

Chapter 5.

Standard Costing.

It is a technique of cost control, under this technique standard / norms are set down for each element of cost (material, labour, overhead).

Standards are set down for specified period.

Actual performance of specified period shall be compared with the standard & variance are determined.

After investigation & analysis of variance, reasons of variance are determined.

(A) Material Variance :-

Standard regarding quantity of material, price of material & proportion of different type of material are laid down.

Important terms for calculating material variances :-

- SP - Standard price p.u. of raw material
- AP - Actual price p.u. of raw material.
- AQ - Actual quantity of raw material used
- RSQ - Actual quantity in standard ratio [TOTAL]
- SQ - Raw material required for Actual output as per standard.
- SY - Output from total actual raw material used as per standard.
- SC - Standard cost p.u. of output
- AY - Actual output / yield
- TSC - Total standard cost for Actual output $\Rightarrow AY \times SC$ or $SQ \times SP$
- TAC - Total Actual cost $\Rightarrow AQ \times AP$.

Calculation of Material Variances :-

$$\rightarrow MCV = MPV + MVV$$

MATERIAL COST VARIANCE :-

$$TSC - TAC$$

Material Price Variance.

$$= AQ (SP - AP)$$

It can also be determined

at the time of purchase.

In such a case,

$$MPV = \text{Actual Qty Purchase} (SP - AP)$$

Material Quantity / Usage Variance.

$$= SP (SQ - AQ)$$

Material Mix Variance

$$= SP (RQ - AQ)$$

Material Revised Usage

$$\text{Variance} = SP (SQ - RQ)$$

or

Material Yield Variance.

$$= SC (AY - SY)$$

$$\# \text{ No. of material used above standard} = AQ - SQ$$

Planning & Operational Variances :-

- (a) Planning Variance :- It means that part of variance which cannot be controlled. It arises due to external factor.
For example :- Inflation, change in Govt policy etc.

$$\text{Material Price Planning Variance} = SQ (SP - RSP) ; RSP = \text{Revised standard price.}$$

- (b) Operational Variance :- It means that part of variance which can be controlled. It arises due to internal reason.
It shall be determined as follows :-

$$\text{Material Price Operational Variance} = AQ (RSP - AP)$$

* For calculation of other material variances, in place of SP, RSP should be used.

(B) Labour Variance :-

Standard regarding no. of workers, rate of wages & proportion of different type of worker in a group / team are laid down.

Following terms are important for calculation of Labour Variance :-

SR - Standard rate per man hour

AR - Actual rate per man hour.

AH - Actual hours
Paid $\swarrow$ $\searrow$ work

Idle time - given in question will always be abnormal.

RSN - Total Actual hours work in standard ratio.

SH - Labour hours required for actual output as per standard.

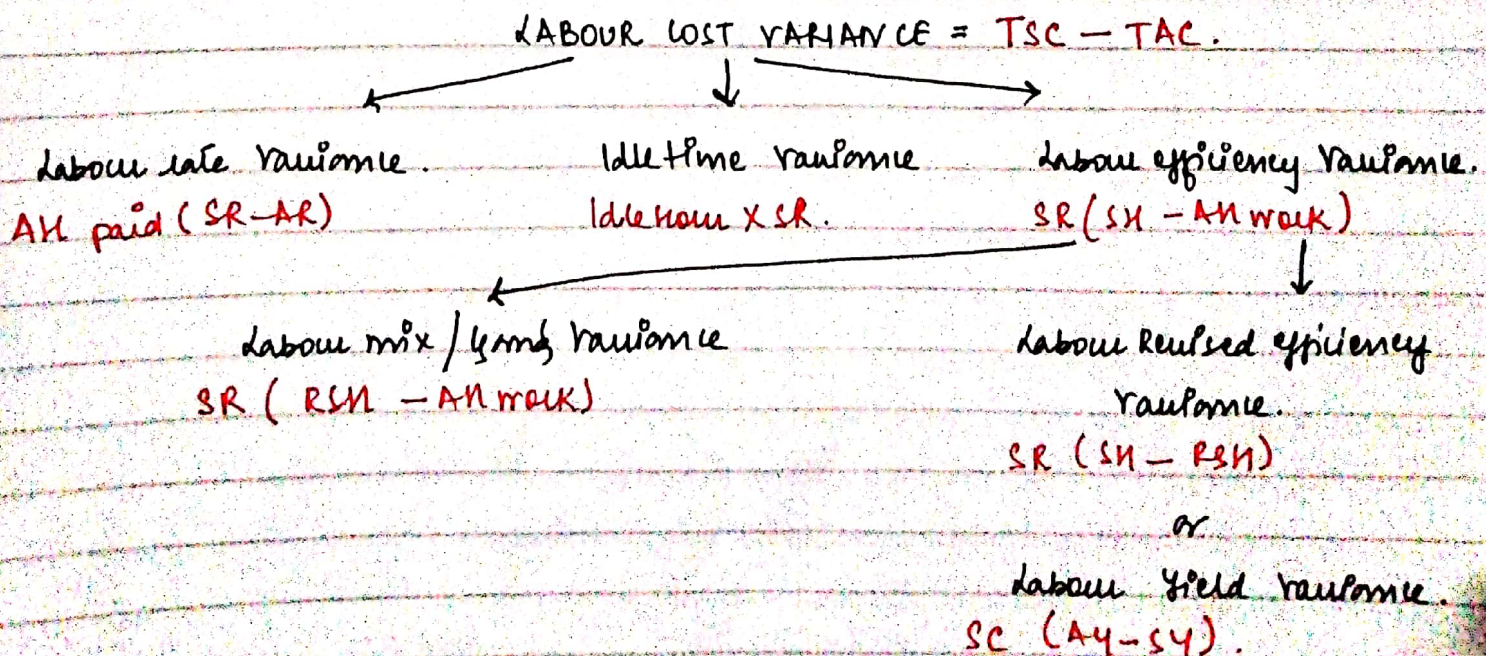
AY - Actual production

SY - Output from Total Actual hours work as per standard.

TSC - Total standard labour cost for actual output $\Rightarrow SH \times SR \times AY \times SC$

TAC - Total Actual labour cost for Actual Output
 $\Rightarrow$ Actual hours paid $\times$ AR.

Computation of Labour Variance :-



C. Overhead variance :-

Following terms are important for calculation of overhead variance :-

Actual Overhead (AO)

Budgeted Overhead (BO)

Reversed / Absorbed Overhead = $AY \times SC$ or $SH \times SR$.

Budgeted overhead for actual hours = $AH \times SR$

Possible Overhead

= It shall be determined in case of fixed overhead only.

= $BO \times \frac{\text{Actual period}}{\text{Budgeted period}}$

Budgeted period.

It shall be determined only when Budget period & Actual period differ.

Rate is given $\rightarrow$ then it is for per hour/per qty

eg:- material X $\rightarrow$ Qty = 2, rate = 3 $\rightarrow 2 \times 3 = 6$.

labour Y $\rightarrow$ hrs = 3, rate = 4 $\rightarrow 3 \times 4 = 12$.

(a) Calculation of fixed overhead variances :-

$$\text{Total F.O. Variance / F.O. lost Variance} = \text{Absorbed F.O.} - \text{Actual F.O.}$$

$$\begin{aligned} \text{F.O. Expenditure Variance} \\ = \text{Budgeted OH} - \text{Actual OH} \end{aligned}$$

$$\begin{aligned} \text{F.O. Volume Variance} \\ = \text{Absorbed OH} - \text{Budgeted OH} \end{aligned}$$

$$\begin{aligned} \text{F.O. Efficiency Variance} \\ = \text{Absorbed OH} - \text{Budgeted OH for Actual} \\ \text{Hours} \end{aligned}$$

$$\begin{aligned} \text{F.O. Capacity Variance} \\ = \text{Budgeted OH} - \text{Budgeted} \\ \text{for actual hours OH} \end{aligned}$$

$$= \text{SHXR} - \text{AHXR}$$

$$= \text{SR} (\text{SH} - \text{AH})$$

If Budget period and Actual period differ.

$$\begin{aligned} \text{F.O. Capacity Usage Variance} \\ = \text{Budgeted OH for actual hours} - \text{Possible OH} \end{aligned}$$

$$\begin{aligned} \text{F.O. Calendar Variance} \\ = \text{Possible OH} - \text{Budgeted OH} \end{aligned}$$

(b) Calculation of variable OH variances :-

$$\text{Variable O.H. lost Variance} = \text{Absorbed V.O.} - \text{Actual V.O.}$$

$$\begin{aligned} \text{V.O. Expenditure Variance} \\ = \text{Budgeted OH for Actual hours} - \text{Actual OH} \\ = \text{AH} \times \text{SR} - \text{AH} \times \text{AR} \\ = \text{AH} (\text{SR} - \text{AR}) \end{aligned}$$

$$\begin{aligned} \text{V.O. Efficiency Variance} \\ = \text{Absorbed OH} - \text{Budgeted OH} \\ \text{for actual hours} \\ = \text{SHXR} - \text{AHXR} \\ = \text{SR} (\text{SH} - \text{AH}) \end{aligned}$$

$$\text{Standard rate per hour} = \frac{\text{Budgeted OH}}{\text{Budgeted hours}} \quad \text{or} \quad \text{Standard cost p.u.} \\ \text{Standard hours p.u.}$$

$$\text{Standard cost p.u.} = \frac{\text{Budgeted OH}}{\text{Budgeted production (units)}}$$

$$\text{or, Standard hours p.u.} \times \text{Standard rate p.u.}$$

NOGA :-

- Semi-variable Overheads are divided between variable & fixed overheads in given ratio.
- In standard marginal costing system, FOH volume variance will not occur.
- If in question statutory / special holiday is given, then Budget period & Actual period differs.
- Budgeted hours are considered after Budgeted Downtime. Before Budgeted Downtime, they are maximum possible hours in Budget period.
- For overhead variance, production department / factory form is responsible.
- If cost variance is over absorbed, then it's favourable & vice versa.
- Actual hours work, standard hours are same for labour VOH & FOH.
- Standard rate, actual rate are different.
- All work is used in overhead.

(D) Sales Variance :-

It can be determined by following two approaches :-

- (i) Based on Turnover
- (ii) Based on margin/profit.

(a) Based on Turnover :-

Following terms are important for calculation of sales variance.

BQ - Budgeted Quantity to be sold

AQ - Actual Quantity sold.

RBQ - Revised Budgeted Quantity. (Total Actual Quantity in Budget ratio)

SP - Standard selling price p.u.

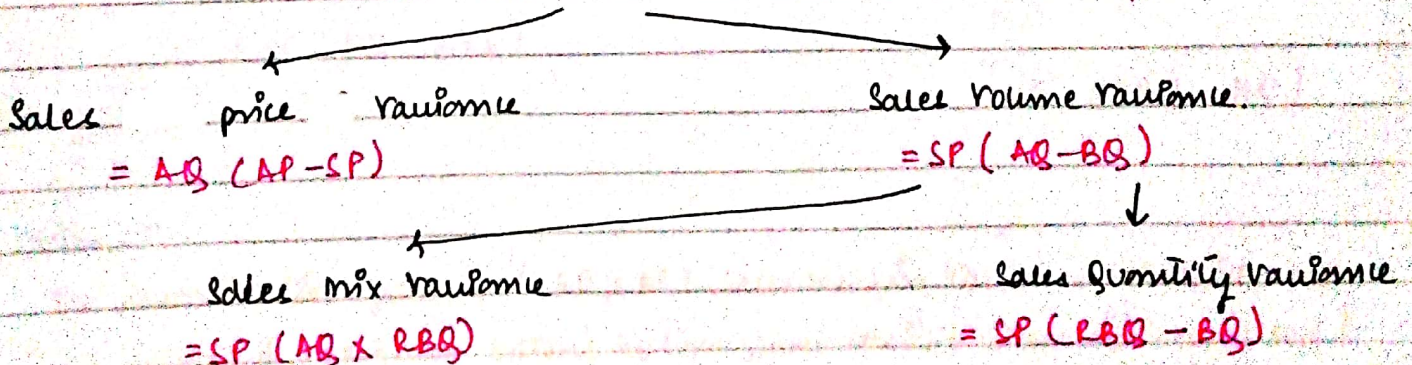
AP - Actual " " "

Budgeted Sale - $BQ \times SP$

Actual Sale - $AQ \times AP$

Standard Sale - $AQ \times SP$

$$\text{Sales Value Variance} = \text{Actual Sales} - \text{Budgeted Sales}$$



(b) Based on margin.

Following are terms important for calculation of sales variance :-

$$SP - \text{Standard price p.u.} = \text{Standard SP p.u.} - \text{Standard cost p.u.}$$

$$AP - \text{Actual profit p.u.} = \text{Actual SP p.u.} - \text{Standard cost p.u.}$$

$$\text{Budgeted profit} = SP \times BQ$$

$$\text{Actual profit} = AP \times AQ$$

$$\text{Sales Margin Variance} = \text{Actual Profit} - \text{Budgeted Profit}$$

$$\begin{aligned} \text{Sales margin price Variance} \\ = AQ (AP - SP) \end{aligned}$$

$$\begin{aligned} \text{Sales margin Volume Variance} \\ = SP (AQ - BQ) \end{aligned}$$

$$\begin{aligned} \text{Sales margin Price Variance} \\ = SP (AQ - BQ) \end{aligned}$$

$$\begin{aligned} \text{Sales margin Volume Variance} \\ = SP (AQ - BQ) \end{aligned}$$

Notes :-

- For reconciliation purpose (BP & AP), sales margin variance shall be used. (In standard marginal costing system, sales contribution variance used)
- Budget profit $\pm$ sales margin volume variance.
- Standard profit $\pm$ sales margin price variance.
- For reconciliation of B & AP $\rightarrow$ sales variances are used. AP.
- sales price variance will be same both under full cost basis & margin basis & also on contribution basis.
- sales margin volume variance = sales volume variance $\times$ Budgeted ratio

$$\frac{BP}{BS}$$

• Sales contribution volume variance. = Sales volume variance $\times$ Budgeted p/ratio

or
market size variance + market share variance

• Profit / Income variance = Actual profit - Budgeted standard profit.

• Standard profit / contribution = AQ $\times$ Std Profit / Unit $\times$ p.u.

or AQ $\times$ Std Profit / Unit

= Budgeted profit = Sales contribⁿ / margin
variance.

• If SP is same i.e. Budgeted = Actual ; then price variance = 0 or not required.

(E) Market size & market share variance :-

(i) market size variance :-

This variance explains change in profit / contribution due to change in market size. It shall be determined as follows:-

$$= \text{Budgeted weighted Average contribution p.u. (BWACPU)} \times$$

$$\left[\frac{\text{BM share of Actual m size}}{\text{BM share of BM size}} - 1 \right]$$

(ii) market share variance :-

This variance explains change in profit / contribution due to change in firm's market share. It shall be determined as follows:-

$$= \text{BWACPU} \times \left[\frac{\text{Actual m share of Actual m size}}{\text{Budgeted m share of Actual m size}} - 1 \right]$$

(F) Reconciliation statement :-

Particulars.	Amount
Budgeted profit/contribution (BQ x std profit/contr p.u.)	xx
(+) Sales contribution / margin volume variance	<u>xx</u>
Standard profit (AQ x std profit/contr p.u.)	xx
(+) All favourable variance	<u>xx</u>
(-) All adverse variance.	<u>xx</u>
Actual profit	<u>xx</u>

(Fb) reconciliation statement.

Actual sales	xx
(-) Actual cost	<u>(xx)</u>
(+) 1/2 stock of FG / WIP at standard cost (if any)	<u>xx</u>
Actual net profit	<u>xx</u>

(G) Standard cost sheet p.u.

material	xx
labour	<u>xx</u>
Prime cost	xx
V.O	xx
F.O	<u>xx</u>
Standard Total cost p.u.	xx
Standard profit p.u.	<u>xx</u>
Standard Selling price p.u.	<u>xx</u>

Notes:-

→ Statement showing original budget means, Budgeted quantity multiplied with standard cost p.u. (standard cost sheet) & showing Budgeted profit.

→ BS & B Prodⁿ (units) will be same, if specially not given.

(H) Calculation of Actual Output in case of FG / WIP Stock.

(FIFO method)

	material	overhead.
Production completed/output	xx	xx.
(+) WIP stock (% of completion)	xx	xx.
(-) OP stock (" ")	<u>(xx)</u>	<u>(xx)</u>
Equivalent Actual Output	<u>xx</u>	<u>xx</u>

Notes:-

— In WAM, OP stock is not deducted

— FIFO will be followed, unless specifically given.