EXPERT

CA INTERMEDIATE – COST & MANAGEMENT ACCOUNTING

STANDARD COSTING & VARIANCE ANALYSIS

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STANDARD COSTING AND VARIANCE ANALYSIS

I. PRELIMINARY :

Standard costing is the preparation and use of standard costs, their comparison with actual costs and the analysis of variances to know their causes and take remedial action.

Under the standard costing system, standards are pre-determined by a group of experts. Then the actual results are compared with standards and the differences are noted. The difference between standard and actual is called as "Variance". These variances are further analysed to know their causes. A suitable action is taken to minimise such variances in future. It is a continuous process.

Variance analysis is "**a process of analysing the variances in a manner, which will enable the management to take appropriate actions for off standard performance**". Thus variance analysis is an integral part of the Standard Costing System.

According to The Institute of Cost and Management Accountants, England standard costing is " **the preparation and use of standard costs, their comparison with actual costs and the analysis of variances to their causes and points of incidence**".

Why Standard Costing is needed?

1. Prediction of future cost for decision making.
2. Provides targets to be achieved.
3. Used in budgeting and performance evaluation.
4. Interim profit measurement and inventory valuation.

II. TYPES OF VARIANCES :

1. The variances are analysed into -

a. **Favourable variances (F)** i.e. those variances which increases the standard profit. These variances occur when actual cost is less than standard cost or actual output is more than standard output.

b. **Unfavourable or adverse variances (A)** i.e. those variances which decreases the standard profit. These variances occur when actual cost is more than standard cost or actual output is less than standard output.

2. Generally Variances are analysed under the following groups -

i. Direct Material Cost Variances

ii. Direct Labour Cost Variances

iii. Variable Overhead Cost Variances

iv. Fixed Overhead Variances

v. Sales Variances

vi. Profit Variances

3. Variances can also be analysed into -

(a) Controllable Variances : These are the variances which are well within the control of management, but due to inefficiency in actual working, these have arised and hence needs a corrective action. For example, workers are working slow and hence are taking more time than required. This will lead to Adverse Labour Efficiency Variance.

(b) Uncontrollable Variances : These are variances which are beyond the control of management. In such cases, management has the only option left, that is to revise the standards. For example, increase in the price of raw material due to excise duty and sales tax may lead to Adverse Material Price Variance.

III. STANDARD COSTING PROCESS :

1. The setting of standards i.e. preparation of standard cost sheet
2. Ascertainment of actual costs
3. Comparison of actual and standard costs to determine the variances
4. Investigation of variances to know causes and taking appropriate action thereon.
5. Disposition of variances.

MATERIAL COST VARIANCE

Material Cost Variance = Standard material cost of actual output - Actual Cost
= SP X SQ – AP X AQ

Standard cost of actual Output = Standard quantity required for actual output X Standard Price

Actual Cost = Actual Quantity consumed X Actual Price

Analysis of Direct Material Cost Variance :

(a) Price Variance = Actual Qty. Consumed x (Std. Price – Actual Price)

(b) Usage Variance = Std. Price (Std. Quantity - Actual Quantity)

Sub-analysis of Usage Variance :

a. Mix Variance = Std. price (Std. mix** - Actual Mix*)

* Actual mix = actual quantity consumed and
** Std. Mix = total actual quantity consumed revised in standard mixing proportion.

b. Sub Usage Variance / Yield Variance = Std. Rate (Std. Qty. - Std. Mix)

Adverse or Favourable :

(a) In cost variance, if actual cost is more than standard, then the variance is adverse and if lower then it is favourable.
(b) In price variance, if actual price is more than standard then the variance is adverse and if lower then it is favourable.
(c) In usage variance, if actual quantity consumed is more than standard then the variance is adverse and if lower then it is favourable.
(d) In mix variance, if actual mix is more than standard, then the variance is adverse and if lower then it is favourable.
(f) In sub-usage variance, if std. mix is more than standard quantity, then the variance is adverse and if lower then it is favourable. This is because, the std. mix is calculated from actual quantity consumed.

Illustration 1 : The following standard and actual data relate to a manufacturing concern :

STANDARD : Material X - 40 kgs. @ ₹ 6 = ₹240

Material Y - 60 kgs. @ ₹ 4 = ₹240

Standard output is 80 % of input i.e. 80 kgs. Process loss is 20 %

ACTUAL : Material X - 600 kgs. @ ₹4

Material Y - 400 kgs. @ ₹6

Actual output is 70 % of input i.e. 700 kgs. Process loss is 30 %. Calculate Material Cost Variances.

Solution : Calculation of Material Cost Variances :-

1) **Material Cost Variance** = Std. cost of actual output - Actual cost

Standard cost = Std. qty. of raw material required for actual output x Std. price.

Actual output = 700 kgs.

Std. input output ratio = 100 : 80

Std. qty. required for actual output = 700 Kgs. x 100/80 = 875 Kgs.

Std. Mix ratio = 4 : 6

Std. qty. of X = 875 kgs. x 4/10 = 350 kg.

Std. qty. of Y = 875 kgs. x 6/10 = 525 kg.

Therefore, Material Cost Variance =

X : (350 kg. x ₹6) - (600 kg. x ₹4) = 300 (A)

Y : (525 kg. x ₹4) - (400 kg. x ₹6) = 300 (A)

Total : 600 (A)

2) **Material Price Variance** = Actual qty. consumed (Std. price - Actual price)

X : 600 kgs. (₹ 6 - ₹ 4) = 1200 (F)

Y : 400 kgs. (₹ 4 - ₹ 6) = 800 (A)

Total 400 (F)

3) Material Usage Variance = Std. price (Std. qty. - Actual qty.)

X : ₹6 (350 kg. - 600 kg) = 1500 (A)

Y : ₹4 (525 kg. - 400 kg) = 500 (F)

Total 1000 (A)

Sub-Analysis of Material Usage Variance :-

4) Material Mix Variance = Std. price (Std. Mix - Actual mix)

Material	Std. price ₹	Calculation	Std. mix Kg.	Actual mix Kg.	Variance ₹
X	6	1000 x 4/10	400	600	1200 (A)
Y	4	1000 x 6/10	600	400	800 (F)
Total			1000	1000	400 (A)

* Actual Mix = Actual Qty. consumed.

** Std. Mix = Actual total quantity consumed, revised in std. mixing proportion.

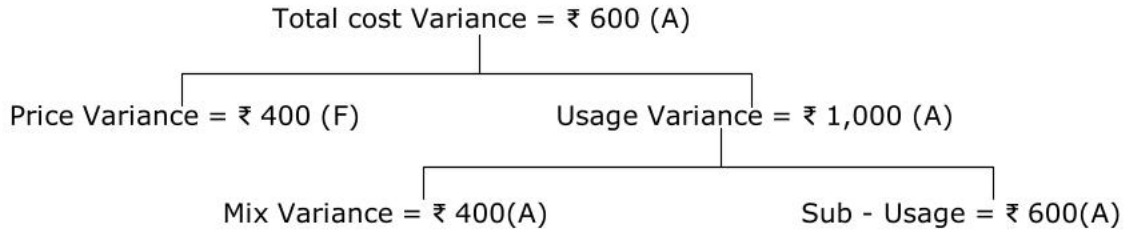
5) Sub-usage Variance (Substitute to Yield Variance) = Std. price (Std. qty. - Std. mix)

X : ₹ 6 (350 kg. - 400 kg.) = ₹ 300 (A)

Y : ₹ 4 (525 kg. - 600 kg.) = ₹ 300 (A)

Total ₹ 600 (A)

Analysis of Material Cost Variances



PROBLEMS ON MATERIAL COST VARIANCE

PROBLEM NO. 1 :

From the following information, calculate Material Cost Variances -

Particulars	Quantity (Kgs.)	Price (₹/Kg.)
Standard	2,000	10
Actual	2,200	9

① calculation of variances

i) Material cost variance = (Sp x SQ) − (Ap x AQ consumed)
= (₹10 × 2000 kgs) − (₹9 × 2200 kgs)
= ₹200 (F)

ii) Material price variance = AQ consumed (SP − AP)
= 2200 kgs (₹10 − ₹9) = ₹2,200 (F)

iii) Material usage variance = SP (SQ − AQ consumed)
= ₹10 (2000 kgs − 2200 kgs) = ₹2,000 (A)

Note: As there is only one raw material, There is no question of calculation of Material mix variance, Material sub-usage variance.

PROBLEM NO. 2 :

From the following information, calculate Material Cost Variances -

Particulars	Quantity (Kgs.)	Price (₹/Kg.)
Standard	5,000	50
Actual	4,800	52

① calculation of variances

i) Material cost variance = (Sp x SQ) − (Ap x AQ consumed)
= (₹50 × 5000 kgs) − (₹52 × 4800 kgs) = ₹400 (F)

ii) Material price variance = AQ consumed (SP − AP)
= 4800 kgs (₹50 − ₹52) = ₹9600 (A)

iii) Material usage variance = SP (SQ − AQ consumed)
= ₹50 (5000 kgs − 4800 kgs) = ₹10,000 (F)

② summary

Material cost variance = ₹4000(F)

- Price = ₹9600(A)
- Usage = ₹10,000(F)

Note: As there is only one raw material, There is no question of calculation of Material mise variance, Material sub-usage variance.

PROBLEM NO. 3 :

From the following information, calculate (a) Material Cost Variance (b) Material Price variance and (c) Material usage variance. Also calculate Material mise, material sub-usage variance.

Particulars	Quantity (Kgs.)	Price (₹/Kg.)
Standard : A	5,000	50
: B	3,000	30
Actual : A	4,800	52
: B	3,300	28

① key data

Take the total of AQ consumed & put it in the ratio of SQ (i.e. 5 : 3)

RAW materials	SP (std. price)	SQ (standard input for actual output)	AP (Actual price)	AQ consumed (Actual qty consumed)	SM (standard mise of actual qty consumed)
A	₹50 per kg	5,000 kgs	₹52 per kg	4800kg	8100 × 5/8 = 5062.50 kgs
B	₹30 per kg	3,000 kgs	₹28 per kg	3300kgs	8100 × 3/8 = 3,037.50 kgs
Total		8,000 kgs		8,100kg	8,100kg

② calculation of variances

i) Material cost variance = (SP x SQ) − (AP x AQ consumed)

A: (₹50 x 5000 kgs) − (₹52 x 4800 kgs) = ₹400 (F)

B: (₹30 x 3000 kgs) − (₹28 x 3300 kgs) = ₹2,600 (A)

Total = ₹2200 (A)

ii) Material price variance = AQ unsumed (SP − AP)

A: 4800 kgs (₹50 − ₹52) = ₹9,600 (A)

B: 3300 kgs (₹30 − ₹28) = ₹6,600 (F)

Total = ₹3,000 (A)

iii) Material usage variance = SP (SQ − AQ consumed)

A: ₹50 (5000 − 4800) kgs = ₹10,000 (F)

B: ₹30 (3000 − 3300) kgs = ₹9,000 (A)

Total = ₹1,000 (F)

iv) Material Mise variance = SP (SM − AM)

A: ₹50 (5062.50 − 4800) kgs = ₹13,125 (F)

B: ₹30 (3037.50 − 3300) kgs = ₹7,875 (A)

Total = ₹5,250 (F)

v) Material sub-usage variance = SP (SQ − SM)

A: ₹50 (5000 − 5062.50) kgs = ₹3125 (A)

B: ₹30 (3000 − 3037.50) kgs = ₹1125 (A)

Total = ₹4,250 (A)

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Actual mise of actual aty consumed

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Note

① In material mise variance: All variances are favourable or All variances are Adverse is impossible

② In sub usage variance either all variances are favourable or are adverse

PROBLEM NO. 4 (Important)

The standard material cost for a normal mix of one ton of Chemical X is based on -

Chemical	Usage kgs.	Price per kg. (₹)
A	240	6
B	400	12
C	640	10

standard is set for 1 ton of output (chemical X)

During the month 6.25 tons of X were produced from –

Chemical	Consumption (Tons)	Cost (₹)
A	1.6	11,200
B	2.4	30,000
C	4.5	47,250

Actual cost data for 6.25 tons of output of chemical X

Calculate (a) Material Cost Variance (b) Material Price variance and (c) Material usage variance.

(d) Material mix variance (e) Material sub-usage variance

(1) key data

PIS Note 1 ton = 1000 kgs
1 Quintal = 100 kgs
1 Quintal 100kg

RAW materials	SP (std. price per kg)	SQ (standard input for actual output)	AP (Actual price)	AQ consumed (Actual qty consumed)	SM (standard mix of actual qty consumed) (3 : 5 : 8)
A	6	240 × 6.25 = 1500kg	11,200 / 1600 = 7.00	1600 kgs	8500 × 3/16 = 1593.75 kgs
B	12	400 × 6.25 = 2500kg	30000 / 2400 = 12.50	2400 kgs	8500 × 5/16 = 2,656.25kgs
C	10	640 × 6.25 = 4000kg	47250 / 4500 = 10.50	4500 kgs	8500 × 8/16 = 4,250 kgs
Total		8,000		8,500	8,500

(2) calculation of variances

i) Material cost variance = (SP × SQ) − (AP × AQ consumed)

A : (₹6 × 1500 kgs) − ₹11,200 = ₹2200 (A)
B : (₹12 × 2500 kgs) − ₹30,000 = NIL
C : (₹10 × 4000 kgs) − ₹47,250 = ₹7,250 (A)
Total = ₹9,450 (A)

ii) Material price variance = Adwnsumed (SP - AP)

13

A :	1600 legs	(₹6 − ₹27)	= ₹21600	A
B :	2400 legs	(₹12 − ₹12.50)	= ₹1200	A
C :	4500 legs	(₹10 − ₹10.50)	= ₹2250	A
		Total =	₹5050	A

iii) Material usage variance = Sp (Sd - Ad consumed)

A	EG	1500 − 1600	legs	= 2600	A
B	12	2500 − 2400	regs	= 1200	F
C	10	4000 − 4500	legs	= E 5000	A
		Total =	4,400	A	

iv) Material Mise variance = SP (SM - AM)

A	26	1593.75 − 1600	legs	= 37.50	A
B	12	2656.25 − 2900	legs	= 3,075	F
C	10	4250 − 4500	regs	= 2,500	A
		Total =	E 537.50	F	

v) Material sub-usage variance = SP (59 - SM)

13

A :	6	1500 − 1593.75	legs	= ₹562.50	A
B :	12	12500 − 2656.25	legs	= 21875	A
C :	10	4000 − 4250	legs	= 2500	A
		Total =	4937.50	A	

3) Summary

Material cost variance = ₹9,450 (A)

pair = ₹5,050 (A)

usage = ₹4,400 (A)

Mike = ₹2537.50 (F)

sub-usage = ₹2,437.50 (A)

Material sub-usage variance is also known as material Yield varian

Material Yield variance = Std Yield - Actual Yield

= [(240 kgs x ₹6) + (400 kgs x ₹12) + (360 kgs x ₹10)] - [(240 kgs + 400 kgs + 360 kgs) x 1600/4000]

= ₹4,437.50 (A)

PROBLEM NO. 5

S.V.Ltd. manufacturers BXE by mixing three raw materials. For every batch of 100 kgs. of BXE, 125 kgs. of raw materials are used. In April, 2018, 60 batches were prepared to produce an output of 5,600 kgs. Calculate Material Cost Variance, material price and usage variance from the standard and actual particulars for April, 2018 given below –

60 × 125 = 7500 kgs of input is used to produce 5600 kgs of output

Raw Material	Standard		Actual	
	Mix	Price per kg	Mix	Price per kg.
	%	₹	%	₹
A	50	20	60	21
B	30	10	20	8
C	20	5	20	6

Also calculate Material Mise, sub usage variances.

125kg 100kgs
? 5600kgs

⇒ ① key-data

key

Raw materials	SP (std. price) (per kg)	SQ (standard input for actual output)	AP (Actual price)	AQ (Actual qty consumed)	SM (standard mise of actual qty consumed)
	style	1 9111		Ed.me	SFandettifonsumed
	perky				(50 : 30 : 20)
A	20	7000 × 50/100 = 3500 legs	21	7500 × 60/100 = 4500 legs	7500 × 50/100 = 3,750 legs
B	10	7000 × 30/100 = 2100 legs 88930	8	7500 × 20/100 = 1500kg	7500 × 30/100 = 2,250 legs
C	5	7000 × 20/100 = 1400kg	6	7500 × 20/100 = 1,500kg	7500 × 20/100 = 1,500keys
Total		7,000legs		7,500kg	7,500kgs

e

100 legs of BXE — 125 legs of raw material input is standard

5600 legs of actual output — ?

? = 5600 × 125 / 100 = 7,000legs

(2) calculation of variances

i) Material cost variance = (Spx so) − (APx AQ consumed)

A	220	3500 kgs	22	4500 legs	24,500	A
B	210	2100 kgs	8	1500 Kgs	9,000	F
C	ES	1400 Kgs	EG	1500 legs	2,000	A
		Total			17,500	A

ii) Material price variance = Adwnsumed (sp − AP)

A	4500 kgs	20	21	4,500	A
B	1500 legs	10	8	3,000	F
C	1500 legs	5	EG	1,500	A
	Total			3,000	A

iii) Material usage variance = Sp (Sd − Ad consumed)

A	220	3500	4500	Kgs	20,000	A
B	10	2100	1500	Kgs	6,000	F
C	ES	1400	1500	regs	E 500	A
	Total				14,500	A1

iv) Material Mise variance = SP (SM − AM)

A	20	3750	4500	legs	215,000 A
B	10	2250	1500	legs	7,500 F
C	ES	1500	1500	legs	NIL
	Total				7,500 A

v) Material sub usage variance = SP (59 − SM)

A	20	3500	3750	Kgs	5,000	A
B	10	2100	2250	legs	1,500	A
C	5	1400	1500	agg	500	At
	Total				7,000	pA

(OR)

Material Yield variance = Std.wst per kg of Pergue (Standard Actual)

$= \left[\frac{(3500\text{kgs} \times ₹20) + (2100\text{kgs} \times ₹10) + (1400\text{kgs} \times ₹5)}{5600\text{ legs of output}}\right] \times \left(\frac{100\text{ legs}}{\text{input}} \times 7500\text{kgs} - 5600\text{kg}\right)$

$= 1750 \left(\frac{6000\text{kg}^s}{} - 5600\text{kg}\right) = ₹7000\ (A)$

steadard_Acted

75009s

715

kgf

PROBLEM NO. 6 (Important) (1 foot = 12 inches)

Modern Tiles Ltd. makes plastic tiles of standard size of 6" X 6" X 1/2". From the following information, you are required to calculate all variances for direct materials -

A standard mix of the compound required to produce an output of 20,000 sq. ft. of tiles 1/2" thick is as follows –

Direct Materials	Quantity Kg.	Price per Kg. (₹)
A	600	0.90
B	400	0.65
C	500	0.40

standard set for 20,000 sq.feets of output

sets

Eput

During December, 2018 eight mixes were processed and actual materials consumed is given below. Actual Production for December was 6,20,000 tiles. ⇐ Actualoutput

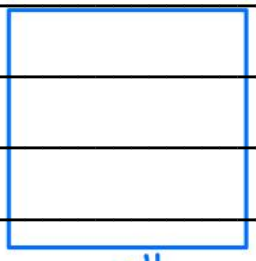
Direct Materials	Quantity Kg.	Price per Kg. (₹)
A	5000	0.85
B	2900	0.60
C	4400	0.45

Actual wst of 6,20,000 tiles of output

Josfortiles

of output

① calculation of area of 1 tile



= 6" x 6" = 0.50' x 0.50'

= 36 sq. inches = 0.25 sq. feets

1tile = 0.25 sq. feets

(Pls note that 1 sq foot = 144 sq inches)

standard set in the question is for 20,000 sq feets

i.e for 80,000 No_of tiles

1 tile = 0.25 sq. feets

? = 20,000 sq. feets

By doing cross-multiplication

$? = \frac{20000 \times 1}{0.25} = 80{,}000$ tiles

② Key-data

Key data

Direct Materials	standard price per kg (₹) SP	Std qty for actual output (SQ)	Actual price per kg (₹) AP	Actual quantity consumed (kgs) AQ	Std mix of Actual qty consumed (kgs) (SM) (6:4:5)
A	0.90	4,650 kgs	0.85	5000 kgs	12300 × 6/15 = 4920 kgs
B	0.65	3,100 kgs	0.60	2900 kgs	12300 × 4/15 = 3280 kgs
C	0.40	3,875 kgs	0.45	4400 kgs	12300 × 5/15 = 4100 kgs
	Total	11,625 kgs		12,300 kgs	12,300 kgs

③ Calculation of variances

(i) Material cost variance = (SP × SQ) − (AP × AQ consumed)

A : (₹0.90 × 4650 kgs) − (₹0.85 × 5000 kgs) = ₹65 (A)

B : (₹0.65 × 3100 kgs) − (₹0.60 × 2900 kgs) = ₹275 (F)

C : (₹0.40 × 3875 kgs) − (₹0.45 × 4400 kgs) = ₹430 (A)

Total = ₹220 (A)

(ii) Material price variance = AQ consumed (SP − AP)

A : 5000 kgs (₹0.90 − ₹0.85) = ₹250 (F)

B : 2900 kgs (₹0.65 − ₹0.60) = ₹145 (F)

C : 4400 kgs (₹0.40 − ₹0.45) = ₹220 (A)

Total = ₹175 (F)

(iii) Material Usage variance = SP (SQ - AQ consumed)

A : ₹0.90 (4650 kgs - 5000 kgs) = ₹315 (A)

B : ₹0.65 (3100 kgs - 2900 kgs) = ₹130 (F)

C : ₹0.40 (3875 kgs - 4400 kgs) = ₹210 (A)

Total = ₹395 (A)

(iv) Material Mix variance = SP (SM - AM)

A : ₹0.90 (4920 kgs - 5000 kgs) = ₹72 (A)

B : ₹0.65 (3280 kgs - 2900 kgs) = ₹247 (F)

C : ₹0.40 (4100 kgs - 4400 kgs) = ₹120 (A)

Total = ₹55 (F)

(v) Material sub-usage variance = SP (SQ - SM)

A : ₹0.90 (4650 kgs - 4920 kgs) = ₹243 (A)

B : ₹0.65 (3100 kgs - 3280 kgs) = ₹117 (A)

C : ₹0.40 (3875 kgs - 4100 kgs) = ₹90 (A)

Total = ₹450 (A)

④ Summary

Material cost variance
= ₹220 (A)

- price = ₹175 (F)
- usage = ₹395 (A)
  - Mix = ₹55 (F)
  - sub-usage = ₹450 (A)

DIRECT LABOUR COST VARIANCES

Cost Variance = Standard cost of actual output - Actual Cost

= Std hrs x Std rate – Actual hrs x Actual rate

Standard Cost of Actual Output = Std. hours required for Actual Output X Std. Rate

Actual Cost = Actual Hours X Actual Rate

Analysis of Direct Labour Cost Variance :

i. Rate Variance = Actual Hours x (Std. Rate - Actual Rate)

ii. Efficiency Variance = Std. Rate (Std. Hours - Actual hours)

Sub analysis of Efficiency Variance :

i. Idle Time Variance = Std. Rate (Actual Hours paid for - Actual Hours Worked For)

ii. Mix or Gang or Composition Variance = Std. Rate (Std. Mix** - Actual Mix*)

iii. Sub – Efficiency / Yield Variance = Std. Rate (Std. Hours - Std. Mix)

* Actual Mix = Actual hours worked

** Std. Mix = Total actual hours worked revised in standard proportion.

Adverse or Favourable :

(a)In cost variance, if actual cost is more than standard, then the variance is adverse and if lower then it is favourable.

(b) In rate variance, if actual rate is more than standard then the variance is adverse and if lower then it is favourable.

(c) In efficiency variance, if actual hours paid for are more than standard then the variance is adverse and if lower then it is favourable.

(d) Idle time variance is always adverse, because it is the time paid for without getting any output. It is generally calculated for abnormal idle time.

(e) In mix variance, if actual mix is more than standard, then the variance is adverse and if lower then it is favourable.

(f) In sub-efficiency variance, if std. mix is more than standard hours, then the variance is adverse and if lower then it is favourable. This is because, the std. mix is calculated from actual hours worked for. This is also called as net efficiency variance, for which workers may be held responsible.

Illustration 2 : Calculate Labour cost variances from the following data :-

Particulars	Skilled	Unskilled
Std. time (hrs.)	500	500
Actual time (hrs.)	400	700
Std. rate (₹/hr.)	15	10
Actual rate (₹/hr.)	20	15

1) Total Labour Cost Variances = Std. cost of actual output - Actual cost.

Std. cost of actual output = Std. time x Std. rate.

Skilled	500 hrs. x ₹ 15	=	₹ 7,500
Unskilled	500 hrs. x ₹ 10	=	₹ 5,000
			₹ 12,500

Actual cost = Actual time x Actual rate

Skilled	400 hrs. x ₹ 20	=	₹ 8,000
Unskilled	700 hrs. x ₹ 15	=	₹ 10,500
			₹ 18,500

Therefore, Total labour cost variance = ₹ 12,500 - ₹ 18,500 = ₹ 6,000 (A).

2) Labour Rate Variance = Actual time (Std. rate - Actual rate)

Skilled	400 hrs.(₹ 15 - ₹ 20)	=	₹ 2,000 (A)
Unskilled	700 hrs.(₹ 10 - ₹ 15)	=	₹ 3,500 (A)
			₹ 5,500 (A)

3) Labour Efficiency Variance = Std. rate (Std. time - Actual time)

Skilled	₹ 15 (500 hrs.- 400 hrs.)	=	₹ 1,500 (F)
Unskilled	₹ 10 (500 hrs.- 700 hrs.)	=	₹ 2,000 (A)
			₹ 500 (A)

4) Labour Mix Variance = Std. Rate (Std. mix - Actual mix)

Worker	Std. rate ₹	Calculation	Std. mix hrs.	Actual mix Hrs.	Variance ₹
Skilled	15	1100 x 50 %	550	400	2,250 (F)
Unskilled	10	1100 x 50 %	550	700	1,500 (A)
Total			1100	1100	750 (F)

5) Sub-efficiency Variance = Std. rate (Std. hrs. - Std. mix)

Skilled	₹ 15 (500 hrs.- 550 hrs.)	=	₹ 750 (A)
Unskilled	₹ 10 (500 hrs.- 550 hrs.)	=	₹ 500 (A)
			₹ 1,250 (A)

Analysis of Labour Cost Variances

Total Labour Cost Variance = ₹ 6,000 (A)

- Labour rate variance = ₹ 5,500 (A)
- Labour efficiency variance = ₹ 500 (A)
  - Mix/gang = ₹ 750 (F)
  - Sub- efficiency = ₹ 1,250 (A)

PROBLEMS ON LABOUR COST VARIANCE

PROBLEM NO. 7 :

From the following information, calculate Labour Cost Variances -

Particulars	Hours	Rate (₹/hr.)
Standard	2,000	20
Actual	2,200	22

① calculation of variances

i) Labour cost variance = (SH × SR) − (AH paid × AR)
= (2000 hrs × ₹20 per hr) − (2200 hrs × ₹22 per hr)
= ₹40,000 − ₹48,400 = ₹8,400 (A)
90,000 48,400 8,400 (A)

ii) Labour Rate variance = AH paid for (SR − AR)
= 2200 hrs (₹20 − ₹22) = ₹4,400 (A)

iii) Labour Efficiency variance = SR (SH − AH paid for)
= ₹20 per hr (2000 − 2200) hrs = ₹4,000 (A)

② Summary

Labour cost variance = ₹8,400 (A) / 28,400 A

- Rate = ₹4,400 (A) / Rate ₹4,400 (A)
- Efficiency = ₹4,000 (A) / Efficiency ₹4,000 (A)

PROBLEM NO. 8 :

From the following information, calculate Labour Cost Variances -

Particulars	Hours	Rate (₹/hr.)
Standard	10,000	25
Actual	9,200	30

① calculation of variances

i) Labour cost variance = (SH × SR) − (AH paid × AR)
= (10,000 hrs × ₹25) − (9200 hrs × ₹30) = ₹26,000 (A)
10,000 485 225 9200 hrs × 230 226,000 A

ii) Labour Rate variance = AH paid for (SR − AR)
= 9200 hrs (₹25 − ₹30) = ₹46,000 (A)
9200 425 2 25 230 46,000 A

iii) Labour Efficiency variance = SR (SH − AH paid for)
= ₹25 (10,000 − 9200 hrs) = ₹20,000 (F)
225 10,00042 9200hrs 20,000 F

② Summary

Labour cost variance = ₹26,000 (A)

Rate = ₹46,000 (A)

Efficiency = ₹20,000 (F)

PROBLEM NO. 9

From the following data, calculate (a) labour cost variance, (b) labour rate variance and (c) labour efficiency variance :

Particulars	Skilled Men	Un-skilled Men
Standard Hours	800	400
Standard Rate per hour	₹ 10	₹ 6
Actual Hours	750	500
Actual Rate per hour	₹ 9	₹ 7

Also calculate Labour mix variance, Labour sub-efficiency variance

① key-data

Labour Grade	Std rate per hr (SR)	std labour's (SH)	Actual wage rate per hr (AR)	Actual lab. hrs (AH)	std. mix of actual labour (SM)
skilled men	₹ 10	800	₹ 9	750	1250 × 8/12 = 833.3333
unskilled men	₹ 6	400	₹ 7	500	1250 × 4/12 = 416.6666
	Total	1,200		1,250	1,250

Take the total of Actual has worked & put it in the ratio of SH.

② calculation of variances

i) Labour cost variance = (SH × SR) − (AH paid × AR)

skilled men : (800 hrs × ₹10) − (750 hrs × ₹9) = ₹1,250 (F)

unskilled men : (400 hrs × ₹6) − (500 hrs × ₹7) = ₹1,100 (A)

Total = ₹150 (F)

ii) Labour Rate variance = AH paid (SR − AR)

skilled men : 750 h's (₹10 − ₹9) = ₹750 (F)

unskilled men : 500 h's (₹6 − ₹7) = ₹500 (A)

Total = ₹250 (F)

iii) Labour Efficiency variance = SR (SH − AH paid)

skilled mn : ₹10 (800 − 750) hrs = ₹500 (F)

unskilled men : ₹6 (400 − 500) hrs = ₹600 (A)

Total = ₹100 (A)

iv) Labour Mise variance = Gang composition variance = SR (SM − AM)

skilled men : ₹10 (833.33333 hrs − 750 hrs) = ₹2833.33333 (F)

unskilled men : ₹6 (416.6666 hrs − 500 hrs) = ₹500 (A)

Total = ₹2333.33333 (F)

v) Labour sub-efficiency variance = SR (SH − SM)

skilled men : ₹10 (800 h's − 833.333 hrs) = ₹333.33333 (A)

unskilled men : ₹6 (400 hrs − 416.6666 hrs) = ₹100 (A)

Total = ₹433.33333 (A)

Labour cost variance
= (SH x SR) − (AH paid x AR)

(AH paid x AR) > (SH x SR) : Adverse
(AH paid x AR) < (SH x SR) : Favourable

Labour Rate variance
= AH paid (SR − AR)

AR > SR : Adverse
AR < SR : Favourable

Labour Efficiently variance
= SR (SH − AH paid)

AH paid > SH : Adverse
AH paid < SH : Favourable

Labour mix variance (Gang composition variance)
= SR (SM − AM)

AM > SM : Adverse
AM < SM : Favourable

Labour Idle time variance
= SR (AH paid − AH worked)

It will be always Adverse

Labour sub-effi. variance
= SR (SH − SM)

SM > SH : Adverse
SM < SH : Favourable

SH : Std has for actual output
SM : Std mix of actual hours worked
AM : Actual hours worked

PROBLEM NO. 10 (very Important)

From the following data, compute the labour cost variance, Labour rate and efficiency variance wage -

Also calculate Labour mix, Idle time, sub-effi variance

STANDARD –

Number in the Standard Gang	Men 20,	Women 10
Standard wage rate per hour	₹ 9	₹ 8

ACTUAL –

Number in the Actual Gang	Men 16,	Women 18
Actual Wage rate per hour	₹ 10	₹ 6

Standard output per Gang hour is 50 units and actual output is 2,400 units.

Actual gang hours worked are 42, which includes abnormal idle time of 2 hrs.

(Hrs paid for = 42, has worked for = 40)

① Key-data

Labour Grade	standard wage rate per hour (₹)	standard labour hrs for actual output	Actual wage rate per hr (₹)	Actual labour hrs has paid for	Actual labour hrs has worked for	standard mix of actual hrs worked
	(SR)	(SH)	(AR)	(AH paid)	(AH worked)	(SM)
Men	9	20 men × 1 hr × 2400 / 50 units = 960 hrs	10	42 × 16 = 672	40 × 16 = 640	1360 × 2/3 = 906.666
women	8	10 women × 1 hr × 2400 / 50 units = 480 hrs	6	42 × 18 = 756	40 × 18 = 720	1360 × 1/3 = 453.3333
	Total	1,440 hrs		1,428 hrs	1,360 hrs	1,360 hrs

Take the total of actual hrs worked & put it in the ratio of SH (2:1)

OR

standard output per Gang hour = 50 units

∴ standard Gang has required for actual output of 2400 units = 2400 units / 50 units per Gang hr = 48 hrs

∴ standard hrs for men : 48 hrs × 20 men = 960 hrs

women : 48 hrs × 10 women = 480 hrs

② calculation of variances

i) Labour cost variance = (SH × SR) − (AH paid × AR)

Men : (960 hrs × ₹9) − (672 hrs × ₹10) = ₹1,920 (F)

women : (480 hrs × ₹8) − (756 hrs × ₹6) = ₹696 (A)

Total = ₹1,224 (F)

ii) Labour Rate variance = AH paid (SR − AR)

Men : 672 hrs (₹9 − ₹10) = ₹672 (A)

women : 756 hrs (₹8 − ₹6) = ₹1,512 (F)

Total = ₹840 (F)

iii) Labour efficiency variance = SR (SH - AH paid)

Men : ₹9 (960 - 672) hrs = ₹2,592 (F)

Women : ₹8 (480 - 756) hrs = ₹2,208 (A)

Total = ₹384 (F)

iv) Labour mix variance (Gang composition variance)

= SR (SM - AM)

Men : ₹9 (906.66666 - 640) hrs = ₹2,400 (F)

Women : ₹8 (453.33333 - 720) hrs = ₹2,133.33333 (A)

Total = ₹266.66666 (F)

v) Labour Idle time variance = SR (AH paid - AH worked)

Men : ₹9 (672 - 640) hrs = ₹288 (A)

Women : ₹8 (756 - 720) hrs = ₹288 (A)

Total = ₹576 (A)

vi) Labour sub-efficiency variance = SR (SH - SM)

Men : ₹9 (960 - 906.66666) hrs = ₹480 (F)

Women : ₹8 (480 - 453.33333) hrs = ₹213.33333 (F)

Total = ₹693.33333 (F)

③ Summary

Labour cost variance = ₹1,224 (F)

- Rate = ₹2840 (F)
- Efficiency = ₹384 (F)
  - Mix = ₹266.6666 (F)
  - Idle = ₹576 (A)
  - Sub-efficiency = ₹693.33333 (F)

PROBLEM NO. 11

The gang of workers normally consists of 30 men, 15 women and 10 boys. In a normal working week of 40 hours, the gang is expected to produce 2,000 units of output. They are paid at standard hourly rates as under -

Men ... ₹ 18; Women ... ₹ 16; Boys ... ₹ 14.

During the week ended 31st May, 2018, the gang consisted of 40 Men, 10 Women and 5 boys. The actual wages paid were @ ₹ 17, ₹ 15 and ₹ 13 respectively.

Calculate labour cost variances assuming actual output during the week was 2200 units.

① Key-data

Labour Grade	standard wage rate per hour (SR)	standard labour hrs for actual output (SH)	Actual wage rate per hr (AR)	Actual labour hrs paid for (AH paid)	standard mix of actual hrs worked (SM)
Men	18	$\frac{30 \times 40 \text{ hrs}}{2000} \times 2200 = 1,320$ hrs	17	$40 \times 40425 = 1600425$	$2200 \times \frac{6}{11} = 1200$
Women	16	$\frac{15 \times 40425}{2000} \times 2200 = 660$ hrs	15	$10 \times 40425 = 400425$	$2200 \times \frac{3}{11} = 600$
Boys	14	$\frac{10 \times 40425}{2000} \times 2200 = 440$ hrs	13	$5 \times 40425 = 200$ hrs	$2200 \times \frac{2}{11} = 400$
		2,420		2,200485	2,200425

Take the total of AH worked & put it in ratio of standard hours (6:3:2)

OR

standard output from 40 Gang hours = 2000 units

∴ standard Gang hours for actual output of 2200 units = $\frac{40 \text{ Gang hrs}}{2000 \text{ units}} \times 2200 \text{ units}$

= 44 Gang hours

∴ standard Gang hrs of Men : $30 \times 44 \text{ hrs} = 1,320$ hrs

Women : $15 \times 44 \text{ hrs} = 660$ hrs

Boys : $10 \times 44 \text{ hrs} = 440$ hrs

② calculation of variances

i) Labour cost variance = (SH × SR) − (AH paid × AR)

Men : (1320 hrs × ₹18) − (1600 hrs × ₹17) = ₹3,440 (A)
Women : (660 hrs × ₹16) − (400 hrs × ₹15) = ₹4,560 (F)
Boys : (440 hrs × ₹14) − (200 hrs × ₹13) = ₹3,560 (F)
Total = ₹4,680 (F)

ii) Labour Rate variance = AH paid (SR − AR)

Men : 1600 hrs (₹18 − ₹17) = ₹1600 (F)
Women : 400 hrs (₹16 − ₹15) = ₹400 (F)
Boys : 200 hrs (₹14 − ₹13) = ₹200 (F)
Total = ₹2,200 (F)

iii) Labour efficiency variance = SR (SH − AH paid)

men : ₹18 (1320 − 1600) hrs = ₹5,040 (A)
Women : ₹16 (660 − 400) hrs = ₹4,160 (F)
Boys : ₹14 (440 − 200) hrs = ₹3,360 (F)
Total = ₹2,480 (F)

iv) Labour Mise variance or Gang composition variance

= SR (SM − AM)

Men : ₹18 (1200 − 1600) hrs = ₹7,200 (A)
Women : ₹16 (600 − 400) hrs = ₹3,200 (F)
Boys : ₹14 (400 − 200) hrs = ₹2,800 (F)
Total = ₹1,200 (A)

v) Labour sub-efficiency variance = SR (SH − SM)

Men : ₹18 (1320 − 1200) hrs = ₹2,160 (F)
Women : ₹16 (660 − 600) hrs = ₹960 (F)
Boys : ₹14 (440 − 400) hrs = ₹560 (F)
Total = ₹3,680 (F)

③ Summary

Labour cost variance = ₹4,680 (F)

- Rate = ₹2,200 (F)
- Efficiency = ₹2,480 (F)
  - mix = ₹1,200 (A)
  - sub efficiency = ₹3,680 (F)

VARIABLE OVERHEAD COST VARIANCES

For calculation of overhead cost variances, first we have to calculate the standard rates of recovery of overheads as follows -

$$\text{Standard Rate of Recovery per unit (SRR/unit)} = \frac{\text{Budgeted Overheads}}{\text{Budgeted Output}}$$

$$\text{Standard Rate of Recovery per hour (SRR/hour)} = \frac{\text{Budgeted Overheads}}{\text{Budgeted Hours}}$$

Overhead Cost Variance = (Actual Output X SRR/unit) - Actual overheads

Analysis of Variable Overhead Cost Variance :

(a) Expenditure Variance = (Actual hours X SRR/hour) – Actual Overheads

(b) Efficiency Variance = SRR/hour (Std. hours - Actual hours)

Adverse or Favourable :

(a) In cost variance, if actual overheads are more than standard, then the variance is adverse and if lower then it is favourable.

(b) In expenditure variance, if actual overheads are more than standard then the variance is adverse and if lower then it is favourable.

(c) In efficiency variance, if actual hours are more than standard then the variance is adverse and if lower then it is favourable.

Illustration 3 :

The following information is obtained from the cost records of Unique Ltd. which uses Standard Costing System. Calculate the Variable Overhead Cost Variances.

	Particulars	Budget	Actual
1.	Production (units)	4,000	3,800
2.	Labour Hours	8,000	6,650
3.	Variable Overheads (₹)	12,000	12,000

Solution :-

i) Std. rate of recovery per unit (i.e. SRR / unit)

$$= \frac{\text{Bud. overheads}}{\text{Bud. production}} = \frac{₹\ 12,000}{4,000 \text{ units}} = ₹\ 3 \text{ per unit.}$$

ii) $$\text{SRR / hr.} = \frac{\text{Bud. overheads}}{\text{Bud. Hours}} = \frac{₹\ 12,000}{8,000 \text{ hrs.}} = ₹\ 1.50 \text{ per hr.}$$

iii) Budgeted output is 4,000 units in 8,000 hours, i.e. 1 unit requires 2 hours.

1) Total cost variance = Std. recovered overheads on actual output - Actual overheads

= (Actual output x SRR/unit) - Actual overheads

= (3,800 units x ₹ 3) - ₹ 12,000

= ₹ 11,400 - ₹ 12,000 = ₹ 600 (A)

2) Expenditure variance = Std. overheads for actual hrs. - Actual overheads.

= [(Actual hrs. x SRR / hr.) - ₹ 12,000

= [(6,650 hrs. x ₹ 1.50) - ₹ 12,000

= ₹ 9,975 - ₹ 12,000 = ₹ 2,025 (A)

3) Efficiency variance = SRR/hour (Std. Hours - Actual Hours)

= ₹ 1.50 [(3,800 x 2 hrs.) – 6,650 hrs.]

= ₹ 1.50 (7,600 – 6650 hours) = ₹ 1,425 (F)

Analysis of Variable overhead Cost Variances

Total cost variance = ₹ 600 (A)

Expenditure = ₹ 2,025 (A) Efficiency = ₹ 1,425 (F)

PROBLEMS ON VARIABLE OH COST VARIANCE

PROBLEM NO. 12

From the following information calculate the Variable Overhead Cost Variances.

	Particulars	Budget	Actual
1.	Production (units)	10,000	12,000
2.	Labour Hours	15,000	16,650
3.	Variable Overheads (₹)	30,000	32,000

① calculation of standard rates of recovery (S.R.R.)

i) SRR p.u. = (Budgeted variable OH / Budgeted output) = (₹30,000 / 10,000 units) = ₹3 p.u.

ii) SRR per hr = (Budgeted variable OH / Budgeted Labour hrs) = (₹30,000 / 15,000 hrs) = ₹2 per hour

∴ standard labour hrs p.u. = (SRR p.u. / SEE per hr) = (₹3 / ₹2) = 1.50 hrs

OR

standard hours p.u. = (Budgeted hrs / Budgeted output) = (15,000 hrs / 10,000 units) = 1.50 hrs

② calculation of variances

i) vari. OH cost variance = (SRR p.u. × Actual output) − (Actual v.OH cost incurred)
= (₹3 × 12000 units) − ₹32,000 = ₹4,000 (F)

ii) variable OH expenditure variance = (SRR per hr × Actual hrs) − (Actual v. OH cost incurred)
= (₹2 × 16,650 hrs) − ₹32,000 = ₹1,300 (F)

iii) variable OH efficiency variance = SRR per hr (SH − AH)
= ₹2 [(1.50 hrs p.u. × 12000 units) − 16,650 hrs]
= ₹2 (18,000 hrs − 16,650 hrs)
= ₹2,700 (F)

PROBLEM NO. 13

The following data is obtained from the books of manufacturing company regarding variable overheads. Calculate and analyse the variances.

Budgeted Production for January	300 units
Actual Production for January	250 units
Budgeted Variable Overhead	₹ 7,800
Actual Hours	4,500 hours
Standard Time for one unit	20 hours
Actual Variable Overhead	₹ 7,000

① calculation of standard rates of recovery (S.R.R.)

i) SRR p.u. = (Budgeted variable OH / Budgeted output) = (₹7,800 / 300 units) = ₹26 p.u.

ii) SRR per hr = (Budgeted variable OH / Budgeted Labour hrs) = (₹7,800 / 20 hrs × 300 units) = ₹1.30 per hr

OR

SRR per hr = (SRR p.u. / std hrs p.u.) = ₹26 / 20 hrs = ₹1.30 per hr

② calculation of variances

i) variable OH cost variance = (SRR p.u. × Actual output) − (Actual V.OH incurred)
= (₹26 × 250 units) − ₹7,000 = ₹500 (A)

ii) variable OH expenditure variance = (SRR × Actual hrs) − (Actual V.OH incurred)
= (₹1.30 × 4500 hrs) − ₹7,000 = ₹1,150 (A)

iii) variable OH efficiency variance = SRR per hr (SH − AH)
= ₹1.30 [(20 × 25 units) − 4500 hrs]
= ₹1.30 (5000 hrs − 4500 hrs)
= ₹650 (F)

③ Summary

V. OH cost variance = ₹500 (A)

Expenditure = ₹1,150 (A) | Efficiency = ₹650 (F)

variable OH cost variance

= (SRRP.mx 191) − (11inian 4)

= (SRR per hr × stdhasp u × Actualoutput) − (Actual v OH cost incurred)

= (SRR per hr × SH) − (Actual v OH cost incurred)

variable on expenditure variance

= (SPEPerx Adas) − (191Yited)

= (S n's.in × Acts) − (thalicited)

= (srrp.u.x11i'ashfu) − (athlete)

= (SRRP4 × 8111) − (1ft ted)

variable on efficiency variance

= SRR per hr (SH − AH)

= SRR p.u. (std has p.u. xAO − AH)

= SRR gear (ships × Ao − AH / std has p.ci)

= SRR p.u. (std.hrs p.u. × AO / Std hrs − AH / std has p.u.)

= SRR Sp l (AO − 50)

PROBLEM NO. 14

From the following data, prepare variable overhead variance analysis.

Budget : (standard)	**Actual :**
Production = 2,500 units	Production = 2,000 units
Hours required per unit = 4	Hours = 9,000
OH Rate per hour = ₹ 1.70	Variable Overheads = ₹ 14,250

① calculation of standard rates of recovery (SRR)

SRR per hour = ₹ 1.70 ---- Given

SRR P U = SRR per hr × std hrs p u = ₹ 1.70 × 4 hrs

= ₹ 6.80 p u

② calculation of variances

i) variable OH cost variance

= (SRR p u × Actual output) − (Actual variable on cost incurred)

= (₹ 6.80 × 2000 units) − ₹ 14,250

= ₹ 2650 (A)

ii) variable on expenditure variance

= (SRR per hax actual hours) − (Actual v OH cost incurred)

= (₹ 1.70 × 9000 hrs) − ₹ 14,250

= ₹ 1,050 (F)

iii) variable on efficiency variance

= SRR per hr (SH − AH)

= ₹ 1.70 [(4 hrs × 2000 units) − 9000 hrs]

= ₹ 1.70 (8000 hrs − 9000 hrs)

= ₹ 1,700 (A)

③ Summary

v OH cost variance = ₹ 650 (A)

Expenditure = ₹ 1050 (F)

Efficiency = ₹ 1,700 (A)

FIXED OVERHEAD COST VARIANCES

= Standard Recovered Overheads on Actual Output - Actual overheads

= (Actual Output X SRR/unit) - Actual overheads

Analysis of Fixed Overhead Cost Variance :

i. Expenditure Variance = Budgeted Overheads - Actual Overheads

ii. Volume Variance = SRR/unit (Budgeted Output - Actual Output)

Sub-analysis of Volume Variance :

a. Calendar Variance = *SRR/day (Budgeted working days - Actual working days)

* SRR/day = Budgeted Overheads / Budgeted working days

b. Capacity Variance = SRR/hour (Budgeted Hours - Actual Hours)

Note : If there is a calendar variance, then the budgeted hours shall be calculated w.r.t. actual number of working days.

c. Efficiency Variance = SRR/hour (Std. hours - Actual hours)

Adverse or Favourable :

(a) In cost variance, if actual overheads are more than standard, then the variance is adverse and if lower then it is favourable.

(b) In expenditure variance, if actual overheads are more than budgeted, then the variance is adverse and if lower then it is favourable.

(c) In volume variance, if actual output is more than budgeted, then the variance is favourable and if lower then it is adverse.

(d) In calendar variance, if actual working days are more than budgeted, then the variance is favourable and if lower then it is adverse.

(e) In capacity variance, if actual hours are more than budgeted, then the variance is favourable and if lower then it is adverse. It is a capacity utilisation variance. If actual hours are more, then the capacity is better utilized and if actual hours are less, then the capacity is underutilized.

(f) In efficiency variance, if actual hours are more than standard then the variance is adverse and if lower then it is favourable.

The recovery of the fixed components of the estimated overheads depends upon capacity utilization.
In case a company produces less than the projected utilization it shall not be able to recover all the budgeted fixed overheads. This unrecovered portion is known as **production volume variance**.
The other variance is because of variations in actual spending when compared with both estimated fixed and estimated variable overheads. Such a variance is known as **overhead expenses variance**.

Illustration 4 : The following information is available from the records of a factory :

Particulars	Budget	Actual
Fixed Overheads for June (₹)	10,000	12,000
Production in June (units)	2,000	2,100
Standard time per unit (hours)	10	
Actual hours worked in June		22,000

Compute -

i. Fixed Overhead Cost Variance
ii. Expenditure Variance
iii. Volume Variance
iv. Capacity Variance
v. Efficiency Variance.

Solution :-

Std. rate of recovery per unit (SRR/unit)

$$= \frac{\text{Budget overheads}}{\text{Budget output}} = \frac{₹\ 10,000}{2,000 \text{ units}} = ₹\ 5 \text{ per unit}$$

Std. rate of recovery per hr. (SRR/hr.)

$$= \frac{\text{Budget overheads}}{\text{Budget hrs.}} = \frac{₹\ 10,000}{2,000 \times 10} = ₹\ 0.50/\text{ hour}$$

Input output ratio = 1 unit requires 10 hrs.

1] Total cost variance = (SRR/unit x Actual output) - Actual overheads
= (₹ 5 x 2,100 units) - ₹ 12,000
= ₹ 10,500 - ₹ 12,000 = ₹ 1,500 (A).

2] Expenditure variance = Budget overheads - actual overheads.
= ₹ 10,000 - ₹ 12,000
= ₹ 2000 (A)

3] Volume variance = SRR/unit (Budget output - actual output)
= ₹ 5 (2,000 units - 2,100 units)
= ₹ 5 x 100 units = Rs. 500 (F)

4] Capacity variance = SRR/hr. (Budget hrs. - Actual hrs.)
= ₹ 0.50 (20,000 hrs. - 22,000 hrs.)
= ₹ 0.50 x 2,000 hrs. = ₹ 1,000 (F)

5] Efficiency variance = SRR/hour x (Std. Hour – Actual hour)
= 0.50 x [(2,100 unit x 10 hrs.) – 22,000]
= 0.50 (21,000 – 22,000) = ₹ 500 (A)

Analysis of Fixed Overhead Cost Variances

Total cost Variance = ₹ 1,500 (A)

Expenditure = ₹ 2,000 (A) Volume = ₹ 500 (F)

Capacity = ₹ 1,000(F) Efficiency = ₹ 500(A)

Illustration 5 :
Vinak Ltd., has furnished you the following information for the month of June 2018 –

Particulars	Budget	Actual
Output (units)	30,000	32,500
Hours	15,000	16,500
Fixed Overheads (₹)	45,000	50,000
Working Days	25	26

Calculate Fixed Overhead Cost Variances.

Solution :- **Vinak Ltd.**

Working notes :-

1) Calculation of standard recovery rates :-

Formula	Std. Recovery Rates
SRR/Unit = Budgeted OH / Budgeted Output	₹ 45,000 / 30,000 Units = ₹1.50 p.u.
SRR/Hour = Budgeted OH / Budgeted Hours	₹ 45,000 / 15,000 hours = ₹ 3.00 / hr.

2) Input output Ratio = Budgeted output 30,000 units in budgeted hrs. 15,000 hrs.
Therefore 2 units in 1 hour

Fixed overhead cost variances :-

1) Total cost variance = (Actual output x SRR/unit) - Actual overheads.
= (32,500 units x ₹ 1.50) - ₹ 50,000
= ₹ 48,750 - ₹ 50,000 = ₹ 1,250 (A)

2) Expenditure variance = (Budgeted overheads - Actual overheads)
= ₹ 45,000 - ₹ 50,000 = ₹ 5,000 (A)

3) Volume variance = SRR / unit (Budgeted output - Actual output)
= ₹ 1.50 (30,000 units - 32,500 units)
= ₹ 1.50 x 2,500 units = ₹ 3,750 (F)

4) Calendar variance = Std. overheads per day (Budgeted working days - Actual working days)
= ₹ 45,000 / 25 days (25 days - 26 days) = ₹ 1,800 (F)

5) Capacity variance = SRR / hr (Budgeted hrs. for actual working days - Actual hrs)
= ₹ 3 [(15,000 hrs. x 26 days/25 days) - 16,500 hrs.]
= ₹ 3 (15,600 hrs. - 16,500 hrs.) = ₹ 2,700 (F).

6) Efficiency variance = SRR/hour x (Std. Hours – Actual hours)
= 3 x [(32,500 / 2) – 16,500]
= 3 x (16,250 – 16,500) = ₹ 750 (A)

Analysis

Total cost Variance = ₹ 1,250 (A)

Expenditure = ₹ 5,000 (A) Volume = ₹ 3,750 (F)

Calendar = ₹ 1,800(F) Efficiency = ₹ 750(A) Capacity = ₹ 2,700 (F)

PROBLEMS ON FIXED OH COST VARIANCE

PROBLEM NO. 15 :

From the following data, compute fixed overhead cost variance, expenditure variance and volume variance –

Particulars	Budget	Actual
Output (kgs)	25,000	31,000
Fixed Overheads	₹ 37,500	₹ 38,000

① Calculation of standard rate of recovery (SRR)

$$\text{SRR per unit (kg)} = \left(\frac{\text{Budgeted Fixed overheads}}{\text{Budgeted output}}\right)$$

$$= \left(\frac{₹37,500}{25,000 \text{ kgs}}\right) = ₹1.50 \text{ per unit (kg)}$$

② Calculation of variances

i) Fixed on cost variance = (SRR p.u. × Actual output) − (Actual Fixed overheads incurred)

$$= (₹1.50 \times 31,000 \text{ kgs}) - ₹38,000 = ₹8,500 \text{ (F)}$$

ii) Fixed OH Expenditure variance

= Budgeted Fixed OH − Actual Fixed on cost incurred

= ₹37,500 − ₹38,000 = ₹500 (A)

iii) fixed on volume variance = SRR P.u (BO − AO)

= ₹1.50 (25,000 kgs − 31,000 kgs) = ₹9,000 (F)

③ Summary

Fixed OH cost variance = ₹8,500 (F)

- Expenditure = ₹500 (A)
- volume = ₹9,000 (F)

PROBLEM NO. 16

From the following data, compute fixed overhead cost variance, expenditure variance and volume variance

Particulars	Budget	Actual
Output (units)	15,000	21,000
Fixed Overheads (₹)	9,000	9,300

① calculation of standard rate of recovery (SRR)

Calculation of standard rate of recovery

$$\text{SRR per unit} = \left(\frac{\text{Budgeted Fixed overheads}}{\text{Budgeted output}}\right)$$

$$= \left(\frac{₹\ 9{,}000}{15{,}000 \text{ units}}\right) = ₹\ 0.60 \text{ p.u.}$$

② Calculation of variances

Calculation of variances

i) Fixed on cost variance = (SRR p.u. × Actual output) − (Actual Fixed OH cost incurred)

Fixed on cost variance = (₹0.60 × 21000 units) − ₹9,300 = ₹3,300 (F)

ii) Fixed OH Expenditure variance

Fixed OH Expenditure variance = Budgeted Fixed OH − Actual Fixed on cost incurred

= ₹9,000 − ₹9,300 = ₹300 (A)

iii) fixed on volume variance = SRR p.u. (BO − AO)

= ₹0.60 (15,000 − 21,000) units

= ₹3600 (F)

③ Summary

Summary

Fixed OH cost variance = ₹3,300 (F)

- Expenditure = ₹300 (A)
- volume = ₹3600 (F)

PROBLEM NO. 17 (v. Imp)

SV Limited has furnished the following data. You are required to calculate fixed overhead cost variances,

Particulars	Budget	Actual
Production in units	20,000	22,000
Labour Hours	30,000	31,500
Fixed Overheads	30,000	31,000
working days	30	28

(1) calculation of standard rates of recovery (SRR)

i) SRR p.u. = (Budgeted Fixed OH / Budgeted output) = ₹30,000 / 20,000 units = ₹1.50 p.u.

ii) SRR per hour = (Budgeted Fixed OH / Budgeted labour hrs) = ₹30,000 / 30,000 hrs = ₹1.00 per hour

∴ standard labour hrs p.u. = (SRR p.u. / SRR per hr) = 1.5 hrs

iii) SRR per day = (Budgeted Fixed OH / Budgeted working days) = ₹30,000 / 30 days = ₹1000 per day

(2) calculation of variances

Fixed OH cost variance

SRR p.u × Actual output − Actual Fired OH cost incurred

1.50 × 22,000 units − 31,000 = 2,000 (F)

Fixed OH Expenditure variance

Budgeted Fixed OH − Actual Fixed OH

30,000 − 31,000

1,000 (A)

Fixed OH Volume variance

SRR p.u (BO − AO)

1.50 (20,000 − 22,000 units)

3,000 (F)

Hired OH calendar variance

Bays

1000 (30 − 28) days

2000 (A)

Fixed OH capacity variance

SEE (BH − AH)

F 3/4 (30,000/30 days × 28 − 31,500 hrs)

21 (28,000 − 31,500 hrs)

3,500 (F)

Fixed OH efficiency variance

SEE (SH − AH)

21.00 (1.50 × 22,000 units − 31,500 hrs)

1.00 (33,000 hrs − 31,500 hrs)

1,500 (F)

A.W. days > B.W. days : F — Falls

A.W. days < B.W. days : A — Pays

AH > BH : F

AH < BH : A

AH > SH : A

AH < SH : F

If calendar variance is calculated then please adjust Budgeted hours for actual working days.

PROBLEM NO. 18

From the following information, calculate fixed and variable overhead cost variances,

Particulars	Budget	Actual
Output (units)	12,500	13,400
Hours	75,000	80,000
Fixed Overheads (₹)	1,25,000	1,30,000
Variable Overheads (₹)	37,500	40,000

(A) Fixed overheads

(1) calculation of standard rates of recovery

i) SRR per unit $= \left(\frac{\text{Budgeted Fixed OH}}{\text{Budgeted output}}\right) = \frac{₹1,25,000}{12,500 \text{ units}}$

$= ₹10$ P.M.

ii) SRR per hour $= \left(\frac{\text{Budgeted Fixed OH}}{\text{Budgeted hours}}\right) = \frac{₹1,25000}{75000 \text{ has}}$

$= ₹1.66666666$ per hour

i. standard hrs p.u. $= \frac{\text{SRR p.u.}}{\text{SRR p.hr}} = \frac{₹10}{₹1.66666} = 6$ hrs

OR

standard hrs p.u. $= \left(\frac{\text{Budgeted has}}{\text{Budgeted output}}\right) = \frac{75,000 \text{ has}}{12,500 \text{ units}} = 6$ hrs

(2) Calculation of variances

i) Fixed OH cost variance

$= (\text{SRR p.u} \times \text{actual output}) - (\text{Actual Fideed OH wst incube})$

$= (₹10 \times 13,400 \text{ units}) - ₹1,30000$

$= ₹4,000 (F)$

ii) Fideed off expenditure variance

$=$ Budgeted Fixed OH $-$ Actual Freed OH

$= ₹1,25,000 - ₹1,30,000 = ₹5,000 (A)$

iii) Fideed on volume variance

$=$ SRR P.U. $(BO - AO) = ₹10 (12,500 - 13,400)$ units

$= ₹9,000 (F)$

iv) Fixed on capacity variance

$=$ SRR per hr $(BH - AH)$

$= ₹1.666666 (75,000 \text{ has} - 80,000 \text{ h}) = ₹8,333.3333 (F)$

4) Fired on efficiency variance

= SRR per hr (SH - AH)

= ₹1.666666 [(75,000 hrs / 12,500 units) × 13,400 units − 80000 hrs]

80,0004251

= ₹ 1.66666 (80,400425 − 80,000 hrs)

= ₹ 666.666666 (F)

③ summary

summary

fixed on cost variance = ₹4,000 (F)

Explenditure = ₹5000 (A)

5,000 A

volume = ₹9,000 (F)

volume 29,0 0 F

clupacity = ₹8,333.33333 (F)

8,333.33333 F

Efficient = ₹666.666666 (F)

666.666666 F

④ variable overheads

① calculation of standard rates of recovery (SRR)

i) SRR P.U. = (Budgeted variable OH / Budgeted units) = ₹37,500 / 12,500 units

srrp.u.ecY ifitcoH Enits

= ₹3 P.U.

ii) SRR per hr = (SRR P.U. / std hrs P.U.) = ₹3 P.U. / 6 hrs

= ₹0.50 per hour

② calculation of variances

i) variable on cost variance

= (SRR P 4. × Actual output) − (Actual v. OH cost incurred)

= (₹3 × 13,400 units) − ₹40,000

= ₹200 (F)

ii) variance on expenditure variance

= (SRR per hr × Actual hrs) − (Actual v. OH cost incurred)

= (₹0.50 × 80,000 has) − ₹40,000 = NIL

iii) variable on efficiency variance

= SRR per hour (SH − AH)

= ₹0.50 [(6has × 13,400 units) − 80,000 has]

= ₹0.50 (80,400 has − 80,000 has)

= ₹200 (F)

(3) summary

variable on cost variance

= ₹200 (F)

Expenditure = NIL

Efficiency = ₹200 (F)

PROBLEM NO. 19

From the following information, calculate Fixed and variable overhead variances -

Particulars	Budget	Actual
Production	4,000 units	3,800 units
Fixed Overheads	₹ 40,000	₹ 39,000
Variable Overheads	₹ 12,000	₹ 12,000
Hours	8,000	7,000

(A) Fixed overheads

① calculation of standard rates of recovery (SRR)

i) SRR p.u. = (Budgeted Fixed overheads / Budgeted output)

= (₹40,000 / 4,000 units) = ₹10 p.u.

78 its 100.4

ii) SRR per hour = (Budgeted Fixed overheads / Budgeted hours)

(₹40,000 / 8,000 hrs) = ₹5 per hour

89889 as per hour

∴ standard hours per unit = (SRR p.u. / SRR per hr) = (₹10 / ₹5) = 2 hrs

Est

ORO

standard hours per unit = (Budgeted hrs / Budgeted output) = 8000 hrs / 4000 units = 2 hrs

11th Ifat 888 kits

② calculation of variances

i) Fixed OH cost variance

= (SRR p.u. × Actual output) − (Actual Fixed OH cost incurred)

= (₹10 × 3800 units) − ₹39,000 = ₹1,000 (A)

ii) Fixed OH expenditure variance

= Budgeted Fixed OH − Actual Fixed OH

= ₹40,000 − ₹39,000 = ₹1,000 (F)

iii) Fixed OH volume variance

= SRR p.u. (BO - AO)

= ₹10 (4000 units - 3800 units)

= ₹2,000 (A)

iv) Fixed OH capacity variance

= SRR per hr (BH - AH)

= ₹5 (8000 hrs - 7000 hrs)

= ₹5,000 (A)

v) Fixed OH efficiency variance

= SRR per hr (SH - AH)

= ₹5 [(2 hrs × 3800 units) - 7000 hrs]

= ₹5 (7600 hrs - 7000 hrs)

= ₹3,000 (F)

③ Summary

Fixed OH cost variance = ₹1000 (A)

- Expenditure = ₹1,000 (F)
- volume = ₹2,000 (A)
  - capacity = ₹5,000 (A)
  - Efficiency = ₹3,000 (F)

(B) Variable overheads

① calculation of standard rates of recovery (SRR)

i) SRR p.u. = (Budgeted variable overheads / Budgeted output) = ₹12,000 / 4,000 units

= ₹3 p.u.

ii) SRR per hr = (SRR p.u. / output p.u.) = ₹3 / 2 hrs = ₹1.50 per hr

② calculation of variances

i) variable on cost variance

= (SRR P.u × Actual output) − (Actual variable on cost incurred)

= (₹3 × 3800 units) − ₹12,000 = ₹600 (A)

ii) variable on expenditure variance

= (SRR per hr × actual hrs) − (Actual V.OH cost incurred)

= (₹1.50 × 7000 hrs) − ₹12,000 = ₹1,500 (A)

OR

= (SRR per unit × standard output) − (Actual V OH wst insured)

= (₹3 × 7000 hrs / 2 hrs p.u. = 7995) − ₹12,000

= (₹3 × 3500 units) − ₹12,000 = ₹1,500 (A)

iii) variable on efficiency variance = SRR graph (SH − AH)

= ₹1.50 (7600425 − 7,000425) = ₹900 (F)

OR

variable on efficiency variance = SRR P U (AO − SO)

= ₹3 [3800 units − 7000 hrs / 2 hrs p.u. = 1951 p.m]

= ₹3 (3800 units − 3500 units) = ₹900 (F)

③ Summary

variable on cost variance = ₹600 (A)

- Expenditure = ₹1500 (A)
- Efficiency = ₹900 (F)

PROBLEM NO. 20

A company produces Single Product from Single Material. It operates a standard cost system and furnishes you the following information –

PARTICULARS	BUDGETED	ACTUAL
Product Units	8,000	6,000
Materials -		
Total Quantity – kg	16,000	13,000
Total Amount - ₹	32,000	27,300
Labour -		
Total Hours	2,400	2,000
Total Amount - ₹	3,000	3,000
Variable Overheads		
Total Hours	2,400	2,000
Total Amount - ₹	2,400	2,200

You are required to compute the following variance –

a. Material Price Variance
b. Material Usage Variance
c. Labour Rate Variance
d. Labour Efficiency Variance
e. Overhead Efficiency Variance
f. Overhead Expenditure Variance

(A) Materials

(1) Material cost variance

= (SP × SQ) − (AP × AQ consumed)

= [₹32,000 / 16,000 kgs × (16,000 kgs / 8000 units × 6000 units)] − (₹27,300 / 13,000 kgs × 13,000 kgs)

= (₹2 per kg × 12000 kgs) − (₹2.10 per kg × 13,000 kgs)

= ₹24,000 − ₹27,300 = ₹3,300 (A)

(2) Material price variance = AQ consumed (SP − AP)

= 13,000 kgs (₹2 per kg − ₹2.10 per kg)

= ₹1,300 (A)

③ Material usage variance

= SP (SQ - AQ consumed)

= ₹2 per kg (12000 kgs - 13,000 kgs)

= ₹2,000 (A)

Ⓑ Labour

i) Labour cost variance

= (SH x SR) - (AH paid x AR)

= [(2400 hrs / 3000 units x 3000 units) x ₹3000 / 2400 hrs] - (2000 x ₹3000 / 2000 hrs)

= (1800425 x ₹1.25 per hour) - (2000 hrs x ₹1.50 per hour)

= ₹2,250 - ₹3,000 = ₹750 (A)

ii) Labour Rate variance = AH paid (SR - AR)

= 2000 hrs (₹1.25 - ₹1.50) = ₹500 (A)

iii) Labour efficiency variance

= SR (SH - AH paid)

= ₹1.25 (1800425 - 2000 hrs)

= ₹250 (A)

Ⓒ variable overheads

① SRR p.u. = standard rate of recovery p.u.

= (Budgeted variable OH / Budgeted output) = (₹2400 / 8000 units)

= ₹0.30 p.u.

SRR per hour = standard rate of recovery per hour

= (Budgeted variable OH / Budgeted hours) = (22400 / 24004)

= ₹1.00 per hour

∴ standard hrs p.u. = (SRR p.u. / SRR per hour) = (₹0.30 / ₹1)

= 0.30 hrs

(2) i) variable OH cost variance

= (SRR p.u. × Actual output) − (Actual v. OH cost incurred)

= (₹0.30 × 6000 units) − ₹2200 = ₹400 (A)

ii) variable OH expenditure variance

= (SRR per hr × actual hrs) − (Actual v. OH cost incurred)

= (₹1 × 2000 hrs) − ₹2,200 = ₹200 (A)

iii) variable OH efficiency variance

= SRR per hr (SH − AH)

= ₹1 (1800 hrs − 2000 hrs)

= ₹200 (A)

PROBLEM NO. 21

The following standards have been set to manufacture a product –

Particulars	₹
Direct Materials :	
2 Units of A at ₹ 4 per unit	8.00
3 Units of B at ₹ 3 per unit	9.00
15 Units of C at ₹ 1 per unit	15.00
Direct Labour 3 hours at ₹ 8 per hr.	24.00
Total Standard Prime Cost	56.00

The company manufactured and sold 6,000 units of the product during the year.

Direct Material Cost was as follows -

12,500 Units of A at ₹ 4.40 per unit

18,000 Units of B at ₹ 2.80 per unit

88,500 Units of C at ₹ 1.20 per unit

The company worked 17,500 direct labour hours during the year. For 2,500 of these hours the company paid at ₹ 12 per hour while for the remaining the wages were paid at the standard rate. Calculate Material Price and Usage Variances and Labour Rate and Efficiency Variances.

Also callulate Material cost, mix, sub-usage variances, Labour cost variance.

(A) Material

① key data

take the total of AQ consumed & put it the ratio of SQ, you will get SM

Materials	standard price per unit SP (₹)	Std Qty input for actual output SQ units	Actual price P.a AP (₹)	Actual quantity consumed units	standard mise of actual aty consumed units (2:3:15)
A	4	2units × 6000 = 12,000	4.40	12,500	119000 × 2/20 = 11,900
B	3	3units × 6000 = 18,000	2.80	18,000	119000 × 3/20 = 17,850
C	1	15units × 6000 = 90,000	1.20	88,500	119000 × 15/20 = 89,250
Total		120,000		1,19,000	119000

② calculation of variances

i) Material cost variance = (SP × SQ) − (AP × AQ consumed)

A :	(₹4 ×	12,000 units) −	(₹4.40 ×	12,500 units) =	₹7,000	A
B :	(₹3 ×	18,000 units) −	(₹2.80 ×	18,000 units) =	₹3,600	F
C :	(₹1 ×	90,000 units) −	(₹1.20 ×	88,500 units) =	₹16,200	A
	Total =	₹19,600	A			

ii) Material price variance = AQ consumed (SP − AP)

A :	12,500 units	(₹4 −	₹4.40) =	₹5,000	A
B :	18,000 units	(₹3 −	₹2.80) =	₹3,600	F
C :	88,500 units	(₹1 −	₹1.20) =	₹17,700	A
	Total =	₹19,100	A		

iii) Material usage variance = SP (SQ − AQ consumed)

A :	₹4	(12,000 − 12,500) units =		₹2,000	A
B :	₹3	(18,000 − 18,000) units =		NIL	
C :	₹1	(90,000 − 88,500) units =		₹1,500	F
	Total =	₹500	A		

iv) Material Mise variance = SP (SM − AM)

A :	₹4	(11,900 − 12,500) units =		₹2,400	A
B :	₹3	(17,850 − 18,000) units =		₹450	A
C :	₹1	(89,250 − 88,500) units =		₹750	F
	Total =	₹2,100	A		

v) Material sub-usage variance = SP (SQ − SM)

A :	₹4	(12,000 − 11,900) units =		₹400	F
B :	₹3	(18,000 − 17,850) units =		₹450	F
C :	₹1	(90,000 − 89,250) units =		₹750	F
	Total =	₹1600	F		

③ Summary

Material cost variance = ₹19600 (A)

- Price = ₹19,100 (A)
- Usage = ₹500 (A)
  - Mise = ₹2100 (A)
  - Sub-usage = ₹1600 (F)

(B) Labour

(1) calculation of variances

i) Labour cost variance

= (SH × SR) − (AH paid × AR)

= [(3hrs p.u × 6000 units) × ₹8] − [(2500 hrs × ₹12) + (15,000 hrs × ₹8)]

= (18,000 hrs × ₹8) − (₹1,50,000)

= ₹1,44,000 − ₹1,50,000 = ₹6,000 (A)

ii) Labour Rate variance

= AH paid (SR − AR)

= 2,500 hrs (₹8 − ₹12) + 15,000 hrs (₹8 − ₹8)

= ₹10,000 (A)

iii) Labour efficiency variance

= SR (SH − AH)

= ₹8 (18,000 hrs − 17,500 hrs) = ₹4,000 (F)

(2) Summary

Labour cost variance = ₹6,000 (A)

- Rate = ₹10,000 (A)
- Efficiency = ₹4,000 (F)

Please Note

- SH = standard labour hours for actual output
- AH paid = Actual labour hrs paid for
- AH worked = Actual labour hrs worked for
- SR = standard wage rate per hour
- AR = Actual wage rate per hour
- SM = standard mix of actual hrs worked
- AM = Actual labour has worked

PROBLEM NO. 22 (Most imp Question)

Jumbo Enterprises manufactures one product. The standard cost card for the product is as follows –

Particulars		₹ /unit
Direct Materials	0.5 kgs. at ₹ 4 per kg.	2.00
Direct Wages	2 hours at ₹ 2 per hour	4.00
Variable OHs	2 hours at ₹ 0.30 per hour	0.60
Fixed OHs	2 hours at ₹ 3.70 per hour	7.40
Standard Cost		14.00
Standard Profit		6.00
Standard Selling Price		20.00

Budgeted production and sales were 5,100 units. Actual results for April, 2018 were as follows –

- Production of 4,850 units was sold for ₹ 95,600.
- Materials consumed in production amounted to 2,300 kgs at a total cost of ₹ 9,800.
- Labour hours paid for amounted to 8,500 hours at a cost of ₹ 16,800. (which includes abnormal idle of 500hrs)
- Variable overheads amounted to ₹ 2,600.
- Fixed overheads amounted to ₹ 42,300.

You are required to : -

(a) Calculate all variances.

(b) Prepare an operating profit statement to calculate actual profit earned during the month.

① Standard cost card per unit of output

particulars	Amt (₹)
ⓐ Direct materials SP = ₹4 per kg SQ = 0.50 kgs p.u. of output	2.00
ⓑ Direct Labour SH = 2 hrs p.u. of output, SR = ₹2 per hour	4.00
ⓒ variable overheads SRR per hour = ₹0.30, SRR p.u. = ₹0.30 × 2 hrs = 0.60	0.60
ⓓ Fixed overheads SRR per hour = ₹3.70 per hr SRR p.u. = ₹3.70 × 2 hrs = ₹7.40 p.u.	7.40
ⓔ Total standard cost p.u. of output (ⓐ to ⓓ)	14.00
ⓕ standard selling price p.u.	20.00
ⓖ Standard profit per unit (f-e)	6.00

② calculation of variances

i) Material cost variance
= (SP × SQ) − (AP × AQ consumed)
= [₹4 per kg × (0.50 kgs p.u. × 4850 units)] − ₹9,800
= (₹4 per kg × 2425 kgs) − ₹9,800 = ₹100 (A)

ii) Material price variance = AQ consumed (SP − AP)
= 2300 kgs [₹4 per kg − (₹9800 / 2300 kgs)]
= 2,300 kgs (₹4 − ₹4.260869565217) = ₹600 (A)

iii) Material usage variance = SP (SQ − AQ consumed)
= ₹4 per kg [(0.50 kgs × 4850 units) − 2,300 kg]
= ₹4 (2,425 kgs − 2,300 kg) = ₹500 (F)

iv) Labour cost variance (3 variance method)
= (SH × SR) − (AH paid × AR)
= [(2h25 p.u. × 4850 units) × ₹2 per hr] − ₹16,800
= (9700 hrs × ₹2 per hr) − ₹16,800 = ₹2,600 (F)

v) Labour Rate variance = AH paid (SR − AR)
= 8500 hrs (₹2 − ₹16800 / 8500 hrs)
= 8500 hrs (₹2 − ₹1.976470588235) = ₹200 (F)

vi) Labour idle time variance
= SR (AH paid for − AH worked for)
= ₹2 per hour (8500 hrs − 8000 hrs)
= ₹1,000 (A)

vii) Labour efficiency variance

= SR (SH - AH worked for)

= ₹2 per hr (9,700 hrs - 8,000 hrs)

= ₹3,400 (F)

viii) variable OH cost variance

= (SRR p.u. × Actual output) - (Actual v. OH cost incurred)

= (₹0.60 × 4850 units) - ₹2,600 = ₹2910 - ₹2600

= ₹310 (F)

ix) variable OH expenditure variance

= (SRR per hr × Actual hrs) - (Actual v. OH cost incurred)

= (₹0.30 × 8500 hrs) - ₹2,600 = ₹50 (A)

x) variable OH efficiency variance

= SRR per hr (SH - AH paid)

= ₹0.30 (9700 hrs - 8500 hrs) = ₹360 (F)

Xi) Fixed OH cost variance

= (SRR p.u. × Actual output) - (Actual Fixed OH cost incurred)

= (₹27.40 × 4,850 units) - ₹42,300

= ₹6,410 (A)

Xii) Fixed OH expenditure variance

= (Budgeted Fixed OH) - (Actual Fixed OH cost incurred)

= (SRR p.u. × Budgeted output) - (Actual Fixed OH cost incurred)

= (₹7.40 × 5100 units) - ₹42,300

= ₹37,740 - ₹42,300

= ₹4,560 (A)

xiii) Fixed oH volume variance

= SRR p.u (BO − AO)

= ₹ 7.40 (5100 units − 4850 units)

= ₹ 1,850 (A)

xiv) Fixed oH capacity variance

iv) Fixed on capacity variance

= SRR per hr (BH − AH)

= SRR per hr [(std has p.u × BO) − AH paid]

= ₹ 3.70 [(2 has × 5100 units) − 8,500 hrs]

= ₹ 3.70 (10,200 has − 8,500 has) = ₹ 6,290 (A)

xv) Fixed oH efficiency variance

v) Fixed on efficiency variance

= SRR per hr (SH − AH paid)

= ₹ 3.70 (9700 hrs − 8500 has) = ₹ 4,440 (F)

xvi) Sales value variance

Xvi) sales value variance

= (BSP p.u × BSQ) − (ASP p.us × ASQ)

= (₹ 20 × 5100 units) − ₹ 95,600

= ₹ 6,400 (A)

xvii) Selling price variance

vii) selling price variance

= ASQ (BSP p.u − ASP p.us)

= 4850 units (₹ 20 − ₹ 95,600 / 4850 units)

= 4850 units (₹ 20 − ₹ 19.711340206)

= ₹ 1,400 (A)

xviii) Sales volume variance = SSP p.u (BSQ − ASQ)

viii) sales volume variance

= ₹ 20 (5100 units − 4850 units)

= ₹ 5,000 (A)

③ operating profit statement for the month

particulars	Amt (₹)	Amt (₹)
ⓐ Actual sale value		95,600
ⓑ Actual Total cost		71,500
i) Direct material	9,800	
ii) Direct Labour	16,800	
iii) variable overheads	2,600	
iv) fixed overheads	42,300	
ⓒ operating Actual profit for the month (a − b)		24,100

④ Reconciliation statement of profit

particulars	Add/(Less)	Amount (₹)
ⓐ Budgeted profit		30,600
= std profit p.u × Budgeted sales qty		
= EG × 5100 units		
ⓑ profit − volume variance	(1,500)	
= Std profit (BSA − ASA)		
= EG (5100 − 4850) units = 1500 A		
ⓒ standard profit		29,100
= 11.948 × 4850 units		
ⓓ cost price & selling price variances		(5,000)
i) Material price variance	(400)	
ii) Material usage variance	500	
iii) Labour Rate variance	200	
iv) Labour Idle time variance	(1,000)	
v) Labour efficiency variance	3,400	
vi) variable OH expenditure variance	so	
vii) variable on efficiency variance	360	
viii) Fixed on expenditure variance	4,560	
ix) Fixed on capacity variance	(6,290)	
x) Fideed OH Efficiency variance	4,440	
xi) selling price variance	(1,400)	
ⓔ Actual operating profit for the month		24,100

(5) profit variance

= Budgeted profit − Actual profit

= (std.pro ftp:u.XBSQ) − Actual profit

= (EG P 4 × 5100 units) − 24,100 = 6,500 A

profit variance = 5,000 (A)

- cost price variance = 3,600 A
  - matetial variance = 100 A
    - price = 600 A
    - isatge = 500 F
  - Labour cost variance = 2600 F
    - rate = 200 F
    - late time = 1000 A
    - Effici = 3400 F
  - variable on cost variance = 310 F
    - expenditure soca = 50 (A)
    - effi = 360 ft
  - Fixed of cost variance = 6,410 A
    - Elependiture = 4560 A
    - t volume = 1,850 A
      - capality = 6290 A
      - Efficiency = 4440 F
- selling price variance = 1,400 A

profit volitime variance = Std. (BSQ − ASQ)

Stffit p.y. = ₹6 (5100 units − 4850 units) = 1,500 A

48,80

PROBLEM NO. 23

For making 10 kg. of CEMCO, the standard marterial requirement is :

Material	Quantity	Rate per kg (₹)
A	8	6.00
B	4	4.00

During April, 1,000 kg of CEMCO were produced. The actual consumption of materials is as under:

Material	Quantity (kg.)	Rate per kg (₹)
A	750	7.00
B	500	5.00

Calculate Material Variances.

① key data

Raw materials	standard price per kg (₹) (SP)	standard qty input for actual output (kgs) (SQ)	Actual price per kg (₹) (AP)	Actual Quantity consumed (kgs) (AQ)	standard mix of actual qty consumed (kgs) (SM) (2:1)
A	6.00	8 kgs / 10 kgs × 1000 kgs = 800	7.00	750	1250 × 2/3 = 833.33333
B	4.00	4 kgs / 10 kgs × 1000 kgs = 400	5.00	500	1250 × 1/3 = 416.66666
Total		1,200		1,250	1,250

② calculation of variances

i) Material cost variance = (SP × SQ) − (AP × AQ consumed)

A : (₹6 × 800 kgs) − (₹7 × 750 kgs) = ₹450 (A)

B : (₹4 × 400 kgs) − (₹5 × 500 kgs) = ₹900 (A)

Total = ₹1,350 (A)

ii) Material price variance = AQ consumed (SP − AP)

A : 750 kgs (₹6 − ₹7) = ₹750 (A)

B : 500 kgs (₹4 − ₹5) = ₹500 (A)

Total = ₹1250 (A)

iii) Material usage variance = SP (SQ - AQ consumed)

A : ₹6 (800 kgs - 750 legs) = ₹300 (F)

B : ₹4 (400 legs - 500 kgs) = ₹400 (A)

Total = ₹100 (A)

iv) Material Mix variance = SP (SM - AM)

A : ₹6 (833.33333 - 750) kgs = ₹500 (F)

B : ₹4 (416.66666 - 500) kgs = ₹833.33333 (A)

Total = ₹166.66666 (F)

v) Material sub-usage variance = SP (SQ - SM)

A : ₹6 (800 Kgs - 833.33333 legs) = ₹200 (A)

B : ₹4 (400 Kgs - 416.66666 legs) = ₹66.666666 (A)

Total = ₹2266.666666 (A)

③ summary

Material cost variance = ₹1,350 (A)

- price = ₹1,250 (A)
- usage = ₹2100 (A)
  - Fire = ₹166.66666 (F)
  - sub-usage = ₹2266.6666 (A)

standard yield = standard output / standard input

Actual yield = Actual output / actual input

standard output from actual raw material

Material Yield variance

= Std cost per kg of output (standard yield − Actual yield)

= [(18 kgs x ₹6) + (4 kgs x ₹4) / 10 kgs] [(10 legs / (18+4) kgs) x (750+500) − 1000 kgs]

= ₹ 6.40 per kg of output (1041.66666 Kgs − 1000 kgs)

= 2266.66666 (A)

PROBLEM NO. 24

1. The standard mix to produce one unit of product is as follows:

Material X	60 units @ ₹15 per unit	=	900
Material Y	80 units @ ₹20 per unit	=	1,600
Material Z	100 units @ ₹25 per unit	=	2,500
	240 units		5,000

During the month of April, 10 units were actually produced and consumption was as follows:

Material X	640 units @ ₹17.50 per unit	=	11,200
Material Y	950 units @ ₹18.00 per unit	=	17,100
Material Z	870 units @ ₹27.50 per unit	=	23,925
	2460 units		52,225

Calculate all material variances.

① key − data

key data

Actual qty consumed in std mixing proportion 3 : 4 : 5

Raw materials	Standard price per unit (₹)	Actual price per unit (₹)	Standard Qty for actual output (units)	Actual qty consumed (units)	std. mix of actual qty consumed (units)
	(SP)	(AP)	(SQ)	(AQ)	(SM)
X	15	17.50	60 x 10 = 600	640	2460 x 3/12 = 615
Y	20	18.00	80 x 10 = 800	950	2460 x 4/12 = 820
Z	25	27.50	100 x 10 = 1,000	870	2460 x 5/12 = 1025
			Total	2,460	2,460

② calculation of variances

i) Material cost variance = (SP × SQ) − (AP × AQ consumed)

x :	₹15	× 600 units	−	₹17.50	× 640 units	= ₹2,200 A
y :	₹20	× 800 units	−	₹18	× 950 units	= ₹1,100 A
z :	₹25	× 1000 units	−	₹27.50	× 870 units	= ₹1,075 F

Total = ₹2,225 A

ii) Material price variance = AQ consumed (SP − AP)

x :	640 units	(₹15 − ₹17.50)	=	₹1,600 A	
y :	950 units	(₹20 − ₹18)	=	₹1,900 F	
z :	870 units	(₹25 − ₹27.50)	=	₹2,175 A	

Total = ₹1,875 A

iii) Material usage variance = SP (SQ − AQ consumed)

x :	₹15	(600 − 640) units	=	₹600 A	
y :	₹20	(800 − 950) units	=	₹3,000 A	
z :	₹225	(1,000 − 870) units	=	₹3,250 F	

Total = ₹350 A

iv) Material Mise variance = SP (SM − AM)

x :	₹15	(615 − 640) units	=	₹375 A	
y :	₹20	(820 − 950) units	=	₹2,600 A	
z :	₹25	(1025 − 870) units	=	₹3,875 F	

Total = ₹900 F

v) Material sub-usage variance = SP (SQ − SM)

x :	₹15	(600 − 615) units	=	₹225 A	
y :	₹20	(800 − 820) units	=	₹400 A	
z :	₹25	(1000 − 1025) units	=	₹625 A	

Total = ₹1250 A

③ Summary

Summary

material cost variance = ₹2225 (A)

- price = ₹1875 (A)
- usage = ₹350 (A)
  - Mix = ₹900 (F)
  - sub-usage = ₹1250 (A)

Material yield variance = standard cost per unit of output (Standard yield − Actual yield)

where

standard yield = standard output from actual raw material input

Actual yield = Actual output

Material yield variance = [(1600 × 15) + (800 × 20) + (1000 × 25) / 10 units] × (1 / 2400 × 10 units of output − 10 units) × age

= ₹5000 (10.25 units − 10 units)

= ₹1,250 (A)

PROBLEM NO. 25

XYZ Company has established the following standards for factory overheads.

Variable overhead per unit: ₹10/-

Fixed overheads per month ₹1,00,000(Capacity of the plant 20,000 units per month.)

The actual data for the month are as follows:

Actual overheads incurred ₹3,00,000

Actual output (units) 15,000 units

Required:

Calculate overhead variances viz :

(i) Production volume variance

(ii) Total overhead cost variance

---

① Total OH cost variance

$$= \left(\text{SRR p.u. of OH} \times \text{Actual output}\right) - \left(\text{Actual total OH cost}\right)$$

$$= \left[\left(\frac{\text{Budgeted Fixed OH}}{\text{Budgeted output}} + \text{SRR p.u. of vari. OH}\right) \times \text{Actual output}\right] - \left(\text{Actual total OH cost}\right)$$

$$= \left[\left(\frac{₹1,00,000}{20,000 \text{ units}} + ₹10\right) \times 15,000 \text{ units}\right] - ₹3,00,000$$

$$= \left[(₹5 + ₹10) \times 15,000 \text{ units}\right] - ₹3,00,000$$

$$= ₹2,25,000 - ₹3,00,000 = ₹75,000\,(A)$$

② Fixed production OH volume variance

$$= \text{SRR p.u. of Fixed OH} \times \left(\text{Budgeted output} - \text{Actual output}\right)$$

$$= ₹5 \left(20,000 \text{ units} - 15,000 \text{ units}\right)$$

$$= ₹25,000\,(A)$$

PROBLEM NO. 26

A company has a normal capacity of 120 machines, working 8 hours per day of 25 days in a month. The fixed overheads are budgeted at ₹ 1,44,000 per month. The standard time required to manufacture one unit of product is 4 hours.

In April, 2012, the company worked 24 days of 840 machine hours per day and produced 5,305 units of output. The actual fixed overheads were ₹1,42,000.

Compute:

(iii) Expense variance

(iv) Volume variance

(v) Total fixed overheads variance.

Also calculate calendar capacity
Efficiency variance

① Given data

② Budgeted machine hrs = (8 hrs per day × 25 days) × 120 machines
Equally

= 24,000 hrs

③ Std hrs per unit = 4 hrs

④ Budgeted hrs = std hrs × Budgeted output
This

24000 hrs = 4 hrs × Budgeted output

∴ Budgeted output = 6,000 units

⑤ SRR p.u. = Budgeted Fitted OH for the month / Budgeted output for the many = ₹1,44,000 / 6000 units

= ₹24 p.u.

⑥ SRR per hour = SRR p.u. / std hrs p.u. = ₹24 / 4 hrs = 7.2 = ₹6 per hour

⑦ calculation of variances

i) Fixed OH cost variance

= (SRR p.u. × Actual output) − (Actual Fixed OH wst incurred)

= (₹24 × 5,305 units) − ₹1,42,000

= ₹1,27,320 − ₹1,42,000 = ₹14,680 (A)

ii) Fixed OH expenditure variance

= Budgeted Fixed OH − Actual fixed OH cost incurred

= ₹1,44,000 − ₹1,42,000

= ₹2,000 (F)

iii) Fiseedote volume variance

= SRR P.U. (BQ − AQ) = ₹24 (6000 units − 5305 units)

= 216,680 (A)

iv) Fixed on calendar variance

= SRR per day (Budgeted working days − Actual working days)

= (₹1,44,000 / 25 days) (25 days − 24 days)

= ₹5,760 (A)

v) Fixed on capacity variance

= SRR (BH for actual Budgeting days − AH)

= EG [24,000 hrs / 25 days × 24 days − (24 × 840 hrs)]

= ₹6 (23,040 hrs − 20,160 hrs) = ₹17,280 (A)

Vi) Fixed on efficiency variance

= SRR per hr (SH − AH)

= EG [(4 hrs × 5305 units) − 20,160 hrs]

= FG (21,220 hrs − 20,160 hrs) = ₹6,360 (F)

③ Summary

Fiseed OH wst variance = ₹14,680 (A)

Expenditure = 22,000 (F)

volume = ₹16,680 (A)

calendar = ₹5,760 (A)

capacity = ₹17,280 (A)

Efficiency = ₹6,360 (F)

SEE 491 Buttings

PROBLEM NO. 27

1. The following data has been collected from the cost records of a unit for computing the various fixed overhead variances for a period:

Number of budgeted working days	25
Budgeted man-hours per day	6,000
Output (budgeted) per man-hour (in units)	1
Fixed overhead cost as budgeted	₹1,50,000
Actual number of working days	27
Actual man-hours per day	6,300
Actual output per man-hour (in-units)	0.9
Actual fixed overhead incurred	₹1,56,000

Calculate fixed overhead variances:

(a) Expenditure Variance

(b) Volume Variance,

(c) Fixed OH Cost Variance.

Also calculate calendar, capacity, Efficiency variance.

① Calculation of standard rates of recovery (SRR)

i) SRR p.u. = (Budgeted Fixed OH / Budgeted output) = ₹1,50,000 / (6000 hrs x 25 days x 1 unit per hr)

= (₹1,50,000 / 1,50,000 units) = ₹1 P.m

ii) SRR per hour = (Budgeted Fixed OH / Budgeted hours) = ₹1,50,000 / (6000 hrs x 25 days)

= ₹1,50,000 / 1,50,000 hrs = ₹1 per hr

∴ standard has p.u = (SRR p.u. / SRR per hr) = 1 hr.

iii) SRR per day = (Budgeted Fixed OH / Budgeted working days) = ₹1,50,000 / 25 days

= ₹6000 per day.

② calculation of variances

i) Fixed OH cost variance = (SRR p.u. x actual p.u.) − (Actual fixed OH)

= [₹1 × (6300 hrs per day × 27 days × 0.90 units per hr)] − ₹1,56,000

= (₹1 × 1,53090 units) − ₹1,56,000 = ₹2,910 (A)

ii) Fixed OH expenditure variance

= (Budgeted Fixed OH − Actual Fixed OH)

= ₹1,50,000 − ₹1,56,000 = ₹6,000 (A)

iii) Fixed OH volume variance = SRR p.u. (Bo − Ao)

= ₹1 (150,000 units − 153090 units) = ₹3,090 (F)

iv) Fixed OH calendar variance

= SRR per day (Budgeted working days − Actual working days)

= ₹6000 (25 − 27) days = ₹12,000 (F)

v) Fixed OH capacity variance

= SRR per hour (BH for actual working days − AH)

= ₹1 [(6000 hrs x 27 days) − (6300425 − 27)]

= ₹1 (162,000 hrs − 170100 hrs) = ₹8,100 (F)

vi) Fixed OH Efficiency variance

= SRR per hr (SH − AH)

= ₹1 [(1 hr x 153090 units) − 170100 hrs]

= ₹1 (153090 42 − 170100 hrs) = ₹17,010 (A)

③ Summary

Fixed OH cost variance = ₹2,910 (A)

- Expenditure = ₹6,000 (A)
- Volume = ₹3,090 (F)
  - calendar = ₹12,000 (F)
  - capacity = ₹8100 (F)
  - Efficiency = ₹17,010 (A)

MULTIPLE CHOICE QUESTIONS

1. A standard which assumes efficient level of operation, but which includes allowance for factors such as waste and machine downtime, is known as

(a) Ideal standard
(b) Normal standard
(c) Attainable standard
(d) None of the above

2. The standard raw material cost for producing one unit of a finished product is ₹ 27. Standard raw material usage for every unit of finished product is 3 Kg. If 200 units were produced and ₹ 5,518 was paid for 620 kg. of raw material, then the direct material price variance is

(a) ₹ 62 (F)
(b) ₹ 72 (A)
(c) ₹ 100 (F)
(d) ₹ 100 (A)

3. Using the same data given in Q. 2, the direct material usage variance will be

(a) ₹ 200 (F)
(b) ₹ 200 (A)
(c) ₹ 180 (F)
(d) ₹ 180 (A)

4. If fixed production overheads are under absorbed by ₹ 50,000 and the actual expenditure was ₹ 55,000 less than what was budgeted, the fixed overhead volume variance is

(a) ₹ 1,10,000 (F)
(b) ₹ 1,05,000 (A)
(c) ₹ 1,10,000 (A)
(d) ₹ 1,05,000 (F)

5. The direct material usage variance for last period was ₹ 3,400 (A). What reasons could have contributed to such a variance

(a) Output was higher than budgeted
(b) Purchase department bought poor quality material
(c) Original standard usage was set very loose
(d) An inefficient machine was causing excess wastage

6. During a period 850 assemblies were made with a NIL Rate Variance and ₹ 4,400 Adverse Labour Efficiency Variance. If standard labour hours per assembly are 24 and standard rate per hour is ₹ 8, then how many actual labour hours were worked ?

(a) 19,000 hours
(b) 20,000 hours
(c) 20,440 hours
(d) 20,950 hours

7. During a period 25,600 labour hours were worked at a standard rate of ₹ 7.50 per hour. The labour efficiency variance was ₹ 8,250 (A). How many standard labour hours were produced ?

(a) 24,500 hours
(b) 25,000 hours
(c) 24,000 hours
(d) 25,500 hours

8. Standard price of material per kg. is ₹ 20. Standard usage per unit of output is 5 kg. Actual usage for producing 100 units is 520 kg. all of which was purchased @ ₹ 22 per kg. Material price variance shall be

(a) ₹ 1,040 (F)
(b) ₹ 1,040 (A)
(c) ₹ 400 (A)
(d) ₹ 400 (F)

9. Using the data of Q. 8 above, Material usage variance shall be

(a) ₹ 1,040 (F) (b) ₹ 1,040 (A)
(c) ₹ 400 (A) (d) ₹ 400 (F)

10. Using the data of Q. 8 above, Material Cost variance shall be

(a) ₹ 1,440 (F) (b) ₹ 1,440 (A)
(c) ₹ 4,000 (A) (d) ₹ 4,000 (F)

11. Standard sales price of product Z is ₹ 20 p.u. It was estimated that during January 5,000 units of Z will be sold. Actual sales was 4,500 units @ ₹ 22 p.u. Sales price variance shall be

(a) ₹ 10,000 (F) (b) ₹ 10,000 (A)
(c) ₹ 9,000 (A) (d) ₹ 9,000 (F)

12. Using the same data of Q. 11, Sales volume variance shall be

(a) ₹ 10,000 (F) (b) ₹ 10,000 (A)
(c) ₹ 9,000 (A) (d) ₹ 9,000 (F)

13. Assume the std. quantity of raw material required to produce one unit of output is 5 kg. at a std. price of ₹ 10 per kg.
Actual output during a period = 2,000 units
Material Price Variance = ₹ 19,600 (A)
Material Usage Variance = ₹ 2,000 (F)
Actual price of raw material used shall be -

(a) ₹ 10 (b) ₹ 12
(c) ₹ 15 (d) ₹ 20

14. Assume the standard required to produce one unit of output is 3 hrs. @ ₹ 30 per hour.
Actual output during a period = 500 units
Labour Rate Variance = ₹ 3,500 (F)
Labour Efficiency Variance = ₹ 7,500 (A)
Actual rate per hour of labour shall be -

(a) ₹ 20 (b) ₹ 25
(c) ₹ 28 (d) ₹ 30

15. Assume budgeted sales is 4,000 units @ ₹ 50 per unit.
Sales Price Variance = ₹ 18,000 (F)
Sales Volume Variance = ₹ 20,000 (A)
Actual sales price per unit shall be -

(a) ₹ 50 (b) ₹ 52
(c) ₹ 55 (d) ₹ 60

Space for solving MCQs

(13)

Material usage variance = SP (SQ − AQ consumed)

₹2000 (F) = ₹10 per leg [(5 legs × 2000 units) − AQ consumed]

Egg

2000 = 10 (10,000 legs − AQ consumed)

200 = 10,000 legs − AQ consumed

∴ AQ consumed = 9,800 legs

Material price variance = AQ consumed (SP − AP)

₹19,600 (A) = 9800 kg (₹10 per kg − AP)

19,600 = 9,800 (₹10 − AP)

2 = ₹10 − AP

AP = ₹10 + ₹2 = ₹12

∴ Actual price per kg = ₹12

(14)

Labour efficiency variance = SR (SH − AH paid)

₹7,500 (A) = ₹30 per hr [(3 hrs × 500 units) − AH paid]

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7,500 = ₹30 (1500 hrs − AH paid)

250 = 1500 hrs − AH paid

∴ Actual hrs paid for = 1,750 hrs

Labour Rate variance = AH paid (SR − AR)

₹3,500 (F) = 1,750 hrs (₹30 per hr − AR)

3,500 = 1,750 (₹30 − AR)

2 = ₹30 − AR

∴ Actual wage rate per hour = ₹30 − ₹2 = ₹28

(15) selling price variance = Actual sales quantity (Bsp p.u - Asp p.u)

₹18,000 (F) = ASQ (₹50 p.u - Asp p.u)

18,000 = 3600 units (50 - Asp p.u)

18,000 / 5 = 50 - Asp p.u.

∴ Actual selling price p.u = Asp p.u = ₹50 - ₹5 = ₹45

working note i) Sales volume variance = Budgeted sales quantity (BSQ - ASQ) Bsp - Asp

₹20,000 (A) = ₹50 (4000 units - ASQ)

20,000 = ₹50 (4000 - ASQ)

400 = 4000 - ASQ

∴ ASQ = 3600 units

(2) Material price variance

= AQ consumed (SP - AP)

= 620 kgs (₹27/52g - ₹5,518/620 kgs)

= 620 legs (₹9 per kg - ₹8.90 per kg)

= ₹62 (F)

(3) Material usage variance

= SP (SQ - AQ consumed)

= ₹9 per kg [(3 kgs × 200 units) - 620 kgs]

= ₹9 per kg (600 kgs - 620 kgs)

= ₹180 (A)

(4) Fixed on cost variance = ₹50,000 (A)

Fixed on expenditure variance | Fired on volume variance

= ₹55,000 (F) | = (?)

= ₹1,05,000 (A)

(6) Labour efficiency variance = SR (SH − AH paid)

₹ 4,400 (A) = ₹ 8 (24 hrs × 850 − AH paid)

24 hrs × 8 = 192

− 4400 = 8 (20,400 hrs − AH paid)

− 550 = 20,400 hrs − AH paid

∴ Actual labour hrs paid for = 20,950 hrs

(7) Labour efficiency variance = SR (SH − AH paid)

₹ 8,250 (A) = ₹ 7.50 (SH − 25,600 hrs)

52 per hr

− 8250 = 7.50 (SH − 25,600)

− 1100 = SH − 25,600

∴ Std labour hrs for actual output = 1100 + 25,600

= 24,500425

(8) Material price variance = AQ consumed (SP − AP)

= ₹ 20 kgs (₹ 22 − ₹ 22) = ₹ 1,040 (A)

520 kg

(9) Material usage variance = SP (SQ − AQ consumed)

= ₹ 20 [5 kgs p.u. × 100 units − 520 kgs]

= ₹ 20 (500 kgs − 520 kgs) = ₹ 400 (A)

(10) Material cost variance

= Material price variance + Material usage variance

= ₹ 1,040 (A) + ₹ 400 (A) = ₹ 1,440 (A)

(11) Sales price variance = Actual sales Quantity (BSP p.u. − ASP p.u.)

= 4500 units (₹ 20 − ₹ 22) = ₹ 9,000 (F)

(12) Sales volume variance = SSP p.u. (BSP − ASP)

= ₹ 20 (5000 − 4500 units) = ₹ 10,000 (A)

Summary of Fixed OH cost variances

Fixed OH cost variance
= (SRR p.u. x Actual output) − (Actual Fixed OH cost incurred)
= (SRR per hr x Std. hrs p.u. x Actual output) − (Actual Fixed OH cost incurred)
= (SRR per hr x SH) − (Actual Fixed OH cost incurred)

Fast That
seed on wst
Act intend

Fixed OH expenditure variance

= (Budgeted Fixed OH − Actual Fixed OH)
= (SRR x BO) − (Actual Fixed OH incurred)

SE 1151

Fixed OH volume variance

= SRR p.u. (BO − AO)
= BR
= SEE x std. hrs p.u. (BO − AO)
= SEE x [std. hrs p.u. x BO − std. hrs p.u. x AO]
= SEE (BH − SH)
= SEE BH SH

Vatian
seed on
Fired on volume
spt.li
s

Fixed OH calendar variance

= SRR per day (Budgeted working days − Actual working days)

Fitted on calendar variance
Spy

Fixed OH capacity variance

= SRR per hr (BH − AH)
= SEE (BH − AH)
= SRR p.u. / std. hrs p.u. (BH − AH)
= SRR p.u. x [std. hrs p.u. x BO / std. hrs p.u. − AH / std. hrs p.u.]
= SRR P.U. x fst91 up
= SRR PM (BO − SO)

Fixed of capacity variance
fi
O

Fixed OH Efficiency variance

= SRR per hr (SH − AH)
= SRR p.u. / std. hrs p.u. (SH − AH)
= SRR p.u. (SH − AH) / (AO − SO)

Effiaten
Fixed OH variance
iEsu
AIR
stelhasp

Standard Costing & Variance Analysis

① Standard costing is a technique costing and not method of costing

② procedure in standard costing

i) standards are set at the beginning of cost period

ii) Actual data is recorded through out the cost period

iii) At the end of cost period Actual data (cost) is compared with standards set for actual output & variances are calculated.

(variance means diff beth standard & Actual)

iv) variances can be classified as:

a) Favourable variance (F)

b) Adverse variances (A)

variances can also be classified as:

a) controllable variances

b) Non-controllable variances

v) management can push corrective action if required mainly to avoid recurrence of Adverse variances.

③ According to ISMA standard costing is

" The preparation & use of standard costs, their comparison with actual cost and analysis of variances to their causes and points of incidence "

④ variances

- Yost variances
  - Mfaterial cost variances
  - Labour cost variances
  - Jagjap ose
  - Fired OH cost variance
- sales variances
- profit variances

Problem No 28.

Standard price of material = ₹10 per kg
Standard input for 1 unit of output = 5 kgs
Actual data of the year
No. of units produced = 8,000
Raw material Used = 65,000 kgs
Actual price per kg = ₹9
Calculate & Analyse material cost variance

standards are set at the start of cost period

① Material cost variance

= (standard material cost for actual output) − (Actual material cost for actual output)

= [8000 units of FGX × 5kgs p.u. × ₹10 per kg] − (65,000kgs × ₹9 per kg)

= (₹10 per kg × 40,000kgs) − (₹9 per kg × 65,000kgs)

= (SP × SQ) − (AP × AQ consumed)

= ₹4,00,000 − ₹5,000

= ₹185,000 (A)

where SP = standard price
SQ = standard Qty input for actual output
AP = Actual price
AQ = Actual Qty consumed

② Material cost variance = ₹185,000 (A)

Material price variance | Material usage variance

Material price variance
= 65000kg (₹10 per kg − ₹9 per kg)
= AQ consumed (SP − AP)
= ₹65,000 (F)

Material usage variance
= ₹10 [(8000 units × 5kgs) − 65,000kg]
= ₹10 [40000kg − 65,000kg]
= SP (SQ − AQ consumed)
= ₹2,50,000 (A)

Material cost variance = Material price variance + Material usage variance
₹185,000 (A) = ₹65,000 (F) + ₹2,50,000 (A)

Additional Question

Budgeted consumption of 8000 units of output 1,60,000 litres
standard price ₹ 200 per litre
Actual material consumed to produce 12000 units of output 2,10,000 litres
Actual price ₹ 250 per litre
Calculate material cost variances

⟹ ① key data

Budgeted aty = (std. qty input for unit output × Budgeted output)

SP = ₹200 per litre
SQ = (1,60,000 litres / 8000 units) × 12000 units = 2,40,000 litres
= (std. qty input for 1 unit output × Actual output) = 20 litres × 12000 units = 2,40,000 litres

AP = ₹ 250 per litre
AQ = 2,10,000 litres

② calculation of variances

i) Material cost variance = (SP × SQ) − (AP × AQ consumed)
= (₹200 per litre × 2,40,000 litres) − (₹250 per litre × 2,10,000 litres)
= ₹4,80,00,000 − ₹5,25,00,000 = ₹45,00,000 (A)

ii) Material price variance = AQ unsumed (SP − AP)
= 2,10,000 litres (₹200 − ₹250) = ₹1,05,00,000 (A)

iii) Material usage variance = SP (SQ − AQ consumed)
= ₹200 per litre (2,40,000 − 2,10,000) litres
= ₹60,00,000 (F)

③ summary

Material cost variance = ₹45,00,000 (A)

- ptice = ₹1,05,00,000 (A)
- usage = ₹60,00,000 (F)

Problem No 29.

(Budgeted material consumption for 20,000 units of output) = 50,000 litres
Standard price = ₹25 per litre
Actual material consumed to produced 18,000 units = 35,000 litres
Actual price = ₹ 28 per litre
Calculate & analyse material cost variance

BH = Std. hrs for 1 unit × BO

histathfit

① key data

② Budgeted quantity = standard Qty input for 1 unit of output × Budgeted output

50,000 litres = std qty input p.u. of output × Tfunits

std qty input p.u. of output = 2.50 litres

③ SQ = 2.50 litres × 18,000 units = 45,000 litres
SP = ₹ 25 per litre
AP = ₹ 28 per like
AQ = 35,000 litres

④ calculation of variances

i) Material cost variance = (SP × SQ) − (AP × AQ consumed)
= (₹25 × 45000 litres) − (₹28 × 35,000 litres)
= ₹11,25,000 − ₹9,80,000 = ₹1,45,000 (F)

ii) Material price variance = AQ unsumed (SP − AP)
= 35000 litres (₹25 − ₹28) = ₹1,05,000 (A)

iii) Material usage variance = SP (SQ − AQ consumed)
= ₹25 (45,000 − 35,000) likes
= ₹2,50,000 (F)

⑤ summary

Material cost variance = ₹1,45,000 (F)

ptice
= ₹1,05,000 (A)

usag
= ₹2,59000 (F)

Problem No 30.

(Important)

Standard input for 1kg of output
0.60 kgs of cashew powder a) ₹2000 per kg
0.50 kgs of sugar a) ₹50 per kg

Actual Quantity consumed to produce 1000 kgs of output
400 kgs of cashew powder a) ₹1900 per kg &
810 kgs of sugar a) ₹60 per kg
Calculate & analyse material cost variance

standard data for 1kg of output

Actual data to produce 1000kgs of output

standard mixing Ratio = 6 : 5

Take the total of AQ consumed & put it in Ratio of SQ

① Key-data

Raw materials	std price per kg (₹) SP	Std Qty input for actual output (kgs) SQ	Actual price per kg (₹) AP	Actual qty consumed (kgs) AQ	standard mix of actual qty consumed (kgs) RSM
cashew powder	2000	0.60kgs x 1000 = 600 kgs	1,900	400 kgs	1210 x 6/11 = 660 kgs
sugar	50	0.50kgs x 1000 = 500 kgs	60	810 kgs	1210 x 5/11 = 550 kgs
Total		1,100 kgs		1,210 kgs	1,210 kgs

② Calculation of variances

i) Material cost variance = (SP x SQ) − (AP x AQ consumed)

cashew powder : (₹2000 x 600 kgs) − (₹1900 x 400 kgs) = ₹4,40,000 (F)

sugar : (₹50 x 500 kgs) − (₹60 x 810 kgs) = ₹23,600 (A)

Total = ₹ 416,400 (F)

ii) Material price variance = AQ consumed (SP − AP)

cashew powder : 400 kgs (₹2000 − ₹1900) = ₹ 40,000 (F)

sugar : 810 kgs (₹50 − ₹60) = ₹ 8,100 (A)

Total = ₹ 31,900 (F)

iii) Material usage variance = SP (SQ − AQ consumed)

cashew powder : ₹2000 (600 kgs − 400 kgs) = ₹ 4,00,000 (F)

sugar : ₹50 (500 kgs − 810 kgs) = ₹ 15,500 (A)

Total = ₹ 384,500 (F)

Material usage variance = 23,84,500 F

Material Mise variance = 2507,000 F

Material sub usage variance = 1711500 CA

iv) Material Mise variance

= Sp (SM - AM)

cashew powder	:	72000	(660 legs	− 400 legs)	= 5,20,000 F
sugar	:	250	(550kg	− 810 kgs)	= 13,000 A
				Total	= 5,07000 F

v) Material sub-usage variance = sp (sq - SM)

cashew powder	:	2000	(600 legs	− 660 legs)	= 120,000 A
sugar	:	250	(500 legs	− 550 legs)	= 2,500 A
				Total	= 122,500 A

③ summary

Material cost variance = 4,16,900 (F)

- Price = 31,900 F
- Usage = 23,84,500 F
  - Mike = 5,07000 F
  - sub-usage = 1,22,500 A

Material cost variance
= (Spx SQ) − (APX AQ consumed)

APX AQ consumed > Spx SQ ⇒ Adverse
APX AQ consumed < spx sq ⇒ Favourable

Material price variance
= Ahmed (SP − AP)

Ap > SP ⇒ Adverse
AP < SP ⇒ Favourable

Material usage variance
= Sp (SQ − AQ consumed)

AQ unsumed > SQ ⇒ Adverse
AQ consumed < SQ ⇒ Favourable

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Material Mise variance
= Sp (SM − AM)

AM > SM ⇒ Adverse
AM < SM ⇒ Favourable

Material sub-usage variance (Material Yield variance)
= Sp (Sd − SM)

SM > SQ ⇒ Adverse
SM < SQ ⇒ Favourable

SQ ⇒ standard Qty input for actual output
SM = Actual Qty consumed in standard mixing proportion
AM = Actual Qty consumed

Material Yield variance = std.wstp.us of output
Actual yield < Std Yield ⇒ Adverse
Actual yield > Std Yield ⇒ Favourable
& Actual Yield = Actual output

Std yield − Actual yield
where, Standard Yield = (standard output from actual input of raw material)

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Problem No 31.

Standard hrs for 1 unit of output = 10 hrs
Standard wage rate = ₹800 per hr

Actual labour hrs paid for producing 8000 units = 60,000 hrs
Actual wage rate per hour = ₹900

Calculate & analyse labour cost variance

standard set at the start of cost period

Actual data

Labour cost variance

= (Standard labour cost of actual output − Actual Labour cost of actual output)

= (Standard labour cost of actual output of 8000 units − Actual Labour cost of actual output of 8000 units)

= [(8000 units × 10 hrs) × ₹800 per hr] − (60,000 hrs × ₹900 per hr)

= (80,000 hrs × ₹800 per hr) − (60,000 hrs × ₹900 per hr)

= (SH × SR) − (AH paid × AR)

= ₹6,40,00,000 − ₹5,40,00,000

= ₹1,00,00,000 (F)

21,00,00,000 F

Labour Rate variance

= AH paid (SR − AR)

= 60,000 hrs (₹800 − ₹900)

= ₹60,00,000 (A)

Labour efficiency variance

= SR (SH − AH Actual)

= ₹800 (80,000 hrs − 60,000 hrs)

= ₹1,60,00,000 (F)

Problem No 32.

Budgeted variable overheads = ₹1,00,000
Budgeted output = 20,000 units
Budgeted hours = 50,000

Calculate 1) Pre-determined OH recovery rate p.u.
2) Pre-determined OH recovery rate per hr

This data is available at the beginning of cost period.

(1) Pre-determined OH recovery (or absorption) rate per unit
= SRR p.u. = standard rate of recovery per unit

$$= \left(\frac{\text{Budgeted variable overheads}}{\text{Budgeted output}}\right) = \frac{₹1,00,000}{20,000 \text{ units}}$$

= ₹ 5 p.u.

(2) Pre-determined OH recovery (or absorption) rate per hour
= SRR per hour = standard rate of recovery per hour

$$= \left(\frac{\text{Budgeted variable overheads}}{\text{Budgeted hours}}\right) = \frac{₹1,00,000}{50,000 \text{ hrs}}$$

= ₹ 2 per hour

Please remember

$$\text{SRR p.u.} = \left(\frac{\text{Budgeted overheads}}{\text{Budgeted output}}\right)$$

$$\text{SRR per hr} = \left(\frac{\text{Budgeted overheads}}{\text{Budgeted hours}}\right)$$

Budgeted hrs = standard hours p.u. × Budgeted output
standard has = standard hours p.u. × Actual output
standard output = (Actual time taken / standard time p.us)

$$\text{SRR per hr} = \left(\frac{\text{Budgeted overheads}}{\text{Budgeted hours}}\right) = \left(\frac{\text{Budgeted overheads}}{\text{std.hasp.es} \times \text{Budgeted output}}\right)$$

$$\text{SRR per hr} \times \text{std has p.u.} = \left(\frac{\text{Budgeted overheads}}{\text{Budgeted output}}\right)$$

SRR per hr × std.hasp.us = SRR P·u

SRR per hr = (SRR P·4 / stel hrs P·u)

SRR P.u / SRR per hr = standard hvsp.us

Additional Question

Budgeted variable OH = 50,00,000

Budgeted output = 2,00,000 units

Budgeted hours = 10,00,000 has

calculate SRR P.u & SRR per hour

⟹ ① standard rate of recovery per unit

= SRR p.u = (Budgeted variable overheads / Budgeted output) = 50,09000 / 200,000 units

= 225 P.M

② SRR per hr = (Budgeted V OH / std.hasp.us × Budgeted output)

SRR per hr × std.hrsp.ir = SRR p.cn

SRR per hr = SRR P.u / Stel has p.cn = ₹25 / 5 hrs = ₹5 per hour

Budgeted hrs = standard has p 4 × Budgeted output

10,00,000 hrs = std hrs p 4 × 2,00,000 units

∴ std hrs p.u = 5

std hrs p.u.IS

Problem No 33.

(Important)

Budgeted variable overheads = ₹5,00,000
Budgeted output = 50,000 units

standard has p y = 4 hrs

During the period 65,000 units are actually produced
Actual hrs worked = 2,80,000
Actual variable OH cost incurred = ₹5,50,000

Calculate & Analyse variable overhead cost variance

① calculation of standard rates of recovery (SRR)

i) SRR p.u. = (Budgeted variable overheads / Budgeted output) = ₹5,00,000 / 50,000 units

= ₹10 p.u.

ii) SRR per hr = (SRR p.u. / std.hrs p.u.) = ₹10 / 4 hrs = ₹2.50 per hour

OR

SRR per hr = (Budgeted variable OH / Budgeted hrs) = (Budgeted variable OH / Std hrs p 4 x Budgeted output)

= ₹5,00,000 / 4hrs x 50,000 units = ₹5,00,000 / 2,00,000hrs = ₹2.50 per

② calculation of variances

variable overhead cost variance

= (OH cost absorbed by actual output by using predetermined OH absorption rate p.u. − OH cost actually incurred during the period)

= (₹10 p.u. x 65,000 units) − ₹5,50,000

= (SRR P.U. x Actual output) − (Actual V.OH cost incurred)

= ₹6,50,000 − ₹5,50,000

= There is over-absorption of ₹1,00,000

= ₹1,00,000 (F)

(Actual v.OH cost incurred) > (SRR p.u. x Actual output) : Adverse

(Actual v.OH cost incurred) < (SRR P 4 x Actual output) : Favourable

variable on cost variance = ₹ 100,000 (F)

variable overhead expenditure variance

= (SRR P.u × standard output) − (Actual VOH cost incurred)

= [SRR per hr × std. hrs p.u. × Actual hrs / std. hrs p.u.] − [Actual VOH cost incurred]

= (SRR per ha × Actual hrs) − (Actual V.OH cost incurred)

= (₹ 2.50 × 280,000 ha) − ₹ 550,000

= ₹ 700,000 − ₹ 550,000

= ₹ 150,000 (F)

(Actual v OH wst incurred) > (SR Per hr × Acts hrs) : A

(Actual v OH wst incurred) < (SRR per hr × Actual hrs) : F

variable on efficiency variance

= SRR per hour (SH − AH)

= ₹ 2.50 [(4 hrs × 65000 units) − 2,80,000 hrs]

= ₹ 2.50 (2,60,000 hrs − 2,80,000 hrs)

= ₹ 50,000 (A)

AH > SH : A

AH < SH : F

Problem No 34.

Budgeted fixed overheads for the year = ₹8,00,000
Budgeted output = 10,000 units for the year
Actual output in a year = 13,000 units
Actual fixed OH cost incurred = ₹9,00,000
Calculate & Analyse fixed OH cost variance

→ This data is available at the beginning of cost period

→ Data recorded through out the cost period

① calculation of standard rate of recovery (SRR)

$$\text{SRR per units} = \left(\frac{\text{Budgeted Fixed overheads}}{\text{Budgeted output}}\right) = \frac{₹8,00,000}{10,000 \text{ units}}$$

= ₹80 p.u.

② calculation of variances

Fixed OH cost variance

= (Fixed OH cost absorbed by actual output using pre-determined OH absorption/recovery rate p.us) − (Fixed OH cost actually incurred during the period)

= (280 × 13000 units) − ₹9,00,000 = ₹10,40,000 − ₹9,00,000

= ₹1,40,000 (F)

= (SR p.u × actual output) − (actual fixed OH cost incurred)

Actual Fixed OH cost incurred > (SRR P.U × Actual output) : Adverse

Actual Fixed OH cost incurred < (SRR P.u × Actual output) : Favourable

Fixed OH expenditure variance

= (Budgeted Fixed OH − Actual Fixed OH)

= ₹8,00,000 − ₹9,00,000

= ₹1,00,000 (A)

Actual Fixed OH > Budgeted Fixed OH : A

Actual fixed OH < Budgeted Fixed OH : F

Fixed OH volume variance

= ₹80 (10,000 units − 13,000 units)

= ₹2,40,000 (F)

= SRR p.u. (BO − AO)

AO > BO : F

AO < BO : A

Problem No 35.

Standard labour hrs p.u. of output = 7 hrs
Actual labour hrs paid for producing 10,000 units = 80,000 hrs
(including abnormal idle time of 15,000hrs)
Standard wage rate per hour = ₹100
Actual wage rate per hour = ₹75
Calculate & analyse labour cost variance

Actual has paid for 80,000
- AH worked for 65,000 has
- Abnormal idle time 15,000 has

Labour cost variance (3 variance method)

= (SH x SR) − (AH paid for x AR)

= [(7 hrs x 10,000 units) x ₹100] − (80000 x ₹75 per hr)

= (70,000 hrs x ₹100) − (80,000 has x ₹75)

= ₹70,00,000 − ₹60,00,000 = ₹10,00,000 (F)

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Labour rate variance
= AH (SR − AR)
= 80,000 hrs (₹100 − ₹75)
= ₹20,00,000 (F)

Labour idle time variance
= SR (AH paid − AH worked)
= ₹100 (80,000 − 65,000) hrs
= ₹15,00,000 (A)

Labour Effition variance
= SR (SH − AH worked)
= ₹100 (70,000 − 65,000 hrs)
= ₹5,00,000 (F)

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Note : Labour cost variance will be analysed by 3 variance method when there is only one Grade/type of labour & abnormal idle time is also involved

Problem No 36. (Important)

Budgeted fixed OH = ₹80,000
Budgeted variable OH = ₹3,20,000
Budgeted output = 10,000 units
Actual output = 7,500 units
Calculate & Analyse OH cost variances

Actual labour hrs = 25,000
Standard labour hrs p.u. = 4
Actual total OH cost incurred = ₹5,82,000

(Fixed OH cost + variable OH)

Fiend cost 5th'eted

① calculation of standard rate of recovery p.u. for Total overheads

SRR p.u. of Fixed OH = (₹80,000 / 10,000 units) = ₹8 p.u.

8 its

SRR p.u. of variableOH = (₹3,20,000 / 10,000 units) = ₹32 p.u.

SRR p.u. of Total overheads = (Budgeted Total overheads / Budgeted output)

= (80,000 + 3,20,000 / 10,000 units) = 9,98999

= ₹40 p.u.

SRR p.u. of TotalOH = SRR p.u. of FixedOH + SRR p.u. of VariableOH

₹40 = ₹8 + ₹32

② calculation of variances

i) Total OH cost variance

= (SRR p.u. of TotalOH × Actual output) − (Actual total OH cost incurred)

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= (₹40 × 7500 units) − ₹5,82,000 = ₹2,82,000 (A)

ii) Total OH expenditure variance

= (Budgeted FixedOH) + (SRR per hr × Actual hrs) − (Actual total OH cost incurred)

ftp.ahrxactyas

= ₹80,000 + (₹32 / 4 hrs × 25000 hrs) − ₹5,82,000 = ₹3,02,000 (A)

iii) fixed OH volume variance = SRR p.u. (Bo − Ao)

SEE.opju

= ₹8 (10,000 units − 7500 units) = ₹20,000 (A)

iv) variable OH efficiency variance = SRR per hr (SH − AH)

SEEPE

= (₹32 / 4hrs) × [4h25PM × 7500 − 25000] = ₹40,000 (F)

32s

All Formulae on Standard Costing at one place
(Please subscribe to "CA Vinod Reddy" Youtube Channel)

Summary - Total OH cost variance

(3 variance method)

Total OH cost variance

= (SRR p.u. of FedaloH × Actual output p) − (Total OH cost actually incurred Elitist actually)

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= (Budgeted Fixed OH − Actual Fixed OH ftp)

p

valiable on expenditure variance

= (SRR per hr of V.OH × Actual hrs xan) − Actual V.OH cost incurred 1YYtie

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Freedom volume variance

= SRR per hr of Fixedon (BO − AO)

variable on efficiency variance

= SRR per hr of V.OH (SH − AH)

ofv.ae

Total OH expenditure variance

= (Budgeted Fixed OH t.dè i) + (SRR per hr of V.OH × Actual hrs xaasal) − Actual V.OH cost incurred iy1 − Actual Fixed OH cost incurred Effdon

= (Budgeted Fixed OH) + (SRR per hr of V.OH × Actual hrs may) − (Actual total OH cost incurred t)

Summary – Sales variances

Sales value variance

= (BSP P.U. × BSQ) − (ASP P.U. × ASQ)

= (Budgeted sales value) − (Actual sales value)

(ASP P.U. × ASQ) > (BSP P.U. × BSQ) : Favourable

(ASP P.U. × ASQ) < (BSP P.U. × BSQ) : Adverse

Sales price variance

= ASQ (SSP P.U. − ASP P.U.)

(Actual selling price P.U.) > (standard selling price P.U.) : F

(Actual selling price P.U.) < (standard selling price P.U.) : A

Sales volume variance

= SSP P.U. (BSQ − ASQ)

(Actual sales quantity) > (Budgeted sales quantity) : F

(Actual sales quantity) < (Budgeted sales quantity) : A

PIS Note that : Budgeted selling price P.U. = standard selling price P.U.

Budgeted sales Quantity = standard sales quantity

Additional Question

Budgeted/standard selling price p.u. = ₹ 18,000
Budgeted sales volume = 1,000 units
Actual selling price per unit = ₹ 17,200
Actual sales volume = 1,200 units
calculate & Analyse sales variances

Answer:

Sales value variance
= Budgeted sales value − Actual sales value
= (₹18,000 p.u. × 1000 units) − (₹17,200 p.u. × 1200 units)
= (BSP p.u. × Budgeted sales quantity or SSQ) − (Actual selling price p.u. × Actual Sales Qty)
= ₹1,8000,000 − ₹2,06,40,000 = ₹ 26,40,000 (F)
= (SSP p.u. × BSQ) − (ASP p.u. × ASQ)

Selling price variance
= ASQ (SSP − ASP)
= 1200 units (₹18000 − ₹17200)
= ₹ 9,60,000 (A)

Sales volume variance
= SSP p.u. (BSQ − ASQ)
= ₹18000 (1000 units − 1200 units)
= ₹ 3600,000 (F)