

COSTSHEET-FORMAT

<u>Particulars</u>	<u>Amount</u>	<u>Amount</u>
Opening Stock of Raw Material	***	
<u>Add:</u> Purchase of Raw materials	***	
<u>Add:</u> Purchase Expenses	***	
<u>Less:</u> Closing stock of Raw Materials	***	
Raw Materials Consumed	***	
Direct Wages (Labour)	***	
Direct Charges	***	
Prime cost (1)		***
<u>Add :-</u> Factory Over Heads:		
Factory Rent	***	
Factory Power	***	
Indirect Material	***	
Indirect Wages	***	
Supervisor Salary	***	
Drawing Office Salary	***	
Factory Insurance	***	
Factory Asset Depreciation	***	
Works cost Incurred		***
<u>Add:</u> Opening Stock of WIP	***	
<u>Less:</u> Closing Stock of WIP	***	
Works cost (2)		***
<u>Add:-</u> Administration Over Heads:-		
Office Rent	***	
Asset Depreciation	***	
General Charges	***	
Audit Fees	***	
Bank Charges	***	
Counting house Salary	***	
Other Office Expenses	***	
Cost of Production (3)		***
<u>Add:</u> Opening stock of Finished Goods	***	
<u>Less:</u> Closing stock of Finished Goods	***	
Cost of Goods Sold		***
<u>Add:-</u> Selling and Distribution OH:-		
Sales man Commission	***	
Sales man salary	***	
Traveling Expenses	***	
Advertisement	***	
Delivery man expenses	***	
Sales Tax	***	
Bad Debts	***	
Cost of Sales (5)		***
Profit (balancing figure)		***
Sales		***

MATERIAL

- 1) Reorder level = Maximum usage * Maximum lead time
 (Or) Minimum level + (Average usage * Average Lead time)
 (or) Safety stock + Lead time Consumption
- 2) Minimum level = Reorder level – (Average usage * Average lead time)
- 3) Maximum level = Reorder level + Reorder quantity – (Minimum usage * Minimum lead time)
 (Or) Safety Stock + EOQ
- 4) Average level = $\frac{\text{Minimum level} + \text{Maximum level}}{2}$ (or)
 Minimum level + $\frac{1}{2}$ Reorder quantity
- 5) Danger level (or) safety stock level
 = Minimum usage * Minimum lead time (preferred)
 (or) Average usage * Average lead time
 (or) Average usage * Lead time for emergency purposes
- 6) EOQ (Economic Order Quantity) = $\sqrt{2AO/C}$
 Where A = Annual usage units
 O = Ordering cost per unit
 C = Annual carrying cost of one unit
 i.e. Carrying cost % * Carrying cost of unit
- 7) Carrying Cost = Quantity Ordered/2 * Purchase Price for Inventory * Carrying Cost Expressed as % of avg. inventory
 (Or) Average Inventory * Carrying cost per order pa
- 8) Average inventory = EOQ/2
- 9) Order cost = Number of Orders * ordering cost
- 10) Number of Orders = Annual Demand / EOQ
- 11) Inventory Turnover (T.O) Ratio = $\frac{\text{Material consumed}}{\text{Average Inventory}}$

$$12) \text{ Inventory T.O Period} = \frac{365}{\text{Inventory Turn over Ratio}}.$$

$$13) \text{ safety stock} = \frac{\text{Annual Demand}}{365} * (\text{Maximum lead time} - \text{Average lead time})$$

$$14) \text{ Total Inventory cost} = \text{Ordering cost} + \text{Carrying cost of inventory} + \text{Purchase cost}$$

ABC Analysis :- Materials are categorized into

<u>Particulars</u>	<u>Quantity</u>	<u>Value</u>
“A” – Important material	10%	70%
“B” – Neither important nor unimportant	20%	20%
“C” – UN Important	70%	10%

LABOUR

1) Time rate system = Hours worked * Rate per hour (Basic wages)

2) Piece rate system:

i) Straight piece rate earnings = Number of units produced * Rate per

unit ii) Differential Piece rate

a) F.W.Taylor's differential rate system

» 83% of piece rate when below standard

» 125% of piece rate when above or at standard

b) Merrick differential or multiple piece rate system

Efficiency level

» up to 83%

» 83% to 100%

» Above 100%

Piece rate

» Normal piece rate

» 110% of Normal rate

» 120% of Normal rate

iii) Gantt Task and Bonus system

Output

» Below standard

» At standard

» Above standard

Payment

» Time rate (guaranteed)

» 20% Bonus of Time rate

» 120% of ordinary piece rate

iv) Emerson's Efficiency system

Efficiency

» Below 66.7%

» from 66.7%
to 100%

» Above 100%

Payment

» Hourly Rate

» Hourly rate (+) increasing bonus according to degree
of efficiency on the basis of step bonus rates

» Hourly rate (+) 20% Bonus (+) additional bonus of 1%
of hourly rate for every 1% increase in efficiency

v) Halsey Premium Plan = Basic wages + 50% of time saved * Hourly Rate

vi) Halsey Weir Premium Plan = Basic wages + 30% of time saved * Hourly rate

vii) Rowan Plan = Basic wages + $\frac{\text{Time saved}}{\text{Time allowed}}$ * Basic Wages

ix) Barth's System = Hourly rate * $\sqrt{\text{Std time} * \text{Time taken}}$

Labour Turnover:-

1) Separation rate method = $\frac{\text{Separation during the period}}{\text{Average No. of worker's during the period}}$

2) Replacement method
= $\frac{\text{Number of replacements}}{\text{Average No. of worker's during the period}}$

3) Labour flux rate = $\frac{\text{No. of separation} + \text{No. of replacement}}{\text{Average No. of worker's during the period}}$

OVERHEAD

Reapportionment of service department expenses over production department :-

1) *Direct redistribution method:*

- *Service department costs are divided over production department.*
- *Ignore service rendered by one dept. to another*

2) *Step method of secondary distribution :*

- *Service department which serves largest number of service department is divided first and go on.*

3) *Reciprocal service method:*

i) *Simultaneous equation method*

- *Find with the help of Equation.*

ii) *Repeated distribution method:*

- *Service department cost separated repeatedly till figure of service dept. is exhausted or too small.*

iii) *Trial and Error method:*

- *Cost of service department is apportioned among them repeatedly till the amount is negligible and the total is divided among production department.*

Apportionment of overhead expenses – Basis

a) *Stores service expenses = Value of materials consumed*

b) *Factory rent = Floor area*

c) *Municipal rent, rates and taxes = floor area*

d) *Insurance on Building and machinery = Insurable value*

e) *Welfare department expenses*

f) *Supervision*

Number of employees

- g) Amenities to employee's*
- h) Employees liability for insurance*
- j) Lighting power = Plug point*
- k) Stores over heads = Direct material*
- l) General over heads = Direct wages*

Reapportionment of service department cost to production department :-

- 1) Maintenance dept. = Hours worked for each dept.*
- 2) Pay roll and time keeping = Total labour (or) machine hours (or) Number of employees in each department*
- 3) Employment (or) Personnel department = Rate of labour T.O (or) No. of employees of each department*
- 4) Stores Keeping department = No. of requisitions (or) value of materials of each department*
- 5) Purchase department = No. of purchase orders value of materials of each department*
- 6) Welfare, ambulance, canteen, service, recreation room expenses
= No. of employees in each department.*
- 7) Building service department = Relative area each dept.*
- 8) Power house (electric power cost) = Housing power, horse power machine hours,
No. of electric points etc.*
- 9) Power house = Floor area, cubic content.*

Machine Hour Rate Format

<i>Particular</i>	<i>Amount</i>
1. <i>Standing Charges (Fixed Charges)</i>	
<i>Supervisors Salary</i>	
<i>Rent</i>	
<i>General lighting</i>	
<i>Departmental and General Overheads</i>	
<i>Operator Wages</i>	
<i>Insurance</i>	
<i>Fringe Benefit</i>	
2. <i>Machine Expenses (variable Expenses)</i>	
<i>Depreciation</i>	
<i>Repair & maintenance</i>	
<i>Power</i>	
<i>Chemical</i>	
<i>Wages of helper</i>	
<i>Electricity</i>	
<i>Consumable Store</i>	
<i>Total (1+2)</i>	

Machine Rate per Hour = Total Amount Calculated on above / no of Productive hours of machine

Cost reconciliation statement

(When profit as per cost accounts is taken as a starting point)

Particular	Rs.	Rs
A. Profit as per Cost Accounts		
B. Add. Items having the effect of higher profit in financial accounts:		
(a) Over-absorption of Factory Overhead/ Office & Adm. Overheads/ Selling & Distribution Overhead in Cost Accounts		
(b) Over-valuation of Opening Stock of Raw Material / Work-in-progress / Finished goods in Cost Accounts		
(c) Under-valuation of Closing Stock if Raw Material / Work-in-progress / Finished Goods in Cost Accounts		
(d) Income excluded from Cost Accounts : (e.g.) Interest & Dividend on Investments		
Rent received		
Transfer Fees received		
C. Less: Items having the effect of lower profit in financial accounts:		
(a) Under-absorption of Factory Overhead/ Office & Adm. Overheads/ Selling & Distribution Overhead in Cost Accounts		
(b) Under-valuation of Opening Stock of Raw Material / Work-in-progress / Finished goods in Cost Accounts		
(c) Over-valuation of Closing Stock if Raw Material / Work-in-progress / Finished Goods in Cost Accounts		
(d) Expenses excluded from Cost Accounts: (e.g.)		
Bad Debts written off		
Preliminary Expenses/ Discount on Issue Written off		
Legal Charges		(.....)
D. Profit as per Financial Accounts (A+B-C)		
Note: in case of 'Loss', the amount shall appear as a minus item.		

Note: When profit as per cost account is calculated from profit as per financial accounts, then items which are added above will be deducted and vice-versa.

JOINT PRODUCT AND BY PRODUCT COSTING

Methods of apportioning joint cost over joint products :

- 1) *Physical unit method* = Physical base to measure (i.e.) output quantity is used to separate joint cost. Joint cost can be separated on the basis of ratio of output quantity. While doing this wastage is also to be added back to find total quantity.
- 2) *Average unit cost method* = In this method joint cost is divided by total units Produced of all products and average cost per unit is arrived and is multiplied With number of units produced in each product.
- 3) *Survey method or point value method* = Product units are multiplied by points or weights and the point is divide on that basis.
- 4) *Standard cost method* = Joint costs are separated on the basis of standard cost set for respective joint products.
- 5) *Contribution margin method* = Cost are divided into two categories (i.e.) variable and fixed. Variable costs are separated on unit produced. Fixed on the basis of contribution ratios made by different products.
- 6) *Market value method:-*
 - a) *Market value at the point of separation:* Joint cost to sales revenue percentage is found which is called as multiplying factor =
$$\frac{\text{Joint cost}}{\text{Sales Revenue}} \times 100$$
 - Joint cost for each product is apportioned by applying this % on sales revenue of each product.
 - Sales revenue = Sales Revenue at the point of separation.
 - This method cannot be done till the sales revenue at the separation point is given.
 - b) *Market value after processing:* Joint cost is apportioned on the basis of total sales Value of each product after further processing.
 - c) *Net Realizable value method* = Form sales value following items are deducted
 - i) Estimated profit margin
 - ii) Selling and distribution expenses if any included.
 - iii) Post split off cost

The resultant amount is net realizable value. Joint cost is apportioned on this basis.

Bi-product→Method of accounting

- *Treat as other income in profit and loss a/c*
- *Net Realizable value of Bi-product is reduced from cost of main product.*
- *Instead of standard process, Standard cost or comparative price or re-use price is credited to joint process a/c.*

OPERATINGCOSTING

No.	Enterprise	Cost per unit
1.	Railways or bus companies	Per passenger-kilometer
2.	Hospital	Per patient/day, per bed/day
3.	Canteen	Meals served , cups of tea
4.	Water supply service	Per 1000 gallons
5.	Boiler House	1000 kg of steam
6.	Goods Transport	Per tonne km, quintal km
7.	Electricity Boards	Per kilowatt – hours
8.	Road maintenance department	Per mile or road maintenance
9.	Bricks	One thousand
10.	Hotel	Per room/day

All cost is classified into 3 categories:

- 1) Standing charges (or) fixed cost
- 2) Running cost (or) variable cost
- 3) Maintenance charges (or) semi variable cost

Running charges = Fuel, Driver Wages, Depreciation and oil etc.

Maintenance charges = Supervision salary, Repairs and Maintenance

Operatingcostsheet :-

	Particulars	Total cost	Cost per km
A	<u>Standing charges :-</u> License fees Insurance Premium Road tax Garage rent Driver's wages Attendant-cum-cleaner's wages Salaries and wages of other staff		
	Total		
B	<u>Running charges :-</u> Repairs and maintenance Cost of fuel (diesel, petrol etc.) Lubricants, grease and oil Cost of tires, tubes and other spare parts Depreciation		
	Total		
C	Total charges [(A) + (B)]		

CONTRACTCOSTING

Format:-

Contract Account

<i>Particulars</i>	<i>Rs.</i>	<i>Particulars</i>	<i>Rs.</i>
<i>To Materials</i>		<i>By materials returned</i>	**
<i>a. Purchased directly</i>	**	<i>By Material sold (cost price)</i>	**
<i>b. Issue from site</i>	**		
<i>c. Supplied by contractee</i>	**		
<i>To Wages and salaries</i>	**	<i>By WIP</i>	
<i>To Other direct Expenses</i>	**	<i>Work certified</i>	**
<i>To Sub-contractor fees</i>	**	<i>Work Uncertified</i>	**
<i>To Plant & Machinery (purchase price/Book value)</i>	**	<i>By Materials at site</i>	**
<i>To Indirect expenditure (apportioned share of overheads)</i>	**	<i>By Plant and machinery(WDV)</i>	**
<i>To Notional profit (Surplus)</i>	**		
<i>Total</i>		<i>Total</i>	**

Calculation Profit of Incomplete contract :-

1) When % of completion is less than or equal to 25% then no profit will be taken into account.

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2) When % of completion is above 25% but less than 50% :

$$= 1/3 * \text{Notional Profit} * \{ \text{Cash received} / \text{Work certified} \}$$

3) When % of completion 50% to 90% :

$$= 2/3 * \text{Notional Profit} * \{ \text{Cash received} / \text{Work certified} \}$$

[Balance is transferred to reserve a/c]

4) When the contract completed more than 90 %

- a) *Estimated total profit * {Work certified / Contract price}*
 b) *Estimated total profit * {Cash received / Contract price}*
 c) *Estimated total profit * {Cost of work done / Estimated total profit}*
 d) *Estimated total profit * { $\frac{\text{Cost of work done} * \text{Cash received}}{\text{Estimated total cost} * \text{Work certified}}$ }*

5) *Work-In-Progress is shown in Balance Sheet as follows:-*

Balance sheet

<i>Liabilities</i>	<i>(RS)</i>	<i>Asset</i>	<i>(Rs)</i>
<i>Profit & loss a/c (will include)</i>		<i>Work-in-progress</i>	
<i>Profit on contract (Specify the contract number)</i>		<i>Value or work certified</i>	
<i>Less : Loss on contract (Specify the contract number)</i>		<i>Cost of work uncertified</i>	
<i>Sundry creditors (will include)</i>		<i>Less :- Reserve for unrealized profit</i>	
<i>Wages accrued</i>		<i>Less :- Amount received from contractee</i>	
<i>Direct expenses accrued</i>			
<i>Any other expenses (Specify)</i>			

6) *Escalation Clause = This is to safeguard against likely change in price of cost elements rise by and certain % over the prices prevailing at the time tendering the contractee has to bear the cost.*

MARGINALCOSTING

Statement of profit:-

<i>Particulars</i>	<i>Amount</i>
<i>Sales</i>	***
<i>Less:- Variable cost</i>	***
<i>Contribution</i>	***
<i>Less:- Fixed cost</i>	***
<i>Profit</i>	***

1) $Sales = Total\ cost + Profit = Variable\ cost + Fixed\ cost + Profit$

2) $Total\ Cost = Variable\ cost + Fixed\ cost$

3) $Variable\ cost = It\ changes\ directly\ in\ proportion\ with\ volume$

4) $Variable\ cost\ Ratio = \{Variable\ cost / Sales\} * 100$

5) $Sales - Variable\ cost = Fixed\ cost + Profit$

6) $Contribution = Sales * P/V\ Ratio$

7) Profit Volume Ratio [P/V Ratio]:-

- $\{Contribution / Sales\} * 100$
- $\{Contribution\ per\ unit / Sales\ per\ unit\} * 100$
- $\{Change\ in\ profit / Change\ in\ sales\} * 100$
- $\{Change\ in\ contribution / Change\ in\ sales\} * 100$

8) Break Even Point [BEP]:-

- $Fixed\ cost / Contribution\ per\ unit\ [in\ units]$
- $Fixed\ cost / P/V\ Ratio\ [in\ value]\ (or)\ \frac{Fixed\ Cost * Sales\ value\ per\ unit}{(Sales - Variable\ cost\ per\ unit)}$

9) Margin of safety [MOP]

- $Actual\ sales - Break\ even\ sales$
- $Net\ profit / P/V\ Ratio$
- $Profit / Contribution\ per\ unit\ [In\ units]$

10) $Sales\ unit\ at\ Desired\ profit = \{Fixed\ cost + Desired\ profit\} / Cont.\ per\ unit$

11) $Sales\ value\ for\ Desired\ Profit = \{Fixed\ cost + Desired\ profit\} / P/V\ Ratio$

12) At BEP Contribution = Fixed cost

13) Variable cost Ratio = $\frac{\text{Change in total cost}}{\text{Change in total sales}} * 100$

14) Indifference Point = Point at which two Product sales result in same amount of profit

= $\frac{\text{Change in fixed cost}}{\text{Change in variable cost per unit}}$ (in units)

= $\frac{\text{Change in fixed cost}}{\text{Change in contribution per unit}}$ (in units)

= $\frac{\text{Change in Fixed cost}}{\text{Change in P/Ratio}}$ (in Rs.)

= $\frac{\text{Change in Fixed cost}}{\text{Change in Variable cost ratio}}$ (in Rs.)

STANDARD COSTING

Method one of reading:-

Material:-

$$\underline{SP * SQ} \quad \underline{SP * AQ} \quad \underline{SP * RSQ} \quad \underline{AP * AQ}$$

(1)

a) Material cost variance = (1) – (4)

b) Material price variance =

c) Material usage variance = (1) – (2)

d) Material mix variance = (3) – (2)

e) Material yield variance = (1) – (3)

Labour :-

$$\underline{SR*ST} \quad \underline{SR*AT} \text{ (paid)} \quad \underline{SR*RST} \quad \underline{AR*AT} \quad \underline{SR*AT} \text{ (worked)}$$

a) Labour Cost variance = (1) – (4)

b) Labour Rate variance = (2) – (4)

c) Labour Efficiency variance = (1) – (2)

d) Labour mix variance = (3) – (5)

e) Labour Idle time variance = (5) – (2)

Variable Overheadscostvariance :-

$$\underline{SR * ST} \quad \underline{SR * AT} \quad \underline{AR * AT}$$

a) Variable Overheads Cost Variance = (1) – (3)

b) Variable Overheads Expenditure Variance = (2) – (3)

c) Variable Overheads Efficiency Variance = (1) – (2)

Where: $SR = \text{Standard rate/hour} = \frac{\text{Budgeted variable OH}}{\text{Budgeted Hours}}]$

FixedOverheadsCostVariance:-

$$\underline{SR*ST} \quad \underline{SR*AT} \text{ (worked)} \quad \underline{SR*RBT} \quad \underline{SR*BT} \quad \underline{AR*AT} \text{ (paid)}$$

$$a) \text{ Fixed Overheads Cost Variance} = (1) - (5)$$

- b) Fixed Overheads Budgeted Variance = (4) – (5)
 c) Fixed Overheads Efficiency Variance = (1) – (2)
 d) Fixed Overheads Volume Variance = (1) – (4)
 e) Fixed Overheads Capacity Variance = (2) – (3)
 f) Fixed Overheads Calendar Variance = (3) – (4)

Sales value variance:-

Budgeted Price*BQ BP*AQ BP*Budgeted mix AP*AQ

- a) Sales value variance = ()
 b) Sales price variance = (4) – (2)
 c) Sales volume variance = (2) – (1)
 d) Sales mix variance = (2) – (3)
 e) Sales quantity variance = (3) – (1)

Note :-

i) Actual margin per unit (AMPU) = Actual sale price – selling cost per unit

ii) Budgeted margin per unit (BMPU) = Budgeted sale price – selling price per unit

Sales margin variance :-

BMPU*BQ BMPU*AQ BMPU*Budgeted mix AMPU*AQ

- a) Sales margin variance = (4) – (1)
 b) Sales margin price variance = (4) – (2)
 c) Sales margin volume variance = (2) – (1)
 d) Sales margin mix variance = (2) – (3)
 e) Sales margin quantity variance = (3) – (1)

Control Ratio :-

1) Efficiency Ratio = $\frac{\text{Standard hours for actual output}}{\text{Actual hours worked}} * 100$

2) Capacity Ratio = $\frac{\text{Actual Hours Worked}}{\text{Budgeted Hours}} * 100$

$$3) \text{ Activity Ratio} = \frac{\text{Actual hours worked}}{\text{Budgeted Hours}} * 100$$

$$\text{Verification: Activity Ratio} = \text{Efficiency} * \text{Capacity Ratio}$$

STANDARD COSTING

Method two of reading:-

Material:-

$$a) \text{ Material cost variance} = SC - AC = (SQ * AQ) - (AQ * AP)$$

$$b) \text{ Material price variance} = AQ (SP - AP)$$

$$c) \text{ Material usage variance} = SP (SQ - AQ)$$

$$d) \text{ Material mix variance} = SP (RSQ - AQ)$$

$$e) \text{ Material yield variance} = (AY - SY \text{ for actual input}) \text{ Standard material cost per unit of output}$$

f) Material revised usage variance (calculated instead of material yield variance)

$$= \left[\begin{array}{c} \text{standard quantity} \\ \text{for actual output} \end{array} - \begin{array}{c} \text{Revised standard} \\ \text{quantity} \end{array} \right] * \text{Standard price}$$

Labour :-

$$a) \text{ Labour Cost variance} = SC - AC = (SH * SR) - (AH * AR)$$

$$b) \text{ Labour Rate variance} = AH (SR - AR)$$

$$c) \text{ Labour Efficiency or time variance} = SR (SH - AH)$$

$$d) \text{ Labour Mix or gang composition Variance} = SR (RSH - AH)$$

$$e) \text{ Labour Idle Time Variance} = \text{Idle hours} * SR$$

$$f) \text{ Labour Yield Variance} = \left[\text{Actual Output} - \text{Standard output for actual input} \right] * \text{Standard labour cost/unit of output}$$

$$g) \text{ Labour Revised Efficiency Variance (instead of LYV)} = \left[\text{Standard hours for actual output} - \text{Revised standard hours} \right] * \text{Standard rate}$$

Notes :- i) $LCV = LRV + LMV + ITV + LYV$

ii) $LCV = LRV + LEV + ITV$

iii) $LEV = LMV, LYV \text{ (or) } LREV$

Overhead variance :- (general for both variable and fixed)

a) Standard overhead rate (per hour) = $\frac{\text{Budgeted Overheads}}{\text{Budgeted Hours}}$

b) Standard hours for actual output = $\text{Budgeted hours} * \frac{\text{Actual Output}}{\text{Budgeted output}}$

c) Standard OH = Standard hrs for actual output * Standard OH rate per

hour d) Absorbed OH = Actual hrs * Standard OH rate per hour

e) Budgeted OH = Budgeted hrs * Standard OH rate per

hour f) Actual OH = Actual hrs * Actual OH rate per hour

g) OH cost variance = Absorbed OH – Actual OH

Variable Overhead variance :-

a) Variable OH Cost Variance = Standard OH – Actual OH

b) Variable OH Exp. Variance = Absorbed OH – Actual Variable OH

c) Variable OH Efficiency Variance = Standard OH – Absorbed OH
 $= [\text{Standard hours for actual output} - \text{Actual hours}] * \text{Standard rate for variable OH}$

Fixed Overhead variance :-

a) Fixed OH Cost Variance = Standard OH – Actual OH

b) Fixed OH expenditure variance = Budgeted OH – Actual OH

c) Fixed OH Efficiency Variance = Standard OH (units based) – Absorbed OH (Hours based)

$$\begin{aligned} \text{d) Fixed OH Volume Variance} &= \text{Standard OH} - \text{Budgeted OH} \\ &= \left[\frac{\text{Standard hrs for actual output} - \text{Budgeted hrs}}{\text{hours}} \right] * \text{standard rate} \end{aligned}$$

$$\text{e) Fixed OH capacity variance} = \text{Absorbed OH} - \text{Budgeted OH}$$

$$\begin{aligned} \text{f) Fixed OH Calendar Variance} &= [\text{Revised budgeted hrs} - \text{Budgeted hrs}] \\ &* \text{Standard rate/hrs} \end{aligned}$$

Note:- When there is calendar variance capacity variance is calculated as follows

$$\therefore \text{Capacity variance} = \left[\frac{\text{Actual hours} - \text{Revised Budgeted hrs}}{(\text{Revised})} \right] * \text{Standard rate/hour}$$

Verification :-

$$\begin{aligned} \text{i) variable OH cost variance} &= \text{Variable OH Expenditure variance} \\ &+ \text{Variable OH Efficiency variance} \end{aligned}$$

$$\text{ii) Fixed OH cost variance} = \text{Fixed OH Expenditure variance} + \text{Fixed OH volume variance}$$

$$\begin{aligned} \text{iii) Fixed OH volume variance} &= \text{Fixed OH Efficiency variance} + \text{Capacity variance} \\ &+ \text{Calendar variance} \end{aligned}$$

Sales variances :- Turnover method (or) sales

valuemethod :-

$$\text{a) Sales value variance} = \text{Actual Sales} - \text{Budgeted Sales}$$

$$\begin{aligned} \text{b) Sales price variance} &= [\text{Actual Price} - \text{Standard price}] * \text{Actual quantity} \\ &= \text{Actual sales} - \text{standard sales} \end{aligned}$$

$$\begin{aligned} \text{c) Sales volume variance} &= [\text{Actual-Budgeted quantity}] * \text{Standard price} \\ &= \text{Standard sales} - \text{Budgeted sales} \end{aligned}$$

$$\begin{aligned} \text{d) Sales mix variance} &= [\text{Actual quantity} - \text{Revised standard quantity}] * \text{Standard price} \\ &= \text{Standard sales} - \text{Revised sales} \end{aligned}$$

$$\begin{aligned} \text{e) Sales quantity variance} &= [\text{Revised standard variance} - \text{Budgeted quantity}] \\ &* \text{Standard price} \\ &= \text{Revised Standard sales} - \text{Budgeted sales} \end{aligned}$$

Profit method:-

- a) Total sales margin variance = (Actual Profit–Budgeted price)
 = {Actual quantity * Actual profit per unit}–
 {Budgeted quantity * Standard profit per unit}
- b) Sales margin price variance=Actual profit–Standard profit
 = {Actual Profit per unit – Standard profit per unit} * Actual quantity of sales
- c) Sales margin volume variance = Standard profit – Budgeted Profit
 = {Actual quantity – Budgeted quantity} * Standard profit per unit
- d) Sales margin mix variance = Standard profit – Revised Standard profit
 = {Actual quantity – Revised standard quantity} * Standard profit per unit
- e) Sales margin quantity variance = Revised standard profit - Budgeted profit
 = {Revised standard quantity – Budgeted quantity} * Standard profit per unit

STANDARD COSTING**Diagrammatic Representation: -****Material Variance: -**

$$\text{Material cost variance} = SC - AC = (SQ * AQ) - (AQ * AP)$$

Labour Variances:-

$$\text{Labour Cost variance} = SC - AC = (SH * SR) - (AH * AR)$$

Fixed Overhead Variance: -

- a) Standard OH = Standard hrs for actual output * Standard OH rate per hour
- b) Absorbed OH = Actual hrs * Standard OH rate per hour
- c) Budgeted OH = Budgeted hrs * Standard OH rate per hour
- d) Actual OH = Actual hrs * Actual OH rate per hour
- e) Revised Budgeted Hour = Actual Days * Budgeted Hours per day
 (Expected hours for actual days worked)

When Calendar variance is asked then for capacity variance Budgeted Overhead is (Budgeted days * Standard OH rate per day)

Revised Budgeted Hour (Budgeted hours for actual days) = Actual days * Budgeted hours per day

Variable Overhead Variance :-

Sales Value Variances :-

Sales value variance = Actual Sales – Budgeted Sales

Sales Margin Variances :-

Total sales margin variance = (Actual Profit – Budgeted price)

= {Actual quantity * Actual profit per unit} –
 {Budgeted quantity * Standard profit per unit}

[Where :-

SC = Standard Cost,

SP = Standard Price,

AP = Actual Price,

AY = Actual Yield,

RSQ = Revised Standard Quantity,

ST = Standard Time

AT = Actual Time

BP = Budgeted Price,

RBT = Revised Budgeted Time

BMPU = Budgeted Margin per Unit

AMPU = Actual Margin per Unit

AC = Actual Cost

SQ = Standard Quantity

AQ = Actual Quantity

SY = Standard Yield

SR = Standard Rate,

AR = Actual Rate,

RST = Revised Standard Time,

BQ = Budgeted Quantity