MY COSTING FORMULA BOOK

1. Materials
2. Employee Costs and Direct Expenses
3. Overheads
4. Activity Based Costing (ABC)
5. Cost Sheet
6. Cost Accounting System
7. Process Costing
8. Joint Products & By Products
9. Service Costing
10. Standard Costing
11. Marginal Costing
12. Budgets & Budgetary control

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COST • TUTORIALS

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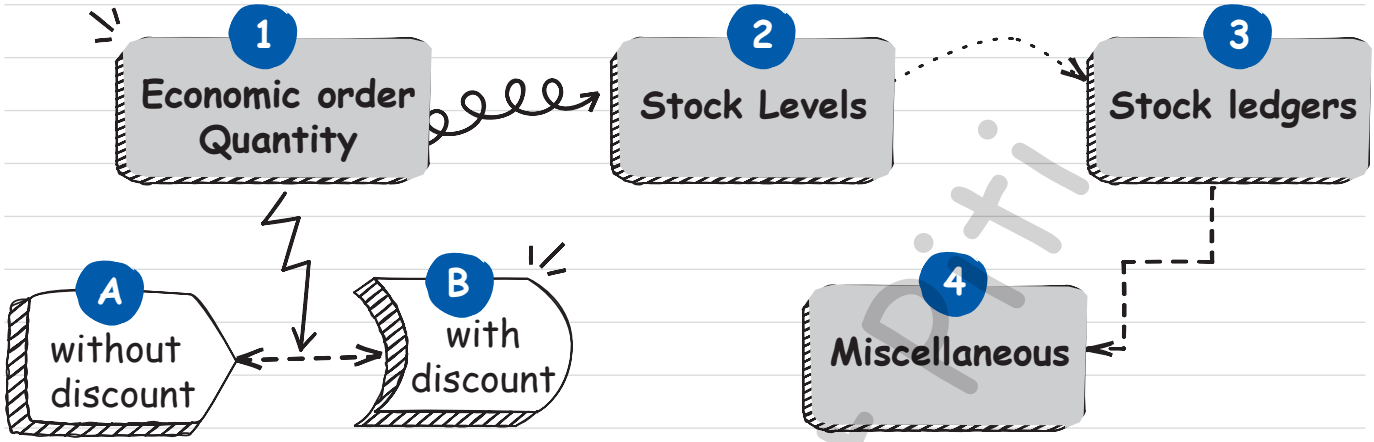
1. MATERIALS

Chapter Overview



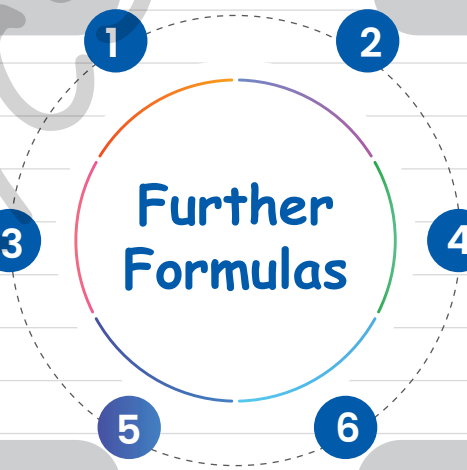
EOQ $= \sqrt{\frac{2 \times AD \times OCpo}{CCpupa}}$

AD = Annual Demand
OCpo = Ordering Cost per Order
CCpupa = Carrying Costing per unit per annum

No. of orders =

$$\frac{\text{Annual Demand}}{\text{EOQ}}$$

Total Ordering Costs (TOC) =
OCpo x No of orders



Average Inventory =
$\frac{1}{2}$ EOQ

Total Carrying Costs (TCC) =
Average Inventory x CCpupa

Total Variable Cost (TVC) =
TOC + TCC + Material Purchase Costs

Frequency of orders =

$$\frac{360/365}{\text{No of Orders}}$$

Things to remember

At EOQ, Total Ordering Costs = Total Carrying Costs

- Make sure Demand is **Annual**,
- Ordering Costs are **per order**
- Carrying Costs are **per unit per annum**
- If there are more than one Ordering or Carrying Costs, **then add them up together**

EOQ with Discount

Type 1 – Where there are multiple slabs

1	2	3	4	5	6	7
Order Size = 40 or 400 for the first slab and Lower end of the slabs for further slabs	**No. of orders** = Annual Demand / Order Size	**TOC** = (No of orders x OCpo)	**Average Inventory** = $\frac{1}{2}$ Order Size	**Total Carrying Cost** = (Average Inventory x CCPupa*)	**Material Purchase Costs** = (Annual Demand X rate)	**Total Variable Costs** = (3) + (5) + (6)

*** CCpupa – Applicable Rate x CCpupa %**

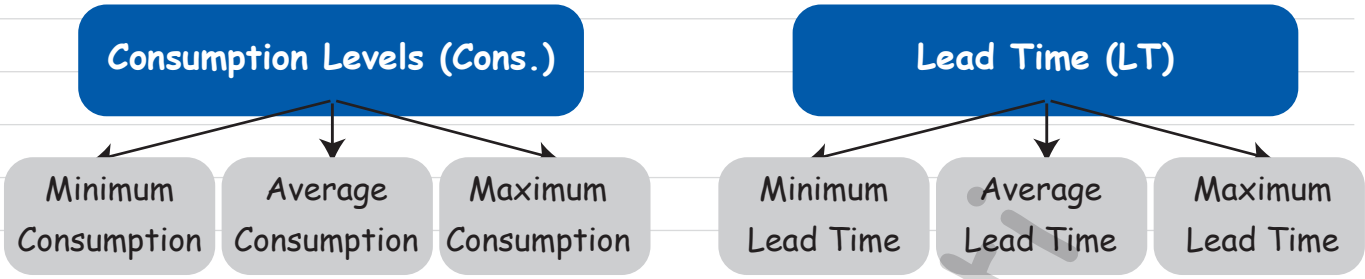
Type 2

	TVC @ EOQ	TVC @ Proposed Terms
TOC	xx	xx
TCC	xx	xx *
Material Purchase Cost	xx	xx
TVC	xx	xx

*** The CCpupa will change as there is discount involved in the price of the material. Be careful !**

Choose the Option with lower TVC

Stock Levels



1. **Re - order Level (ROL)** = Max. Cons. X Max. LT.

   OR

   Safety Stock + (Avg. Cons. X Avg. LT.)

2. **Re - order Quantity (ROQ)** = EOQ or any other quantity apart from EOQ

3. **Minimum Stock Level** = ROL - (Avg. Cons x Avg. LT)

4. **Maximum Stock Level** = ROL + ROQ - (Min. Cons X Min. LT)

   OR

   Safety Stock + EOQ

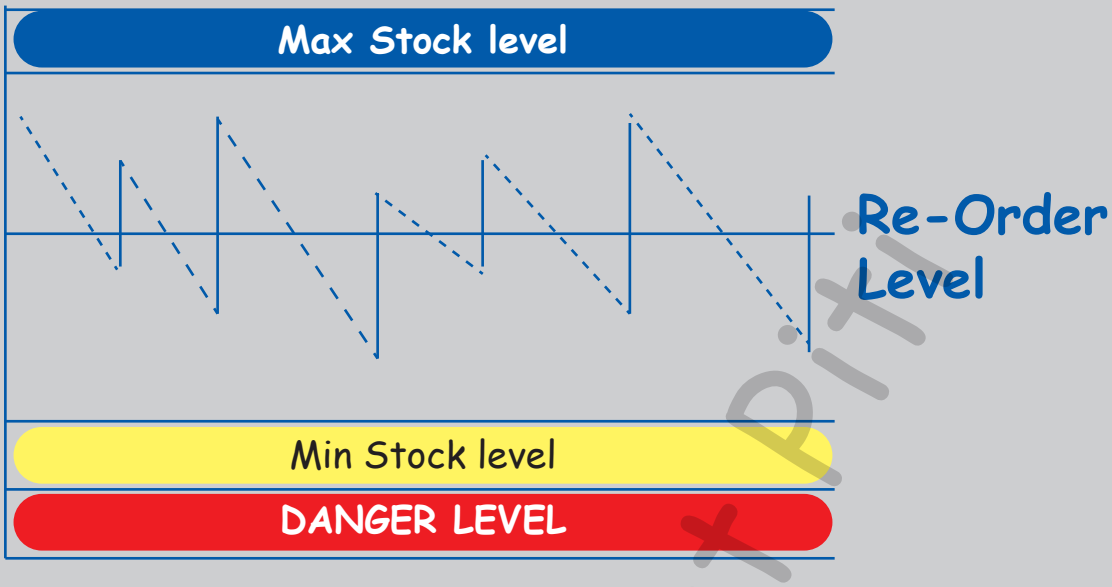
5. **Average Stock Level** = $\frac{\text{Min. Stock Level + Max. Stock Level}}{2}$ OR

   Safety Stock + $\frac{1}{2}$ EOQ

6. **Danger Stock Level** = Avg. Cons x Lead Time for emergency purchases

7. **Safety Stock** = $\frac{\text{Annual Demand}}{365/52/12}$ x (Max LT - Avg LT)

Use yellow formulas, only if the question mentions SAFETY STOCK



Miscellaneous

Inventory Turnover Ratio=

$$\frac{\text{COGS}}{\text{Average Inventory}}$$

Inventory Turnover Ratio (Days)

$$\frac{365}{\text{Inventory Turnover Ratio}}$$

COGS=

Opening Stock + Purchases – Closing Stock

Average Inventory=

$$\frac{\text{Opening Stock + Closing Stock}}{2}$$

Cost per unit: $\frac{\text{Total Cost}}{\text{Number of good units}}$

Specific items to be taken care:

1. Discounts – All discounts are to be reduced from the total costs except CASH DISCOUNT.
2. Taxes – If Credit is AVAILABLE, then DO NOT ADD it to the Total Cost. If credit is NOT AVAILABLE, then ADD it to the Total Cost.
3. Any abnormal costs such as Demurrage, Fines, Penalties are NOT TO BE ADDED to the Total Cost.
4. Any cost that is partially refundable, the portion that is NOT REFUNDED is a COST and to be ADDED to the Total Cost.
5. The units to be divided are the good units i.e. after reducing the normal losses ONLY.

Important Questions:

Notes:

2. EMPLOYEE COSTS AND DIRECT EXPENSES

Methods of wage payment

1. **Time rate basis:** Under this method, the earnings are paid on the basis of the hours worked by a worker

Earnings = Hours worked x rate per hour

In situations, where work cannot be completed in the regular hours, work is done before and after the regular working hours, could also be done on holidays. Such time is called overtime. These hours are paid at a higher rate than the regular hours consists of overtime premium (the extra amount for working extra hours) and the basic rate

Overtime Rent = Basic Rate + Overtime Premium

2. **Piece rate basis:** Under this method, the workers are paid for the number of pieces/units they prepare and not on the basis of hours worked. Thus, the number of hours worked are irrelevant.

Earnings = number of pieces x piece rate

3. **Incentive Schemes:** The basic agenda of an incentive scheme is to create a win – win situation. A situation where the workers earn more, although the cost per unit for the organisation reduces. There are two schemes:

Halsey Scheme:

$$\text{Earnings} = \underbrace{\text{Hours worked} \times \text{rate per hour}}_{\text{Basic wages}} + \underbrace{(\text{50\% of time saved}) \times \text{rate per hour}}_{\text{Bonus}}$$

Rowan Scheme:

$$\text{Earnings} = \underbrace{\text{Hours worked} \times \text{rate per hour}}_{\text{Basic wages}} + \underbrace{\left(\frac{\text{Time saved}}{\text{Time Allowed}} \times \text{Time Taken}\right) \times \text{rate per hour}}_{\text{Bonus}}$$

Elements required for Halsey and Rowan Scheme:

Time Allowed – Time that is allowed to be taken for the ACTUAL UNITS MANUFACTURED

Time Taken – Time actually taken for the ACTUAL UNITS MANUFACTURED

Time Saved - Difference between the Time Allowed and Time Taken

Rate per hour

Rate of Pay

It is the cost per hour of an employee's work.
It can be calculated using the following methodology

Basic wages	xxx
+ Dearness Allowance	xxx
+ EMPLOYER'S CONTRIBUTION TO P.F. *	xxx
+ EMPLOYER'S CONTRIBUTION TO E.S.I. *	xxx
+ Any other amounts paid by the employer	xxx
Total Earnings of the workers	xxx
÷ Actual working hours by the worker	xxx
Rate per hour	xxx

*** Employee's contribution to P.F. & E.S.I. are not part of employer's payment and thus wont be included. Basically, all you have to keep in mind is that, all payments going out from the employer's pocket is a cost.**

Labour Turnover

The rate of change in the composition of the workforce. It is calculated as per three formulas :

Separation method: $$\frac{\text{No. of workers left + Workers Discharged (fired)}}{\text{Average number of workers on payroll}} \times 100$$

Replacement method: $$\frac{\text{No. of workers Replaced}}{\text{Average number of workers on payroll}} \times 100$$

Flux method: $$\frac{\text{No. of workers left + Replaced + Newly recruited due to expansion}}{\text{Average number of workers on payroll}} \times 100$$

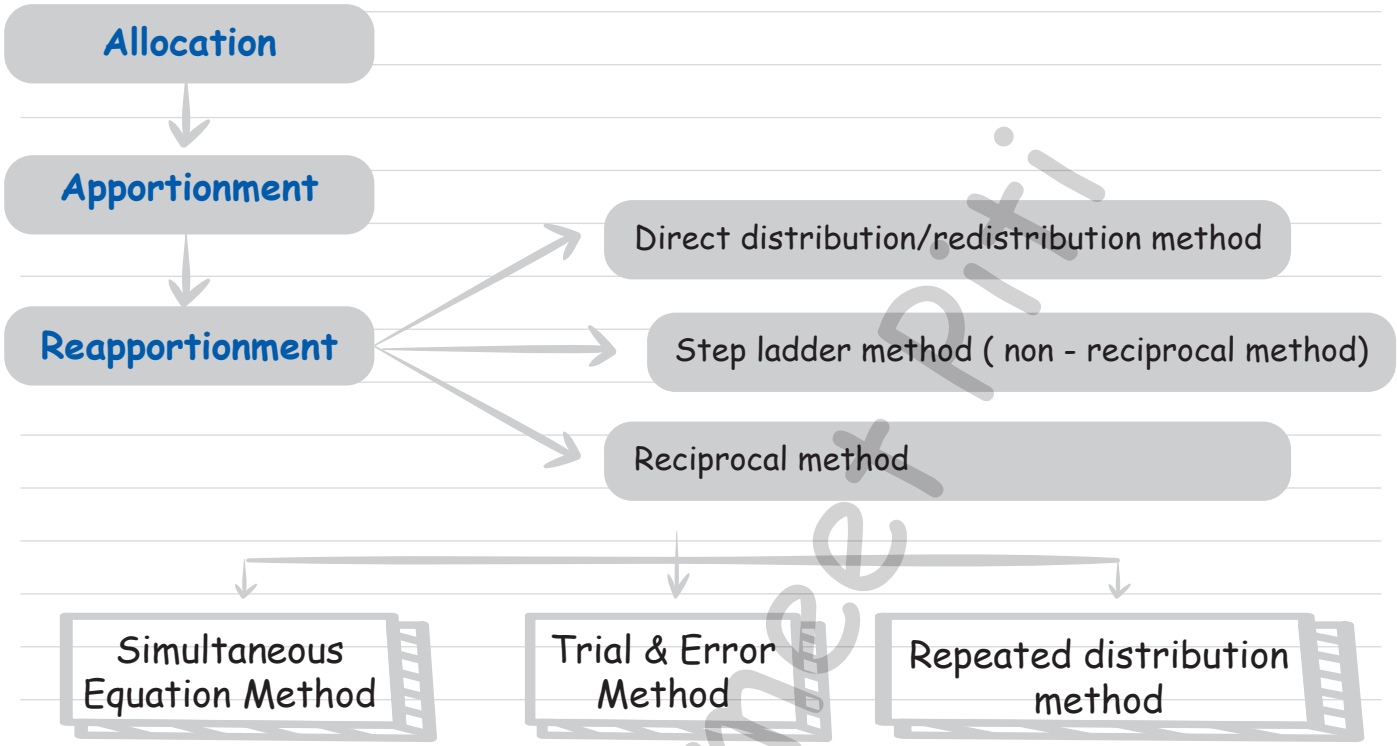
Average number of workers on payroll $$\frac{\text{No. of workers @ the beginning + No. of workers @ the end}}{2}$$

Important Questions:

Notes:

3. OVERHEADS

Flow of distribution summary



1. **Allocation:** Any cost which is directly relatable to a particular department and are already known are called allocated overheads.

2. **Apportionment:** Costs that are common between the service and production departments as well, are apportioned to these departments one SOME SUITABLE BASIS also known as BASIS OF APPORTIONMENT.

   After the above two steps , you will get overheads as per PRIMARY DISTRUBUTION. After this, the service department costs are distributed to the production departments.

3 **Re-apportionment:** Distribution of service department costs are to the production Departments.

Direct distribution/ redistribution method:	Step ladder (non reciprocal) method:	Reciprocal method:
Assumed that the service departments don't serve any other service departments.	Assumed that one service department serves other service departments and production departments, but does not take any service back.	Assumed that service departments serve each other any also the production departments.

It uses :

- Simultaneous equations method
- Trial and error method
- Repeated distribution method

Machine Hour Rate

$$\frac{\text{Total Cost}}{\text{Productive Hours}}$$

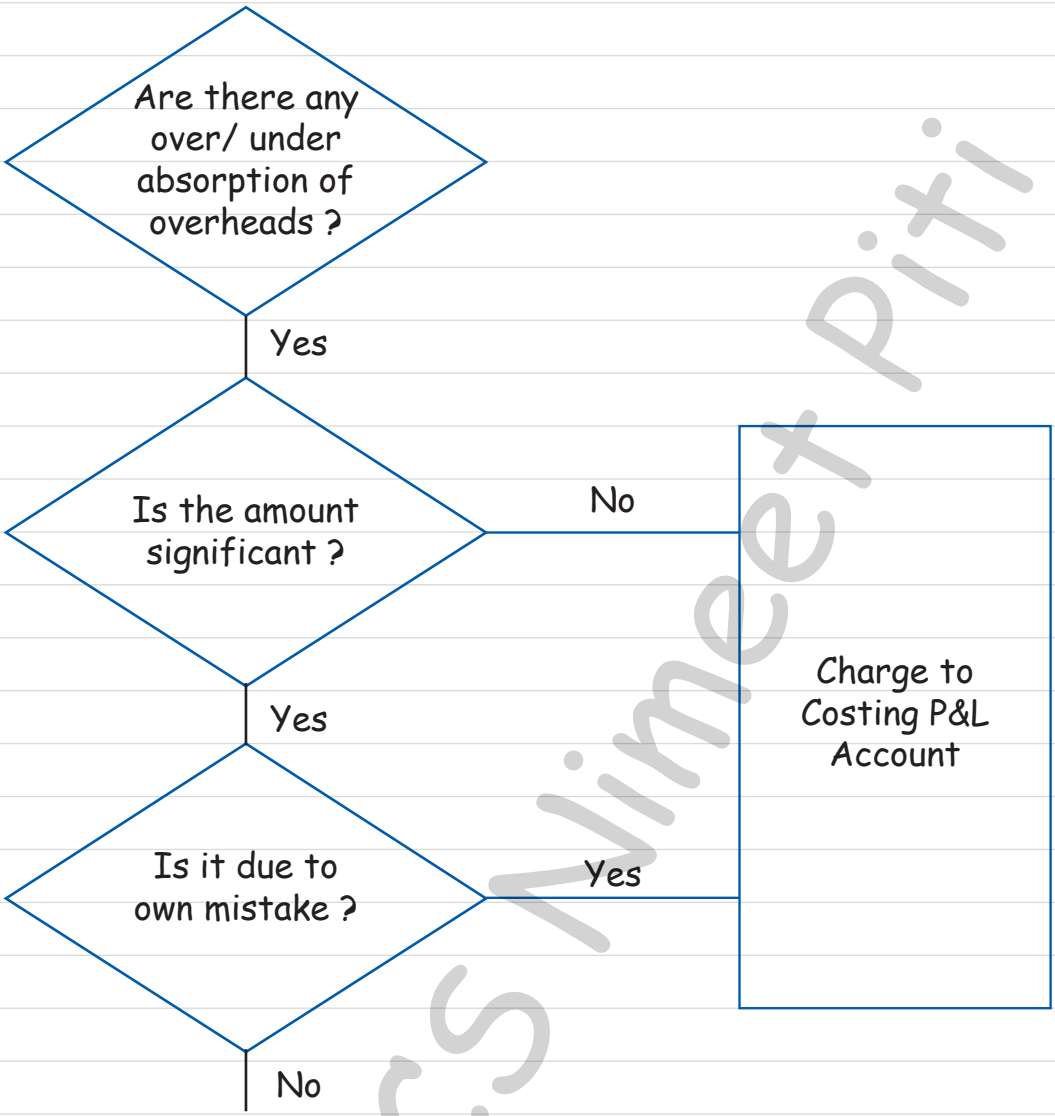
Productive Hours = Total Hours – Unproductive Hours

Examples of Unproductive hours – Mainenance hours and Setup hours

Unless Otherwise mentioned, these hours are presumed unproductive

As far as costs are concerned – Electricity is only used during productive hours unless otherwise mentioned.

Accounting treatment for over/under absorption of overheads



Then create supplementary rate and charge :-

- Cost of Sales A/c - For units sold
- Work in Progress A/c - For units in WIP
- Finished Goods A/c - For units in F.G. Stock

4. ACTIVITY BASED COSTING (ABC)

The most important element of ABC is Cost Driver Rate (CDR). If CDR is not available, the make the following table

Activity (Name of the Cost)	**Activity Cost Pool** (Amount of the Cost)	**Cost Driver** (Reason why a cost changes)	**Cost Driver Volume** (Quantity of Cost Drivers)	**Cost Driver Rate** (Cost Pool Divided by Cost Driver Volume)
(A)	(B)	(C)	(D)	(E) = (B)/(D)

If the question asks for traditional costing :
Calculate the rate per hour by using the following

$$\frac{\text{Budgeted Overheads}}{\text{Budgeted Labour/Machine hours}} = \text{Absorption Rate Per Labour/Machine Hour}$$

Important Questions:

Notes:

5. COST SHEET

OLD FORMAT

(only to be used for COST ACCOUNTING SYSTEMS CHAPTER)

Units produced: xx

Units sold: xx

		Per unit	Total
Direct material consumed (op + pur - clg)			xx
Direct Labour			xx
Direct expenses			xx
Prime cost			**xx**
Overheads (on cost)			
Factory overheads	For units produced		xx
Gross factory cost	- always for units produce		**xx**
+ opening stock of WIP			xx
- Closing stock of WIP			(xx)
Net factory cost			**xx**
+ Administration overheads			xx
Cost of Production			**xx**
+ opening stock of FG			xx
- Closing stock of FG	- always valued at cost of production		(xx)
Cost of goods sold			**xx**
+ Selling and Distribution Overheads			xx
Cost of sales	- always for units sold		**xx**
+ Profit			xx
Sales			xx

COST SHEET (NEW FORMAT)

Units produced: xx
Units sold: xx

		Per unit	Total
Direct material consumed (op. + pur. - clg.)			xx
Direct labour			xx
Direct expenses			xx
Prime Cost			xx
Overheads (on cost)			
+ Factory Overheads			xx
Gross factory cost	- always for units produced		**xx**
+ opening stock of WIP			xx
- Closing stock of WIP			(xx)
Net Factory Cost			**xx**
+ Primary Packing	(P)		xx
+ Admin. overheads related to production	(A)		xx
+ Research & Development costs	(R)		xx
+ Quality Control costs	(Q)		xx
- Sale of Scrap	(S)		(xx)
Cost of Production			**xx**
+ opening stock of FG			xx
- closing stock of FG	- always valued at cost of production		(xx)
Cost of goods sold			**xx**
+ Administration Overheads (general)			xx
+ Marketing overheads :			
Selling overheads	- always for units sold		xx
Distribution overheads			xx
Cost of Sales			**xx**
+ Profit			xx
Sales			xx

Specific items in under different heads of cost:

Direct Material Cost:

- Freight Inwards
- Insurance and other expenses attributable to procurement
- Duties and taxes (only if credit is not available)
- Reduce all discounts except cash discount

Direct Labour Cost:

- All sort of allowances and incentives
- Payment for overtime/bonus
- Employers contribution to PF , ESI etc

Direct Expenses:

- Cost of Power & fuel, steam etc;
- Royalty paid/payable for production/service
- Hire charges paid hiring specific equipment
- Fee for technical assistance/know
- Amortised cost of moulds, patterns, patents etc
- Cost of product/service specific design or drawing
- Cost of product/service specific software
- Other expenses which are directly related with the production of goods or provision of service

Factory Expenses:

- Consumable Stores and spares
- Depreciation of plant and machinery, factory building etc.
- Lease rent of production assets
- Repair and maintenance of plant and machinery, factory building etc.
- Indirect employees cost related with production activities
- Drawing & Designing department cost
- Insurance of plant and machinery, factory building, stock of raw materials & WIP etc.

- Amortized cost of jigs, fixtures, tooling etc.
- Service department cost such as tool room, engineering & maintenance, pollution control

General Administration overheads:

- Depreciation & maintenance of building, furniture etc of corporate or general management
- Salary of administrative employees, accountsnts, directors, secretaries etc.
- Rent, rates & taxes , insurance, lighting , office expenses etc.
- Indirect materials - printing & stationery , office supplies etc.
- legal charges, audit fees, corporate office expenses like directors sitting fees, remuneration

Selling overheads:

- Salary and wages related with sales department and employees directly related with selling of goods.
- Rent, depreciation, maintenance and other cost related with sales department
- Cost of advertisement, maintenance of website of online sales, market research etc.

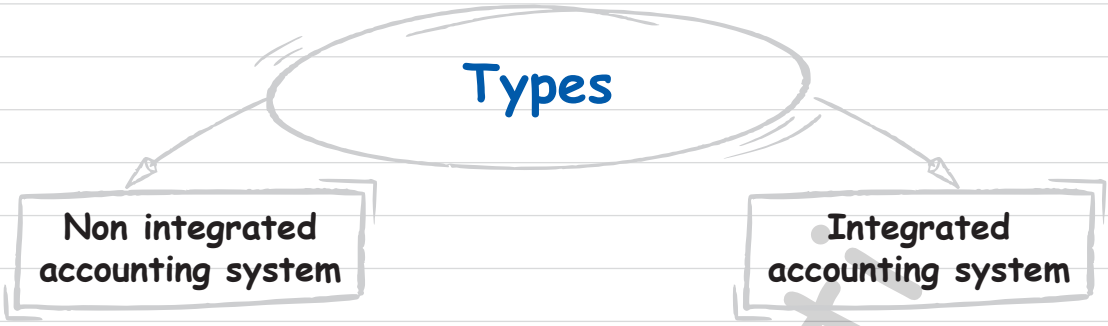
NOTE : Primary Packing is part of cost of production, but , Secondary Packing is part of selling overheads

Distribution Overheads:

- Salary and wages of employees in distribution of goods
- Transportion and insurance costs related with distribution
- Depreciation, hire charges, maintenance and other operating costs related with distribution vehicles etc.

The only important classification is between DIRECT EXPENSES AND FACTORY OVERHEADS, rest of the above are manageable. Pay your best attention only to those.

6. COST ACCOUNTING SYSTEM



(Cost and financial books are separately prepared)

(Cost and financial books are not prepared separately)

*List of accounts to be prepared **(to be in the same order)**

1. Store ledger control A/c
2. Wages control A/c
3. Factory overhead control A/c
4. WIP stock control A/c
5. Admin overhead control A/c
6. FG stock control A/c
7. Selling and distribution overhead control A/c
8. Cost of sales A/c
9. Costing profit and loss A/c
10. General ledger adjustment A/c or Cost ledger A/c

Store ledger related entries

1. Raw material purchased

Stores A/c	Dr.	
To GLA A/c		

2. Raw material purchased return

GLA A/c	Dr.	
To stores A/c		

3. Material issued to production

WIP A/c Dr
To Stores A/c

4. Material issued return

Stores A/c Dr
To WIP A/c

5. Material issued to factory repairs, admin office, selling office

FOH/AOH/S & D OH A/c Dr
To Stores A/c

6. Deficiencies found in stock taking

6.1 If Normal

FOH A/c Dr
To Stores A/c

6.2 If Abnormal

Costing P/L A/c Dr
To Stores A/c

Wages control related entries

7. Wages incurred

Wages A/c Dr
To GLA A/c

8. Direct wages charged

WIP A/c Dr
To wages A/c

9. Indirect wages charged

FOH A/c Dr
To wages A/c

***wages will always tally. It will have no balance**

FOH related entries

10. FOH incurred

FOH A/c Dr
To GLA A/c

11. FOH charged

WIP A/c Dr
To FOH A/c

WIP related entries

12. FG @ cost/cost of goods manufactured/cost of goods transferred to warehouse/Net factory cost

FG A/c Dr
To WIP A/c

Admin OH related entries

13. AOH incurred

AOH A/c Dr
To GLA A/c

14. AOH charged/applied/absorbed

FG A/c Dr
To AOH A/c

FG A/c related entries

15. FG sold/COGS

COS A/c Dr
To FG A/c

S&D related entries

16. S&D incurred

S&D OH A/c	Dr
To GLA A/c	

17. S& D charged

COS A/c	Dr
To S&D A/c	

***S&D is always applied on units sold. FOH & AOH are applied on units manufactured. S&D will always tally unless otherwise specified**

COS related entries

18. Transfer of COS balance to costing P/L

Costing P/L A/c	Dr
To COS A/c	

*COS will close automatically. No balance

19. Sales

GLA A/c	Dr
To costing P/L A/c	

20. Sales returned @Cost

FG Stock A/C	Dr
TO CDS A/C	

Note: any balance in the OH A/c will either be carried Forward or written off. If there is any balance in the opening trial balance, then carry forward the current balance orelse write off

Dr.	Store Ledger control A/c		Cr.
To Balance b/f*		By GLA (pur return)	2.
To GLA (material purchased)*	1.	**By WIP (DM issue)***	**3.**
To WIP (DM issued Return)	4.	By FOH/FOH/SOH (indirect material)	5.
		By FOH (normal deficiencies)	6.1
		By Costing P/L (abnormal def)	6.2
		By Balance c/f*	

Dr.	Wages Control A/c		Cr.
To GLA A/c (wages incurred)	7.	By WIP A/c (DW charged)	8.
		By FOH A/c (IDW chagd)	9.

Dr.	FOH control A/c		Cr.
To Stores (indirect material)	5.	**By WIP (FOH charged)***	**11.**
To Stores (normal deficiencies)	6.1		
To Wages (IDW chgd)	9.		
To GLA (FOH incurred)*	**10.**		

Dr.	WIP Control A/c		Cr.
To Balance b/f*		By Stores (DM issued return)	4.
To Stores (DM issue) *	**3.**	**By FG A/c (NFC)***	**12.**
To Wages (DW charged) *	**8.**	**By bal C/f***	
To FOH (FOH charged) *	**11.**		

Dr.	Admin O/H Control A/c		Cr.
To Stores (indirect material)	5.	**By FG A/c (AOH charged)***	**14.**
To GLA (AOH incurred)*	**13.**		

*** Mandatory entries in every A/c before you can close the A/c**

Dr. **FG Stock Control A/c** **Cr.**

To Balance b/f*		**By COS A/c (COGS)***	**15.**
To WIP A/c (NFC)*	**12.**	**By bal C/f***	
To Admin O/H (AOH charged)	14.		
TO Cos (Sales Return)	20		

Dr. **S & D' OH Control A/c** **Cr.**

To Stores (indirect material)	5.	**By COS A/c (SOH chgd)***	**17**
To GLA A/c (SOH incurred)*	**16.**		

Dr. **COS A/c** **Cr.**

To FG A/c (COGS)	15.	By costing P/L A/c (Cost trfd)	18
To S & D A/c (SOH chgd)	17.	By FG (Sales return)	20.

Dr. **Costing P/L A/c** **Cr.**

To Stores (abnormal def)	6.2	By (Sales) GLA A/c	19.
To COS (Cos trfd)	18		

Dr. **(GLA A/c) General ledger Adjustment A/c** **Cr.**

To Stores (purch. return)	2.	By Balance b/f	
To Costing P/L (Sales)	19.	By Stores (material purch)	1.
		By wages (wages incurred)	7.
		By FOH (FOH incurred)	10.
		By GLA (AOH incurred)	13.
		By S & D (SOH incurred)	16.

*** Mandatory entries in every A/c before you can close the A/c**

Reconciliation between cost & financial profits

Type 1

Differences are given

Start from profits as per cost books

+/- adjustments

Reach profit as per financial books

Type 2

Financial P/L will be given

Details about cost data will be given

- Prepare costsheet
- Prepare differences
- Prepare Reconciliation

VOILA!

Type 3

Prepare only 5 accounts

- Stores
- wages
- FOH
- WIP
- Costing P&L Account

Get profit as per cost books

Prepare financial P/L

Only 3 differences max

Type I

Common adjustments & its treatment

(Always start from cost books unless otherwise mentioned)

Even if you start with loss, do not change the treatment. It will be the same

Overheads underabsorbed

It means cost incurred is more in the financial books and lesser in the cost books

Therefore, profit in the cost books in higher ∴ LESS

Overheads overabsorbed

Exact Reversal of the above → ADD

Debit items included in the financial P/L & not the costsheet

These debit items reduce the financial profit which automatically increases the cost profit.

Thus cost profit → LESS

Example: income tax provided

Goodwill written off

Obsolescence charges in financial books

Credit items included in the financial P/L & not the costsheet

These credit items increases the financial profit which automatically reduces the cost profit

Thus cost profit → ADD

Example : Dividend received

Transfer fee

Bank interest received

Notional rent of own premise charged in cost accounts

Notional rent of own premise charged in cost accounts Notional costs can be charged only in cost books & not in financial books. Financial books only record actuals.

Charging Notional cost will reduce the cost books profit & thus have to be → ADD

Stocks

Opening stocks:

Opening Stocks reduce profits. Thus you will have to understand, where the profit is lesser & accordingly → ADD or LESS

Closing stock:
Closing Stocks increase profits. Thus you will have to understand, where profit is higher & accordingly → ADD or LESS

Same treatment for depreciation
→ If profits is reducing in cost books then ADD
→ If profits is increasing in financial books then LESS
Exact reversal of the above, if financial books is taken as base.

Type 2: Financial P/L will be given. Costsheet to be made & difference to be drawn

THINGS TO BE KEPT IN MIND

- Always fist ascertain the UNITS PRODUCED before drawing the costsheet
- If details pertaining to a particular elements is not available, then use the data present in the Financial P/L. For eg: Direct material, direct labour, etc
- Whatsoever may be the case, the value of closing FG will always be as per cost of production as per costsheet.
- After the costsheet is done, then draw the difference & work the difference as discussed above.

Type 3: Drawing cost & financial P/L & then the differences

Step 1: **Draw only 5 cost accounts:**

- Stores
- wages
- Costing P&L
- FOH
- WIP
- the difference between wages incurred and wages applied, is the amount of INDIRECT WAGES. Charge it to FOH A/c
- the balalnce in FOH A/c is O/H under absorbed & they are not transferred to costing P&L A/C

Step 2: Draw a Financial P&L

Dr. **Financial P&L** **Cr.**

Particulars	Amt	Particulars	Amt
To Op. Stock		By Sales	XX
RM	XX	By Clg Stock	XX
WIP	XX	RM	XX
To Mat Purchased	XX	WIP	XX
To Lab. Paid	XX	**By Income From investment ***	**XX**
To O/H Incurred	XX		
To Loss on Sales of fixed Asset *	**XX**		
To Profit for the year			

*** May or May not be there in a question.**

Step 3: Prepare reco. Statement

Profit as per cost book	XX
FOH Under absorbed	(XX)
Loss on Sale of fixed Asses	(XX)
Income from investments	XX
Profit as per financial books	XX

Important Questions:

Notes:

7. PROCESS COSTING

Types

- Basic Process Costing
- Statement of Equivalent Production
- Interprocess Profits
- Miscellaneous

Basic Process Costing

Number Of Accounts To Be Made: Process A/C
Normal Loss A/C
Abnormal Loss/Gain A/C

Process A/C

	Units	Amount		Units	Amount
To Material Introduced	XX	XX	By Normal Loss	XX	@SV
To Labour	--	XX	By Output Transferred	XX	@Exp Cost
To Expense	--	XX	to next process		
To Overheads	--	XX	By Abnormal Loss	XX	@Exp Cost
To Other Costs	--	XX			
To Abnormal Gain	XX	@Exp Cost			

Expected Cost (Exp Cost):

$$\frac{\text{Material + Labour + Expense + Overheads + Other Costs - Scrap Value of Normal Loss}}{\text{Units Introduced - Scrap Units (Normal Loss)}}$$

In Case of Abnormal Loss

Normal Loss A/C

	Units	Amt		Units	Amt
To Process A/C	XX	@SV	By Cash/Bank	XX	@SV

Abnormal Loss A/C

	Units	Amt		Units	Amt
To Process A/C	XX	@Exp Cost	By Cash/Bank	XX	@SV
			By Costing P&L A/C	XX	@ Bal. Fig.

SV-Scrap Value

In Case of Abnormal Gain

Normal Loss A/C

	Units	Amt		Units	Amt
To Process A/C	XX	@SV	By Cash/Bank A/C	XX	@SV
			By Abnormal Gain A/C	XX	@SV

Abnormal Gain A/C

	Units	Amt		Units	Amt
To Normal Loss A/C	XX	@SV	By Process Ac	Xx	Exp Cost
To Costing P&L A/c		@ Bal. Fig.			

Equivalent Production

STEP 1 **Calculation of Abnormal Loss /Gain** (Same For Fifo/Wt Avg)

	Units
Opening Wip	XXXX
+ Units Introduced	XXXX
Units In Process	XXXX
(-) Normal Loss	(XX)
Expected Output	XXXX

Unit Transferred

Closing Stock

Abnormal Loss/Gain

STEP 2 Statement of Equivalent Production (As Per Fifo)

Physical

Particulars	Units	Mat		Lab		O/H	
		%	Units	%	Units	%	Units
Op Stock	XX	Balance %					
Units Introduced Completed & Trfd	XXX	100%		100%		100%	
Ab Loss	XXX	% Will Be Given Else 100%					
Closing Stock	XXX	% Completed Will Be Used					
Expected Output	XXX	Eq. Units of Mat		Eq. Units of Lab		Eq. Units of O/H	

Abnormal gain will be in the negatives. It will always be 100%

STEP 3 Cost Per Unit (As Per Fifo)

$$\frac{\text{Current Cost of Mat}}{\text{(-) Scrap Value}}{\text{Eq. Units Of Mat}} \div \frac{\text{Current Cost of Labour}}{\text{Eq. Units Of Lab}} \div \frac{\text{Current Cost of Overheads}}{\text{Eq. Units Of O/H}}$$

STEP 4 Valuation

Transfer

Op Stock = Cost Incurred Till Date (op cost) + Further Cost In current Period	XXXX
Units Introduced Completed Transferred (UICT) (CPU x UICT)	XXXX / XXXX

Closing Stock = Eq. Units Of Mat X CPU + Eq. Units Of Lab X CPU + Eq Units Of O/H X CPU

Ab. Loss = Eq. Units Of Mat X CPU + Eq. Units Of Lab X CPU + Eq Units Of O/H X CPU

CPU = Cost Per Unit As Calculated Above

STEP 2 Statement Of Equivalent Production (As Per Wt Avg)

Physical

Particulars	Units	Mat		Lab		O/H	
		%	Units	%	Units	%	Units
Units Trfd	XX	Always 100%					
Ab Loss	XXX	% Will Be Given Else 100%					
Export O/T	XXX	% Completed Will Be Used					
Expected Output	XXX	Eq. Units of Mat		Eq. Units of Lab		Eq. Units of O/H	

***In Fifo There Will Be Op. Wip & Units Intd Completed & Trfd**

In Wt Avg There Will Only Be Units transferred

STEP 3 Cost Per Unit

$$\frac{\text{Current Cost} + \text{Opening Cost of Mat} + (-)\text{ Sv Of Normal Loss}}{\text{Eq. Units Of Mat}} + \frac{\text{Current Cost} + \text{Opening Cost of Labour}}{\text{Eq. Units Of Lab}} + \frac{\text{Current Cost} + \text{Opening Cost of Overheads}}{\text{Eq. Units Of O/H}}$$

STEP 4 Valuation

Transfer = Units Trfd X Cost PU

Closing Stock = Eq. Units Of Mat X CPU + Eq. Units Of Lab X CPU + Eq Units Of O/H X CPU

Ab. Los = Eq. Units Of Mat X CPU + Eq. Units Of Lab X CPU = Eq Units Of O/H X CPU

STEP 5

Same For Fifo & Wt Avg (Process A/C)

	Units	Amount		Units	Amount
To Op Wip	XX	XX			
To Material		XX	By Normal Loss	XX	@SV
To Labour		XX	By Transfer to next	XX	@AVP
To O/H		XX	Process		
To Abnormal Gain	XX	@AVP	By Abnormal Loss	XX	@AVP
	XX	XX		XX	XX

***@AVP = As per Valuation in step 4**

Important Questions:

Notes:

8. JOINT PRODUCTS & BY PRODUCTS

Things to remember:

All costs upto the split off point are called Joint Costs
Costs incurred post the split off point are called Further Processing Costs.

Only two types of questions are expected from this section.

Joint cost allocation methods

1 Physical measure method a.ka. Physical Output method:

Under this method, the Joint Cost will be allocated between the joint products in the ratio of the physical output received at the time of split-off.

2 Sales value @split off method:

Under this method, the Joint Cost will be allocated between the joint products in the ratio of the Sales value achieved at the time of split off.

3 Net realizable value method (NRV method):

Formula for NRV:

Sale value of the final product (post processing)	xxx
(-) Further processing cost	(xxx)
Net realizable value.	xxx

The NRV'S so arrived will be used as a ratio to allocate the Joint Costs.

It at all. a product is sold @split off, then, for that product, the sale value @split off is considered as NRV.

4 Constant Gross margin NRV:

Formula:

Step 1 - Calculate the gross margin for the firm as a whole:

Total Sale value of all the Products post processing		(xx)
(-) Further processing Costs		(xx)
(-) Joint Costs		(xx)
Gross margin		xx
Gross margin % to sales.	$\left[\frac{\text{Gross margin}}{\text{Total Sales}}\right]$ X 100	xx %

Step 2 - Allocation of Joint Cost:

	Product A	Product B
Sales value of the final product	xx	xx
(-) Gross margin	(xx)	(xx)
Total Costs	xx	xx

Further processing costs → ∴ **Joint cost allocated**

Further processing costs → ∴ **Joint cost allocated**

Depth of processing

Depth of processing refers to whether a product should be further processed or not.

1 Check profits before further processing & after further processing.

Profit before further processing:

	A	B
Sales value @split off	xx	xx
(-) Joint cost	(xx)	(xx)
Profit before further processing.	xx	xx

Profit after further processing:

	Product A	Product B
Sales value after further processing	xx	xx
(-) Further processing costs	(xx)	(xx)
(-) Joint cost	(xx)	(xx)
Profit after further processing.	xx	xx

Wherever profit is higher, choose that option.

2 Method II

- Compare NRV with Sales value @split off.
- If sale value @split off is ↑, then do not further process
- If NRV is ↑, then do further process.

Important Questions:

Notes:

9. SERVICE COSTING

Total Kms. per day - One way kms x 2 x No. of trips

Total Kms. per month - One way kms x 2 x No. of trips x No. of Days

Total Kms. per annum - One way kms x 2 x $\frac{\text{No. of trips}}{\text{x}}$ $\frac{\text{No. of Days}}{\text{x}}$ $\frac{\text{No. of Months}}{}$

* X 2 for a round trip

Passenger/Ton kms per day - $\frac{\text{No. of passengers/ No. of tonnes}}{\text{x}}$ $\frac{\text{No. of kms}}{\text{x 2 x}}$ $\frac{\text{No. of trips}}{}$

Passenger/ Ton kms per month - $\frac{\text{No. of passengers/ No. of tonnes}}{\text{x}}$ $\frac{\text{No. of kms}}{\text{x 2 x}}$ $\frac{\text{No. of trips}}{\text{x}}$ $\frac{\text{No. of Days}}{}$

Passenger/ Ton kms per annum - $\frac{\text{No. of passengers/ No. of tonnes}}{\text{x}}$ $\frac{\text{No. of kms}}{\text{x 2 x}}$ $\frac{\text{No. of trips}}{\text{x}}$ $\frac{\text{No. of Days}}{\text{x}}$ $\frac{\text{No. of months}}{}$

Note: If there are no tonnes carried, there would be no ton - kms for that trip.

Commercial Ton - kms - Average Load Carried x Total Kms.

When they say, Fare per Passenger km = Anything before the PER will be the numerator and anything after the PER is the denominator. Thus it will be, Total Fare divided by Total Passenger - kms

For Cost per passenger km - Total Cost divided by Total Passenger km.

For Cost per kilometer - Total Cost divided by Total Kilometers

Room Days = No. of rooms occupied x No. of days

10. STANDARD COSTING

1 Sales – Costs = Profit

ΔS or ΔC = ΔP – CA Final

Sale Variances

- Δin mat Cost
- Δin Lab Cost
- Δin Variable O/H Cost
- Δin Fixed O/H Cost

Material Variances

(Always as per actual Output)
Actual Output = Units.

	Standard			Actual		
	Qty.	Rate	Amt	Qty	Rate	Amt
x	SQ	SR	SC	AQ	AR	AC
y	SQ	SR	SC	AQ	AR	AC
	Total Std Qty	WT Avg Std rate	Std Cost	Total Actual Qty	x Do not calculate	Actual Cost

Material Cost Variance = (Std Cost – Actual Cost)
(Kitna kharcha hona chahiye the, aur kitna kharcha ho gaya)

- **Mat. Rate variance**
  (SR - AR) AQ.
  (kya rate mein mat. lena chahiye tha aur kya rate mein liya) × Actual Qty.
- **Mat. Qty. variance**
  (SQ - AQ) SR
  (kitna Qty use karna chahiye tha aur kitna Qty use kiya) × Std rate.
  - **Mat. mix variance**
    (Total actual Qty. × Std mix. -Actual Qty) SR
    [As per Total actual Qty, kitne Std Qty use karna tha aur kitna use kiya] × Std rate
  - **Mat. yield. Variance**
    (Total Std Qty. - Total Actual Qty) x WT Avg Std rate
    [Actual Output ke liye total kitna std Qty lagna chahiye tha aur kitna use kiya] × WT Avg Std rate

*Std mix is the proportion of each Quantity/Total Qty

Labour variances

One grade of labour

labour cost variance

- Labour rate variance
- Labour idle time variance
  idle hrs x std rate
- Labour efficiecy variance

Same as Material variances

More than 1 grade of labour

Labour cost variance

- Labour rate variance
- Labour time variance
  - Labour idle time variance
  - Labour mix\ gang variance
  - Labour efficiecy variance

Same as Material variances

Variable Overhead Variances

VOH Cost Variance = (Std Cost - Actual Cost)

- Variable Overhead Expenditure Varinace (Same as Lab. rate variance)
- Variable Overhead Efficiency Varinace (Same as Lab. Efficiency variance)

Fixed Overhead Variances

	Budget	Actual	Ab. Rates
Days	Bud. Days	Actual Days	Bud Amt / Bud days = Abrate / day
Hrs	Bud. hrs	Actual hrs	Bud Amt / Bud hrs = Abrate / hr
Units	Bud. Units	Actual units	Abd Amt / Bud unis = Abrate / Unit
Amt	Bud. Amt	Actual Amt	

FOH O/H Cost Variances = (Absrobed Amt - Actual Amt)

Actual Units — Ab. rate per unit

Fixed Overhead Expenditure Variance

[Bud. Amt - Actual Amt]

Fixed Overhead Voulme Variance

[Bud. Qty - Actual Qty] Ab. rate per unit

Fixed Overhead Calender Variance

[Bud. Days - Actual Days] x Ab. rate per day

Fixed Overhead Efficiency Variance (2)

[Bud hrs for Actual output - Actual hrs] x Ab. rate per / hr

Fixed O/H capacity Variance (1)

[Bud hrs for Actual days - Actual hrs] x Ab rate p/hr

(1) Actual days mein kitna hrs karna chahiye tha aur kitna hrs kiya.
If actual hrs are more, then FAVOURABLE (F)

(2) For the units manufactured, kitna hrs lagna chahiye tha aur kitna hrs use kiya. If more hrs are used, then ADVERSE (A)

Sales Variances

Always use Budget & Actual, in Fixed Overhead & Sales.

→ Imp: Always calculate units as per budgeted data.

Budgeted Output

Budget			Actual		
Units	SD	Amt	Units	SD	Amt
XX	XX	XX	XX	XX	XX

Total Sales value Variance = (Bud. Sales Amt – Actual Sales Amt)

Sales Price Variance	Sales Qty Variance
[Bud. SP – Actual SP] x Actual Qty.	[Bud Sales Qty – Actual Sales Qty] X Bud Selling price
[If actual price is ↑ Then favourable]	[If actual sales Qty is ↑ then favourable]

Important Questions:

Notes:

11. MARGINAL COSTING

Format of Cost – Volume – Profit (CVP) Analysis

Sales (Selling price p.u. x Units)	XX
(-) Variable Costs (Variable Cost p.u. x Units)	(XX)
Contribution (Contribution p.u. x Units)	XX
(-) Fixed Cost	(XX)
Profit	**XX**

Some Formulae

Contribution per unit

Selling price per unit

(-) Variable Cost per unit

Contribution

Sales

(-) Variable Costs

OR

Profit

(+) Fixed Costs

Profit Volume Ratio:

That portion of Sales that converts to Contribution. It is expressed as a %

$$\frac{\text{Contribution}}{\text{Sales}} \times 100 \quad \textbf{OR} \quad \frac{\text{Contribution per unit}}{\text{Selling Price per unit}} \times 100$$

* If PV ratio is let's say 40%, the balance is 60% is Variable Cost and vice versa.

Break Even Point (BEP):

Point at which, there is neither profit nor loss.

$\frac{\text{Fixed Costs}}{\text{Contribution p.u.}}$ = Breakeven (in units) **OR** BEP Units x Selling price per unit = Break even Sales **OR** Fixed Costs / PV Ratio = Break even Sales

Margin Of Safety (MOS):

Sales over and above the break even sales are MOS sales

Total Sales (units) – Breakeven Point (units) = MOS (units)

$\frac{\text{Profit}}{\text{PV Ratio}}$ = MOS Sales

Total Sales x PV Ratio = Contribution

Break even Sales (x%) / BES X PV Ratio = Fixed Costs

$\text{P/V ratio} = \frac{\text{Fixed cost}}{\text{BES}}$ $\quad \text{BES} = \frac{\text{FC}}{\text{P/V ratio}}$

$\text{P/V ratio} = \frac{\text{Profit}}{\text{Mos}}$ $\quad \text{Mos} = \frac{\text{Profit}}{\text{P/V}}$

Margin of Safety Sales (100 – x%) / MOS X PV Ratio = Profit

△ Formulas

$\frac{\triangle \text{Profit}}{\triangle \text{Sales}}$ = PV Ratio

$\frac{\triangle \text{Total Cost}}{\triangle \text{Units}}$ = VC Per unit

All Changes in variable costs to be done on a PER UNIT BASIS

All Changes in Fixed Costs to be done on TOTALITY BASIS

Indifference Point = $\frac{\text{Extra FC}}{\text{Saving in VC}}$

Below the Indifference Point – Choose the option with Lower FC

@ the Indifference Point – Choose either

Above the Indifference point - Choose option with higher FC

Shut Down Point

$$\frac{\text{Avoidable Fixed Costs*}}{\text{PV Ratio}} = \text{Shut Down Point}$$

Avoidable Fixed Costs = Total Fixed Costs Less Unavoidable Fixed Costs

Interpretation

Below the Shut down Point - Shut down

@ the Shut down Point - either Shut down or Operate

Above the Shut down Point - Operate

Important Questions:

Notes:

12. BUDGETS AND BUDGETARY CONTROL

Types of budget

Flexible budgets

A budget will be provided at a particular level & you will be asked to draw a budget @ different capacity levels (Take into consideration the cost behaviour i.e whether a cost is fixed, variable, semi-variable and then change the costs accordingly)

Functional budgets

Flow of functional budgets

Flow of functional budgets

Sales

\+ closing stock of FG

(-) opening stock of FG

Production budget

× kgs required p.u

Consumption budget

\+ closing stock of RM

(-) opening stock of RM

Purchase budget (Qty)

x Purchase Price

Purchase Budget (₹)

production budget

× Labour hours required p.u

Labour budget (hrs)

x rate per hr

Labour Budgets (hrs)

Types of production budget

Type 1

Where it will be given that x% of current sales and y% of next month's sale to be produced for such questions follow the following steps :

Step 1	Step 2	Step 3
Draw annual production plan.	For quarter 1 to 3, follow the scheme in the question	For quarter 4, x% of current sales will be done & the balance will be from annual production budget

Type 2

Under this case , opening stock & closing stock details are given,

Follow:

Sales
+ closing stock of FG
(-) opening stock of FG
Production Budget

It can be monthly, quarterly, Annual

Budget ratios:

Capacity Ratio: $\frac{\text{Actual Hours for Actual Output}}{\text{Budgeted Hours}} \times 100$

Efficiency Ratio: $\frac{\text{Standard Hours for actual output}}{\text{Actual Hours for Actual Output}} \times 100$

Activity Ratio: $\frac{\text{Standard Hours for actual output}}{\text{Budgeted Hours}} \times 100$

A = C x E

Activity Ratio = Capacity Ratio x Efficiency Ratio

Important Questions:

Notes:

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This comprehensive guide is a detailed resource to help you navigate the extensive list of formulas and formats of costing. The book offers all the necessary formulas, each explained in the attached audio book. It will simplify the sometimes intimidating syllabus of costing making it a must have for anyone looking at enhancing the ease of preparation & excelling.

All the Best & Happy Learning.

About the author:

Prof. Nimeet Piti is a qualified Chartered Accountant & Company Secretary clearing all levels in first attempt. He did complete his graduation, CA and CS in the same year and was holding 3 charters at less than age 21. Since qualification, he has been actively involved in the family owned textile business , a cut throat limited margin business where he had the opportunity of seeing all the costing concepts come up live and aims to bring those live experiences to blend with your learning objectives creating not just the HOW, but also the WHY.

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