Standard Costing

Definition of Standard Costing:

The word 'standard' means a benchmark or yardstick. The standard cost is a predetermined or expected cost, which determines what each product or service should cost under given conditions. In other words, it is the expected cost of producing one unit. It is, in effect, a budget for one unit.

Standard costing may be defined basically as a technique of cost accounting, which compares the standard cost of each product or service with the actual cost to determine the efficiency of operation so that remedial action may be taken immediately.

The Institute of Cost and Management Accountants, England defines standard costing as "the preparation and use of standard costs, and the analysis of variances of their causes and the points of incidence." Variance is the difference between a budgeted or standard amount and the actual amount during a given period.

The following steps are thus involved in standard costing:

- (a) Preparation and use of standards;
- (b) Comparison of actual costs with standards to determine the variance; and

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(c) Investigating the variance and taking appropriate actions where necessary.

Type of Industries where Standard Costing is More Suitable:

Standard costing is a system or technique of cost accounting, which can be used in conjunction with process, job or operating costing without any difficulty, whatsoever.

Industries where standard costing is more suitable and used can be listed as under:

1. Process industries where the method of production and nature of output are the same.

Examples: Chemical works, Paper mills, Oil refineries, etc.

Industries where the methods of manufacture are repetitive and products are homogeneous.
 Examples: Agricultural and food products.

3. Service industries where operating or operation costing system is also applicable.

Examples: Transport, Water, Gas, and Electricity, etc.

4. Engineering and textile industries where a large range of products are produced.

5. Extraction industries such as coal, oil, and timber, etc.

Utility of Standard Costing as a Management Tool:

Standard costing aids management in making correct predictions and provides a framework for judging business performance. The utility of standard costing to management is as follows:

1. It acts as a valuable guide to management in the formulation of price and production policies. For example, it assists management in the field of inventory pricing, product pricing and profit planning, etc.

2. It provides a stable and sound basis for comparison of actual costs with standard costs according to different elements of costs separately. It also shows places where remedial action is necessary and how far improvement is possible in the long run.

3. It creates an atmosphere of cost consciousness among the office and managerial staff and workmen of the business. It also provides incentives to workers, middle and top-level executives for efficiency.

4. It helps to formulate tighter, more accurate and effective budget for the coming years.

5. Standard costing assists management in the delegation of authority and responsibility to control the affairs of various departments.

6. With the use of standard costing, the principle of 'management by exception' can be practiced with ease and more effectively.

7. It assists management to put the men, machines and materials more effectively and reap the benefits of better economy, efficiency, and higher productivity.

8. Budgetary control system becomes far more effective when used in conjunction with the standard costing system. Standard costs being scientifically determined are very much useful for better planning and control.

Advantages of Standard Costing:

The main advantages of standard costing are:

1. Compiling standard costs more carefully can eliminate the weakness of the traditional costing system.

2. Standard costs can be used as a yardstick against which actual costs can be compared. It is an effective tool for planning production costs. Hence, cost control is greatly facilitated.

3. Variance analysis helps management to have regular as well as better checks over costs incurred. It makes the application of the principle of management by exception more easy. That is, the management can concentrate its attention on variances only, leaving the other aspects of cost control to be taken care of at the lower level.

4. It is a valuable guide to management in the formulation of production and price policies in advance with certainty. It also assists management in the areas of profit planning, product pricing, and inventory pricing, etc.

5. Standard costing makes the reporting of operating data more meaningful and also fast. This makes the interpretation of management reports easy.

6. As the emphasis of standard costing is more on cost variations, it makes the entire organization cost conscious. It makes the employees to recognize the importance of efficient operations so that costs can be reduced by joint efforts.

7. Men, machines and materials can be effectively used, and economies can be effected in addition to increased productivity. Standards may also be used as the basis for introducing incentive schemes. Wastage and inefficiency are curtailed, eliminated and reduced in all aspects of manufacturing process over a period of time if standard costing is in continuous operation.

8. Management can easily fix up responsibility through variance analysis. Variance analysis can determine the persons responsible for each variance; shifting or evading responsibility is not so easy under this system.

Limitations of Standard Costing:

The important limitations of standard costing are as follows:

1. Setting of standards is a very difficult task. It requires a lot of scientific studies such as timestudy, motion- study, fatigue study etc. and therefore it is very costly. Small firms may find it very difficult to operate such system.

2. Standards are very rigid estimates and once set, are not changed for a considerable time. This makes the standards highly unrealistic in certain industries, which face fluctuations in prices of products due to frequent changes in material and labour costs. Revision of standards is also not easy; in case of revision, costs would be high.

3. The utility of variance analysis depends much more on the standards set. While a loosely set standard may be ridiculed, the very high standards may create frustration in the minds of workers. At the same time setting of correct standards is also very difficult.

4. It is not suitable for industries producing non-standardized products. It is of little value in job or contract costing. Also it is difficult to apply this system when production takes more than one accounting period.

5. Fixation of responsibility to a particular person, process or production becomes very difficult as it may not be possible to identify the controllable and non-controllable factors easily.

6. Normally the system is strongly opposed by managers and others as they see it as a threat to their freedom of action. Standards may sometimes create adverse psychological effects on managers and workers, who are operating the system.

Problem 1

From the following data prepare a unit cost statement showing the prime cost of product A and B together with analysis of variances:

			Product A	Product B
	Material :	Standard Actual	600 kgs. @ Rs. 5.00 580 kgs. @ Rs. 5.50	90 kgs. @ Rs. 3.00 100 kgs. @ Rs. 2.50
	Labour :	Labour Actual	80 hours @ Rs. 2.00 92 hours @ Rs. 1.75	16 hours @ Rs. 2.80 14 hours @ Rs. 2.60
Sol	ution Variance		Traped	-i.e.m.n. (intel), june 1990j
(1)	Material Pric	e Variance	Product A = AQ × (SP - AQ) = 580 × (Rs. 5 - Rs. 5.50) = 580 × 0.50 = Rs. 290 (A)	Product B AQ × (SP - AP) = 100 × (3 - 2.80) = 100 × 0.20 = Rs. 20 (F)
(2)	Material Usa	ge Variance	 = (SQ - AQ) × SP (600 kgs 580 kgs.) × 5 = (20) × 5 = 100 (F) 	(SQ - AQ) × SP (90 - 100) × Rs. 3 = Rs. 30 (A)
(3)	Material Cos	t Variance	(Price Variance - Usage Varaince) Rs. 290 (A) - Rs. 100 (F) = Rs. 190 (A)	(Price Variance - Usage Varaince) Rs. 20 (F) - 30 (A) = Rs. 10 (A)
(4)	Labour Rate	Variance	(SR - AR) × AH (Rs. 2 - Rs. 1.75) × 92 = Rs. 23.00 (F)	(SR - AR) × AH (Rs. 2.80 - Rs. 2.60) × 14 = 0.20 × 14 hours = Rs. 2.80 (F)
(5)	Labour Effic Variance	iency	(SH - AH) × SR (80 hrs 92 hrs. × Rs. 2 = Rs. 24 (A)	(SH – AH) × SR (16 – 14) × 2.8 = Rs. 5.60 (F)
(6)	Labour Cost	Variance	Labour Rate Variance – Labour Efficiency Variance Rs. 23 (F) – Rs. 24 (A) = Re. 1.00 (A)	Labour Rate Variance + Labour Efficiency Variance Rs. 2.80 (F) + Rs. 5.60 (F) = Rs. 8.40 (F)

Cost Statement

		Product A		Product B	
			Rs.		Rs.
	Material :	600 kgs. × Rs. 5.00 =	3,000.00	90 kgs. × Rs. 3.00 =	270.00
	Labour :	80 hrs. × Rs. 2.00 =	160.00	16 hours × Rs. 2.80 =	44.80
(A)) Standard Prime Cost		3160.00		314.80
	Material :	580 kgs. × Rs. 5.50 =	3,190	100 kgs. × Rs. 2.80 =	280.00
	Labour :	92 hours × Rs. 1.75 =	161	14 hours × Rs. 2.60 =	36.40
(B)	Actual Pri	me Cost	3,351		316.40
To	tal Cost Vari	ance = Rs. 3,160 - Rs. 3,351=	Rs. 191.00 (A)	Rs. 314.80 - Rs. 316.40 =R	s. 1.60 (A)

Problem 2

A gang of workers normally consists of 30 men, 15 women and 10 boys. They are paid at standard hourly rates as under:

	116.
Men	0.80
Women	0.60
Boys	0.40

In a normal working week of 40 hours, the gang is expected to produce 2,000 units of output. During the week ending 31st December, 2002, the gang consisted of 40 men, 10 women and 5 boys. The actual wages paid were @ Re 0.70, Re 0.65 and Re 0.30 respectively. 4 hours were lost due to abnormal idle time and 1,600 units were produced.

Calculate:

(i) Wage Variance;

(ii) Wage Rate Variance;

(iii) Labour Efficiency Variance;

(iv) Labour Mix Variance; and

(v) Labour Idle Time Variance.

Solution

			Standard			Actual		
	Workers	Hours	Rate (Rs.)	Amount (Rs.)	Hours	Rate (Rs.)	Amount (Rs.)	
-	Men Women Bour	1,200 600 400	0.80	960 360 160	1,600 400 200	0.70 0.65 0.30	1,120 260 60	
	boys	2,200	0.40	1,480	2,200		1,440	
1. 2.	Labour Cost V Wage Rate Var	ariance = (Act = Rs. iance = Actu	ual Labo 1,440 - (ual Hours	ur Cost - St. $\frac{1,480}{2,000} \times 1,6$ s paid × (Stan	Labour Cost f 500) = Rs. 25 dard Rate - A	for Actual 6 (A) Actual Rat	Output) e)	
	1000 			- 1992 - 1992 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 199 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993 - 1993	Rs			

Men	1	,000 x (0.0) - 0.70) -	100	(1)
Women	=	$400 \times (0.60 - 0.65) =$	20	(A)
Boys	=	200 × (0.30 - 0.40) =	20	(A)

3. Labour Efficiency Variance = St. Rate × (St. Hours - Actual Hours)

Men $= 0.80 \times \left[\left(1,600 \times \frac{1,200}{2,000} \right) - 1,600 \right] \\= 0.80 \times (960 - 1,600) = \text{Rs. 512 (A)} \\\text{Women} = 0.60 \times \left[\left(\frac{600}{2,000} \times 1,600 \right) - 400 \right] \\= 0.60 \times (480 - 400) = 48 (\text{F}) \\\text{Boys} = 0.40 \times \left(\frac{400}{2,000} \times 1,600 \right) - 200 \\= 0.40 \times (320 - 200) = \text{Rs. 48 (F)} \\= \text{St. Rate } \times (\text{Actual time worked - Revised St. time}) \\\text{Men} = \text{Re. } 0.80 \times \left(1,440 - \frac{1,980 \times 1,200}{2,220} \right) \\= 0.80 \times (1,440 - 1,080) = \text{Rs. 288 (A)} \end{aligned}$

<u>Problem 3</u> Calculate labour variances from the following data:

Gross direct wages Rs.36,000

Standard hours produced 2,000

Standard rate per hour Rs.15

Actual hours paid – 1,800 hours out of which hours not worked (abnormal idle time) are 50 hours.

Solu	tion	n		
	(i)	Labour Cost Variance	=	Standard cost of labour - Actual cost of labour
			=	$(2,000 \times \text{Rs. 15}) - (1,800 \times 20)$
			Ξ	Rs. 30,000 - Rs. 36,000 = Rs. 6,000 (A)
	(ii)	Labour Rate Variance	=	Actual Time × (St. Rate - Actual Rate)
			=	$1,800 \times (15 - 20) = \text{Rs. } 9,000 \text{ (A)}$
	(iii)	Labour Efficiency Variance	=	Standard Rate × (ST - AT)
			=	Rs. 15 × (2,000 - 1,750) = Rs. 3,750 (F)
	(iv)	Idle Time Variance	=	Abnormal Time × St. Rate
			=	50 × Rs. 15 = 750 (A)

Problem 4

From the following particulars calculate variable overhead expenditure variance:

	[Adapted-	I.C.W.A. (Inter)]
Normal capacity	10,000	Standard hours
Actual level of production	8,000	Standard hours
Budgeted variable overhead expense	Rs. 17,000	
Actual variable overhead expense	Rs. 14,250	

Solution

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Variable Overhead Expenditure Variance = SC – AC
Standard Variable Overhead Expense = Standard rate × Actual output
Standard rate = $\frac{\text{Rs. 17,000}}{10,000}$ = Rs. 1.70.
So, Standard Variable Overhead Cost = 8,000 × Rs. 1.70 = Rs. 13,600
Variable Overhead Cost Variance = $SC - AC = Rs. 13,600 - Rs. 14,250$ = 650 (Adverse)

Problem 5

The standard cost card of a manufacturing concern includes the following particulars:

Variable overhead per unit -2 hours @ 0-30 p. per hour = 0-60 p.

Actual operating hours 8,000 hours

Actual variable overhead expenses Rs.2,600

Actual units produced 4,850

Calculate necessary cost variances.

Solution

We shall have to find out standard quantity and actual rate

	Grand and Organithe	Actual oper	rating hours _ 8,000 - 4,000 units
	Standard Quantity =	Standard ho	ours per unit 2 2,000 units
	Actual Rate =	Actual over Standard hr	$\frac{\text{rhead cost}}{\text{rs. worked}} = \frac{\text{Rs. 2,600}}{4,000} = 0.65 \text{ p.}$
(i)	Variable overhead cost va	riance	= SC - AC
	Standard Cost = Actual Q	nt. \times S.R.	$= 4,850 \times 0.60 \text{ p} = \text{Rs. } 2,910$
	Variable overhead cost van	riance	= Rs. 2,910 - Rs. 2,600 = 310 (F)
(ii)	Variable overhead expens	es variance	= Standard unit × (SR - AR)
	,		= $4,000 \times (0.60 - 0.65) = \text{Rs.} 200 (\text{A})$
(iii)	Variable overhead efficient	ncy variance	$=$ SR \times (AQ $-$ SQ)
		•	$= 0.60 \text{ p} \times (4,850 - 4,000) = \text{Rs. 510} (\text{F})$

Problem 6

From the following particulars compute:

_					
(a)	Material cost variance	-		•	
(b)	Material price variance				
(c)	Material usage variance				
1120201	Quantity of materials purcha	sed	3,000	units	
	Value of materials purchased		Rs. 9,000		
	Standard quantity of materia	ls			
	Required per ton of output		30	units	
	Standard rate of material		Rs. 2.50	per unit	
	Opening stock of materials		Nil		
	Closing stock of materials		500	units	
	Output during the year		80	tons	
			[Dell	i U. B.Com. (Hons.)]	
Solution	•				
(a) Q	uantity of materials consumed	1 :	3,000 units - 500 units =	= 2,500 units	
(b) A	ctual cost of materials per uni	it _ =	$\frac{\text{Rs. 9,000}}{3,000} = \text{Rs. 3}$	5	
(c) St	andard material required per	ton 3	0 units		
(d) S	tandard material cost	=	30 × 80 × Rs. 2.50 = 2,40	00 × 2.50 = Rs. 6,000	
Actu	al cost		2,500 × Rs. 3 = Rs. 7,500).	
G) Material Cost Variance	=	SC - AC		
		=	Rs. 6,000 - Rs. 7,500 = Rs. 1,500 (A)		
(ii) Material Price Variance	=	$AQ \times (SR - AR)$		
		=	2,500 × (2.50 - 3.00) = Rs. 1,250 (A)		
Gii) Material Usage Variance	=	$SR \times (SQ - AQ)$		
	52 3 4	=	Rs. 2.50 × (2,400 - 2,500)	
		=	Rs. 2.50 × (-100) = 250 ((A)	
Reco	nciliation				
	MCV = MPV + MUV	=	1,500 (A) = 1,250 (A) +	250 (A)	