



# INTER CA – MAY 2018

## COSTING

Topic: Standard Costing, Budgetary Control, Integral and Non – Integral, Materials, Marginal Costing.

Test Code – M33

Branch: MULTIPLE

Date: 21.01.2018

(50 Marks)

*Note: All questions are compulsory.*

Question 1 (8 marks) (i) & (ii) – 2 marks each, others – 1 mark each

SR – Standard labour Rate per

Hour AR – Actual labour rate per

hour SH – Standard Hours

AH – Actual hours

(i) Actual labour rate per hour:

$$\begin{aligned} \text{Labour rate Variance} &= \text{AH} (\text{SR} - \text{AR}) \\ &= 34,188 (\text{`16} - \text{AR}) = 1,36,752 \text{ (A)} \\ &= \text{`16} - \text{AR} = - 4 \end{aligned}$$

$$\text{Or, AR} = \text{`20}$$

(ii) Standard hour required for 12,000 units:

$$\begin{aligned} \text{Labour Efficiency} &= \frac{\text{SH} \times 100}{\text{AH}} = 105.3 \\ \text{= SH} &= \frac{\text{AH} \times 105.3}{100} = \frac{34,188 \text{ hours} \times 105.3}{100} \\ &= 35,999.982 \text{ hours} \\ &\text{or, SH} = 36,000 \end{aligned}$$

$$\begin{aligned} \text{(iii) Labour Efficiency Variance} &= \text{SR} (\text{SH} - \text{AH}) \\ &= \text{`16} (36,000 - 34,188) \\ &= 16 \times 1,812 = \text{`28,992 (F)} \end{aligned}$$

$$\text{(iv) Standard Labour Cost per Unit} = \frac{36,000 \text{ hours} \times \text{`1}}{12,000 \text{ units}} = \text{`48}$$

$$\text{(v) Actual Labour Cost per Unit} = \frac{34,188 \text{ hours} \times \text{`20}}{12,000 \text{ units}} = \text{`56.98}$$

(vi) Fixed overhead efficiency variance:

$$= \text{Std. rate (Std. hours - Actual hours worked)}$$

$$= ₹8 (1,900 \text{ units} \times 2.5 \text{ hours} - 5,150 \text{ hours}) = ₹ 3,200 \text{ (Adverse)}$$

Or,

Fixed overhead efficiency variance on basis of units

$$= \text{Std. rate per unit (Actual output - Standard output for actual hours)}$$

$$= ₹20 (1,900 \text{ units} - 5,150 / 2.5 \text{ hours}) = ₹ 3,200 \text{ (Adverse)}$$

(vii) Fixed overhead capacity variance:

$$= \text{Std. rate (Actual hours worked - Budgeted hours)}$$

$$= ₹ 8 \left( 5,150 \text{ hours} - \frac{₹42,000}{₹8} \right) = ₹ 800 \text{ (Adverse)}$$

Or,

Fixed overhead capacity variances on basis of units

$$= \text{Std. rate per unit (Standard output for actual hours - Budgeted output)}$$

$$= ₹20 (2,060 \text{ units} - 42,000 / 20) = ₹ 800 \text{ (Adverse)}$$

Question 2 (8 marks)

(a) (a) Statement Showing Cost Elements Equivalent Units of Performance and the Actual Cost per Equivalent Unit (1 Mark)

Detail of Returns	Detail of Input Units	Details	Equivalent Units				
			Output	Labour		Overheads	
				Units	%	Units	%
Returns in Process at Start	200	Returns Completed in March	900	900	100	900	100
Returns Started in March	825	Returns in Process at the end of	125	100	80	100	80
	1,025		1,025	1,000		1,000	
<b>Costs: (1 mark)</b>				(`)		(`)	
From previous month				12,000		5,000	
During the month				1,78,000		90,000	
Total Cost				1,90,000		95,000	
Cost per Equivalent Unit				190.00		95.00	

(a) Actual cost of returns in process on March 31: (1 mark)

	Numbers	Stage of Completion	Rate per Return (`)	Total (`)
Labour	125	0.80	190.00	19,00
Overhead	125	0.80	95.00	9,500
				28,50

(b) Standard Cost per Return: (1 mark)

$$\text{Labour} \quad 5 \text{ Hrs} \times \text{` } 40 \text{ per hour} = \text{` } 200 \text{ Overhead}$$

$$5 \text{ Hrs} \times \text{` } 20 \text{ per hour} = \text{` } \frac{100}{5} = \text{` } 20$$

$$\text{Budgeted volume for March} = \text{` } 98,000 / 1000 = 980 \text{ Returns}$$

$$\text{Actual labour rate} = \text{₹ } 178000 / 4000 = \text{₹ } 44.50$$

(c) Computation of Variances: (1 mark)

Statement Showing Output (March only) Element Wise	Labour	Overhead
Actual performance in March in terms of equivalent units as Calculated above	1,000	1,000
Less: Returns in process at the beginning of March in terms of equivalent units i.e. 25%	50	50
	950	950

Variance Analysis:

a. Labour Rate Variance (1 mark)

$$\begin{aligned} &= \text{Actual Time} \times (\text{Standard Rate} - \text{Actual Rate}) \\ &= \text{Standard Rate} \times \text{Actual Time} - \text{Actual Rate} \times \text{Actual Time} \\ &= \text{₹ } 40 \times 4,000 \text{ hrs.} - \text{₹ } 1,78,000 = \text{₹ } 18,000(\text{A}) \end{aligned}$$

b. Labour Efficiency Variance(1 mark)

$$\begin{aligned} &= \text{Standard Rate} \times (\text{Standard Time} - \text{Actual Time}) \\ &= \text{Standard Rate} \times \text{Standard Time} - \text{Standard Rate} \times \text{Actual Time} \\ &= \text{₹ } 40 \times (950 \text{ units} \times 5 \text{ hrs.}) - \text{₹ } 40 \times 4,000 \text{ hrs.} \\ &= \text{₹ } 30,000(\text{F}) \end{aligned}$$

c. Overhead Expenditure or Budgeted Variance(1 mark)

$$\begin{aligned} &= \text{Budgeted Overhead} - \text{Actual Overhead} \\ &= \text{₹ } 98,000 - \text{₹ } 90,000 \\ &= \text{₹ } 8,000(\text{F}) \end{aligned}$$

d. Overhead Volume Variance(1 mark)

$$\begin{aligned} &= \text{Recovered/Absorbed Overhead} - \text{Budgeted Overhead} \\ &= 950 \text{ Units} \times 5 \text{ hrs.} \times \text{₹ } 20 - \text{₹ } 98,000 = \text{₹ } 3,000(\text{A}) \end{aligned}$$

Question 3 (8 Marks)

(a) Production Budget (in units)

	Product- K (units)	Product- H (units)
Expected sales	8,000	4,200
Add: Closing stock	1,000	2,100
Less: Opening stock	(800)	(1,600)
Units to be produced	8,200	4,700

(b) Material Purchase Budget (3 marks)

	Material-X (kg.)	Material-Y (kg.)	Material-Z (ltr.)
Materials required:			
- Product-K	98,400 (8,200 units × 12 kg.)	1,23,000 (8,200 units × 15 kg.)	65,600 (8,200 units × 8 ltr.)
- Product- H	70,500 (4,700 units × 15 kg.)	28,200 (4,700 units × 6 kg.)	65,800 (4,700 units × 14ltr.)
Total	1,68,900	1,51,200	1,31,400

Add: Closing stock	30,000	18,000	7,500
Less: Opening stock	(25,000)	(30,000)	(14,000)
Quantity to be purchased	1,73,900	1,39,200	1,24,900
Rate	₹15 per kg.	₹16 per kg.	₹5 per ltr.
Purchase cost	₹ 26,08,500	₹ 22,27,200	₹ 6,24,500

(c) Direct Labour Budget

	Unskilled (hours)	Skilled (hours)
For Product K	98,400 (8,200 units × 12 hours)	65,600 (8,200 units × 8 hours)
For Product H	47,000 (4,700 units × 10 hours)	23,500 (4,700 units × 5 hours)
Labour hours required	1,45,400	89,100
Rate	₹ 40 per hour	₹ 75 per hour
Wages to be paid	₹ 58,16,000	₹ 66,82,500

Question 4 (6 Marks)  
(2 marks for each point)

a. Working Notes:

Particulars	2015 (₹)	2016 (₹)
Fixed Cost	72,00,000 (₹ 60 × 1,20,000)	79,20,000 (110% of ₹ 72,00,000)

Variable Cost	180	225 (125% of ` 180)
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Calculation of Break-even Point (in units):

Since, shelf life of the product is one year only, hence, opening stock is to be sold first.

	(`)
Total Contribution required to recover total fixed cost in 2016 and to reach break-even volume.	79,20,000
Less: Contribution from opening stock {20,000 units × (` 300 – `180)}	24,00,000
<b>Balance Contribution to be recovered</b>	<b>55,20,000</b>

Units to be produced to get balance contribution

$$= \frac{` 55,20,000}{` 300 - ` 225} = 73,600 \text{ packets. (3 marks)}$$

Break-even volume in units for 2016(2 marks)

	Packets
From 2016 production	73,600
Add: Opening stock from 2015	20,000
	<b>93,600</b>

Question 5 (5 Marks)

Re-order quantity (ROQ)

Annual consumption of raw material (A) = 72,000 units

Cost of placing an order (O) = Rs.2,250

Carrying cost per unit per annum(c x i) = Rs. 300x 12%=Rs. 36

$$\begin{aligned} \text{Economic Order Quantity (EOQ)/ROQ} &= \sqrt{\frac{2AO}{c \times i}} \\ &= \sqrt{\frac{2 \times 72,000 \text{ units} \times \text{Rs. } 2,250}{\text{Rs. } 36}} = 3,000 \text{ units} \end{aligned}$$

(ii) Re-order level (ROL) =Maximum consumption x Maximum lead time

$$= 400 \text{ units} \times 20 \text{ days} = 8,000 \text{ units}$$

(iii) Minimum Level =ROL –(Average consumption x Average lead time)

$$= 8,000 \text{ units} - (300 \text{ units} \times 14 \text{ days})$$

$$= 3,800 \text{ units}$$

(iv) Maximum Level =ROL +ROQ –(Minimum consumption x Minimum lead time)  
 = 8,000units +3,000units –(200 units x 8 days)  
 =9,400 units

(v) Danger level = Average Consumption x Emergency Delivery Time  
 =300 units x 5 days = 1,500 units  
 Or,  
 =Minimum Consumption x emergency Delivery Time  
 =200 units x 5 days = 1,000 units.

Question 6 (8 Marks)

Creditors A/c (1 mark)

Dr.		Cr.	
Particulars	( )	Particulars	( )
To Bank A/c	5,80,000	By Balance b/d	25,000
To Balance c/d	40,000	By Stores ledger control A/c (Materials purchased)(Bal. figure)	5,95,000
	6,20,000		6,20,000

Stores Ledger Control A/c (2 mark)

Dr.		Cr.	
Particulars	( )	Particulars	( )
To Balance b/d	40,000	By WIP control A/c (Balancing figure)	5,70,000
To Creditors A/c (Materials purchased)	5,95,000	By Balance c/d	65,000
	6,35,000		6,35,000

Work-in-Process Control A/c (2 marks)

Dr.		Cr.	
Particulars	( )	Particulars	( )
To Balance b/d	50,000	By Finished goods control A/c (Balancing figure)	10,05,000
To Stores ledger control	5,70,000	By Balance c/d:	
To Wages control A/c (80% of ` 4,00,000)	3,20,000	- Material	35,000
		- Labour (` 50* × 400 hours)	20,000
		- Factory Oh (` 20** × 400 hours)	8,000
			0
			63,000
To Factory Overhead control A/c	1,28,000		
	10,68,000		10,68,000

\* Direct Labour Hour Rate = ` 3,20,000/ 6,400 hours = ` 50

\*\* Factory Overhead Rate = ` 20,80,000/ 1,04,000 = ` 20

Wages Control A/c (1 mark)

Dr.		Cr.	
Particulars	( )	Particulars	( )
To Bank A/c	4,00,000	By WIP control A/c (80% of ` 4,00,000)	3,20,000
		By Factory OH Control A/c (20% of ` 4,00,000)	80,000
	4,00,00		4,00,000

Factory Overhead Control A/c (2 mark)

Dr.		Cr.	
Particulars	( )	Particulars	( )
To Wages control A/c	80,000	By WIP control A/c (` 20 × 6,400 hours)	1,28,000
To Bank A/c (Indirect expenses)	60,000	By Balance c/d	12,000
	1,40,000		1,40,000

Question 7 (3 Marks)

At 2,000 units	
Production Overhead I: Fixed Cost	
(2,000 unit x 5)	10,000
Selling price – Material and labour (A)	10
Production Overhead II (Variable Overhead) (B)	2
Contribution per unit (A) – (B)	8
Break-even point = $\frac{\text{Fixed cost}}{\text{Contribution per unit}}$	
(10000/8)=1250 units	
At 1,500 unit	
Production Overhead I: Fixed Cost	
(1500 unit x 6)	9,000
Selling price – Material and labour (A)	10
Production Overhead II (Variable Overhead) (B)	2
Contribution per unit (A) – (B)	8
Break-even point = $\frac{\text{Fixed cost}}{\text{Contribution per unit}}$	
(9000/8)=1125 units	

Question 7 (4 Marks)

(i) We know that: Break Even Sales (BES) x P/V Ratio = Fixed Cost

Break Even Sales (BES) x 40% = ` 6,00,000  
Break Even Sales (BES) = ` 15,00,000 (1 mark)

(ii) Total Sales = Break Even Sales + Margin of Safety

$$S = ` 15,00,000 + 0.355S$$

$$S - 0.355S = ` 15,00,000$$

$$S = ` 23,25,581(1 \text{ mark})$$

(iii) Contribution to Sales Ratio = 40%

Therefore, Variable cost to Sales Ratio = 60%

Variable cost = 60% of sales

or 60% of 23,25,581

Variable cost = 13,95,349(1/2 mark)

(iv) Current Profit = Sales – (Variable Cost + Fixed Cost)

or 23,25,581 – (13,95,349 + 6,00,000) = 3,30,232(1/2 mark)

(

v) If sales value is increased by 7 ½ %

New Sales value = ` 23,25,581 x 1.075 = 25,00,000

New Margin of Safety = New Sales value – BES

or 25,00,000 – 15,00,000 = 10,00,000(1 mark)

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