

(GI-11, GI-12+15, GI-13+14, SI-5)

DATE: 13.05.2020

MAXIMUM MARKS: 100

TIMING: 3¼ Hours

PAPER : COST ACCOUNTING

Answer to questions are to be given only in English except in the case of candidates who have opted for Hindi Medium. If a candidate who has not opted for Hindi Medium. His/her answer in Hindi will not be valued.

Question No. 1 is compulsory.

Candidates are also required to answer any Four questions from the remaining Five Questions.

In case, any candidate answers extra question(s)/sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Wherever necessary, suitable assumptions may be made and disclosed by way of note.

Answer 1(a):

Cost sheet for the year ended 31st March, 2018.

Units produced - 14,000 units

Units sold - 14,153 units

Particulars	Amount (Rs.)	
Raw materials purchased	42,25,000	} {5 M}
Add: Freight Inward	1,00,000	
Add: Opening value of raw materials	2,28,000	
Less: Closing value of raw materials	(3,05,000)	
	42,48,000	
Less: Sale of scrap of material	8,000	
Materials consumed	42,40,000	
Direct Wages (12,56,000 + 1,50,000)	14,06,000	
Prime Cost	56,46,000	
Factory overheads (20% of Rs. Prime Cost)	11,29,200	
Add: Opening value of W-I-P	1,92,500	
Less: Closing value of W-I-P	(1,40,700)	
Factory Cost	68,27,000	
Add: Administrative overheads	1,73,000	
Cost of Production	70,00,000	
Add: Value of opening finished stock	6,08,500	
Less: Value of closing finished stock [Rs. 500(70,00,000/14,000) × 1,064] (1,217+ 14,000 – 14,153 = 1,064 units)	(5,32,000)	
Cost of Goods Sold	70,76,500	
Distribution expenses (Rs. 16 × 14,153 units)	2,26,448	
Cost of Sales	73,02,948	
Profit (Balancing figure)	14,43,606	
Sales (Rs. 618 × 14,153 units)	87,46,554	

Answer 1:**(b)**

		Rs.
(i)	Rowan Plan : Normal time wage = 15 hours @ Rs. 5= Bonus = Time saved /Time allowed × (Time taken × Time rate)	75

(ii)	$= \frac{5}{20} \times 15 \times 5 =$ Halsey Plan: Normal time wage = 15 hours @ Rs. 5 = Bonus = 50% of (Time saved x Time rate) = 50% of (5x5) =	18.75
		93.75
		75
		12.5
		87.5

Statement of Comparative Factory cost of work

	Rowan Plan Rs.	Halsey Plan Rs.
Materials	50	50
Direct Wages	{1 M} ₹ 93.75	{1 M} ₹ 87.5
Prime Cost	143.75	137.5
Factory Overhead (100% of Direct wages)	93.75	87.5
Factory Cost	1½ M ₹ 237.5	1½ M ₹ 225

Answer 1(c):

(a) (i) Efficiency Ratio = $\frac{\text{Actual Production in terms of standard hours}}{\text{Actual hours worked}} \times 100$

$$= \frac{750 \text{ units} \times 10 \text{ hours}}{6,000} \times 100 = 125\% \quad \left\{ \text{1½ M} \right\}$$

(ii) Activity Ratio = $\frac{\text{Actual Production in terms of standard hours}}{\text{Budgeted production in terms of standard hours}} \times 100$

$$= \frac{7,500}{880 \times 10} \times 100 = 85.23\% \quad \left\{ \text{1½ M} \right\}$$

(iii) Capacity Ratio = $\frac{\text{Actual hours worked}}{\text{Maximum hours in a budget period}} \times 100$

$$= \frac{6,000}{8,800} \times 100 = 68.19\% \quad \left\{ \text{1½ M} \right\}$$

Activity ratio = Efficiency Ratio x Capacity Ratio
 Or, 85.23% = 125% x 68.19% } {1/2 M}

Answer 1(d):

Working Notes:

1. Depreciation per annum = $\frac{\text{Purchase price} - \text{Scrap Value}}{\text{Estimated life}}$

$$= \frac{\text{Rs. 4,00,000} - \text{Rs. 10,000}}{5 \text{ years}} = \text{Rs. 78,000} \quad \left\{ \text{1 M} \right\}$$

2. Total distance travelled by mini-bus in 25 days:
 = Length of the route (two-sides) x No. of trips per day x No. of days
 = 60 km x 6 trips x 25 days = 9,000 km } {1 M}

3. Total Passenger-Km
 = Total distance travelled by mini-bus in 25 days x No. of seats } {1 M}
 = 9,000 km x 20 seats = 1,80,000 passenger-km

Particulars	Cost per annum Rs.	Cost per month Rs.
Fixed expenses:		
Insurance	15,000	
Garage rent	9,000	
Road tax	3,000	
Administrative charges	5,000	
Depreciation	78,000	
Interest on loan	10,000	
	1,20,000	10,000
Running expenses:		
Repair and maintenance	15,000	1,250
Replacement of tyre-tube	3,600	300
Diesel and oil cost (9,000 km × Rs. 5)	-	45,000
Driver and conductor's salary	-	5,000
Total cost (per month)		61,550.00
Add: Profit 20% of total revenue cost or 25% of total cost		15,387.50
Total revenue		76,937.50

{2 M}

Rate per passenger-km Rs. 76,937.50/1,80,000 passenger km = 0.42743 i.e.
= 0.43 i.e., 43 paise

Answer 2(a):

(i) Calculation of Purchase Cost per Kg. of Materials

	Wholesale Market (Rs.)	Farmers (Rs.)
Mustard:		
Purchase price	15.00	12.50
Add: Central Sales Tax @ 2%	0.30	---
Add: Loading Cost	0.20	0.10
	(Rs. 10 ÷ 50 Kg.)	(Rs. 5 ÷ 50 Kg.)
Add: Unloading Cost	0.04	0.04
	(Rs. 2 ÷ 50 Kg.)	(Rs. 2 ÷ 50 Kg.)
	{1/2 M} 15.54	{1/2 M} 12.64
Soybean:		
Purchase price	11.00	9.00
Add: Loading Cost	0.20	0.06
	(Rs. 10 ÷ 50 Kg.)	(Rs. 3 ÷ 50 Kg.)
Add: Unloading Cost	0.04	0.04
	(Rs. 2 ÷ 50 Kg.)	(Rs. 2 ÷ 50 Kg.)
	{1/2 M} 11.24	{1/2 M} 9.10
Olive:		
Purchase price	36.00	28.00
Add: Import duty @ 10%	---	2.80
Add: Loading Cost	0.20	0.50
	(Rs. 10 ÷ 50 Kg.)	(Rs. 25 ÷ 50 Kg.)
Add: Unloading Cost	0.04	0.04
	(Rs. 2 ÷ 50 Kg.)	(Rs. 2 ÷ 50 Kg.)
	{1/2 M} 36.24	{1/2 M} 31.34

(ii) Economic Order Quantity (E.O.Q) =
$$\sqrt{\frac{2 \times \text{Annual requirement} \times \text{Ordering cost}}{\text{Carrying cost per kg. per annum}}}$$

Annual Requirement (A) :

Commodity	Quantity (Kg.)
Mustard (45,000 Ltr. × 5 Kg. × 12 months)	27,00,000
Soybean (15,000 Ltr. × 6 Kg. × 12 months)	10,80,000
Olive (3,000 Ltr. × 4.5 Kg. × 12 months)	1,62,000

{1½ M}

Cost per Order (O):

	Wholesale Market (Rs.)	Farmers (Rs.)
Mustard:		
- Transportation cost	6,000	15,000
- Sorting and piling cost	---	1,200
	{1/4 M} { 6,000	{1/4 M} { 16,200
Soybean:		
- Transportation cost	9,000	12,000
- Sorting and piling cost	---	800
	{1/4 M} { 9,000	{1/4 M} { 12,800
Olive:		
- Transportation cost	3,000	11,000
- Sorting and piling cost	1,800	---
	{1/4 M} { 4,800	{1/4 M} { 11,000

Carrying Cost per Kg. per annum (C × i):

	Wholesale Market (Rs.)	Farmers (Rs.)
Mustard:		
- Interest on cash credit	1.9425 (Rs. 15.54 × 12.5%)	1.5800 (Rs. 12.64 × 12.5%)
- Warehouse rent*	1.0000	1.0000
	{1/4 M} { 2.9425	{1/4 M} { 2.5800
Soybean:		
- Interest on cash credit	1.4050 (Rs. 11.24 × 12.5%)	1.1375 (Rs. 9.10 × 12.5%)
- Warehouse rent	1.0000	1.0000
	{1/4 M} { 2.4050	{1/4 M} { 2.1375
Olive:		
- Interest on cash credit	4.5300 (Rs. 36.24 × 12.5%)	3.9175 (Rs. 31.34 × 12.5%)
- Warehouse rent	1.0000	1.0000
	{1/4 M} { 5.5300	{1/4 M} { 4.9175

$$* \text{ Warehouse rent per Kg.} = \frac{Rs.100}{100Kg.} = Rs.1$$

Calculation of E.O.Q for each material under the both options

	Wholesale Market (Kg.)	Farmers (Kg.)
Mustard	$\sqrt{\frac{2 \times 27,00,000Kg. \times Rs.6,000}{Rs.2.9425}}$ =1,04,933.53	$\sqrt{\frac{2 \times 27,00,000Kg. \times Rs.16,200}{Rs.2.5800}}$ =1,84,138.47
Soybean	$\sqrt{\frac{2 \times 10,80,000Kg. \times Rs.9,000}{Rs.2.4050}}$ =89,906.40	$\sqrt{\frac{2 \times 10,80,000Kg. \times Rs.12,800}{Rs.2.1375}}$ =1,13,730.98

{1/2 M}

{1/2 M}

Olive	$\sqrt{\frac{2 \times 1,62,000 \text{ Kg.} \times \text{Rs. } 4,800}{\text{Rs. } 5.5300}}$ =16,769.90	$\sqrt{\frac{2 \times 1,62,000 \text{ Kg.} \times \text{Rs. } 11,000}{\text{Rs. } 4.9175}}$ =26,921.34	} {1/2 M}

(iii) Selection of best purchase option for the purchase of Olives

	Wholesale Market	Farmers	} {1 M}
Annual Requirement (A) (Kg.)	1,62,000	1,62,000	
Order Quantity (Q)	16,769.90	1,62,000	
No. of orders $\left(\frac{A}{Q}\right)$	9.66 or 10	1	
Average Inventory $\left(\frac{Q}{2}\right)$ (Kg.)	8,384.95	81,000	
Ordering Cost (Rs.) (I)	48,000 (10 Orders × Rs. 4,800)	11,000 (1 Order × Rs. 11,000)	
Carrying Cost (Rs.) (II) (Average Inventory × Carrying cost per kg.)	46,368.77 (8,384.95 Kg. × Rs. 5.5300)	3,98,317.5 (81,000 Kg. × Rs. 4.9175)	
Purchase Cost (Rs.) (III)	58,70,880 (1,62,000 Kg. × Rs. 36.24)	50,77,080 (1,62,000 Kg. × Rs. 31.34)	
Total Cost (I) + (II) + (III)	59,65,248.77	54,86,397.50	

Purchasing olives direct from the farmers is the best purchase option for the Aditya Agro Ltd.

Answer 2(b):

	Margaret	Jennifer
No. of garments assigned (Pieces.)	30	42
Hour allowed per piece (Hours)	2	2
Total hours allowed (Hours)	60	84
Hours Taken (Hours)	28	40
Hours Saved (Hours)	32	44

(i) Calculation of loss incurred due to incorrect rate selection.
(While calculating loss only excess rate per hour has been taken)

	Margaret (Rs.)	Jennifer (Rs.)	Total (Rs.)
Basic Wages	140 (28 Hrs. × Rs. 5)	200 (40 Hrs. × Rs. 5)	340
Bonus (as per Halsey Scheme) (50% of Time Saved × Excess Rate)	80 (50% of 32 Hrs. × Rs. 5)	110 (50% of 44 Hrs. × Rs. 5)	190
Excess Wages Paid	{1 ^{1/2} M} { 220	{1 ^{1/2} M} { 310	530

(ii) Amount of loss if Rowan scheme of bonus payment were followed

	Margaret (Rs.)	Jennifer (Rs.)	Total (Rs.)
Basic Wages	140.00 (28 Hrs. × Rs. 5)	200.00 (40 Hrs. × Rs. 5)	340.00
Bonus (as per Rowan Scheme)	74.67	104.76	179.43

$\left(\frac{\text{Time Taken}}{\text{Time Allowed}} \times \text{Time Saved} \times \text{Excess Rate}\right)$	$\left(\frac{28}{60} \times 32 \times \text{Rs.5}\right)$	$\left(\frac{40}{84} \times 44 \times \text{Rs.5}\right)$	
Excess Wages Paid	{1 M} 214.67	{1 M} 304.76	519.43

(iii) Calculation of amount that could have been saved if Rowan Scheme were followed

	Margaret (Rs.)	Jennifer (Rs.)	Total (Rs.)
Wages paid under Halsey Scheme	220.00	310.00	530.00
Wages paid under Rowan Scheme	214.67	304.76	519.43
Difference (Savings)	{1 ^{1/2} M} 5.33	{1 ^{1/2} M} 5.24	10.57

(iv) Rowan Scheme of incentive payment has the following benefits, which is suitable with the nature of business in which Jigyasa Boutique LLP operates:

- (i) Under Rowan Scheme of bonus payment, workers cannot increase their earnings or bonus by merely increasing its work speed. Bonus under Rowan Scheme is maximum when the time taken by a worker on a job is half of the time allowed. As this fact is known to the workers, therefore, they work at such a speed which helps them to maintain the quality of output too. {2 M}
- (ii) If the rate setting department commits any mistake in setting standards for time to be taken to complete the works, the loss incurred will be relatively low.

Answer 3(a):

(a) Table of Primary Distribution of Overheads

Particulars	Basis of Apportionment	Total Amount	Production Department		Service Departments		
			Fabrication	Assembly	Stores	Maintenance	
Overheads Allocated	Allocation	27,28,000	15,52,000	7,44,000	2,36,000	1,96,000	{1/2 M}
Direct Costs	Actual	86,36,000	71,88,000	14,48,000	---	---	{1/2 M}
Other Overheads:							
Factory rent	Floor Area (48:20:5:7)	15,28,000	9,16,800	3,82,000	95,500	1,33,700	{1/2 M}
Factory building insurance	Floor Area (48:20:5:7)	1,72,000	1,03,200	43,000	10,750	15,050	{1/2 M}
Plant & Machinery insurance	Value of Plant & Machinery (66:30:3:7)	1,96,000	1,22,038	55,472	5,547	12,943	{1/2 M}
Plant & Machinery Depreciation	Value of Plant & Machinery (66:30:3:7)	2,65,000	1,65,000	75,000	7,500	17,500	{1/2 M}
Canteen Subsidy	No. of employees (60:40:19:6)	4,48,000	2,15,040	1,43,360	68,096	21,504	{1/2 M}
		1,39,73,000	1,02,62,078	28,90,832	4,23,393	3,96,697	

Re-distribution of Service Departments' Expenses:

Particulars	Basis of Apportionment	Production Department		Service Departments		
		Fabrication	Assembly	Stores	Maintenance	
Overheads as per Primary distribution	As per Primary distribution	1,02,62,078	28,90,832	4,23,393	3,96,697	
Maintenance Department Cost	Maintenance Hours (28:23:4:-)	2,01,955	1,65,891	28,851	(3,96,697)	{1/2 M}
Stores Department	No. of Stores	1,04,64,033	30,56,723	4,52,244	---	{1/2 M}
		3,25,616	1,26,628	(4,52,244)		

	Requisition (18:7:-:-)				
		1,07,89,649	31,83,351	---	---

{1/2 M}

(b) Overhead Recovery Rate

Department	Apportioned Overhead (Rs.) (I)	Basis of Overhead Recovery Rate (II)	Overhead Recovery Rate (Rs.) [(I) ÷ (II)]
Fabrication	1,07,89,649	30,00,000 Machine Hours	3.60 per Machine Hour
Assembly	31,83,351	26,00,000 Labour Hours	1.22 per Labour Hour

{1 M}

{1 M}

(c) Calculation of full production costs of Job no. IGI2014.

Particulars	Amount (Rs.)
Direct Materials	1,15,200
Direct Labour:	
- Fabrication Deptt. (240 hours × Rs. 18)	4,320
- Assembly Deptt. (180 hours × Rs. 18)	3,240
Production Overheads:	
- Fabrication Deptt. (210 hours × Rs. 3.60)	756
- Assembly Deptt. (180 hours × Rs. 1.22)	220
Total Production Cost	1,23,736

{3 M}

Answer 3(b):

	Ramgarh	Pratapgarh	Devgarh	Total
A. Running Costs:				
- Cost of diesel (Working Note- 2)	1,25,280	70,992	92,800	2,89,072
- Servicing cost (Working Note- 3)	9,000	---	3,000	12,000
	1,34,280	70,992	95,800	3,01,072
B. Fixed Costs:				
- Salary to drivers	72,000 (4 drivers × Rs. 18,000)	54,000 (3 drivers × Rs. 18,000)	90,000 (5 drivers × Rs. 18,000)	2,16,000
- Salary to cleaners	44,000 (4 cleaners × Rs. 11,000)	33,000 (3 cleaners × Rs. 11,000)	55,000 (5 cleaners × Rs. 11,000)	1,32,000
- Allocated garage parking fee	5,400 (4 vehicles × Rs. 1,350)	4,050 (3 vehicles × Rs. 1,350)	6,750 (5 vehicles × Rs. 1,350)	16,200
- Depreciation (Working Note- 4)	36,733 2,850	32,800 3,020	38,542 ---	1,08,075 5,870
- Toll tax passes	1,60,983	1,26,870	1,90,292	4,78,145
	2,95,263	1,97,862	2,86,092	7,79,217
Total [A + B]	73,815.75	65,954	57,218.40	64,934.75
Operating Cost per vehicle	(Rs. 2,95,263 ÷ 4 vehicles)	(Rs. 1,97,862 ÷ 3 vehicles)	(Rs. 2,86,092 ÷ 5 vehicles)	(Rs. 7,79,217 ÷ 12 vehicles)

{1 M}

{1 M}

{1 M}

{1 M}

(i) Calculation of Operating Cost per month for each vehicle

(ii) Vehicle operating cost per litre of milk

$$\frac{\text{Total Operating Cost per month}}{\text{Total milk carried a month}} = \frac{\text{Rs. 7,79,217}}{1,47,00,000 \text{ Litres (Working Note - 5)}} = \text{Rs. 0.053} \quad \left. \vphantom{\frac{\text{Total Operating Cost per month}}{\text{Total milk carried a month}}} \right\} \text{ {1 M}}$$

Working Notes:

1. Distance covered by the vehicles in a month

Route	Total Distance (in K.M.)
Ramgarh (4 vehicles × 3 trips × 2 × 24 km. × 30 days)	17,280
Pratapgarh (3 vehicles × 2 trips × 2 × 34 km. × 30 days)	12,240
Devgarh (5 vehicles × 2 trips × 2 × 16 km. × 30 days)	9,600

{1 M}

2. Cost of diesel consumption

	Ramgarh	Pratapgarh	Devgarh
Total distance travelled (K.M.)	17,280	12,240	9,600
Mileage per litre of diesel	8 kmpl	10 kmpl	6 kmpl
Diesel consumption (Litre)	2,160	1,224	1,600
	(17,280 ÷ 8)	(12,240 ÷ 10)	(9,600 ÷ 6)
Cost of diesel consumption @ Rs. 58 per litre (Rs.)	1,25,280	70,992	92,800

{1 M}

3. Servicing Cost

	Ramgarh	Pratapgarh	Devgarh
Total distance travelled (K.M.)	17,280	12,240	9,600
Covered under free service warranty	No	Yes	No
No. of services required	3	2	1
	(17,280 k.m. ÷ 5,000 k.m.)	(12,240 k.m. ÷ 5,000 k.m.)	(9,600 k.m. ÷ 5,000 k.m.)
Total Service Cost (Rs.)	9,000 (Rs. 3,000 × 3)	---	3,000 (Rs. 3,000 × 1)

{1 M}

4. Calculation of Depreciation

	Ramgarh	Pratapgarh	Devgarh
No. of vehicles	4	3	5
Cost of a vehicle	11,02,000	13,12,000	9,25,000
Total Cost of vehicles	44,08,000	39,36,000	46,25,000
Depreciation per month	36,733 $\left(\frac{Rs. 44,08,000 \times 10\%}{12 \text{ months}} \right)$	32,800 $\left(\frac{Rs. 39,36,000 \times 10\%}{12 \text{ months}} \right)$	38,542 $\left(\frac{Rs. 46,25,000 \times 10\%}{12 \text{ months}} \right)$

{1 M}

5. Total volume of Milk Carried

Route	Milk Qty. (Litre)
Ramgarh (25,000 ltr. × 0.7 × 4 vehicles × 3 trips × 30 days)	63,00,000
Pratapgarh (25,000 ltr. × 0.7 × 3 vehicles × 2 trips × 30 days)	31,50,000
Devgarh (25,000 ltr. × 0.7 × 5 vehicles × 2 trips × 30 days)	52,50,000
	1,47,00,000

{1 M}

Answer 4(a):

Calculation of quantity produced

	Process- A (Ltr.)	Process- B (Ltr.)	Process- C (Ltr.)
Input	4,50,000	1,44,000	2,16,000
Normal Loss	(90,000) (20% of 4,50,000 ltr.)	(7,200) (5% of 1,44,000 ltr.)	(21,600) (10% of 2,16,000 ltr.)
	3,60,000	1,36,800	1,94,400
Production of Gasoline	1,44,000	136,800	--
Production of HSD	2,16,000	--	1,94,400

(i) Statement of apportionment of joint cost on the basis of sale value at split-off point

	Gasoline	HSD
Output at split-off point (Ltr.)	1,44,000	2,16,000
Selling price per Ltr. (Rs.)	64	41
Sales value (Rs.)	92,16,000	88,56,000
Share in Joint cost (128:123)	87,71,200	84,28,575
{2 M}	$\left\{ \frac{Rs.1,71,99,775}{251} \times 128 \right\}$	$\left\{ \frac{Rs.1,71,99,775}{251} \times 123 \right\}$

(ii) Statement of cost per Litre.

	Gasoline	HSD
Output (Ltr.)	1,36,800	1,94,400
Share in joint cost (Rs.)	87,71,200	84,28,575
Cost per Ltr. (Rs.) (Joint cost)	64.11	43.36
Further processing cost (Rs.)	10,80,000	1,35,000
Further processing cost per Ltr. (Rs.)	7.89	0.69
Total cost per Ltr. (Rs.)	{1½ M} 72.00	{1½ M} 44.05

(iii) Statement of profit

	Gasoline	HSD
Output (Ltr.)	1,36,800	1,94,400
Sales (Ltr.)	1,32,000	1,88,000
Closing stock (Ltr.)	4,800	6,400
	(Rs.)	(Rs.)
Sales @ Rs.68 and Rs.46 for Gasoline and HSD respectively	89,76,000	86,48,000
Add: closing stock (Ltr.) (at full cost)	3,45,600	2,81,920
Value of production	93,21,600	89,29,920
Less: Share in joint cost	87,71,200	84,28,575
Further processing	10,80,000	1,35,000
Profit/ (Loss)	{1½ M} (5,29,600)	{1½ M} 3,66,345

Answer 4(b):

(i) Material Cost Variance = Standard Cost – Actual Cost

Or = SP × SQ – AP × AQ

A = (Rs. 12,000 × 18 tonne × 0.74) – Rs. 1,62,000 = Rs. 2,160 (A)

B = (Rs. 23,500 × 18 tonne × 0.40) – Rs. 1,65,200 = Rs. 4,000 (F)

C = (Rs. 18,000 × 18 tonne × 0.64) – Rs. 2,07,000 = Rs. 360 (F)

= Rs. 2,200 (F) } **{2 M}**

(ii) Material Price Variance = Actual Quantity (Std. Price – Actual Price)

Or = AQ × SP – AQ × AP

A = (13.12 tonne × Rs. 12,000) – Rs. 1,62,000
= Rs. 1,57,440 – Rs. 1,62,000 = Rs. 4,560 (A)

B = (7.1 tonne × Rs. 23,500) – Rs. 1,65,200
= Rs. 1,66,850 – Rs. 1,65,200 = Rs. 1,650 (F)

C = (11.5 tonne × Rs. 18,000) – Rs. 2,07,000
= Rs. 2,07,000 – Rs. 2,07,000 = Nil

= Rs. 2,910 (A) } **{2 M}**

(iii) Material Usage Variance = Std. Price (Std. Quantity – Actual Quantity)

Or = SP × SQ – SP × AQ

$$\begin{aligned}
 A &= (\text{Rs.}12,000 \times 18 \text{ tonne} \times 0.74) - (\text{Rs.} 12,000 \times 13.12 \text{ tonne}) \\
 &= \text{Rs.} 1,59,840 - \text{Rs.} 1,57,440 &= \text{Rs.} 2,400 \text{ (F)} \\
 B &= (\text{Rs.}23,500 \times 18 \text{ tonne} \times 0.40) - (\text{Rs.} 23,500 \times 7.10 \text{ tonne}) \\
 &= \text{Rs.} 1,69,200 - \text{Rs.} 1,66,850 &= \text{Rs.} 2,350 \text{ (F)} \\
 C &= (\text{Rs.}18,000 \times 18 \text{ tonne} \times 0.64) - (\text{Rs.} 18,000 \times 11.5 \text{ tonne}) \\
 &= \text{Rs.} 2,07,360 - \text{Rs.} 2,07,000 &= \text{Rs.} 360 \text{ (F)} \\
 & &= \underline{\text{Rs.} 5,110 \text{ (F)}} \text{ } \{-2 \text{ M}\}
 \end{aligned}$$

(iv) Material Mix Variance = Std. Price (Revised Std. Quantity - Actual Quantity)

Or = SP × RSQ - SP × AQ

$$\begin{aligned}
 A &= \left(\text{Rs.}12,000 \times 31.72 \text{ tonne} \times \frac{0.74}{1.78} \right) - \text{Rs.}12,000 \times 13.12 \text{ tonne} \\
 &= \text{Rs.} 1,58,243.6 - \text{Rs.} 1,57,440 &= \text{Rs.} 803.60 \text{ (F)} \\
 B &= \left(\text{Rs.}23,500 \times 31.72 \text{ tonne} \times \frac{0.40}{1.78} \right) - \text{Rs.}23,500 \times 7.10 \text{ tonne} \\
 &= \text{Rs.} 1,67,510.11 - \text{Rs.} 1,66,850 &= \text{Rs.} 660.11 \text{ (F)} \\
 C &= \left(\text{Rs.}18,000 \times 31.72 \text{ tonne} \times \frac{0.64}{1.78} \right) - \text{Rs.}18,000 \times 11.5 \text{ tonne} \\
 &= \text{Rs.} 2,05,288.99 - \text{Rs.} 2,07,000 &= \underline{\text{Rs.} 1,711.01 \text{ (A)}} \\
 & &= \underline{\text{Rs.} 2,47.30 \text{ (A)}} \text{ } \{-2 \text{ M}\}
 \end{aligned}$$

(v) Material Yield Variance = Std. Price (Std. Quantity - Revised Std. Quantity)

Or = SP × SQ - SP × RSQ

$$\begin{aligned}
 A &= \text{Rs.}12,000 \times 18 \text{ tonne} \times 0.74 - \left(\text{Rs.}12,000 \times 31.72 \text{ tonne} \times \frac{0.74}{1.78} \right) \\
 &= \text{Rs.} 1,59,840 - \text{Rs.} 1,58,243.6 &= \text{Rs.} 1,596.40 \text{ (F)} \\
 B &= \text{Rs.}23,500 \times 18 \text{ tonne} \times 0.40 - \left(\text{Rs.}23,500 \times 31.72 \text{ tonne} \times \frac{0.40}{1.78} \right) \\
 &= \text{Rs.} 1,69,200 - \text{Rs.} 1,67,510.11 &= \text{Rs.} 1,689.89 \text{ (F)} \\
 C &= \text{Rs.}18,000 \times 18 \text{ tonne} \times 0.64 - \left(\text{Rs.}18,000 \times 31.72 \text{ tonne} \times \frac{0.64}{1.78} \right) \\
 &= \text{Rs.} 2,07,360 - \text{Rs.} 2,05,288.99 &= \underline{\text{Rs.} 2,071.01 \text{ (F)}} \\
 & &= \underline{\text{Rs.} 5,357.30 \text{ (F)}} \text{ } \{-2 \text{ M}\}
 \end{aligned}$$

Answer 5(a):

Calculation of Profit made in the month of August 2014 by selling 14,000 units.

	Amount per unit (Rs.)	Amount (Rs.)
Sales Revenue	18.00	2,52,000
Less: Variable Costs:		
- Direct Material	8.00	1,12,000
- Direct Labour	3.50	49,000
- Variable Overhead	2.50	35,000
Contribution	4.00	56,000
Less: Fixed Overhead	2.00	28,000
Profit	2.00	28,000
	{1 M}	{1 M}

(i) To maintain the same amount of profit i.e. Rs. 28,000 in September 2014 also, the company needs to maintain a contribution of Rs. 56,000.

Let, number of units to be sold in September 2014 is 'x', then the contribution will be

$$\text{Rs.} 18 \text{ x} - [(\text{Rs.}8 \times 1.10) + \text{Rs.} 3.5 + (\text{Rs.} 2.5 \times 1.05)] \text{ x} = \text{Rs.} 56,000$$

$$\text{Rs.} 18 \text{ x} - (\text{Rs.} 8.8 + \text{Rs.} 3.5 + \text{Rs.} 2.625) \text{ x} = \text{Rs.} 56,000$$

$$\text{Or, } x = \frac{\text{Rs. } 56,000}{\text{Rs. } 3.075}$$

$$= 18,211.38 \text{ units or } 18,212 \text{ units. } \} \{2 \text{ M}\}$$

(ii) Margin of Safety

	August 2014	September 2014
Profit	Rs. 28,000	Rs. 28,000
P/V Ratio	$\frac{\text{Rs. } 4}{\text{Rs. } 18} \times 100$	$\frac{\text{Rs. } 3.075}{\text{Rs. } 18} \times 100$
Margin of Safety	{3 M} {Rs. 1,26,000	Rs. 1,63,902.44} {3 M}
$\left(\frac{\text{Profit}}{\text{P/V Ratio}} \times 100\right)$	$\left(\frac{28,000}{400} \times 18 \times 100\right)$	$\left(\frac{28,000}{307.5} \times 18 \times 100\right)$

Answer 5(b):

(a) Preparation of Production Budget (in units)

	October	November	December	January
Demand for the month (Nos.)	4,000	3,500	4,500	6,000
Add: 20% of next month's demand	700	900	1,200	1,300
Less: Opening Stock	(950)	(700)	(900)	(1,200)
Vehicles to be produced	3,750 {1 M}	3,700 {1 M}	4,800 {1 M}	6,100 {1 M}

(b) Preparation of Purchase budget for Part-X

	October	November	December
Production for the month (Nos.)	3,750	3,700	4,800
Add: 40% of next month's production	1,480 (40% of 3,700)	1,920 (40% of 4,800)	2,440 (40% of 6,100)
No. of units required for production	5,230 20,920 (5,230 × 4 units)	5,620 22,480 (5,620 × 4 units)	7,240 28,960 (7,240 × 4 units)
Less: Opening Stock	(4,800)	(5,920) (1,480 × 4 units)	(7,680) (1,920 × 4 units)
No. of units to be purchased	16,120 {1 M}	16,560 {1 M}	21,280 {1 M}

(c) Budgeted Gross Profit for the Quarter October to December

	October	November	December	Total
Sales in nos.	4,000	3,500	4,500	12,000
Net Selling Price per unit*	Rs. 3,46,150	Rs. 3,46,150	Rs. 3,46,150	
Sales Revenue (Rs. in lakh)	13,846	12,115.25	15,576.75	41,538
Less: Cost of Sales (Rs. in lakh) (Sales unit × Cost per unit)	11,428	9,999.50	12,856.50	34,284
Gross Profit (Rs. in lakh)	2,418 {1 M}	2,115.75 {1 M}	2,720.25 {1 M}	7,254

* Net Selling price unit = Rs. 3,95,600 - 12.5% commission on Rs. 3,95,600 = Rs. 3,46,150

Answer 6:

(a) Cost Accounting is defined as "the process of accounting for cost which begins with the recording of income and expenditure or the bases on which they are calculated and ends with the preparation of periodical statements and reports for ascertaining and controlling costs."

The main objectives of the cost accounting are as follows:

- (a) Ascertainment of cost: There are two methods of ascertaining costs, viz., Post Costing and Continuous Costing. Post Costing means, analysis of actual information as recorded in financial books. Continuous Costing, aims at collecting information about cost as and when the activity takes place so that as soon as a job is completed the cost of completion would be known. {1 M}
- (b) Determination of selling price: Business enterprises run on a profit making basis. It is thus necessary that the revenue should be greater than the costs incurred. Cost accounting provides the information regarding the cost to make and sell the product or services produced. {1 M}
- (c) Cost control and cost reduction: To exercise cost control, the following steps should be observed:
 - (i) Determine clearly the objective.
 - (ii) Measure the actual performance.
 - (iii) Investigate into the causes of failure to perform according to plan;
 - (iv) Institute corrective action.{1 M}
- (d) Cost Reduction may be defined "as the achievement of real and permanent reduction in the unit cost of goods manufactured or services rendered without impairing their suitability for the use intended or diminution in the quality of the product." {1 M}
- (e) Ascertaining the profit of each activity: The profit of any activity can be ascertained by matching cost with the revenue of that activity. The purpose under this step is to determine costing profit or loss of any activity on an objective basis. {1 M}
- (f) Assisting management in decision making: Decision making is defined as a process of selecting a course of action out of two or more alternative courses. For making a choice between different courses of action, it is necessary to make a comparison of the outcomes, which may be arrived under different alternatives.

Answer 6:

(b)

	Cost Control		Cost Reduction	
1.	Cost control aims at maintaining the costs in accordance with the established standards.	1.	Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to better them continuously	{1 M}
2.	Cost control seeks to attain lowest possible cost under existing conditions.	2.	Cost reduction recognises no condition as permanent, since a change will result in lower cost.	{1 M}
3.	In case of cost control, emphasis is on past and present	3.	In case of cost reduction, it is on present and future.	{1 M}
4.	Cost control is a preventive function	4.	Cost reduction is a corrective function. It operates even when an efficient cost control system exists.	{1 M}
5.	Cost control ends when targets are achieved.	5.	Cost reduction has no visible end.	{1 M}

Answer 6:

- (c) (i) **Controllable Costs:** - Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre. For example, direct costs comprising direct labour, direct material, direct expenses and some of the overheads are generally controllable by the shop level management. } {5 M}
- (ii) **Uncontrollable Costs** - Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs. For example, expenditure incurred by, say, the tool room is controllable by the foreman in-charge of that section but the share of the tool-room expenditure which is apportioned to a machine shop is not to be controlled by the machine shop foreman. }

Answer 6:

- (d) In some process industries the output of one process is transferred to the next process not at cost but at market value or cost plus a percentage of profit. The difference between cost and the transfer price is known as inter-process profits. The advantages and disadvantages of using inter-process profit, in the case of process type industries are as follows: } {1 M}
- Advantages:
1. Comparison between the cost of output and its market price at the stage of completion is facilitated. } {2 M}
 2. Each process is made to stand by itself as to the profitability.
- Disadvantages:
1. The use of inter-process profits involves complication. } {2 M}
 2. The system shows profits which are not realised because of stock not sold out.
