



J.K. SHAH[®]
TEST SERIES
Evaluate Learn Succeed

SUGGESTED SOLUTION

IPCC MAY 2017 EXAM

COSTING

Test Code - I M J 7 1 4 5

BRANCH - (MULTIPLE) (Date : 05.03.2017)

Head Office : Shraddha, 3rd Floor, Near Chinai College, Andheri (E), Mumbai – 69.

Tel : (022) 26836666

Answer-1 :

(i) Comparison of alternative Joint-Cost Allocation Methods:

(a) Sales Value at Split-off Point Method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Sales value of products at split off	Rs. 2,99,250*	Rs. 5,55,750**	Rs. 8,55,000
Weights	0.35	0.65	1.00
Joint cost allocated	Rs. 2,49,375 (Rs.7,12,500 × 0.35)	Rs. 4,63,125 (Rs.7,12,500 × 0.65)	Rs. 7,12,500

* (3,000 lbs ÷ 200 lbs) × 20 gallon × Rs. 997.50 = Rs. 2,99,250

** (5,100 lbs ÷ 340 lbs) × 30 gallon × Rs.1,235 = Rs. 5,55,750

(1.5 Marks)

(b) Physical Measure Method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Output	300 gallon*	450 gallon**	750 gallons
Weight	300/750 = 0.40	450/750 = 0.60	1.00
Joint cost allocated	Rs. 2,85,000 (Rs. 7,12,500 x 0.40)	Rs. 4,27,500 (Rs. 7,12,500 x 0.60)	Rs. 7,12,500

* (3,000 lbs ÷ 200 lbs) × 20 gallon = 300 gallon

** (5,100 lbs ÷ 340 lbs) × 30 gallon = 450 gallon

(1.5 Marks)

(c) Net Realisable Value (NRV) Method

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Final sales value of production	Rs. 5,70,000 (3,000 lbs × Rs.190)	Rs. 12,11,250 (5,100 lbs × Rs.237.50)	Rs. 17,81,250
Less: Separable costs	Rs. 3,02,812.50	Rs. 6,23,437.50	Rs. 9,26,250
Net realisable value at split off point	Rs. 2,67,187.50	Rs. 5,87,812.50	Rs. 8,55,000
Weight	0.3125 (2,67,187.50 ÷ 8,55,000)	0.6875 (5,87,812.5 ÷ 8,55,000)	1.00
Joint cost allocated	Rs. 2,22,656.25 (Rs. 7,12,500 x 0.3125)	Rs. 4,89,843.75 (Rs. 7,12,500 x 0.6875)	Rs. 7,12,500

(2 Marks)

(d) Constant Gross Margin(%) NRV method

	Chocolate powder Liquor base	Milk chocolate liquor Base	Total
Final sales value of production	Rs. 5,70,000	Rs. 12,11,250	Rs. 17,81,250
Less: Gross margin* 8%	Rs. 45,600	Rs. 96,900	Rs. 1,42,500
Cost of goods available for sale	Rs. 5,24,400	Rs. 11,14,350	Rs.16,38,750
Less: Separable costs	Rs. 3,02,812.50	Rs. 6,23,437.50	Rs. 9,26,250
Joint cost allocated	Rs. 2,21,587.50	Rs. 4,90,912.50	Rs. 7,12,500

(1 Mark)

*Final sales value of total production = Rs.17,81,250
 Less: Joint and separable cost = Rs. 16,38,750 (Rs. 7,12,500 + Rs. 9,26,250)
 Gross Margin = Rs. 1,42,500
 Gross margin (%) = $\frac{Rs.1,42,500}{Rs.17,81,250} \times 100 = 8\%$

(ii) Chocolate powder liquor base (Amount in Rs.)

	Sales value at Split off	Physical Measure	Estimated net Realisable Value	Constant Gross Margin NRV
Final sale value of Chocolate powder	5,70,000	5,70,000	5,70,000	5,70,000
Less: Separable costs	3,02,812.50	3,02,812.50	3,02,812.50	3,02,812.50
Less: Joint costs	2,49,375	2,85,000	2,22,656.25	2,21,587.50
Gross Margin	17,812.50	(17,812.50)	44,531.25	45,600
Gross Margin %	3.125%	(3.125%)	7.8125%	8.00%

(1 Mark)**Milk chocolate liquor base (Amount in Rs.)**

	Sales value at split off	Physical measure	Estimated net realisable	Constant Gross margin NRV
Final sale value of milk chocolate	12,11,250	12,11,250	12,11,250	12,11,250
Less: Separable costs	6,23,437.50	6,23,437.50	6,23,437.50	6,23,437.50
Less: Joint costs	4,63,125	4,27,500	4,89,843.75	4,90,912
Gross Margin	1,24,687.50	1,60,312.50	97,968.75	96,900.50
Gross Margin %	10.29%	13.24%	8.09%	8.00%

(1 Mark)**(iii) Further processing of Chocolate powder liquor base into Chocolate powder**

	(Amount in Rs.)
Incremental revenue {Rs. 5,70,000 – (Rs. 997.50 x 300 gallon)}	2,70,750
Less: Incremental costs	3,02,812.50
Incremental operating income	(32,062.50)

(1 Mark)**Further processing of Milk Chocolate liquor base into Milk Chocolate.**

	(Amount in Rs.)
Incremental revenue {Rs.12,11,250 – (Rs. 1,235 x 450 gallon)}	6,55,500
Less: Incremental cost	6,23,437.50
Incremental operating income	32,062.50

The above computations show that Pokemon Chocolates could increase operating income by Rs. 32,062.50 if chocolate liquor base is sold at split off point and milk chocolate liquor base is processed further.

(1 Mark)**Answer-2 :**

- (i) P/V Ratio - 50%
 Margin of Safety - 40%
 Sales 500 Units for Rs. 5,00,000
 Selling price per Unit - Rs. 1,000
 Calculation of Break Even Point (BEP)

$$\text{Margin of Safety Ratio} = \frac{\text{Sales} - \text{BEP}}{\text{Sales}} \times 100$$

$$40 = \frac{5,00,000 - \text{BEP}}{5,00,000} \times 100$$

$$\text{BEP (in sales)} = \text{Rs. } 3,00,000$$

$$\text{BEP (in Unit)} = \text{Rs. } 3,00,000 \div \text{Rs. } 1,000 = 300 \text{ Units}$$

(3 Marks)

- (ii) Sales in units to earn a profit of 10 % on sales

$$\text{Sales} = \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{P/V Ratio}}$$
 Let the Sales be x
 Profit = 10% of x i.e. 0.1 x
 Thus -

$$x = \left(\frac{1,50,000 + 0.1X}{50\%} \right)$$

$$\text{Or, } x = \text{Rs. } 3,75,000$$

To find out sales in units amount of sales Rs. 3,75,000 is to be divided by Selling Price per unit
Thus -

$$\text{Sales (in units)} = \frac{\text{Rs.}3,75,000}{\text{Rs.}1,000} = 375 \text{ units}$$

(3 Marks)

Working Notes

1. Selling price = Rs. 5,00,000 ÷ Rs. 500 = Rs. 1,000 per unit
2. Variable cost per unit = Selling Price - (Selling Price × P/V Ratio)
= Rs.1,000 – (Rs. 1,000 × 50%) = Rs. 500
3. Profit at present level of sales

$$\text{Margin of Safety} = \frac{\text{Profit}}{\text{P/V Ratio}}$$

$$\text{Margin of Safety} = 40\% \text{ of Rs. } 5,00,000 = \text{Rs. } 2,00,000$$

$$\text{Rs. } 2,00,000 = \frac{\text{Profit}}{50\%}$$

$$\text{Profit} = \text{Rs. } 1,00,000$$

4. Fixed Cost = (Sales × P/V Ratio) – Profit
= (Rs.5,00,000 × 50%) – Rs. 1,00,000 = Rs.1,50,000

(Note: Alternative ways of calculation of 'Break Even Point' and required sales to earn a profit of 10% of sales' can be adopted to solve the problem.)

(4 x 0.5 = 2 Marks)

Answer-3 :

Working Notes:

1. Total Sales = Break -even Sales + Margin of Safety
= Rs. 400 crores + Rs. 120 crores
= Rs. 520 crores
2. Variable Cost = Total Sales × (1- P/V Ratio)
= Rs. 520 crores × (1 – 0.3)
= Rs. 364 crores
3. Fixed Cost = Break-even Sales × P/V Ratio
= Rs. 400 crores × 30%
= Rs. 120 crores
4. Profit = Total Sales – (Variable Cost + Fixed Cost)
= Rs. 520 crores – (Rs. 364 crores + Rs. 120 crores)
= Rs. 36 crores

(4 x 1 = 4 Marks)

- (i) Revised Sales figure to earn profit of Rs. 56 crores (i.e. Rs. 36 crores + Rs. 20 crores)

$$\begin{aligned} \text{Revised Sales} &= \frac{\text{Revised Fixed Cost}^* + \text{Desired Profit}}{\text{Revised P/V Ratio}^{**}} \\ &= \frac{\text{Rs.}185 \text{ crores} + \text{Rs.}56 \text{ crores}}{28\%} \\ &= \text{Rs. } 860.71 \text{ Crores} \end{aligned}$$

$$\begin{aligned} \text{*Revised Fixed Cost} &= \text{Present Fixed Cost} + \text{Increment in fixed cost} + \text{Interest on additional Capital} \\ &= \text{Rs. } 120 \text{ crores} + \text{Rs. } 50 \text{ crores} + 15\% \text{ of Rs. } 100 \text{ crores} \\ &= \text{Rs. } 185 \text{ crores} \end{aligned}$$

$$\begin{aligned} \text{**Revised P/V Ratio} &: \text{ Let current selling price per unit be Rs. } 100. \\ \text{Therefore, Reduced selling price per unit} &= \text{Rs. } 100 \times 90\% = \text{Rs. } 90 \\ \text{Revised Variable Cost on Sales} &= 70\% + 2\% = 72\% \\ \text{Variable Cost per unit} &= \text{Rs. } 90 \times 72\% = \text{Rs. } 64.80 \\ \text{Contribution per unit} &= \text{Rs. } 90 - \text{Rs. } 64.80 = \text{Rs. } 25.20 \end{aligned}$$

$$\text{Revised P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{\text{Rs.25.2}}{\text{Rs.90}} \times 100 = 28\%$$

(2.5 Marks)

- (ii) (a) Revised Break-even Sales = $\frac{\text{Fixed Cost}}{\text{P/V Ratio}} \times 100 = \frac{\text{Rs.185 crores}}{28\%} = \text{Rs.660.71 crores}$
- (b) Revised P/V Ratio = 28 % (as calculated above)
- (c) Revised Margin of safety = Total Sales – Break-even Sales
= Rs. 860.71 crores - Rs. 660.71 crores
= Rs. 200 crores.

(1.5 Marks)

Answer-4 :

Working :

Product	Budgeted Price (₹)	Actual Price (₹)	Budgeted Qty.	Actual Qty.	Budgeted Sales (₹)	Standard Sales (Actual Sales at Budgeted price) (₹)	Actual sales (₹)
	(a)	(b)	(c)	(d)	(e) = (a × c)	(f) = (a × d)	(g) = (b × d)
P	25	30	4,000	4,800	1,00,000	1,20,000	1,44,000
Q	50	45	3,000	2,800	1,50,000	1,40,000	1,26,000
R	75	70	2,000	2,400	1,50,000	1,80,000	1,68,000
S	100	105	1,000	800	1,00,000	80,000	84,000
					5,00,000	5,20,000	5,22,000

(4 Marks)

Calculation of Variances:

Sale Price Variance = Actual Quantity (Actual Price – Budgeted Price)
= Actual Sales – Standard. Sales
= Rs. 5,22,000 – Rs. 5,20,000 = Rs. 2,000 (F)

Sales Volume Variance = Budgeted Price (Actual Quantity – Budgeted Quantity)
= Standard Sales – Budgeted Sales
= Rs. 5,20,000 – Rs. 5,00,000 = Rs. 20,000 (F)

Total Sales Variance = Actual Sales – Budgeted Sales
= Rs. 5,22,000 – Rs. 5,00,000 = Rs. 22,000 (F)

Verification, Total Sales Variance = Sales Price Variance + Sales Volume Variance
Rs. 22,000 (F) = Rs. 2,000 (F) + Rs. 20,000 (F)

(4 Marks)

Answer-5 :

Effective machine hours = 200 hours × 75% = 150 hours

Computation of Comprehensive Machine Hour Rate

	Per month(Rs.)	Per hour (Rs.)
Fixed cost		
Supervision charges	3,000.00	
Electricity and lighting	7,500.00	
Insurance of Plant and building (Rs.16,250 ÷12)	1,354.17	
Other General Expenses (Rs.27,500÷12)	2,291.67	
Depreciation (Rs.32,400÷12)	2,700.00	
	<u>16,845.84</u>	112.31
Direct Cost		
Repairs and maintenance	17,500.00	116.67
Power	15,000.00	100.00
Wages of machine man		44.91
Wages of Helper		<u>32.97</u>
Machine Hour rate (Comprehensive)		406.86

(4 Marks)

Wages per machine hour

	Machine man	Helper
Wages for 200 hours		
Machine-man (Rs.125× 25)	Rs.3,125.00	---
Helper (Rs.75× 25)	---	Rs.1,875.00
Dearness Allowance (DA)	<u>Rs.1,575.00</u>	<u>Rs.1,575.00</u>
	Rs.4,700.00	Rs.3,450.00
Production bonus (1/3 of Basic and DA)	1,567.00	1,150.00
Leave wages (10% of Basic and DA)	<u>470.00</u>	<u>345.00</u>
	6,737.00	4,945.00
Effective wage rate per machine hour	Rs.44.91	Rs.32.97

(4 Marks)

Answer-6 :

Stores Ledger Control A/c

Particulars	(Rs.)	Particulars	(Rs.)
To Balance b/d	9,000	By Work in Process	48,000
To General Ledger		By Overhead Control A/c	6,000
Adjustment A/c	48,000		
To Work in Process A/c	24,000	By Overhead Control A/c (Deficiency)	1,800*
		By Balance c/d	25,200
	81,000		81,000

*Deficiency assumed as normal (alternatively can be treated as abnormal loss)

(2 Marks)

Work in Progress Control A/c

Particulars	(Rs.)	Particulars	(Rs.)
To Balance b/d	18,000	By Stores Ledger Control a/c	24,000
To Stores Ledger Control A/c	48,000	By Costing P/L A/c (Balancing figures being Cost of finished goods)	1,20,000
To Wages Control A/c	18,000	By Balance c/d	12,000
To Overheads Control a/c	72,000		
	1,56,000		1,56,000

(2 Marks)

Overheads Control A/c

Particulars	(Rs.)	Particulars	(Rs.)
To Stores Ledger Control A/c	6,000	By Work in Process A/c	72,000
To Stores Ledger Control A/c	1,800	By Balance c/d (Under absorption)	13,800
To Wages Control A/c (Rs. 21,000- Rs.18,000)	3,000		
To Gen. Ledger Adjust. A/c	75,000		
	85,800		85,800

(2 Marks)

Costing Profit & Loss A/c

Particulars	(Rs.)	Particulars	(Rs.)
To Work in progress	1,20,000	By Gen. ledger Adjust. A/c (Sales) (1,20,000+12,000)	1,32,000
To Gen. Ledger Adjust. A/c (Profit)	12,000		
	1,32,000		1,32,000

(2 Marks)