CA INTER

Formula Sheet

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Material Cost

2.1 Re-order Stock Level	Maximum Consumption × Maximum Re-order Period	
OR		
2.2 Re-order Stock Level	Minimum Stock Level + (Average Rate of Consumption × Average Re- order period)	
2.3 Minimum Stock Level	Minimum Stock Level = Re-order Stock Level - (Average Consumption Rate × Average Re-order Period)	
2.3 Maximum Stock Level	Maximum Stock Level = Re-order Level + Re-order Quantity - (Minimum Consumption Rate × Minimum Re-order Period)	
2.3 Maximum Stock Level	Maximum Stock Level = Re-order Level + Re-order Quantity - (Minimum Consumption Rate × Minimum Re-order Period)	
2.3 Average Stock Level	Minimum Stock Level + 1/2 Re-order Quantity	
2.3 Average Stock Level	Maximum Stock Level + Minimum Stock Level	
Ordering Cost / Carrying Cost	Tca = No. of Order \times Ordering cost per order $Tca = \frac{A}{Q} \times Ca$	
2.3 EOQ	2 × Annual Requirement (A) × Cost per order (O) Carrying Cost per unit per annum (C)	
2.3 Inventory Turnover Ratio	Cost of materials consumed during the period Cost of average stock held duirng the period Average stock = 1/2 (opening stock + closing stock)	
Average no. of days of Inventory holding	365 days /12 months Inventory Turnover Ratio	



Employee Cost

2.1 Straight Time Rate Syste	em Wages	Time Worked (Hours/ Days/ Months) × Rate for the time
2.1 Straight Piece Rate Syste	em Wages	Number of units produced × Rate per unit
2.1 Halsey Premium Plan	Wages	Time taken × Time rate + 50% of time saved × Time rate
Rowan Premium Plan Wages	Time taken ×	Rate per hour + Time Saved
2.3 Absorption rates of Employee cost	Rate Total Per = Hour	al estimated monetary benefits and costof non monetary benefits Budgeted direct employee hour-Normal idletime
2.3 Efficiency in %		d as per standard ne Taken
2.3 Employee Productivity	Standard	d time for doing actual work Actual time taken
2.3 Employee (Labour) Turnover Replacement Method = Number of employee		per of employees Replaced during the period x 100 number of employees during the period on roll
2.3 Employee (Labour) Turnover Separation Method		er of employees Replaced during the period × 100 number of employees during the period on roll
2.3 Employee (Labour) Turnover Flux Method Number of employees Separated + Number of employees Replaced during the period Average number of employees during the period on roll		
Employee Turnover rate by Flux Method	No. of Sep Avera	aration+ No. of Replacements+No. of new Joinings x 100 age no. of employees during the period on roll
OR		
1.1 Employee Turnover rate by Flux Method		f Separations+No. of Accessions of employees during the period on roll × 100
Average number of Employees	No. of empl	oyees at beginning + No. of employees at end of the period \times 100
Equivalent Employee (Labour) Turnover rate		E Turnover rate for the period × 365 wher of days in the period



Overhead

Percentage of Direct Material Cost	Overhead rate = $\frac{\text{Total Production Overheads of a Department}}{\text{Budgeted Direct Material cost of all products}}$	X 100
Percentage of Prime Cost Method	Overhead rate = Total Production Overheads of a Department Prime cost	X 100
Percentage of Direct Labour Cost	Overhead rate = Total Production Overheads of a Department Prime cost	X 100
Percentage of Direct Labour Cost	Overhead rate = Total Production Overheads of a Department Direct Labour cost	X 100
Labour Hour Rate Method	Direct Labour Hour Rate = Total Production Overheads of a Department Direct Labour Hour	X 100
Rate per unit of Output Method	Overheads Rate = Amount of Overheads Number of units	
Normal overhead Rate	Actual amount of overheads Actual base	
Pre-determined Rate	Budgeted amount of overheads Budgeted base	
1.1 Blanket Rate	Total overheads for the factory Total number of units of base for the factory	
Departmental Overhead Rate	Overheads of department or cost centre Corresponding base × 100	
Pre-determined overhead rate	Estimated / Normal overheads for the period Budgeted Number of units during the period	
Supplementary Rate	Under /Over - absorbed OH Units produced	



Activity Based Costing

1.1 Activity Cost Total cost of activity
Activity driver

Traditional Absorption
Costing / Recovery Rate

Budgeted level of Overheads

Budgeted level of Activity

(Units, Machine hour, Labour hour, etc.)

1 Identify different activities within organisation

Break organisation down into many very small activities



Create a Cost Pool for activities

2.2 Stages in ABC

5 Support activities are then spread across products

4 Calculate activity cost driver rates for each activity

Total Cost Pool
Activity Driver

3 Determine activity cost drivers

To change overheads collected in cost pools to products



Cost Sheet

COST SHEET/STATEMENT

Specimen Format of Cost Sheet for a Manufacturing entity

	Particulars	Total Cost (₹)	Cost per unit (₹)
1.	Direct Material Consumed:	xxx	
	Add: Opening Stock of Raw Material	xxx	
	Add: Purchases of Raw Material	XXX	
	Add: Expenses related to Purchase	(XXX	
	Less: Sale of Scrap of Material Less: Closing Stock	(xxx) (xxx)	
	bess. Glosnig Grock	XXX	
2.	Direct employee (labour) cost	xxx	
3.	Direct expenses	xxx	
4.	Prime Cost (1+2+3)	xxx	
5.	Add: Works/Factory Overheads	XXX	
6.	Gross Works Cost (4+5)	xxx	
7.	Add: Opening Work in Process	XXX	
8.	Less: Closing Work in Process	(xxx)	
9.	Works/ Factory Cost (6+7-8)	XXX	
10.	Add: Quality Control Cost	XXX	
11.	Add: Research and Development Cost	xxx	
12.	Add: Administrative Overheads (relating to production activity)	xxx	
13.	Less: Credit for Recoveries/Scrap/By Products/	(xxx)	
14.	misc. income Add: Packing cost (primary)	xxx	
15.	Cost of Production (9+10+11+12-13+14)	xxx	
16.	Add: Opening stockof finished goods	xxx	
17.	Less:Closing stockof finished goods	(xxx)	
18.	Cost of Goods Sold (15+16-17)	xxx	
19.	Add: Administrative Overheads(General)	xxx	
20.	Add: Marketing Overheads:		
	Selling and Distribution Overheads	xxx	
21.	Cost of Sales (18+19+20)	xxx	



Unit & Batch Costing

1.1	Cost per unit	Total Cost of Production	
	oost per unit	No. of units produced	
1.1	EBQ	$\sqrt{\frac{2DS}{C}}$	
1.1	Annual Set up Costs & Carrying Cost of Producing EBQ $= \sqrt{2 \times D \times 5 \times C}$		
1.1	Number of Set ups Per Annum	Annual Demand of Finished Goods EBQ	
1.1	Annual Set up Cost	No. of Set ups x Cost per Set up	
11	Time Between Two	360 Days / 12 Months	

Lil	Set ups	No. of Set ups per annum
1.1	Annual Carrying	EBQ × Carrying Cost per unit

Cost	2
	Total Cost of a Patch

	Cost per unit	Total Cost of a Batch	
1.1	Cost per unit	Number of Units produced in a Batch	



Process & Operation Costing

1.1 V	alue of units transferred to Process A/c	Total Cost-Realisable value of normal loss Total input units - Normal loss units × Units transferred
1.1	Value of Abnormal loss	Total Cost - Realisable value of normal loss Total input units - Normal loss units × Abnormal loss units
1.1	Value of Abnormal Gain	Total Cost - Realisable value of normal loss Total input units -Normal loss units × Abnormal Gain units
1.1	Value of Abnormal Gain	Equivalent completed units = Actual no. of units in the process of manufacture x Percentage of work completed

Service Costing

1.1	Weighted Average or Absolute basis	Σ (Weight Carried × Distance)1 + (Weight Carried × Distance)2 ++(Weight Carried × Distance)n
1.1	Simple Average or Commercial basis	\sum (Distance ₁ + Distance ₂ + + Distance _n) $\times \left(\frac{W_1 + W_2 + + W_n}{n}\right)$
1.1	Simple Average or Commercial basis	Σ (Distance ₁ + Distance ₂ + + Distance _n) $\times \left(\frac{W_1 + W_2 + + W_n}{n}\right)$

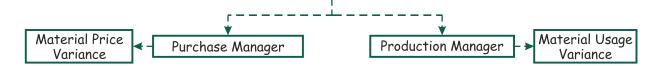


Standard Costing

Direct Material Variance

Direct Material Cost Variance is difference between Standard cost of INPUTS (i.e.MATERIALS) specified and the Actual cost Material used.

Responsibility of Material Cost Variance



ANALYSIS OF MATERIAL VARIANCE

Material Cost Variance

(Standard Material Cost - Actual Material Cost) (SQ \times SR - AQ \times AR)

{[Standard Quantity of input for Actual output(SQ) x Standard rate of input (SR)] -[Actual Quantity consumed (AQ) x Actual rate of input (AR)]}



Material Price Variance
(Standard rate -Actual rate)

× Actual quantity of input

(SR - AR) × AQ

Material Usage Variance

(Standard quantity of input for actual output - Actual input) \times Standard rate (SQ - AQ) \times SR

Derivation of Sub Usage Variance Adding & Subtracting SMQ from both sides (SQ - SMQ + SMQ - AQ) \times SR (SQ - SMQ) \times SR + (SMQ - AQ) \times SR

Material Sub Usage Variance (When the total quantity of standard and actual is different) (SQ - SMQ) × SR

Material Mix Variance
(When the ratio of standard and actual quantity is different)
(SMQ - AQ) × SR

Where, SMQ = Standard Mix Quantity

Calculated as Total of Actual Quantity in Standard Ratio

Variance Table = If, SM > AM = (F)

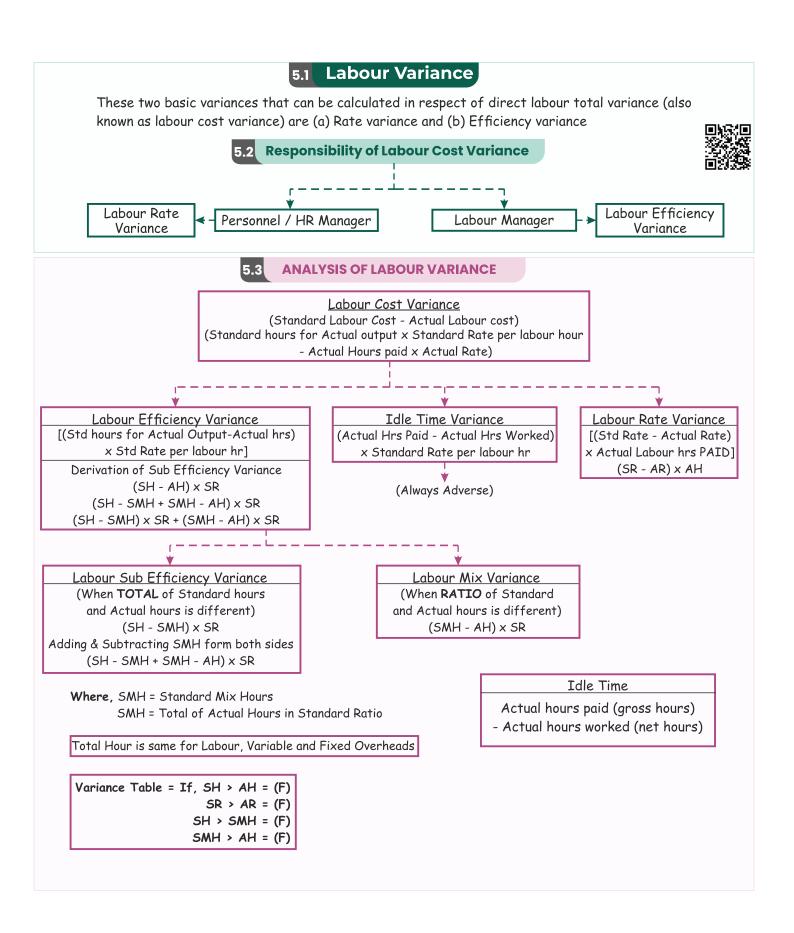
SR > AR = (F)

SM > SMM = (F)

SMM > AM = (F)







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Overhead Variance

a) Fixed Overhead Variances

b) Variable Overhead Variances

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ANALYSIS OF VARIABLE OVERHEAD VARIANCES

Variable Cost Variance

(Std Budgeted Variable OH - Actual Variable OH)

(Std Variable OH Rate p.u x Actual output - Actual Variable Rate p.u x Actual Output)

(Std Hours for Actual × Std VOH Rate per hr - Actual Hrs × Actual Variable Rate / Hrs)

Variable OH Expenditure Variance

(Std variable OH Rate per hour

- Actual Variable OH Rate per hr) x Actual hrs worked

Variable OH Efficiency Variance

(Std Hours for Actual Production

- Actual hrs worked x

Std Variable OH Rate per hour

Total Hour is same for Labour, Variable and Fixed Overheads

Very Important Point:

Standard Variable Overhead Rate > Actual Variable Overhead Rate = (F)

Standard Hours > Actual Hours = (F)

6.2

ANALYSIS OF FIXED OVERHEAD VARIANCES



Fixed Overhead Cost Variance

(Absorbed Fixed Overheads - Actual fixed overhead)

(Actual production x RECOVERY RATE P.U.- Actual Fixed Overheads)

(Actual Production x Standard Hours per unit x Standard Rate Per Hour - Actual Fixed Overhead)

Fixed OH Expenditure Variance

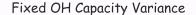
Budgeted Fixed OH - Actual Fixed OH

Fixed OH Volume Variance

(Budgeted Production - Actual Production) x RR p.u. (Budgeted Prodn - Actual Prodn) x Std hours x RR per hr. (Budgeted Prodn x Std Hours) - (Actual Prdn x (Std hr)] x RR/hr.

(Budgeted hrs for Budget Prdn - Std Hrs. for Actual Prdn) x RR per hour

(ALWAYS CALCULATED IN TERM OF HOURS)



(Budgeted Hrs - Actual hours) x RR per hour

Fixed OH Efficiency Variance

(Std. hours for

Actual production - Actual hours)

x RR per hour

Fixed OH Calender Variance

(Budgeted days - Actual days) x RR per days

Fixed OH Revised

Capacity Variance (Budgeted hours for Actual days - Actual Hours) x Recovery Rate per hour



Marginal Costing

	Magainalasat	Variable cost = Direct labour + direct Material + Direct Expenses +
1.1	Marginal cost	Variable overheads

S - V = C = F
$$\pm$$
 P

Where, S = Selling price per unit, V = Variable cost per unit,
C = Contribution, F = Fixed Cost

1.1 P/V Ratio
$$\frac{Contribution}{Sales} \times 100$$
 OR $\frac{Change in contribution / Profit}{Change in sales} \times 100$

1.1 Break-even point in units Fixed costs Contribution per unit

Contribution per unit Contribution per unit Desired / Required Sales Fixed Cost + Desired Profit Contribution per unit Desired / Required Sales Fixed Cost + Desired Profit

P/V Ratio

i. Sales - Variable cost = Fixed cost + Profit /Loss

By multiplying and dividing L.H.S. by S

ii.
$$\frac{S(S-V)}{S} = F+P$$

iii. $S \times P/V$ Ratio = $F+P$ or Contribution $\left(P/V \text{ Ratio } = \frac{S-V}{S} \times 100\right)$

iv. BES $\times P/V$ Ratio = Fixed Cost $\left(\cdot \right)$

v. BES = $\frac{Fixed \ cost}{P/V \ Ratio}$

vi. $P/V \ Ratio = \frac{Fixed \ cost}{BES}$



Cash break- even point

Cash Fixed Costs

P/V Ratio

vii S × P/V Ratio = Contribution (Refer to iii)

viii.

P/V Ratio =
$$\frac{Contribution}{Sale}$$
 X 100

ix. $(BES + MS) \times P/V$ Ratio = Contribution (Total sales = BES + MS)

x. (BES \times P/V Ratio) + (MS \times P/V Ratio) = F + P

By deducting (BES \times P/V Ratio) from L.H.S. and F from R.H.S. in (x) above, we get:

xi. Margin of Safety × P/V Ratio = Profit

xii. P/V Ratio = $\frac{Change \text{ in profit}}{Change \text{ in sales}} \times 100$

xiii. P/V Ratio = $\frac{Change \text{ in contribution}}{Change \text{ in sales}} \times 100$

xiv. Profitability = $\frac{Contribution}{Key factor}$

xv. Margin of Safety = Total Sales - BES or $\frac{Profit}{P/V}$ Ratio

xvi. BES = Total Sales - MS

xvii. Margin of SafetyRatio = $\frac{\text{Total sales - BES}}{\text{Total Sales}}$



Budgetary Control

1.1	Production Budget	Sales Budget - Opening inventory + Planned closing inventory
1.1	Actual Capacity Usage Ratio	Actual Hours worked Max. possible working hours in a period × 100
1.1 E	Actual Usage of Budgeted Capacity Ratio	Actual working Hours Budgeted Hours × 100
1.1	Standard Capacity Usage Ratio	Budgeted Hours $\overline{\rm Max.~possible~hours~in~the~budgeted~period} \times 100$
1.1	Calendar Ratio	Available working days Budgeted working days × 100
1.1	Efficiency Ratio	Standard Hours Actual Hours × 100
1.1	Activity Ratio	Standard Hours × 100

