(GI-1, GI-2, GI-3, GI-4, VI-1 \& SI-1)
DATE: 29.07.2019
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) Annual consumption $250 \mathrm{~kg} \times 52$ weeks $=13,000 \mathrm{~kg}$.
(i) Re-order Quantity or EOQ $=\sqrt{\frac{2 \times \mathrm{A} \times \mathrm{O}}{\mathrm{C} \times \mathrm{i}}}$

A $=$ Annual Consumption $=13,000 \mathrm{~kg}$
O = Ordering Cost = Rs. 1,500
C = Cost per kg = Rs.. 100
$\mathrm{i}=$ carrying cost rate $=9.75 \%$
Carrying cost per kg per annum ( $\mathrm{c} \times \mathrm{i}$ ) $=100 \times 9.75 \%=$ Rs.. 9.75

$$
\begin{aligned}
& \therefore \mathrm{EOQ}=\sqrt{\frac{2 \times 13,000 \times 1,500}{9.75}} \\
& \left.=\sqrt{\frac{39000000}{9.75}}=2000 \mathrm{~kg} . \quad\right\}\{1 \mathrm{M}\}
\end{aligned}
$$

(ii) Re-order level = Max. re-order period $\times$ Max, Consumption

$$
=7 \text { weeks } \times 300 \mathrm{~kg} \quad=2,100 \mathrm{~kg}\}\{1 \mathrm{M}\}
$$

(iii) Maximum level $=$ Re-order level + Re-order Qty - (Min re-order Period $\times$ Min.

$$
\begin{aligned}
& \text { Consumption) } \\
& =2100 \mathrm{~kg}+2000 \mathrm{~kg}-(5 \times 200) \mathrm{kg} \quad=3100 \mathrm{~kg} .\}\{\mathbf{1} \mathbf{~ M}\}
\end{aligned}
$$

(iv) Minimum level $=$ Re-order level - (Avg. re-order period $\times$ Avg. Consumption)

$$
=2,100 \mathrm{~kg}-(6 \times 250) \mathrm{kg} \quad=600 \mathrm{~kg} \cdot\}\{1 \mathrm{M}\}
$$

(v) Avg. stock level $=\frac{1}{2}($ Max. level + Min. level $)$

$$
\begin{aligned}
& =\frac{1}{2}(3100+600)=1850 \mathrm{~kg} \\
& \text { OR } \\
& =\text { Minimum level }+\frac{1}{2} \mathrm{ROQ} \\
& \left.=600 \mathrm{~kg} \cdot+\frac{1}{2} \times 2000 \mathrm{~kg} .=1600 \mathrm{~kg} .\right\}\{\mathbf{1} \mathbf{~ M \}}
\end{aligned}
$$

## Answer:

(b) Calculation of Variances:
(i) Fixed Overhead Variance: Standard fixed overhead - Actual fixed overhead $=$ Rs. $[(5,00,000 \div 5000) \times 4800]-$ Rs. $4,90,000=$ Rs. $10,000(A)\}\{2 \mathbf{~ M}\}$
(ii) Fixed Overhead Expenditure Variances: Budgeted fixed overhead - Actual fixed overhead $=$ Rs. $5,00,000-$ Rs. $4,90,000=$ Rs. 10,000 (F)
(iii) Fixed Overhead Volume Variance: Standard fixed overhead - Budgeted fixed overhead
$=$ Rs. $4,80,000-$ Rs. $5,00,000=$ Rs. $20,000(A)\}\{\mathbf{1} \mathbf{~ M}\}$
(iv) Fixed Overhead efficiency Variance: Standard fixed overhead - Budgeted fixed overhead for Actual days
$=$ Rs. $4,80,000-[($ Rs. $5,00,000 \div 25) \times 23]=$ Rs. $20,000(F)\}\{1 \mathrm{M}\}$

## Answer

(c) (a) (i) Calculation of Economic Order Quantity

$$
\left.\mathrm{EOQ}=\sqrt{\frac{2 \mathrm{AO}}{C}}=\sqrt{\frac{2 \times 12,000 \mathrm{nits} \times \text { Rs. } 1,800}{\text { Rs. } 640 \times 18.75 / 100}}=600 \text { units }\right\}\{2 \mathrm{M}\}
$$

(ii) Evaluation of Profitability of Different Options of Order Quantity When EOQ is ordered

|  |  | (Rs.) |
| :---: | :---: | :---: |
| Purchase Cost | (12,000 units x Rs. 640) | 76,80,000 |
| Ordering Cost $\left[\frac{A}{Q} \times O_{-}\right.$ | $(12,000$ units/ 600 units) $\times$ Rs. $1,800]$ | 36,000 |
| Carrying Cost [ $\frac{\mathrm{Q}}{2} \times \mathrm{C} \times \mathrm{i}-$ | $\begin{aligned} & 600 \text { units } \times \text { Rs. } 640 \times 1 / 2 \times 18.75 / \\ & \text { 100) } \end{aligned}$ | 36,000 |
| Total Cost |  | 77,52,000 |

(b) When Quantity Discount is accepted

|  |  | (Rs.) |
| :---: | :---: | :---: |
| Purchase Cost | (12,000 units $\times$ Rs. 608) | 72,96,000 |
| Ordering Cost $\left[\frac{A}{Q} \times 0\right.$ | $\begin{aligned} & (12,000 \text { units } / 3,000 \text { units }) \times \text { Rs. } \\ & 1,800] \end{aligned}$ | 7,200 |
| Carrying Cost $\left[\frac{\mathrm{Q}}{2} \times \mathrm{C} \times \mathrm{i}\right.$ | $\begin{aligned} & (3,000 \text { units } x \text { Rs. } 608 \times 1 / 2 \times \\ & 18.75 / 100)] \end{aligned}$ | 1,71,000 |
| Total Cost |  | 74,74,200 |

Advise - The total cost of inventory is higher if EOQ is adopted. If M/s. X Private Limited gets a discount of $5 \%$ on the purchases of "SKY BLUE" (if order size is 3,000 components at a time), there will be financial benefit of Rs. 2,77,800 (77,52,000 $74,74,200$ ). However, order size of big quantity will increase volume of average inventory to 5 times. There may be risk of shrinkage, pilferage and obsolescence etc., of inventory due to increase in the average volume of inventory holding. This aspect also has to be taken into consideration before opting the discount offer and taking final decision.

## Answer:

(d)

Rs.
(i) Rowan Plan : Normal time wage $=15$ hours @ Rs. 5= Bonus $=$ Time saved $/$ Time allowed $\times$ (Time taken $\times$ Time rate $)$ $=\frac{5}{20} \times(15 \times 5)=$
(ii) Halsey Plan: Normal time wage $=15$ hours @ Rs. $5=$ Bonus $=50 \%$ of (Time saved $\times$ Time rate $)=50 \%$ of $(5 \times 5)=$

75
$18.75\}\{\mathbf{1 ~ M}\}$
93.75

75
$12.5\}\{1 \mathrm{M}\}$ 87.5

Statement of Comparative Factory cost of work

|  | Rowan Plan | Halsey Plan |
| :---: | :---: | :---: |
|  | Rs. | Rs. |
| Materials | 50 | 50 |
| Direct Wages | 93.75 | 87.5 |
| Prime Cost | 143.75 | 137.5 |
| Factory Overhead (100\% of Direct wages) | 93.75 | 87.5 |
| Factory Cost | \{1.5 M\}\{ 237.5 | \{1.5 M\}\{ 225 |

## Answer 2 :

(a) Working Note:

Overhead Absorption Rate $=\frac{51,79,300}{3,01,39,000} \times 100=17.18 \%$
(i) Cost of Product Under Absorption Costing

| Item of Cost | Amount (Rs.) |
| :--- | ---: |
| Material | $26,38,700$ |
| Wages | $3,75,200$ |
| Prime Cost | $30,13,900$ |
| Overheads: $=\frac{51,79,300}{3,01,39,000} \times 30,13,900$ | $5,17,930$ |
|  |  |
| Total Cost | $35,31,830$ |
| Units | 15,000 |
| Cost per unit | 235.46 |

(ii) Cost driver rate, total cost and cost per unit on the basis of activity-based costing method Absorption Costing

Calculation of Cost Driver rate:

| Activity | Rs. | Activity Volume | Cost Driver Rate |
| :--- | ---: | ---: | ---: |
| Material Procurement | $22,50,000$ | 1500 | 1500 |
| Maintenance | $17,30,000$ | 9080 | 190.53 |
| Setup | $6,84,500$ | 2250 | 304.22 |
| Quality Control | $5,14,800$ | 2710 | 189.96 |

189.96

Calculation of total Cost and cost per unit:

| Item of Cost | Amount (Rs.) |
| :--- | ---: |
| Material | $26,38,700\}\{\mathbf{1 / 2} \mathbf{~ M \}}$ |
| Wages | $3,75,200\}\{\mathbf{1 / 2} \mathbf{~ M \}}$ |
| Prime Cost | $30,13,900$ |
| Material Purchase $\left(\frac{22,50,000}{1,500} \times 48\right)$ | $\mathbf{7 2 , 0 0 0}\}\{\mathbf{1 / 2} \mathbf{~ M \}}$ |


| Maintenance | $\left(\frac{17,30,000}{9,080} \times 810\right)$ | 1,54,328 | \} $1 / 2 \mathrm{M}\}$ |
| :---: | :---: | :---: | :---: |
| Setup | $\left(\frac{6,84,500}{2,250} \times 40\right)$ | 12,169 | \} $\{1 / 2 \mathrm{M}\}$ |
| Quality Control | $\left(\frac{5,14,800}{2,710} \times 25\right)$ | 4,749 | \} $11 / 2 \mathrm{M}\}$ |
| Total Cost |  | 32,57,146 | \} \{1 M\} |
| Unit |  | 15,000 | \} $\{1 \mathrm{M}\}$ |
| Cost per unit |  | 217.14 | \} $\{1 \mathrm{M}\}$ |

## Answer:

(b) (i) Raw Material Control A/c

|  | (Rs.) | By General Ledger Adjustment A/c <br> By Work-in-progress Control A/c <br> By Costing P\&L A/c <br> (Loss) (OR GLA) <br> By Balanced c/d | (Rs.) |
| :---: | :---: | :---: | :---: |
| To Balance b/d <br> To General Ledger Adjustment A/c | 2,82,450 |  | 27,200 |
|  | 12,43,810 |  | 13,60,430 |
|  |  |  | 6,000 |
|  |  |  | 1,32,630 |
|  | 15,26,260 |  | 15,26,260 |

(ii) Work-in-Progress Control A/c

|  | (Rs.) |  | (Rs.) |
| :--- | ---: | :--- | ---: |
| To Balance b/d | $2,38,300$ | By Finished Goods Control A/c | $13,76,200$ |
| To Raw Material Control A/c | $13,60,430$ | Costing P\&L A/c (OR GLA) | 12,300 |
| To Wages Control A/c | $2,56,800$ | By Balance c/d | $6,03,380$ |
| To Factory OH Control A/c | $1,36,350$ |  | $19,91,880$ |
|  | $19,91,880$ |  |  |
|  |  |  |  |

(iii) Finished Goods Control A/c

|  | (Rs.) |  | (Rs.) |
| :---: | :---: | :---: | :---: |
| To Balance b/d | 3,92,500 | By Cost of goods sold A/c (OR GLA) | 14,56,500 |
| To General Ledger Adjustment A/C To Work-in-process Control A/c | 45,900 | By Balance c/d | 3,58,100 |
|  | 13,76,200 |  |  |
|  | 18,14,600 |  | 18,14,600 |

(iv) General Ledger Adjustment A/c

|  | (Rs.) |  | (Rs.) |
| :---: | :---: | :---: | :---: |
| To Costing P\&L A/c (sales) <br> (Balancing figure) <br> To Raw Material Control A/c | $\begin{array}{r} 25,68,910 \\ 27,200 \end{array}$ | By Balance b/d | 9,13,250 |
|  |  | By Raw Material Control A/c | 12,43,810 |
|  |  | By Wages Control A/c | 2,56,800 |
|  |  | By Factory OH Control A/c | 1,36,350 |
|  |  | By Finished Goods Control A/c | 45,900 |
|  | 25,96,110 |  | 25,96,110 |

General ledger adjustment account

|  | (Rs.) |  | (Rs.) |
| :---: | :---: | :---: | :---: |
| To Raw Material Control A/c | 27,200 | By Balance b/d | 9,13,250 |
| To Raw Material control | 6,000 | By Raw Material Control A/c | 12,43,810 |
| account(loss) |  | By Wages Control A/c | 2,56,800 |
| To WIP control Account | 12,300 | By Factory OH Control A/c | 1,36,350 |
| (rejection) |  | By Finished Goods Control A/c | 45,900 |
| To Finished stock Control Account | 14,56,500 |  |  |
| To Balance c/d | 10,94,110 |  |  |
|  | 25,96,110 |  | 25,96,110 |

Working:
Factory Overhead Control A/c

|  | (Rs.) |  | (Rs.) |
| :--- | :---: | :--- | :--- |
| To General Ledger Adjustment A/c | $1,36,350$ | By Work-in-progress A/c | $1,36,350$ |
|  | $1,36,350$ |  | $1,36,350$ |

## Answer 3:

(a) (i) Statement showing the Operating Cost per Passenger-km.

|  |  | Yearly (Rs.) | Monthly (Rs.) |  |
| :---: | :---: | :---: | :---: | :---: |
| (A) | Standing Charges: |  |  |  |
|  | Insurance Charge Rs.. 20,00,000 $\times 3 \%$ | 60,000 | 5,000 | \}\{1/2 M |
|  | Road Tax | 36,000 | 3,000 | \}\{1/2 M \} |
|  | Depreciation (20,00,000/5) | 4,00,000 | 33,333.33 | \}\{1/2 M |
|  | Total | 4,96,000 | 41,333.33 | \} $\{1 / 2 \mathrm{M}\}$ |
| (B) | Maintenance Charges: |  |  |  |
|  | Annual Repairs | 50,000 | 4,166.67 | \}\{1/2 M\} |
|  | Office and administration overheads | 18,000 | 1,500 | 3\{1/2 M\} |
|  | Total | 68,000 | 5,666.67 | \} $\{1 / 2 \mathrm{M}\}$ |
| (C) | Running Cost/Charges: |  |  |  |
|  | Driver's Salary | 2,40,000 | 20,000 | 3\{1/2 M\} |
|  | Conductor's Salary | 1,80,000 | 15,000 | 3\{1/2 M\} |
|  | Diesel \& Oil $\left(60,000 \times \frac{1,500}{100}\right)$ | 9,00,000 | 75,000 | 3\{1/2 M\} |
|  | Total | 13,20,000 | 1,10,000 | 3\{1/2 M |
|  | Total ( $\mathrm{A}+\mathrm{B}+\mathrm{C}$ ) Cost before commission and profit | 18,84,000 | 1,57,000 | 3\{1/2 M\} |
|  | Commission (28,98,461 $\times 10 \%$ ) (working note 2) | 2,89,846 | 24,153.83 | 3\{1/2 M |
|  | Profit (28,98,461 $\times 25 \%$ ) (working note 2) | 7,24,615 | 60,384.58 | \}\{1/2 M |
|  | Takings (working note 1) | 28,98,461 | 2,41,538.41 | 3 $\{1 / 2 \mathrm{M}\}$ |



OR
Fare per Passenger-k.m. $\quad$ (monthly) $\left.=\frac{2,41,538.41}{2,00,000}=R s .1 .2077\right\}\{\mathbf{1 / 2} \mathbf{~ M \}}$
Working note:

1. Cost before commission ( $10 \%$ ) and profit ( $25 \%$ ) is $18,84,000$ which is $65 \%$ of $\}\{\mathbf{1 / 2} \mathbf{~ M \}}$
total takings. So total takings is $(18,84,000 \div 65) \times 100=$ Rs. $28,98,461$
2. Commission is $10 \%$ of Rs. $28,98,461=$ Rs. $2,89,846$ and Profit is $25 \%$ of Rs. $28,98,461=$ Rs. $7,24,615$
3. Total Km is (4 Round Trips $\times$ Days in a month $\times$ Month $=(4 \times 2 \times 25 \times 25 \times 12)$
$=60,000 \mathrm{~km}$ Passenger km is $60,000 \mathrm{~km} \times 40$ passenger $=24,00,000$

## Answer:

(b) (i) Preparation of Production Budget (in Units)

|  | January | February | March | April | May |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Sales | 5,000 | 6,000 | 7,000 | 7,500 | $8,000\}\{\mathbf{1 / 2} \mathbf{~ M \}}$ |


| Add: Closing stock (25\% of next month's sales) | 1,500 | 1,750 | 1,875 | 2,000 3 \{1/2 M\} |
| :---: | :---: | :---: | :---: | :---: |
| Less: Opening Stock | (1200) | (1500) | (1750) | (1875) $\}$ \{1/2 M\} |
| Production of electronic Gadgets | 5,300 | 6,250 | 7,125 | 7,625\}\{1/2 M\} |

## (ii) Preparation of Purchase budget

|  | January | February | March | April |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Consumption/production of Batteries (@ 2 per Gadget) | 10,600 | 12,500 | 14,250 | 15,250 | 3\{1/2 M |
| Add: Closing Stock (30\% of next month's production) | 3750 | 4275 | 4575 | \} $11 / 2 \mathrm{M}\}$ |  |
| Less: Opening Stock | 3,250 | 3,750 | 4275 | \}\{1/2 M\} |  |
| Purchase of Batteries | 11,100 | 13,025 | 14,550 | \}\{1/2 M\} |  |

Statement Showing Profit

|  | Jan. | Feb. | March | Total |
| :---: | :---: | :---: | :---: | :---: |
| Sales (A) | 5,000 | 6,000 | 7,000 | 18,000\} $\{1 \mathrm{M}\}$ |
| Selling Price per unit* | Rs. 2,000 | Rs. 2,000 | Rs. 2,000 | Rs. 2,000$\}\{\mathbf{1 ~ M ~}\}$ |
| Less: Discount @15\% of selling price | 300 | 300 | 300 | $300\}\{1 \mathrm{M}\}$ |
| Less: Standard cost of | 1500 | 1500 | 1500 | $1500\}\{1 \mathrm{M}\}$ |
| Manufacturing per gadget Cost |  |  |  |  |
| Profit (B) (selling Price-discount- cost) | 200 | 200 | 200 | $200\}\{1 \mathrm{M}\}$ |
| Total Profit ( $\mathrm{A} \times \mathrm{B}$ ) | Rs. 10,00,000 | Rs. 12,00,000 | Rs. 14,00,000 | Rs. $36,00,000\}\{\mathbf{1} \mathbf{M}\}$ |

## Answer 4:

(a) (1) Overheads distribution Sheet

| Item | Basis | Total Amount (Rs.) | Production Departments |  | Service Departments |  | \} 1 M $\}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | A (Rs.) | B (Rs.) | X (Rs.) | Y (Rs.) |  |
| Variable overheads (Rs. | Horse Power hours | 8,40,000 | 2,40,000 | 3,00,000 | 1,80,000 | 1,20,000 |  |
| $\begin{aligned} & 12.60 \text { lakhs - Rs. } 4.20 \\ & \text { lakhs) } \end{aligned}$ | used |  |  |  |  |  |  |
| Fixed Overheads | Horse power for Capacity production | 4,20,000 | 1,20,000 | 1,50,000 | 90,000 | 60,000 | \} $\{1 \mathrm{M}\}$ |
| Total Overheads |  | 12,60,000 | 3,60,000 | 4,50,000 | 2,70,000 | 1,80,000 | \{1 M \} |
| Service dept $X$ allocated to A, B \& Y | As per the ratio given 6:4:2 | $(2,70,000)$ | 1,35,000 | 90,000 |  | 45,000 | \{1 M \} |
| Service dept $Y$ allocated to A \& B | As per the ratio of $4: 1$ | $\begin{array}{r} (1,80,000+4 \\ 5000= \\ 2,25,000) \end{array}$ | 1,80,000 | 45,000 | \} $\{1 \mathrm{M}\}$ |  |  |
| Total Overheads of Production departments |  |  | 6,75,000 | 5,85,000 | \} \{2 M \} |  |  |

(2) Calculation of Factory overhead per labour hour

| Item | Production Departments |  |
| :---: | :---: | :---: |
|  | A (Rs.) | B (Rs.) |
| Total overheads | 6,75,000 | 5,85,000 |
| Direct labour hours | 67,500 | 48,750 |
| Factory overheads per hour | 10 | 12 |

## Answer:

(b) Process- P Account


Cost per unit $=\frac{\text { Rs. } 1,40,500-\text { Rs. } 1,000}{10,000 \mathrm{~kg} \cdot-1,000 \mathrm{~kg} .}=$ Rs. 15.50
Process- Q Account

| Particulars | Kg . | Amount (Rs.) | Particulars | Kg . | Amount (Rs.) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| To Process-P A/c | 9,000 | \{1/2 M $\mathbf{~}$ ( 1,39,500 | $\begin{array}{\|l\|} \hline \text { By Normal wastage } \\ (900 \mathrm{~kg} . \times \text { Rs. } 1) \end{array}$ | 900 |  |
| To Direct Material | --- | \{1/2 M\}\{ 42,500 | $\left\|\begin{array}{ll} \text { By Process- } \\ (8,200 \text { kg } \times \text { Rs. } 31) \end{array}\right\|$ | 8,200 | 2,54,200 |
| To Direct Labour | --- | \{1/2 M\}\{ 40,000 |  |  |  |
| To Production OH (Rs. | --- | \{1/2 M \} $\quad 30,000$ |  |  |  |
| 90,000 $\times 4 / 12)$ To Abnormal a | 100 | \{1/2 M $\mathbf{4}$ ( 3,100 |  |  |  |
|  | 9,100 | 2,55,100 |  | 9,100 | 2,55,100 |

Cost per unit $=\frac{\text { Rs. } 2,52,000-\text { Rs. } 900}{9,000 \mathrm{~kg} .-900 \mathrm{~kg} .}=$ Rs. 31
Process- R Account

| Particulars | Kg . | Amount (Rs.) | Particulars | Kg . | Amount (Rs.) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| To Process-Q A/c | 8,200 | $\begin{gathered} \{\mathbf{1 / 2} \mathbf{M}\}\{2,54,200 \\ \{\mathbf{1 / 2} \mathbf{M}\}\{42,880 \\ \mathbf{\{ 1 / 2} \mathbf{~ M \} \{} 50,000 \\ \mathbf{\{ 1 / 2} \mathbf{M}\}\{37,500 \end{gathered}$ | By Normal wastage <br> ( $820 \mathrm{~kg} . \times \mathrm{Re} .1$ ) <br> By Abnormal loss (80 <br> kg. $\times$ Rs. 52) <br> By Finished Goods <br> (7,300 kg. $\times$ Rs.52) | $\begin{array}{r} 820 \\ 80 \\ 7,300 \end{array}$ | $820\}\{\mathbf{1 / 2} \mathbf{~ M}\}$$4,160\}\{\mathbf{1 / 2} \mathbf{~ M}\}$$3,79,600\}\{\mathbf{1 / 2} \mathbf{~ M}\}$ |  |
| To Direct Material |  |  |  |  |  |  |
| To Direct Labour |  |  |  |  |  |  |
| To Production OH |  |  |  |  |  |  |
|  | 8,200 | 3,84,580 |  | 8,200 | 3,84,580 |  |

Cost per unit $=\frac{\text { Rs. } 3,84,580-\text { Rs. } 820}{8,200 \mathrm{~kg} .-820 \mathrm{~kg} .}=$ Rs. 52
Calculation of Selling price per unit of end product:

Cost per unit
Add: Profit $25 \%$ on selling price i.e. $1 / 3^{\text {rd }}$ of cost Selling price per unit

Rs. 52.00
Rs. 17.33
Rs. 69.33

## Answer 5:

(a) Number of Patient Days $=(200 \times 50)+(105 \times 30)+(60 \times 20)$
$=14,350$ patient days $+250=14,600 \quad\}\{\mathbf{1 / 2} \mathbf{~ M}\}$
Statement Showing Profit

| Elements of Cost and Revenue | Total (Rs.) |
| :---: | :---: |
| A. Revenue ( $14,600 \times$ Rs. 2,500 ) | 3,65,00,000 \}\{1/2 M\} |
| B. Variable Costs |  |
| Food and Laundry Service | 39,53,000 \}\{1/2 M\} |
| Medicines to Patients | 22,75,000 \} $\mathbf{1 / 2} \mathbf{~ M ~}\}$ |
| Doctor's Payment | 66,00,000 \} $\{1 / 2 \mathrm{M}\}$ |
| Hire Charges of Bed ( $250 \times$ Rs. 950) | 2,37,500 \}\{1/2 M\} |
| Total Variable Cost | 1,30,65,500 \}\{1/2 M\} |
| C. Fixed Costs |  |
| Building Rent | 27,00,000 \} \{ $1 / \mathbf{2} \mathbf{~ M \}}$ |
| Manager's Salary (Rs. 50,000 $\times 3 \times 12$ ) | 18,00,000 \}\{1/2 M\} |
| Nurse's Salary (Rs. $18,000 \times 12 \times 24$ ) | 51,84,000 \}\{1/2 M\} |
| Ward boy's Salary (Rs. 9,000 $\times 12 \times 24$ ) | 25,92,000 $\{$ \{1/2 M\} |
| Administrative Overheads | 28,00,000 \}\{1/2 M\} |
| Depreciation on Equipment's | 12,75,000 \} $\{1 / 2 \mathrm{~m}\}$ |
|  | 1,63,51,000 \} \{1/2 M\} |
| D. Total Cost ( $\mathrm{B}+\mathrm{C}$ ) | 2,94,16,500 \}\{1/2 M\} |
| E. Profit (A-D) | 70,83,500 \} $\{1 / 2 \mathrm{M}\}$ |

Profit per patient day $=$ Rs. $70,83,500 / 14,600=$ Rs. $485.17 \quad\}\{\mathbf{1 / 2} \mathbf{~ M}\}$
(i) $\quad \begin{aligned} & \text { Contribution (per patient day) }=(\text { Rs. } 3,65,00,000-\text { Rs. } 1,30,65,500) / 14,600\}\{\mathbf{1 / 2} \mathbf{~ M ~}\} \\ & =\text { Rs. } 1,605.10\end{aligned}$
$B E P=1,63,51,000 / 1,605.10=10,186.90$ or say 10,187 patient days $\}\{\mathbf{1 / 2} \mathbf{~ M}\}$
Notes:

1. Higher Charges for extra beds are a semi variable cost; still, for the sake of convenience it has been considered a variable cost.
2. Assumed, the hospital hired 250 beds at a charge of Rs. 950 per bed to accommodate the flow of patients. However, this never exceeded the 10 beds above the normal capacity of 50 beds on any day.
3. The fees were paid based on the number of patients attended to and the time spent by them, which on an average worked out to Rs. 5,50,000 p.m.

## Answer:

(b) Cost sheet for the year ended $31^{\text {st }}$ March, 2019.

Units produced - 14,000 units
Units sold - 14,153 units

| Particulars | Amount (Rs.) |  |
| :---: | :---: | :---: |
| Raw materials purchased | 42,25,000 | 3 $\{1 / 2 \mathrm{M}\}$ |
| Add: Freight Inward | 1,00,000 | \} $\{1 / 2 \mathrm{M}\}$ |
| Add: Opening value of raw materials | 2,28,000 | 3\{1/2 M\} |
| Less: Closing value of raw materials | $(3,05,000)$ | \}\{1/2 M\} |
|  | 42,48,000 | 3\{1/2 M |
| Less: Sale of scrap of material | $(8,000)$ | \} $\{1 / 2 \mathrm{M}\}$ |
| Materials consumed | 42,40,000 | 3\{1/2 M\} |
| Direct Wages (12,56,000 + 1,50,000) | 14,06,000 | 3\{1/2 M |
| Prime Cost | 56,46,000 | 3\{1/2 M\} |
| Factory overheads (20\% of Prime Cost) | 11,29,200 | \}\{1/2 M |
| Add: Opening value of W-I-P | 1,92,500 | \}\{1/2 M\} |
| Less: Closing value of W-I-P | $(1,40,700)$ | \} $\{1 / 2 \mathrm{M}\}$ |


| Factory Cost | 68,27,000 | \} $1 / 2 \mathrm{M}\}$ |
| :---: | :---: | :---: |
| Add: Administrative overheads | 1,73,000 | \} $1 / 2 \mathrm{M}\}$ |
| Cost of Production | 70,00,000 | \} $\{1 / 2 \mathrm{M}\}$ |
| Add: Value of opening finished stock | 6,08,500 | \}\{1/2 M |
| Less: Value of closing finished stock | $(5,32,000)$ | \} $\{1 / 2 \mathrm{M}\}$ |
| [Rs. $500(70,00,000 / 14,000) \times 1,064]$ <br> $(1,217+14,000-14,153=1,064$ units $)$ |  |  |
| Cost of Goods Sold | 70,76,500 |  |
| Distribution expenses (Rs. $16 \times 14,153$ units) | 2,26,448 |  |
| Cost of Sales | 73,02,948 | \} $\{1 / 2 \mathrm{M}\}$ |
| Profit (Balancing figure) | 14,43,606 | \}\{1/2 M\} |
| Sales (Rs. $618 \times 14,153$ units) | 87,46,554 | \} $1 / 2 \mathrm{M}\}$ |

## Answer 6:

(a) There are four types of responsibility centres:
(i) Cost Centres: The responsibility centre which is held accountable for incurrence of costs which are under its control. The performance of this responsibility centre is measured against pre-determined standards or budgets. The cost centres are of two types:
(a) Standard Cost Centre and
(b) Discretionary Cost Centre
(ii) Revenue Centres: The responsibility centres which are accountable for generation of revenue for the entity. Sales Department for example, is the responsible for achievement of sales target and revenue generation. Though, revenue centres does not have control on the all expenditures it incurs but some time expenditures related with selling activities like commission to sales person etc. are incurred by revenue centres.
(iii) Profit Centres: These are the responsibility centres which have both responsibility of generation of revenue and incurrence of expenditures. Since, managers of profit centres are accountable for both costs as well as revenue, profitability is the basis for measurement of performance of these responsibility centres. Examples of profit centres are decentralised branches of an organisation.
(iv) Investment Centres: These are the responsibility centres which are not only responsible for profitability but also has the authority to make capital investment decisions. The performance of these responsibility centres is measured based on Return on Investment (ROI) besides profit.

## Answer:

(b) Obsolescence: Obsolescence is defined as "the loss in the intrinsic value of an asset due to its supersession".
Materials may become obsolete under any of the following circumstances:
(i) where it is a spare part, or a component of a machinery used in manufacture and that machinery becomes obsolete;
(ii) where it is used in the manufacture of a product which has become obsolete;
(iii) where the material itself is replaced by another material due to either improved quality or fall in price.
Treatment: In all three cases, the value of the obsolete material held in stock is a total loss and immediate steps should be taken to dispose it off at the best available price. The loss arising out of obsolete materials on abnormal loss does not form part of the cost of manufacture.

## Answer:

(c)

| Overhead Cost |  | Bases of Apportionment |
| :--- | :--- | :--- |
| (i) | Air- conditioning | Floor area, or volume of department |
| (ii) | Time keeping | Number of workers |
| (iii) | Depreciation of plant and machinery | Capital values |
| (iv) | Power/steam consumption | Technical estimates |
| (v) | Electric power (machine operation) | Horse power of machines, or Number <br> of machine hour, or value of machines |
|  |  | or units consumed. <br> Kilo-watt hours. |

## Answer:

(d) Treatment of by-product cost in Cost Accounting:

By-product cost can be dealt in cost accounting in the following ways:
(a) When they are of small total value: When the by-products are of small total value, the amount realised from their sale may be dealt in any one the following two ways:

1. The sales value of the by-products may be credited to the Costing Profit and Loss Account and no credit be given in the Cost Accounts. The credit to the Costing Profit and Loss Account here is treated either as miscellaneous income or as additional sales revenue.
2. The sale proceeds of the by-product may be treated as deductions from the total costs. The sale proceeds in fact should be deducted either from the production cost or from the cost of sales.
(b) When the by-products are of considerable total value: Where by-products are of considerable total value, they may be regarded as joint products rather than as by- products. To determine exact cost of by-products the costs incurred upto the point of separation, should be apportioned over by-products and joint products by using a logical basis.
(c) Where they require further processing: In this case, the net realisable value of the by-product at the split-off point may be arrived at by subtracting the further processing cost from the realisable value of by-products.

## Answer:

(e) Activity Based Budgeting (ABB)

- Activity based budgeting analyse the resource input or cost for each activity.
- It provides a framework for estimating the amount of resources required in accordance with the budgeted level of activity.
- Actual results can be compared with budgeted results to highlight both in financial and non-financial terms those activities with major discrepancies from budget for potential reduction in supply of resources.
- It is a planning and control system which seeks to support the objectives of continuous improvement.
- It means planning and controlling the expected activities of the organization to derive a cost-effective budget that meet forecast workload and agreed strategic goals.
- $\quad A B B$ is the reversing of the $A B C$ process to produce financial plans and budgets.

