**(GI-1, GI-2, GI-3, GI-6, VI-1, SI-1, VDI-1)**
**DATE: 06.09.2021 MAXIMUM MARKS: 100 TIMING: 3¼ Hours**

## PAPER : COSTING

**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) Workings Notes:**

Calculation of Total hours saved:

| | M | J |
|---|---|---|
| No. of garments assigned (Pieces.) | 15 | 21 |
| Hour allowed per piece (Hours) | 8 | 8 |
| Total hours allowed (Hours) | 120 | 168 |
| Hours Taken (Hours) | 100 | 140 |
| Hours Saved (Hours) | **20** | **28** |

**(Each bold = ½ M)**

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

| | M (Rs.) | J (Rs.) | Total (Rs.) |
|---|---|---|---|
| Basic Wages | 1,200 (100 Hrs. × Rs. 12) | 1,680 (140 Hrs. × Rs.12) | 2,880 |
| Bonus (as per Halsey Scheme) | 120 | 168 | 288 |
| (50% of Time Saved × Excess Rate) | (50% of 20 Hrs. × Rs. 12) | (50% of 28 Hrs. × Rs. 12) | |
| Excess Wages Paid | **1,320** | **1,848** | 3,168 |

**(Each bold = ½ M)**

**(ii) Calculation of loss incurred due to incorrect rate selection had Rowan scheme of bonus payment followed:**

| | M (Rs.) | J (Rs.) | Total (Rs.) |
|---|---|---|---|
| Basic Wages | 1,200 (100 Hrs. × Rs.12) | 1,680 (140 Hrs. × Rs.12) | 2,880 |
| Bonus (as per Rowan Scheme) $\left(\frac{Time\ Taken}{Time\ Allowed} \times Time\ Saved \times Excess\ Rate\right)$ | 200 $\left(\frac{100}{20} \times 20 \times Rs.12\right)$ | 280 $\left(\frac{140}{168} \times 28 \times Rs.12\right)$ | 480 |
| Excess Wages Paid | **1,400** | **1,960** | 3,360 |

**(Each bold = ½ M)**

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

| | M (Rs.) | J (Rs.) | Total (Rs.) |
|---|---|---|---|
| Wages paid under Halsey Scheme | 1,320 | 1,848 | 3,168 |
| Wages paid under Rowan Scheme | 1,400 | 1,960 | 3,360 |
| Difference (loss) | **(80)** | **(112)** | (192) |

**(Each bold = ½ M)**

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

(a) 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. **(½ Mark)**

(b) 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. **(½ Mark)**

**Answer:**

**(b) (i) Statement Showing Joint Cost Allocation to 'Cromex'**

| Particulars | Cromex (Rs.) |
|---|---|
| Sales (Rs. 40 × 2,000 units) | **80,000** |
| *Less:* Post Split Off Costs (4,000+18,000+6,000) | **(28,000)** |
| *Less:* Estimated Profit (Rs. 5 × 2,000 units) | **(10,000)** |
| **Joint cost allocable** | **42,000** |

**( Each bold = 1/2 Mark)**

**(ii) Statement Showing Product Wise and Overall Profitability**

| Particulars | Bomex (Rs.) | Cromex (Rs.) | Total (Rs.) |
|---|---|---|---|
| Sales | **2,00,000** | **80,000** | **2,80,000** |
| *Less:* Share in Joint Expenses | **(1,38,000)*** | **(42,000)** | **(1,80,000)** |
| *Less:* Post Split Off Costs | **(36,000)** | **(28,000)** | **(64,000)** |
| **Profit** | **26,000** | **10,000** | **36,000** |

(*) 1,80,000 – 42,000

**( Each bold = ¼ Mark)**

**Answer:**

**(c) (i)** (a) Inventory turnover ratio (Refer to working note)

= Cost of stock of raw material consumed / Average stock of raw material

$$= \frac{Rs.\,1,68,00,000}{Rs.\,10,00,000} = 16.8$$ **}{1.5 M}**

(b) Average number of days for which the average inventory is held

$$= \frac{365}{Inventory\ \ turnover\ \ ratio} = \frac{365\ days}{16.8} = 21.73\ days$$ **}{1.5 M}**

**Working Note:**

| Particulars | (Rs.) |
|---|---|
| Opening stock of raw material | 9,00,000 |
| Add: Material purchases during the year | 1,70,00,000 |
| Less: Closing stock of raw material | 11,00,000 |
| | **1,68,00,000** |

**}{1/2 M}**

**(ii)** The Inventory turnover ratio for material X is 16.8 which mean an inventory item takes only 21.73 or 22 days to issue from stores for production process. The rate is better than the industry rate which is 10 time or 36.5 days. This inventory turnover ratio indicates better inventory management system and good demand for the final product in market.

**(1.5 M)**

**Answer:**

**(d) Preparation of Cost Sheet for Super Pen**

No. of units produced = 40,000 units
No. of units sold = 36,000 units

| Particulars | Per unit (Rs.) | Total (Rs.) |
|---|---|---|
| Direct materials (Working note- (i)) | **8.00** | **3,20,000** |
| Direct wages (Working note- (ii)) | **4.00** | **1,60,000** |
| **Prime cost** | **12.00** | **4,80,000** |
| Production overhead (Working note- (iii)) | **1.20** | **48,000** |
| **Factory Cost** | **13.20** | **5,28,000** |
| Administration Overhead* (200% of direct wages) | **8.00** | **3,20,000** |
| **Cost of production** | **21.20** | **8,48,000** |
| Less: Closing stock (40,000 units – 36,000 units) | **-** | **(84,800)** |
| **Cost of goods sold i.e. 36,000 units** | **21.20** | **7,63,200** |
| Selling cost | **1.00** | **36,000** |
| **Cost of sales/ Total cost** | **22.20** | **7,99,200** |
| **Profit** | **7.80** | **2,80,800** |
| Sales value (Rs. 30 × 36,000 units) | **30.00** | **10,80,000** |

**( Each bold = 1/6 Mark)**

**Working Notes:**

(i) Direct material cost per unit of Normal pen = M Direct material cost per unit of Super pen = 2M

Total Direct Material cost = 2M × 40,000 units + M × 1,20,000 units

Or, Rs. 8,00,000 = 80,000 M + 1,20,000 M

Or, M $= \frac{Rs.\,8,00,000}{Rs.\,2,00,000} = Rs.\,4$

Therefore, Direct material Cost per unit of Super pen = 2 × Rs. 4 = Rs. 8

**(Each working note = 1/6 Mark)**

(ii) Direct wages per unit for Super pen = W
Direct wages per unit for Normal Pen = 0.6W
So, (W x 40,000) + (0.6W x 1,20,000) = Rs. 4,48,000
W = Rs. 4 per unit

**(Each working note = 1/6 Mark)**

(iii) Production overhead per unit = $\frac{Rs.\,1,92,000}{(40,000 + 1,20,000)} = Rs.\,1.20$

Production overhead for Super pen = Rs. 1.20 × 40,000 units = Rs. 48,000

**(Each working note = 1/6 Mark)**

* Administration overhead is specific to the product as it is directly related to direct labour as mentioned in the question and hence to be considered in cost of production only. **(1/6 M)**

**Assumption:** It is assumed that in point (1) and (2) of the Question, direct materials cost and direct wages respectively is related to per unit only.

Note: Direct Material and Direct wages can be calculated in alternative ways.

**(1/6 M)**

**Answer 2:**

**(a) (i) Material price variance:**

= Actual Quantity$_{Consumed}$ (Std. Price – Actual Price)

$$= 22{,}000 \text{ pcs} \left( Rs.9 - \frac{Rs.1{,}87{,}000}{22{,}000 \ pcs} \right) = Rs.11{,}000 \ (Favourable)$$

**(ii) Material usage variance:**

= Std. price per piece (Std. Quantity – Actual Quantity$_{consumed}$)

= Rs. 9 (1,900 units × 10 pcs. – 22,000 pcs.) = Rs. 27,000 (Adverse)

**(iii) Labour rate variance:**

= Actual hours$_{paid}$ (Std. rate – Actual rate)

$$= 5{,}150 \text{ hours} \left( Rs.12 - \frac{Rs.51{,}500}{5{,}150 \ hours} \right) = Rs.10{,}300 \ (Favourable)$$

**(iv) Labour efficiency variance:**

= Std. rate per hour (Std. hours – Actual hours$_{worked}$)

= Rs. 12 (1,900 units × 2.5 hours – 5,150 hours) = Rs. 4,800 (Adverse)

**(v) Fixed overhead expenditure variance:**

= Budgeted Overhead – Actual Overhead

= Rs. 84,000 – Rs. 92,000 = Rs. 8,000 (Adverse)

**(vi) Fixed overhead efficiency variance:**

= Std. rate per hour (Std. hours - Actual hours$_{worked}$)

= Rs.16 (1,900 units × 2.5 hours - 5,150 hours) = Rs. 6,400 (Adverse)

Or,

Fixed overhead efficiency variance on the basis of units

= Std. rate per unit (Actual output – Standard output for actual hours)

= Rs. 40 (1,900 units - 5,150 hours / 2.5 hours) = Rs. 6,400 (Adverse)

**(vii) Fixed overhead capacity variance:**

= Std. rate per hour (Actual hours$_{worked}$ – Budgeted hours)

$$= Rs.16 \left( 5{,}150 \ hours - \frac{Rs.84{,}000}{Rs.16} \right) = Rs.1{,}600 \ (Adverse)$$

Or,

Fixed overhead capacity variances on the basis of units

= Std. rate per unit (Standard output for actual hours – Budgeted output)

= Rs. 40 (2,060 units - Rs. 84,000 / Rs. 40) = Rs. 1,600 (Adverse)

**((i, ii, = 1.25 M) & (iii, iv,v,vi,vii = 1.5 M))**

**Answer:**

**(b) (i) Process 'X' Account**

Dr. Cr.

| Particulars | Cost (Rs.) | Profit (Rs.) | Total (Rs.) | Particulars | Cost (Rs.) | Profit (Rs.) | Total (Rs.) |
|---|---|---|---|---|---|---|---|
| To Opening Stock | 15,000 | - | 15,000 | By Process 'Y' A/c (Transfer) | **2,96,000** | **74,000** | **3,70,000** |
| To Material | 80,000 | - | 80,000 | | | | |
| To Wages | 1,25,000 | - | 1,25,000 | | | | |
| Total | 2,20,000 | - | 2,20,000 | | | | |
| *Less*: Closing stock | 20,000 | - | 20,000 | | | | |
| Prime Cost | 2,00,000 | | 2,00,000 | | | | |
| To Manufacturing Overheads | 96,000 | - | 96,000 | | | | |
| Total cost | 2,96,000 | - | 2,96,000 | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| To Costing Profit and Loss A/c (20% on transfer Price or 25% on cost) | | 74,000 | 74,000 | | | | |
| | 2,96,000 | 74,000 | 3,70,000 | | 2,96,000 | 74,000 | 3,70,000 |

**(Each bold = 3/4 Mark)**

**Process 'Y' Account**

Dr. Cr.

| Particulars | Cost (Rs.) | Profit (Rs.) | Total (Rs.) | Particulars | Cost (Rs.) | Profit (Rs.) | Total (Rs.) |
|---|---|---|---|---|---|---|---|
| To Opening Stock | 23,000 | 4,000 | 27,000 | By Process 'Z' A/c (Transfer) | **5,36,379** | **2,26,121** | **7,62,500** |
| To Process 'X' A/c | 2,96,000 | 74,000 | 3,70,000 | | | | |
| To Material | 65,000 | -- | 65,000 | | | | |
| To Wages | 1,08,000 | -- | 1,08,000 | | | | |
| Total | 4,92,000 | 78,000 | 5,70,000 | | | | |
| *Less*: Closing stock | 27,621 | 4,379 | 32,000 | | | | |
| Prime Cost | 4,64,379 | 73,621 | 5,38,000 | | | | |
| To Manufacturing Overheads | 72,000 | -- | 72,000 | | | | |
| Total cost | 5,36,379 | 73,621 | 6,10,000 | | | | |
| To Costing Profit and Loss A/c (20% on transfer Price or 25% on cost) | -- | 1,52,500 | 1,52,500 | | | | |
| | 5,36,379 | 2,26,121 | 7,62,500 | | 5,36,379 | 2,26,121 | 7,62,500 |

**(Each bold = 3/4 Mark)**

**Process 'Z' Account**

Dr. Cr.

| Particulars | Cost (Rs.) | Profit (Rs.) | Total (Rs.) | Particulars | Cost (Rs.) | Profit (Rs.) | Total (Rs.) |
|---|---|---|---|---|---|---|---|
| To Opening Stock | 30,000 | 10,000 | 40,000 | By Finished Stock A/c (Transfer) | **7,45,629** | **5,50,371** | **12,96,000** |
| To Process 'Y' A/c | 5,36,379 | 2,26,121 | 7,62,500 | | | | |
| To Material | 50,000 | -- | 50,000 | | | | |
| To Wages | 92,000 | -- | 92,000 | | | | |
| Total | 7,08,379 | 2,36,121 | 9,44,500 | | | | |
| *Less*: Closing stock | 29,250 | 9,750 | 39,000 | | | | |
| Prime Cost | 6,79,129 | 2,26,371 | 9,05,500 | | | | |
| To Manufacturing Overheads | 66,500 | -- | 66,500 | | | | |
| Total cost | 7,45,629 | 2,26,371 | 9,72,000 | | | | |
| To Costing Profit and Loss A/c (25% on transfer Price or 331/3% on cost) | -- | 3,24,000 | 3,24,000 | | | | |
| | 7,45,629 | 5,50,371 | 12,96,000 | | 7,45,629 | 5,50,371 | 12,96,000 |

**(Each bold = 3/4 Mark)**

**Finished Stock Account**

Dr. Cr.

| Particulars | Cost (Rs.) | Profit (Rs.) | Total (Rs.) | Particulars | Cost (Rs.) | Profit (Rs.) | Total (Rs.) |
|---|---|---|---|---|---|---|---|
| To Opening | 25,000 | 20,000 | 45,000 | By Costing P&L | **7,41,862** | **6,58,138** | **14,00,000** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Stock | | | | A/c<br>A/c (Transfer) | | | |
| To Process 'Z' A/c | 7,45,629 | 5,50,371 | 12,96,000 | | | | |
| Total | 7,70,629 | 5,70,371 | 13,41,000 | | | | |
| Less: Closing stock | 28,767 | 21,233 | 50,000 | | | | |
| To Costing Profit and Loss A/c | 7,41,862 | 5,49,138 | 12,91,000 | | | | |
| | | 1,09,000 | 1,09,000 | | | | |
| | 7,41,862 | 6,58,138 | 14,00,000 | | 7,41,862 | 6,58,138 | 14,00,000 |

**(Each bold = 3/4 Mark)**

**(ii)** **Costing Profit & Loss Account for the year ending 31st March, 2014**

Dr. Cr.

| **Particulars** | **Amount (Rs.)** | **Particulars** | **Amount (Rs.)** |
|---|---|---|---|
| To Provision for unrealized profit on closing stock (Rs. 4,379 + Rs. 9,750 + Rs. 21,233) | 35,362 | By Provision for unrealized profit on opening stock (Rs. 4,000 + Rs. 10,000 + Rs. 20,000) | 34,000 |
| To Net Profit | **6,58,138** | By Process X A/c | 74,000 |
| | | By Process Y A/c | 1,52,500 |
| | | By Process Z A/c | 3,24,000 |
| | | By Finished Stock A/c | 1,09,000 |
| | 6,93,500 | | 6,93,500 |

**(Bold = 1/2 Mark)**

**Workings:**

Calculation of amount of unrealized profit on closing stock:

Process 'X' = Nil

Process 'Y' = $\frac{Rs.78,000}{Rs.5,70,000} \times Rs.32,000 = Rs.4,379$

Process 'Z' = $\frac{Rs.2,36,121}{Rs.9,44,500} \times Rs.39,000 = Rs.9,750$

Finished Stock = $\frac{Rs.5,50,371}{Rs.12,96,000} \times Rs.50,000 = Rs.21,233$

**(iii)**

| **Liabilities** | **Amount (Rs.)** | **Assets** | **Amount (Rs.)** |
|---|---|---|---|
| Net profit | **6,58,138** | Closing stock: | |
| | | Process – X | 20,000 |
| | | Process – Y | 32,000 |
| | | Process – Z | 39,000 |
| | | Finished stock | 50,000 |
| | | | 1,41,000 |
| | | *Less*: Provision for unrealized profit | 35,362 |
| | | | **1,05,638** |

**(Each bold = ¼ Mark)**

**Answer 3:**

**(a) Working Notes:**

**Total Distance (in km.) covered per month**

| Bus route | Km. per trip | Trips per day | Days per month | Km. per month |
|---|---|---|---|---|
| Delhi to Chandigarh | 250 | 2 | 8 | 4,000 |
| Delhi to Agra | 210 | 2 | 10 | 4,200 |
| Delhi to Jaipur | 270 | 2 | 6 | 3,240 |
| | | | | **11,440** |

**(Bold = 1/2 M)**

**Passenger- km. per month**

| | Total seats available per month (at 100% capacity) | Capacity utilised | | Km. per trip | Passenger-Km. per month |
|---|---|---|---|---|---|
| | | (%) | Seats | | |
| Delhi to Chandigarh & Back | 800 (50 seats x 2 trips x 8 days) | 90 | 720 | 250 | 1,80,000 (720 seats × 250 km.) |
| Delhi to Agra & Back | 1,000 (50 seats x 2 trips x 10 days) | 85 | 850 | 210 | 1,78,500 (850 seats × 210 km.) |
| Delhi to Jaipur & Back | 600 (50 seats x 2 trips x 6 days) | 100 | 600 | 270 | 1,62,000 (600 seats × 270 km.) |
| Total | | | | | **5,20,500** |

**(Bold = 1 Mark)**

**Monthly Operating Cost Statement**

| | | (Rs.) | (Rs.) |
|---|---|---|---|
| (i) | Running Costs | | |
| | Diesel {(11,440 km ÷ 4 km) x Rs. 56} | **1,60,160** | |
| | Lubricant oil {(11,440 km ÷ 100) x Rs. 10} | **1,144** | **1,61,304** |
| (ii) | Maintenance Costs | | |
| | Repairs & Maintenance | | **1,000** |
| (iii) | Standing charges | | |
| | Salary to driver | **24,000** | |
| | Salary to conductor | **21,000** | |
| | Salary of part-time accountant | **5,000** | |
| | Insurance (Rs. 4,800 ÷ 12) | **400** | |
| | Road tax (Rs. 15,915 ÷ 12) | **1,326.25** | |
| | Permit fee | **315** | |
| | Depreciation {(Rs. 12,00,000 x 20%) ¸ 12} | **20,000** | **72,041.25** |
| Total costs per month before Passenger Tax (i)+(ii)+(iii) | | | **2,34,345.25** |
| Passenger Tax* | | | **93,738.10** |
| Total Cost | | | **3,28,083.35** |
| Add: Profit* | | | **1,40,607.15** |
| Total takings per month | | | **4,68,690.50** |

**(Each Bold =1/4 M)**

*Let, total takings be X then

X = Total costs per month before passenger tax + 0.2 X (passenger tax) + 0.3 X (profit)

X = Rs. 2,34,345.25 + 0.2 X + 0.3 X

0.5 X = Rs. 2,34,345.25 or, X = Rs. 4,68,690.50

Passenger Tax = 20% of Rs. 4,68,690.50 = Rs. 93,738.10

Profit = 30% of Rs. 4,68,690.50 = Rs. 1,40,607.15

**Calculation of Rate per passenger km. and fares to be charged for different routes**

**Rate per Passenger-Km.** $= \frac{Total\ \ takings\ \ per\ \ month}{Total\ \ Passenger\ \ -\ Km\ .\ per\ \ month}$

$= \frac{Rs\ .\ 4,68,690\ .50}{5,20,500\ \ Passenger\ \ -\ Km\ .} = Rs\ .\ 0.90$ **}{1.25 M}**

**Bus fare to be charged per passenger.**

| | | | | |
|---|---|---|---|---|
| Delhi to Chandigarh | = | Rs. 0.90 x 250 km | = | **Rs. 225.00** |
| Delhi to Agra | = | Rs. 0.90 x 210 km | = | **Rs. 189.00** |
| Delhi to Jaipur | = | Rs. 0.90 x 270 km | = | **Rs. 243.00** |

**( Each bold = 1 Mark)**

**Answer:**

**(b) (i) Summary of Apportionment of Overheads**

**(Rs.)**

| Items | Basis of Apportionment | Total Amount | Production Deptt. | | | Service Deptt. | | |
|---|---|---|---|---|---|---|---|---|
| | | | M1 | M2 | A1 | Store Service | Engineering Service | General Service |
| Indirect wages | Allocation given | 1,25,140 | **46,520** | **41,340** | **16,220** | **8,200** | **5,340** | **7,520** |
| Consumable stores | Allocation given | 45,200 | **12,600** | **18,200** | **4,200** | **2,800** | **4,200** | **3,200** |
| Depreciation | Capital value of machine (20:15:5:2:6:2) | 39,600 | **15,840** | **11,880** | **3,960** | **1,584** | **4,752** | **1,584** |
| Insurance of Machine | Capital value of machine (20:15:5:2:6:2) | 7,200 | **2,880** | **2,160** | **720** | **288** | **864** | **288** |
| Insurance on Building | 1/3rd to M1 Balance area basis (-:12:16:4:5:3) | 3,240 | **1,080** | **648** | **864** | **216** | **270** | **162** |
| Power | HP Hr% (10:7:1:-:2:-) | 6,480 | **3,240** | **2,268** | **324** | **--** | **648** | **--** |
| Light | Area (10:12:16:4:5:3) | 5,400 | **1,080** | **1,296** | **1,728** | **432** | **540** | **324** |
| Rent* | Area (10:12:16:4:5:-) | 12,675 | **2,697** | **3,236** | **4,315** | **1,079** | **1,348** | **--** |
| Total | | 2,44,935 | **85,937** | **81,028** | **32,331** | **14,599** | **17,962** | **13,078** |

**(Each bold = 1/8 M)**

*Rent to be apportioned among the departments which actually use the rented building. The notional rent is imputed cost and is not included in the calculation.

**(ii) Allocation of service departments overheads**

| Service Deptt. | Basis of Apportionment | Production Deptt. | | | Service Deptt. | | |
|---|---|---|---|---|---|---|---|
| | | M1 | M2 | A1 | Store Service | Engineering Service | General Service |
| Store | Ratio of consumable value (126 :182 : 42) | **5,256** | **7,591** | **1,752** | **(14,599)** | **--** | **--** |
| Engineering service | In Machine hours Ratio of M1 and M2 (4 : 5) | **7,983** | **9,979** | **--** | **--** | **(17,962)** | **--** |
| General service | Labour hour Basis (20 : 15 : 30) | **4,024** | **3,018** | **6,036** | **--** | **--** | **(13,078)** |
| Production Department allocated in (i) | | **85,937** | **81,028** | **32,331** | | | |
| Total | | **1,03,200** | **1,01,616** | **40,119** | | | |

**(Each bold = 1/8 M)**

**(iii) Overhead Absorption rate**

| | M1 | M2 | A1 |
|---|---|---|---|
| Total overhead allocated | 1,03,200 | 1,01,616 | 40,119 |
| Machine hours | 40,000 | 50,000 | - |
| Labour hours | - | - | 3,00,000 |
| Rate per machine hour | **2.58** | **2.032** | **-** |
| Rate per Direct labour | **-** | **-** | **0.134** |

**(Each bold – 1/3 M)**

**(iv) Statement showing overhead absorption for Product X and Y**

| Machine Deptt. | Absorption Rate | Product X | | Product Y | |
|---|---|---|---|---|---|
| | | Hours | (Rs.) | Hours | (Rs.) |
| $M_1$ | 2.58 | 10 | 25.80 | 6 | 15.48 |
| $M_2$ | 2.032 | 4 | 8.13 | 14 | 28.45 |
| $A_1$ | 0.134 | 14 | 1.88 | 18 | 2.41 |
| | | | **35.81** | | **46.34** |

**(Each bold = 1/4 M)**

**Answer 4:**

**(a)** (a) **Calculation of Total Cost for the Hostel Job:**

| Particulars | Amount (Rs.) | Amount (Rs.) |
|---|---|---|
| Direct Material Cost: | | |
| - 15mm GI Pipe (Working Note- 1) | **11,051.28** | |
| - 20mm GI Pipe (Working Note-2) | **2,588.28** | |
| - Other fitting materials (Working Note-3) | **3,866.07** | |
| - Stainless steel faucet<br>15 units x $\left(\frac{6 \times Rs.204 + 15 \times Rs.209}{21\ units}\right)$ | **3,113.57** | |
| - Valve<br>6 units x $\left(\frac{8 \times Rs.404 + 10 \times Rs.402 + 14 \times Rs.424}{32\ units}\right)$ | **2,472.75** | **23,091.95** |
| Direct Labour: | | |
| - Plumber [(180 hours x Rs. 50) + (12 hours x Rs. 25)] | **9,300.00** | |
| - Helper [(192 hours x Rs. 35) + (24 hours x Rs. 17.5)] | **7,140.00** | **16,440.00** |
| - Overheads [Rs. 13 x (180 + 192) hours] | | **4,836.00** |
| Total Cost | | **44,367.95** |

**(Each bold = 1/2 M)**

(b) **Price to be charged for the job work:**

| | Amount (Rs.) |
|---|---|
| Total Cost incurred on the job | **44,367.95** |
| Add: 25% Profit on Job Price $\left(\frac{44,367.95}{75\%} \times 25\%\right)$ | **14,789.32** |
| | **59,157.27** |

**(Each bold = 1/2 M)**

**Working Note:**

1. **Cost of 15mm GI Pipe**

| Date | | Amount (Rs.) |
|---|---|---|

| | | |
|---|---|---|
| 17-08-2014 | 8 units × Rs. 600 | 4,800.00 |
| 28-08-2014 | 10 units x $\left(\frac{4 \times 600 + 35 \times Rs.628}{39\ units}\right)$ | 6,251.28 |
| | | 11,051.28 |

**(Each working note = 1 M)**

2. **Cost of 20mm GI Pipe**

| Date | | Amount (Rs.) |
|---|---|---|
| 12-08-2014 | 2 units × Rs. 660 | 1,320.00 |
| 28-08-2014 | 2 units x $\left(\frac{8 \times 660 + 30 \times Rs.610 + 20 \times Rs.660}{58\ units}\right)$ | 1,268.28 |
| | | 2,588.28 |

**(Each working note = 1 M)**

3. **Cost of Other fitting materials**

| Date | | Amount (Rs.) |
|---|---|---|
| 12-08-2014 | 18 units × Rs. 26 | 468.00 |
| 17-08-2014 | 30 units × Rs. 26 | 780.00 |
| 28-08-2014 | 34 units x $\left(\frac{12 \times Rs.26 + 150 \times Rs.28}{162\ units}\right)$ | 946.96 |
| 30-08-2014 | 60 units x $\left(\frac{12 \times Rs.26 + 150 \times Rs.28}{162\ units}\right)$ | 1,671.11 |
| | | 3,866.07 |

**(Each working note = 1 M)**

**Answer:**

**(b)**

| Particulars | (Rs.) | |
|---|---|---|
| Suppose sales | 100 | **{1 M}** |
| Variable cost | 60 | |
| Contribution | 40 | |
| P/V ratio | 40% | |
| Fixed cost | = Rs. 80,000 | |

(i) Break-even point = Fixed Cost ¸ P/V ratio = 80,000 ÷ 40% or Rs. 2,00,000

(ii) 15% return on Rs. 2,00,000 30,000
Fixed Cost 80,000
Contribution required 1,10,000

Sales volume required = Rs. 1,10,000 ÷ 40% or Rs. 2,75,000

(iii) Avoidable fixed cost if business is locked up = Rs. 80,000 - Rs. 25,000 = Rs. 55,000
Minimum sales required to meet this cost: Rs. 55,000 ÷ 40%
or Rs. 1,37,500
Mr. X will be better off by locking his business up, if the sale is less than Rs. 1,37,500

(**Each Point = 3 M)**

**Answer 5:**

**(a) Workings:**

1. **Statement showing computation of Breakeven of merged plant and other required information**

| S. No. | Particulars | Plan A | | Plant B | | Merged Plant (100%) (Rs.) |
|---|---|---|---|---|---|---|
| | | Before (90%) (Rs.) | After (100%) (Rs.) | Before (60%) (Rs.) | After (100%) (Rs.) | |
| (i) | Sales | **63,00,000** | **70,00,000** | **48,00,000** | **80,00,000** | **1,50,00,000** |
| (ii) | Variable cost | **39,60,000** | **44,00,000** | **22,50,000** | **37,50,000** | **81,50,000** |
| (iii) | Contribution (i - ii) | **23,40,000** | **26,00,000** | **25,50,000** | **42,50,000** | **68,50,000** |
| (iv) | Fixed Cost | **13,00,000** | **13,00,000** | **15,00,000** | **15,00,000** | **28,00,000** |
| (v) | Profit (iii - iv) | **10,40,000** | **13,00,000** | **10,50,000** | **27,50,000** | **40,50,000** |

**(Each bold = 1/4 M)**

2. PV ratio of merged plant $= \frac{Contribution}{Sales} \times 100$

$= \frac{Rs.\ 68,50,000}{Rs.\ 1,50,00,000} \times 100 = 45.67\%$ **}{1/4 M}**

(i) Break even sales of merged plant $= \frac{Fixed\ Cost}{P/V\ Ratio}$

$= \frac{Rs.\ 28,00,000}{45.67\%}$

**= Rs. 61,30,939.34 (approx.) }{1/4 M}**

Capacity utilisation $= \frac{Rs.\ 61,30,939.34}{Rs.\ 1,50,00,000} \times 100 = 40.88\%$ **}{1/4 M}**

(ii) **Profitability of the merged plant at 80% capacity utilisation**
= (Rs. 1,50,00,000 x 80%) x P/v ratio – fixed cost
= Rs. 1,20,00,000 x 45.67% – Rs. 28,00,000

**= Rs. 26,80,400 }{1.5 M}**

(iii) **Sales to earn a profit of Rs. 60,00,000**

Desired sales $= \frac{Fixed\ Cost + desired\ profit}{P/V\ Ratio}$

$= \frac{Rs.\ 28,00,000 + Rs.\ 60,00,000}{45.67\%}$

**= Rs. 1,92,68,666 }{1.5 M}**

**Answer:**

**(b) Flexible Budget before marketing efforts:**

| | Product A (Rs.) 6,000 units | | Product B (Rs.) 9,000 units | |
|---|---|---|---|---|
| | Per unit | Total | Per unit | Total |
| Sales | **120.00** | **7,20,000** | **78.00** | **7,02,000** |
| Raw material cost | **60.00** | **3,60,000** | **42.00** | **3,78,000** |
| Direct labour cost per unit | **30.00** | **1,80,000** | **18.00** | **1,62,000** |
| Variable overhead per unit | **12.00** | **72,000** | **6.00** | **54,000** |
| Fixed overhead per unit | **8.00** | **48,000** | **4.00** | **36,000** |
| Total cost | **110.00** | **6,60,000** | **70.00** | **6,30,000** |
| Profit | **10.00** | **60,000** | **8.00** | **72,000** |

**(Each bold = 1/6 M)**

(a) Flexible Budget after marketing efforts:

| | Product A (Rs.) 7,500 units | Product B (Rs.) 9,500 units |
|---|---|---|

| | Per unit | Total | Per unit | Total |
|---|---|---|---|---|
| Sales | **120.00** | **9,00,000** | **78.00** | **7,41,000** |
| Raw material cost | **60.00** | **4,50,000** | **42.00** | **3,99,000** |
| Direct labour cost per unit | **30.00** | **2,25,000** | **18.00** | **1,71,000** |
| Variable overhead per unit | **13.20** | **99,000** | **6.60** | **62,700** |
| Fixed overhead per unit | **6.72** | **50,400** | **3.98** | **37,800** |
| Total cost | **109.92** | **8,24,400** | **70.58** | **6,70,500** |
| Profit | **10.08** | **75,600** | **7.42** | **70,500** |

**(Each bold = 1/6 M)**

**Answer 6:**

**(a)** **Escalation clause** in a contract empowers a contractor to revise the price of the contract in case of increase in the prices of inputs due to some macro-economic or other agreed reasons. A contract takes longer period to complete and the factors based on which price negotiation is done at the time of entering into the contract may change till the contract completes. This protect the contractor from adverse financial impacts and empowers the contractor to recover the increased prices. As per t his clause, the contractor increases the contract price if the cost of materials, employees and other expenses increase beyond a certain limit. Inclusion of such a clause in a contract deed is called an "Escalation Clause". **{5 M}**

**Answer:**

**(b)** **Method of costing used in different industries:**

| S. No. | Industries | Method of Costing |
|---|---|---|
| (i) | Real Estate | **Contract Costing** |
| (ii) | Motor Repairing Workshop | **Job Costing** |
| (iii) | Chemical Industry | **Process Costing** |
| (iv) | Transport Service | **Service/Operating Costing** |
| (v) | Assembly of Bicycles | **Unit/ Single/Output/Multiple Costing** |
| (vi) | Biscuits Manufacturing Industry | **Batch Costing** |
| (vii) | Power Supply Companies | **Service/Operating Costing** |
| (viii) | Car Manufacturing Industry | **Multiple Costing** |
| (ix) | Cement Industry | **Unit/Single/Output Costing** |
| (x) | Printing Press | **Job Costing** |

**(Each Bold = ½ M)**

**Answer:**

**(c)** **(i)** **Conversion cost**: It is the cost incurred to convert raw materials into finished goods. It is the sum of direct wages, direct expenses and manufacturing overheads.

**(ii)** **Sunk cost:** Historical costs or the costs incurred in the past are known as sunk cost. They play no role in the current decision making process and are termed as irrelevant costs. For example, in the case of a decision relating to the replacement of a machine, the written down value of the existing machine is a sunk cost, and therefore, not considered.

**(iii)** **Opportunity cost:** It refers to the value of sacrifice made or benefit of opportunity foregone in accepting an alternative course of action. For example, a firm financing its expansion plan by withdrawing money from its bank deposits. In such a case the loss of interest on the bank deposit is the opportunity cost for carrying out the expansion plan.

**(2.5 M = Each Point, Any Two)**

**Answer :**

**(d)** **PRACTICAL APPLICATIONS OF ACTIVITY BASED COSTING**

**As a Decision-Making Tool**

ABC can act as a decision making tools in the following ways:

(i) ABC along with some other Cost Management technique can be utilized to improve performance and profitability of an organization.

(ii) Wholesale distributors can gain significant advantage in the decision-making process through implementation of ABC concepts by correlating costs to various activity. Introduction of new product or vendor can be better decided through ABC.

(iii) ABC can assist in decisions related to facility and resource expansion. Often the basis for relocation or opening of a new distribution center is based on **cost associations.** Reduction in freight or other logistic costs can offset the expense of the new facility, staff or equipment. The **ABC model** can identify the specific cost elements being targeted, providing a much clearer picture from which management can act.

(iv) Decision support for human resources can be augmented by ABC. Where activity, and therefore cost, can be associated to an individual, new levels of financial performance can be determined. This might be appropriate in cases of branch management or sales.

(v) Companies who wish to determine price based on cost plus markup basis find ABC method of costing very relevant and are able to determine competitive prices for their products.

**(Each point = 1M)**

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