

Standard Costing

Questions:

Q.1 A single product company operates a system of standard costing. The following data relate to actual output, Sales, costs and variances for a month:

Actual output	18,000 units
	Rs.
Actual sales and costs incurred :	
Sales	<u>12,15,000</u>
Direct materials purchased and used 63,000 kg	2,04,750
Direct wages	2,12,040
Variable overheads	2,77,020
Fixed overheads	<u>3,25,000</u>
Total costs	<u>10,18,810</u>
Profit	<u>1,96,190</u>

Standard wage rate is Rs. 6 per hour. Budgeted output for the month is 20,000 units.

Direct materials	Price variance	15,750 A
	Usages variance	27,000 A
Direct labour	Rate variance	6,840 A
	Efficiency variance	10,800 F
Variable overheads	Efficiency variance	14,400 F
	Expense variance	3,420 A
Fixed overheads	Expense variance	25,000 A
	Sales price variance	45,000 F

Variances are:

Required:

- (i) Present the original budget along with cost sheet showing the standard cost and profit per unit.

- (ii) Calculate the sales gross margin volume and fixed overheads volume variances.
- (iii) Prepare an operating statement reconciling the budgeted profit with actual profit.

Q.2 TQM Ltd. has furnished the following information for the month ending 30th June, 2007:

	Master Budget	Actual	Variance
Units produced and sold	<u>80,000</u>	<u>72,000</u>	
Sales (Rs.)	<u>3,20,000</u>	<u>2,80,000</u>	40,000 (A)
Direct materials (Rs.)	80,000	73,600	6,400 (F)
Direct Wages (Rs.)	1,20,000	1,04,800	15,200 (F)
Variable overheads (Rs.)	40,000	37,600	2,400 (F)
Fixed overheads (Rs.)	<u>40,000</u>	<u>39,200</u>	800 (F)
Total Cost	<u>2,80,000</u>	<u>2,55,200</u>	

Per unit	(Rs.)
Direct materials (1 kg. at the rate of Rs. 1 per kg.)	1.00
Direct wages (1 hour at the rate of Rs. 1.50)	1.50
Variable overheads (1 hour at the rate of Rs. .50)	.50

The Standard costs of the products are as follows:

Actual results for the month showed that 75,400 kg. of material were used and 70,400 labour hours were recorded.

Required:

- (i) Prepare Flexible budget for the month and compare with actual results.
- (ii) Calculate materials, labour, sales price, variable overheads and fixed overheads expenditures variances and sales volume and sales volume (profit) variance.

Answer:

Q.1Ans Standard Cost Sheet and Budget

	Per unit Rs.	Budget for 20000 units Rs.
Sales (A)	<u>65</u>	<u>13,00,000</u>
Direct material (3 kg × Rs. 3)	09	1,80,000
Direct labour (2 hrs × Rs. 6)	12	2,40,000
Variable Overheads (2 hrs × Rs. 8)	16	3,20,000
Fixed Overheads (2 hrs × Rs. 7.50)	<u>15</u>	<u>3,00,000</u>
Total Cost (B)	52	10,40,000
Standard gross margin (A – B)	13	2,60,000

(iv) Computation of sales gross margin volume variance and fixed overheads volume variance

SM₂ = Actual sales × Std. margin

= 18000 units × Rs. 13

= Rs. 2, 34,000

SM₄ = Std. sales × Std. margin

= 20,000 units × Rs. 13

= Rs. 2, 60,000

Sales margin volume variance = SM₂ - SM₄

= Rs. 2, 34,000 – Rs. 2, 60,000

= Rs. 26,000 (A)

Fixed Overhead Volume Variance = F₂ - F₅

F₂ = Budgeted fixed overheads

= Rs. 3, 00,000

F₅ = Actual yield × Std. rate / unit

= 18000 units × Rs. 15

= 2, 70,000

Volume variance = Rs. 3, 00,000 – Rs. 2, 70,000 = Rs. 30,000 (A)

(iii) Operating Statement

(Reconciling the budgeted profit with actual profit)

	Rs.
Budgeted Profit (20000 units × Rs. 13)	2,60,000
Sales margin volume variance	<u>26,000 (A)</u>

Standard Profit	2,34,000
Sales price variance	<u>45,000 (F)</u>
Total	2,79,000

Cost variances	Fav	Adv
Direct Materials		
Price variance	-	15,750
Usages variance	-	27,000
Direct labour		
Rate variance	-	6,840
Efficiency variance	10,800	
Variable overheads		
Expenses variance	-	3,920
Efficiency variance	14,400	-

Fixed overheads

Expenses variance	25,000	
Volume variance	30,000	
	<u>25,200</u>	<u>1,08,010</u>
		<u>82,810(A)</u>
		<u>1, 96,190(F)</u>

Actual Profit

Working Notes:

Computation of standard price per kg and standard quantity of material

Material price variance = $M_1 - M_2 = 15750 (A)$

Material usage variance = $M_2 - M_y = 27000 (A)$

M_1 = Actual quantity × Actual price
= 63000 kg × Rs. 3.25 = Rs. 2, 04,750

M_2 = Actual quantity × Std. price
= 63,000 kg × Rs. X

15,750 (A) = 2, 04,750 – 63,000 X

$$3,000 X = 2,04,750 - 15,750$$

$$= 1,89,000$$

$$X = 1,89,000 \div 63,000$$

$$\text{Std Price} = \text{Rs. } 3/\text{unit}$$

Computation of Std quantity

$$M_2 = \text{Actual quantity} \times \text{Std. price}$$

$$= 63,000 \text{ kg} \times \text{Rs. } 3$$

$$= \text{Rs. } 1,89,000$$

$$M_4 = \text{Std. quantity} \times \text{Std. Price}$$

$$= X \text{ kg} \times \text{Rs. } 3$$

$$\text{Rs. } 27,000 = \text{Rs. } 1,89,000 - 3x$$

$$3x = \text{Rs. } 1,89,000 - 27,000$$

$$3x = \text{Rs. } 1,62,000$$

$$X = 1,62,000 \div 3$$

$$\text{Standard quantity} = 54,000 \text{ kg}$$

Computation of Std labour hour and actual labour hour per unit

$$\text{Labour rate variance} = L_1 - L_2 = 6840 \text{ (A)}$$

$$\text{Labour efficiency variance} = L_2 - L_3 = 10800 \text{ (F)}$$

$$L_1 = \text{Actual Hours} \times \text{Actual rate}$$

$$= \text{Rs. } 2,12,040$$

$$L_2 = \text{Actual Hours} \times \text{Std. rate}$$

$$X \times \text{Rs. } 6/\text{hour}$$

$$6840 = \text{Rs. } 2,12,040 - 6X$$

$$6X = \text{Rs. } 2,12,040 - \text{Rs. } 6840$$

$$= \text{Rs. } 2,05,200$$

$$X = \text{Rs. } 2,05,200 \div 6$$

$$\text{Actual Hours} = 34,200 \text{ hours}$$

Now

$$L_2 = \text{Actual Hours} \times \text{Std. rate}$$

$$= 34200 \text{ hours} \times \text{Rs. } 6$$

$$= \text{Rs. } 2,05,200$$

$$L_5 = \text{Std. labour hour} \times \text{Std. Rate}$$

$$= X \text{ hour} \times \text{Rs. } 6$$

$$-10,800 = \text{Rs. } 2,05,200 - 6X$$

$$6X = \text{Rs. } 2,05,200 + 10,800$$

$$= \text{Rs. } 2,16,000$$

$$X = \text{Rs. } 2,16,000 \div 6$$

$$X = \text{Rs. } 36,000$$

$$\text{Std hours} = 36,000 \text{ hours.}$$

Computation of budgeted variable overheads

$$V_1 = \text{Actual variable overheads} = 277020$$

$$V_2 = \text{Actual Hours worked} \times \text{Std. Rate hour}$$

$$= 34,200 \times X$$

$$V_3 = \text{Actual output} \times \text{SR /unit}$$

$$= 18000 \times y$$

$$\text{Expenditure variance} = V_1 - V_2$$

$$\text{Rs. } 3,420 = \text{Rs. } 2,77,020 - 34,200x$$

$$34,200x = \text{Rs. } 2,77,020 - \text{Rs. } 3,420$$

$$34,200x = \text{Rs. } 2,73,600$$

$$X = \text{Rs. } 2,73,600 \div 34,200$$

$$\text{Std rate / hour} = \text{Rs. } 8$$

$$\text{Efficiency variance} = V_2 - V_3$$

$$V_2 = 34,200 \text{ hours} \times \text{Rs. } 8$$

$$= \text{Rs. } 2,73,600$$

$$\text{Rs. } 14,400(\text{F}) = \text{Rs. } 2,73,600 - 18,000y$$

$$18,000y = \text{Rs. } 2,73,600 + 14,400$$

$$= \text{Rs. } 2,88,000$$

$$\text{SR/unit} = 2,88,000 \div 18,000$$

$$= 16/\text{unit}$$

Computation of Std fixed overheads Rate per unit per hour

Fixed overheads Expenditures variance $F_1 - F_2$

$$F_1 = \text{Actual fixed overhead}$$

$$= \text{Rs. } 3,25,000$$

$$F_2 = \text{Budgeted fixed overheads}$$

$$= X$$

$$25,000 \text{ A} = 3,25,000 - X$$

$$X = 3,25,000 - 25,000$$

$$\text{Budgeted fixed overheads} = \text{Rs. } 3,00,000$$

$$\text{Budgeted fixed overheads /unit} = \text{Rs. } 3,00,000 \div 20,000 \text{ unit} = \text{Rs. } 15/\text{unit}$$

Computation of budgeted Selling price

$$\text{Sales price variance} = SV_1 - SV_2 = 45,000 \text{ F}$$

$$SV_1 = \text{Actual sales} \times \text{Actual price}$$

$$= 12,15,000$$

$$SV_2 = \text{Actual Sales} \times \text{Std. price}$$

$$= 18,000 \text{ units} \times \text{Rs. } X$$

$$45,000 \text{ F} = \text{Rs. } 12,15,000 - 18,000 \times$$

$$18,000 \times = \text{Rs. } 12,15,000 - \text{Rs. } 45,000$$

$$18,000 \times = \text{Rs. } 11,70,000$$

$$\text{Std selling price} = \text{Rs. } 11,70,000 \div 18,000 \text{ unit}$$

$$= \text{Rs. } 65 \text{ unit}$$

Q.2Ans.

FLEXIBLE BUDGET

Particulars	Budgeted	Actual	
Unit	72,000	72,000	
Direct Material	72,000	73,600	(1,600)
Direct Labour	1,08,000	1,04,800	3,200
Variable OH	36,000	37,600	(1,600)
Fixed OH	40,000	39,200	800
Total cost	2,56,000	2,55,200	800
Sales	2,88,000	2,80,000	(8,000)
Profit	32,000	24,800	-7,200

(a) Material Price Variance:

$$\begin{aligned}
 \text{Material Price Variance} &= (\text{SP} - \text{AP}) \text{AQ} \\
 &= \text{SP} \times \text{AQ} - \text{AP} \times \text{AQ} \\
 &= 1 \times 78,400 - 73,600 \\
 &= \mathbf{4,800 \text{ (F)}}
 \end{aligned}$$

$$\begin{aligned}
 \text{Material Usage Variance} &= (\text{SQ} - \text{AQ}) \text{SP} \\
 &= \text{SQ} \times \text{SP} - \text{AQ} \times \text{SP} \\
 &= 72,000 \times 1 - 78,400 \times 1 \\
 &= \mathbf{6,400 \text{ (A)}}
 \end{aligned}$$

$$\begin{aligned}
 \text{Material Cost Variance} &= \text{SQ} \times \text{SP} - \text{AQ} \times \text{AP} \\
 &= 72,000 - 73,600 \\
 &= \mathbf{1,600 \text{ (A)}}
 \end{aligned}$$

(b) Labour Variance:

$$\begin{aligned}
 \text{Labour Rate Variance} &= (\text{SR} - \text{AR}) \text{AH} \\
 &= \text{SR} \times \text{AH} - \text{AR} \times \text{AH} \\
 &= 1.5 \times 70,400 - 1,04,800 \\
 &= 1,05,600 - 1,04,800 \\
 &= \mathbf{800 \text{ (F)}}
 \end{aligned}$$

$$\begin{aligned}
 \text{Labour Efficiency Variance} &= (\text{SH} - \text{AH}) \text{SR} \\
 &= \text{SH} \times \text{SR} - \text{AH} \times \text{SR} \\
 &= 72,000 \times 1.5 - 70,400 \times 1.5 \\
 &= 1,08,000 - 1,05,600
 \end{aligned}$$

$$= 2,400 \text{ (F)}$$

Labour Cost Variance

$$= SH \times SR - AH \times AR$$

$$= 72000 \times 1.5 - 104800$$

$$= 3200 \text{ (F)}$$

(c) Sale Price Variance:

Sale Price Variance

$$= SP \times AQ - AP \times AQ$$

$$= 4 \times 72,000 - \frac{2,80,000 \times 72,000}{72,000}$$

$$= 2,88,000 - 2,80,000$$

$$= \text{Rs. } 8,000 \text{ (A)}$$

(d) Variable Overheads Variance:

Variable Overheads

$$= \text{Recovered Variable OH} - \text{Actual Variable OH}$$

Expenditure Variance

$$= (72,000 \times 0.50) - 37,600$$

$$= \text{Rs. } 1,600 \text{ (A)}$$

Fixed Overheads

$$= \text{Budgeted Exp.} - \text{Actual Exps.}$$

Expenditures Variance

$$= 40,000 - 39,200$$

$$= \text{Rs. } 800 \text{ (F)}$$

Sale Volume (Profit)

$$= (SQ - AQ) \text{ std. rate}$$

Variance

$$= (80,000 - 72,000) \times 0.50$$

$$= \text{Rs. } 4,000 \text{ (A)}$$