, the toll rate should have a direct relation with the benefits that the road users would gain from its improvements. The benefits to road users are likely to be in terms of fuel savings, improvement in travel time and good riding quality.

To compute the toll rate, following formula may be used

$$= \frac{\text{Total Cost} + \text{Profit}}{\text{Number of Vehicles}}$$

Or, to compute the toll rate following formula with rounding off to nearest multiple of five has been adopted: User fee = Total distance x Toll rate per km.

CHAPTER – 13**STANDARD COSTING**

Q 49. Discuss briefly some of the criticism which may be levelled against the Standard Costing System.

(i) **Variation in price:** One of the chief problem faced in the operation of the standard costing system is the precise estimation of likely prices or rate to be paid. The variability of prices is so great that even actual prices are not necessarily adequately representative of cost. But the use of sophisticated forecasting techniques should be able to cover the price fluctuation to some extent. Besides this, the system provides for isolating uncontrollable variances arising from variations to be dealt with separately.

(ii) **Varying levels of output:** If the standard level of output set for pre-determination of standard costs is not achieved, the standard costs are said to be not realised. However, the statement that the capacity utilisation cannot be precisely estimated for absorption of overheads may be true only in some industries of jobbing type. In vast majority of industries, use of forecasting techniques, market research, etc., help to estimate the output with reasonable accuracy and thus the variation is unlikely to be very large. Prime cost will not be affected by such variation and, moreover, variance analysis helps to measure the effects of idle time.

(iii) **Changing standard of technology:** In case of industries that have frequent technological changes affecting the conditions of production, standard costing may not be suitable. This criticism does not affect the system of standard costing. Cost reduction and cost control is a cardinal feature of standard costing because standards once set do not always remain stable. They have to be revised.

(iv) **Attitude of technical people:** Technical people are accustomed to think of standards as physical standards and, therefore, they will be misled by standard costs. Since technical people can be educated to adopt themselves to the system through orientation courses, it is not an insurmountable difficulty.

(v) **Mix of products:** Standard costing presupposes a pre-determined combination of products both in variety and quantity. The mixture of materials used to manufacture the products may vary in the long run but since standard costs are set normally for a short period, such changes can be taken care of by revision of standards.

(vi) **Level of Performance:** Standards may be either too strict or too liberal because they may be based on (a) theoretical maximum efficiency, (b) attainable good performance or (c) average past performance. To overcome this difficulty, the management should give thought to the selection of a suitable type of standard. The type of standard most effective in the control of costs is one which represents an attainable level of good performance.

(vii) **Standard costs cannot possibly reflect the true value in exchange:** If previous historical costs are amended roughly to arrive at estimates for ad hoc purposes, they are not standard costs in the strict sense of the term and hence they cannot also reflect true value in exchange. In arriving at standard costs, however, the economic and technical factors, internal and external, are brought together and analysed to arrive at quantities and prices which reflect optimum operations. The resulting costs, therefore, become realistic measures of the sacrifices involved.

(viii) **Fixation of standards may be costly:** It may require high order of skill and competency. Small concerns, therefore, feel difficulty in the operation of such system.

CHAPTER – 14**MARGINAL COSTING**

Q 50. Differentiate between "Marginal and Absorption Costing".

Difference between Marginal costing and Absorption costing

S. No.	Marginal Costing	Absorption Costing
1.	Only variable costs are considered for product costing and inventory valuation.	Both fixed and variable costs are considered for product costing and inventory valuation.
2.	Fixed costs are regarded as period costs. The Profitability of different products is judged by their P/V ratio.	Fixed costs are charged to the cost of production. Each product bears a reasonable share of fixed cost and thus the profitability of a product is influenced by the apportionment of fixed costs.
3.	Cost data presented highlight the total contribution of each product.	Cost data are presented in conventional pattern. Net profit of each product is determined after subtracting fixed cost along with their variable costs.
4.	The difference in the magnitude of opening stock and closing stock does not affect the unit cost of production.	The difference in the magnitude of opening stock and closing stock affects the unit cost of production due to the impact of related fixed cost.
5.	In case of marginal costing the cost per unit remains the same, irrespective of the production as it is valued at variable cost	In case of absorption costing the cost per unit reduces, as the production increases as it is fixed cost which reduces, whereas, the variable cost remains the same per unit.

Q 51. What are the limitations of Marginal Costing?**Limitations of Marginal Costing**

(i) Difficulty in classifying fixed and variable elements: It is difficult to classify exactly the expenses into fixed and variable category. Most of the expenses are neither totally variable nor wholly fixed. For example, various amenities provided to workers may have no relation either to volume of production or time factor.

(ii) Dependence on key factors: Contribution of a product itself is not a guide for optimum profitability unless it is linked with the key factor.

(iii) Scope for Low Profitability: Sales staff may mistake marginal cost for total cost and sell at a price; which will result in loss or low profits. Hence, sales staff should be cautioned while giving marginal cost.

(iv) Faulty valuation: Overheads of fixed nature cannot altogether be excluded particularly in large contracts, while valuing the work-in-progress. In order to show the correct position fixed overheads have to be included in work-in-progress.

(v) Unpredictable nature of Cost: Some of the assumptions regarding the behaviour of various costs are not necessarily true in a realistic situation. For example, the assumption that fixed cost will remain static throughout is not correct. Fixed cost may change from one period to another. For example, salaries bill may go up because of annual increments or due to change in pay rate etc. The variable costs do not remain constant per unit of output. There may be changes in the prices of raw materials, wage rates etc. after a certain level of output has been reached due to shortage of material, shortage of skilled labour, concessions of bulk purchases etc.

(vi) Marginal costing ignores time factor and investment: The marginal cost of two jobs may be the same but the time taken for their completion and the cost of machines used may differ. The true cost of a job which takes longer time and uses costlier machine would be higher. This fact is not disclosed by marginal costing.

(vii) Understating of W-I-P: Under marginal costing stocks and work in progress are understated.

Q 52. What is Margin of Safety? What does a large Margin of Safety indicates? How can you calculate Margin of Safety?

Margin of Safety: The margin of safety can be defined as the difference between the expected level of sale and the breakeven sales.

The larger the margin of safety, the higher is the chances of making profits.

The Margin of Safety can be calculated by identifying the difference between the projected sales and breakeven sales in units multiplied by the contribution per unit. This is possible because, at the breakeven point all the fixed costs are recovered and any further contribution goes into the making of profits.

Margin of Safety = (Projected sales – Breakeven sales) in units x contribution per unit

It also can be calculated as:

Margin of Safety = Profit / P/V Ratio

CHAPTER - 15**BUDGET & BUDGETARY CONTROL****Q 53. Define Budget Manual. What are the salient features of Budget Manual?**

Budget Manual: The budget manual is a booklet specifying the objectives of an organisation in relation to its strategy. The budget is made to decide how much an organisation would earn and spend and in what manner. In the budget, the organisation sets its priorities too. Effective budgetary planning relies on the provision of adequate information to the individuals involved in the planning process. Many of these information needs are contained in the budget manual. A budget manual is a collection of documents that contains key information for those involved in the planning process. CIMA London defines budget manual as, 'A document which sets out the responsibilities of the persons engaged in, the routines of, and the forms and records required for, budgetary control'.

Contents of a budget manual: Typical budget manual may include the following:

- (i) A statement regarding the objectives of the organisation and how they can be achieved through budgetary control;
- (ii) A statement about the functions and responsibilities of each executive, both regarding preparation and execution of budgets;
- (iii) Procedures to be followed for obtaining the necessary approval of budgets. The authority of granting approval should be stated in explicit terms. Whether, one two or more signatures are required on each document should be clearly stated;
- (iv) A form of organisation chart to show who are responsible for the preparation of each functional budget and the way in which the budgets are interrelated.
- (v) A timetable for the preparation of each budget.
- (vi) The manner of scrutiny and the personnel to carry it out;
- (vii) Reports, statements, forms and other record to be maintained.
- (viii) The accounts classification to be employed. It is necessary that the framework within which the costs, revenue and other financial accounts are classified must be identical both in the accounts and budget department.
- (ix) The reporting of the remedial action.
- (x) The manner in which budgets, after acceptance and issuance, are to be revised or amended, these are included in budgets and on which action can be taken only with the approval of top management
- (xi) This will prevent the formation of a 'bottleneck' with the late preparation of one budget holding up the preparation of all others.
- (xii) Copies of all forms to be completed by those responsible for preparing budgets, with explanations concerning their completion.
- (xiii) A list of the organization's account codes, with full explanations of how to use them.
- (xiv) Information concerning key assumptions to be made by managers in their budgets, for example the rate of inflation, key exchange rates, etc. (Any four points)

Q 54. Why is 'Zero Base Budgeting' (ZBB) considered superior to 'Traditional Budgeting'? Explain.

Zero based budgeting is superior to traditional budgeting: Zero based budgeting is superior to traditional budgeting in the following manner:

- It provides a systematic approach for evaluation of different activities.
- It ensures that the function undertaken are critical for the achievement of the objectives.
- It provides an opportunity for management to allocate resources to various activities after a thorough – cost benefit analysis.
- It helps in the identification of wasteful expenditure and then their elimination. It facilitates the close linkage of departmental budgets with corporate objectives.
- It helps in the introduction of a system of Management by Objectives

Q 55. Define Zero Base Budgeting and mention its various stages.

Zero-based Budgeting: (ZBB) is an emergent form of budgeting which arises to overcome the limitations of incremental (traditional) budgeting system. Zero- based Budgeting (ZBB) is **defined** as 'a method of budgeting which requires each cost element to be specifically justified, although the activities to which the budget relates are being undertaken for the first time, without approval, the budget allowance is zero'.

ZBB is an activity based budgeting system where budgets are prepared for each activities rather than functional department. Justification in the form of cost benefits for the activity is required to be given. The activities are then evaluated and prioritized by the management on the basis of factors like synchronisation with organisational objectives, availability of funds, regulatory requirement etc.

ZBB is suitable for both corporate and non-corporate entities. In case of non-corporate entities like Government department, local bodies, not for profit organisations, where these entities need to justify the benefits of expenditures on social programmes like mid-day meal, installation of street lights, provision of drinking water etc.

ZBB involves the following stages:

- (i) Identification and description of Decision packages
- (ii) Evaluation of Decision packages
- (iii) Ranking (Prioritisation) of the Decision packages
- (iv) Allocation of resources

Q 56. What are the important points an organization should consider if it wants to adopt Performance Budgeting?

For an enterprise that wants to adopt Performance Budgeting, it is thus imperative that:

- the objectives of the enterprise are spelt out in concrete terms.
- the objectives are then translated into specific functions, programmes, activities and tasks for different levels of management within the realities of fiscal constraints.
- realistic and acceptable norms, yardsticks or standards and performance indicators should be evolved and expressed in quantifiable physical units.

- a style of management based upon decentralised responsibility structure should be adopted, and
- an accounting and reporting system should be developed to facilities monitoring, analysis and review of actual performance in relation to budgets.

Q 57. Explain 'Activity Based Budgeting'.

Activity Based Budgeting (ABB)

- Activity based budgeting analyse the resource input or cost for each activity.
- It provides a framework for estimating the amount of resources required in accordance with the budgeted level of activity.
- Actual results can be compared with budgeted results to highlight both in financial and non-financial terms those activities with major discrepancies from budget for potential reduction in supply of resources.
- It is a planning and control system which seeks to support the objectives of continuous improvement.
- It means planning and controlling the expected activities of the organization to derive a cost-effective budget that meet forecast workload and agreed strategic goals.
- ABB is the reversing of the ABC process to produce financial plans and budgets.

Q 58. What are the cases when a flexible budget is found suitable?

Flexible budgeting may be resorted to under following situations:

- (i) In the case of new business venture due to its typical nature it may be difficult to forecast the demand of a product accurately.
- (ii) Where the business is dependent upon the mercy of nature e.g., a person dealing in wool trade may have enough market if temperature goes below the freezing point.
- (iii) In the case of labour-intensive industry where the production of the concern is dependent upon the availability of labour.

Suitability for flexible budget:

1. Seasonal fluctuations in sales and/or production, for example in soft drinks industry;
2. a company which keeps on introducing new products or makes changes in the design of its products frequently;
3. industries engaged in make-to-order business like ship building;
4. an industry which is influenced by changes in fashion; and
5. General changes in sales.

Q 59. What is 'Budgetary Control System' and discuss the components of the same.

Budgetary Control System: It is the system of management control and accounting in which all the operations are forecasted and planned in advance to the extent possible and the actual results compared with the forecasted and planned results.

Components of Budgetary Control System: The policy of a business for a defined period is represented by the master budget, the detailed components of which are given in a number of individual budgets called functional budgets. These functional budgets are broadly grouped under the following heads:

1. **Physical budgets:** Those budgets which contain information in quantitative terms such as the physical units of sales, production etc. This may include quantity of sales, quantity of production, inventories, and manpower budgets are physical budgets.
2. **Cost budgets:** Budgets which provides cost information in respect of manufacturing, administration, selling and distribution, etc. for example, manufacturing costs, selling costs, administration cost, and research and development cost budgets are cost budgets
3. **Profit budgets:** A budget which enables the ascertainment of profit. For example, sales budget, profit and loss budget, etc.
4. **Financial budgets:** A budget which facilitates in ascertaining the financial position of a concern, for example, cash budgets, capital expenditure budget, budgeted balance sheet etc.

Q 60. State the limitations of Budgetary Control System.

Points	Description
1. Based on Estimates	Budgets are based on a series of estimates, which are based on the conditions prevalent or expected at the time budget is established. It requires revision in plan if conditions change.
2. Time factor	Budgets cannot be executed automatically. Some preliminary steps are required to be accomplished before budgets are implemented. It requires proper attention and time of management. Management must not expect too much during the initial development period.
3. Co-operation Required	Staff co-operation is usually not available during the initial budgetary control exercise. In a decentralised organisation, each unit has its own objective and these units enjoy some degree of discretion. In this type of organisation structure, coordination among different units is required. The success of the budgetary control depends upon willing co-operation and teamwork.
4. Expensive	The implementation of budget is somewhat expensive. For successful implementation of the budgetary control, proper organisation structure with responsibility is prerequisite. Budgeting process start from the collection of information to for preparing the budget and performance analysis. It consumes valuable resources (in terms of qualified manpower, equipment, etc.) for this purpose; hence, it is an expensive process.
5. Not a substitute for management	Budget is only a managerial tool and must be intelligently applied for management to get benefited. Budgets are not a substitute for good management.
6. Rigid document	Budgets are sometime considered as rigid documents. But in reality, an organisation is exposed to various uncertain internal and external factors. Budget should be flexible enough to incorporate ongoing developments in the internal and external factors affecting the very purpose of the budget.