1. (a) (i) Selling Price per unit = \frac{\text{Margin of Safety in Rupee value}}{\text{Margin of Safety in Quantity}}
\begin{align*}
\text{Margin of Safety in Rupee value} &= Rs.7,50,000 \\
\text{Margin of Safety in Quantity} &= 15,000 \\
\text{Selling Price per unit} &= \frac{Rs.7,50,000}{15,000} = Rs.50
\end{align*}

(ii) Profit = \text{Sales Value} – \text{Total Cost}
\begin{align*}
\text{Sales Value} &= \text{Selling price per unit} \times (\text{BEP units} + \text{MoS units}) \\
\text{BEP units} &= 5,000 \\
\text{MoS units} &= \frac{Rs.7,50,000}{Rs.50} = 15,000 \\
\text{Total Cost} &= \text{Sales Value} – \text{Profit} \\
\text{Profit} &= \text{Sales Value} – (5,000 \times Rs.50 + 15,000 \times Rs.50) = \text{Rs.2,25,000}
\end{align*}

(iii) Profit/Volume (P/V) Ratio = \frac{\text{Profit}}{\text{Margin of Safety in Rupee value}} \times 100
\begin{align*}
\text{Profit} &= Rs.2,25,000 \\
\text{Margin of Safety in Rupee value} &= Rs.7,50,000 \\
\text{Profit/Volume (P/V) Ratio} &= \frac{Rs.2,25,000}{Rs.7,50,000} \times 100 = 30\%
\end{align*}

(iv) Break Even Sales (in Rupees) = \text{BEP units} \times \text{Selling Price per unit}
\begin{align*}
\text{BEP units} &= 5,000 \\
\text{Selling Price per unit} &= Rs.50 \\
\text{Break Even Sales} &= 5,000 \times Rs.50 = Rs.2,50,000
\end{align*}

(v) Fixed Cost = \text{Contribution} – \text{Profit}
\begin{align*}
\text{Contribution} &= \text{Sales Value} \times \text{P/V Ratio} \\
\text{P/V Ratio} &= 30\% \\
\text{Profit} &= Rs.2,25,000 \\
\text{Fixed Cost} &= \text{Sales Value} \times 30\% – \text{Profit} \\
&= (Rs.10,00,000 \times 30\%) – Rs.2,25,000 \\
&= Rs.3,00,000 – Rs.2,25,000 = Rs.75,000
\end{align*}

(b) Workings:
\begin{enumerate}
\item Budgeted Hours = \frac{Rs.3,00,000}{Rs.10 per hour} = 30,000 hours
\item Standard Fixed Overhead rate per hour (Standard Rate):
\begin{align*}
\text{Budgeted fixed overheads} &= Rs.3,00,000 \\
\text{Budgeted Hours} &= 30,000 \\
\text{Standard Fixed Overhead rate per hour} &= \frac{Rs.3,00,000}{30,000} = Rs.10.00
\end{align*}
\item Standard hour per unit of output = \frac{30,000 hours}{20,000 units} = 1.5 hours
\item Standard hours for Actual Output = 22,000 units \times 1.5 hours = 33,000 Hours
\item Budgeted Overhead per day for budgeted days = \frac{Rs.3,00,000}{25 days} = Rs.12,000
\item Budgeted Overhead for actual days worked = Rs.12,000 \times 27 days = Rs.3,24,000
\item Budgeted Hours for Actual days worked = \frac{30,000 hours}{25 days} \times 27 days = 32,400 hours
\end{enumerate}
Computation of Variances in relation to Fixed Overheads:

(i) Efficiency Variance
\[\text{Efficiency Variance} = \text{Standard Rate} \times (\text{Standard hours for actual output} - \text{Actual hours worked})\]
\[= \text{Rs.10} \times (33,000 - 31,500) = \text{Rs.15,000 (Favourable)}\]

(ii) Capacity Variance
\[\text{Capacity Variance} = \text{Standard Rate} \times (\text{Actual Hours} - \text{Budgeted Hours for actual days worked})\]
\[= \text{Rs.10} \times (31,500 - 32,400) = \text{Rs.9,000 (Adverse)}\]

(iii) Calendar Variance
\[\text{Calendar Variance} = \frac{\text{Standard/Budgeted Fixed Overhead Rate per day}}{\text{Actual Working days} - \text{Budgeted working days}}\]
\[= \text{Rs.12,000} \times \frac{27 - 25}{27} = \text{Rs.24,000 (Favourable)}\]

(iv) Volume Variance
\[\text{Volume Variance} = \text{Standard Rate} \times (\text{Standard hours} - \text{Budgeted hours})\]
\[= \text{Rs.10} \times (33,000 - 30,000) = \text{Rs.30,000 (Favourable)}\]

(v) Expenditure Variance
\[\text{Expenditure Variance} = \text{Budgeted Overheads} - \text{Actual Overheads}\]
\[= \text{Rs.3,00,000} - \text{Rs.3,10,000} = \text{Rs.10,000 (Adverse)}\]

Note: Overhead Variances may also be calculated based on output.

(c) (i) Computation of wages of each worker under guaranteed hourly rate basis

<table>
<thead>
<tr>
<th>Worker</th>
<th>Actual hours worked (Hours)</th>
<th>Hourly wage rate (Rs.)</th>
<th>Wages (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>380</td>
<td>40</td>
<td>15,200</td>
</tr>
<tr>
<td>II</td>
<td>100</td>
<td>50</td>
<td>5,000</td>
</tr>
<tr>
<td>III</td>
<td>540</td>
<td>60</td>
<td>32,400</td>
</tr>
</tbody>
</table>

(ii) Computation of Wages of each worker under piece work earning basis

<table>
<thead>
<tr>
<th>Product</th>
<th>Piece rate per unit (Rs.)</th>
<th>Worker-I</th>
<th>Worker-II</th>
<th>Worker-III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Units</td>
<td>Wages (Rs.)</td>
<td>Units</td>
<td>Wages (Rs.)</td>
</tr>
<tr>
<td>A</td>
<td>15</td>
<td>210</td>
<td>3,150</td>
<td>-</td>
</tr>
<tr>
<td>B</td>
<td>20</td>
<td>360</td>
<td>7,200</td>
<td>-</td>
</tr>
<tr>
<td>C</td>
<td>30</td>
<td>460</td>
<td>13,800</td>
<td>250</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>24,150</td>
<td>7,500</td>
<td>36,000</td>
</tr>
</tbody>
</table>

Since each worker’s earnings are more than 50% of basic pay. Therefore, worker-I, II and III will be paid the wages as computed i.e. Rs. 24,150, Rs. 7,500 and Rs. 36,000 respectively.

Working Note:
1. Piece rate per unit

<table>
<thead>
<tr>
<th>Product</th>
<th>Standard time per unit in minute</th>
<th>Piece rate each minute (Rs.)</th>
<th>Piece rate per unit (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15</td>
<td>1</td>
<td>15</td>
</tr>
</tbody>
</table>
(iii) Computation of wages of each worker under Premium bonus basis (where each worker receives bonus based on Rowan Scheme)

<table>
<thead>
<tr>
<th>Worker</th>
<th>Time Allowed (Hr.)</th>
<th>Time Taken (Hr.)</th>
<th>Time saved (Hr.)</th>
<th>Wage Rate per hour (Rs.)</th>
<th>Earnings (Rs.)</th>
<th>Bonus (Rs.)</th>
<th>Total Earning (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>402.5</td>
<td>380</td>
<td>22.5</td>
<td>40</td>
<td>15,200</td>
<td>850</td>
<td>16,050</td>
</tr>
<tr>
<td>II</td>
<td>125</td>
<td>100</td>
<td>25</td>
<td>50</td>
<td>5,000</td>
<td>1,000</td>
<td>6,000</td>
</tr>
<tr>
<td>III</td>
<td>600</td>
<td>540</td>
<td>60</td>
<td>60</td>
<td>32,400</td>
<td>3,240</td>
<td>35,640</td>
</tr>
</tbody>
</table>

Working Note:
1. Time allowed to each worker

<table>
<thead>
<tr>
<th>Worker</th>
<th>Product-A</th>
<th>Product-B</th>
<th>Product-C</th>
<th>Total Time (Hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>210 units × 15 = 3,150</td>
<td>360 units × 20 = 7,200</td>
<td>460 units × 30 = 13,800</td>
<td>24,150/60 = 402.5</td>
</tr>
<tr>
<td>II</td>
<td>-</td>
<td>-</td>
<td>250 units × 30 = 7,500</td>
<td>7,500/60 = 125</td>
</tr>
<tr>
<td>III</td>
<td>600 units × 15 = 9,000</td>
<td>1,350 units × 20 = 27,000</td>
<td>-</td>
<td>36,000/60 = 600</td>
</tr>
</tbody>
</table>

* \( \frac{\text{Time Taken}}{\text{Time Allowed}} \times \text{Time Saved} \times \text{Wage Rate} \)

Worker-I = \( \frac{380}{402.5} \times 22.5 \times 40 = 850 \)

Worker-II = \( \frac{100}{125} \times 25 \times 50 = 1,000 \)

Worker-III = \( \frac{540}{600} \times 60 \times 60 = 3,240 \)

(d) (i) Variable overhead absorption rate = \( \frac{\text{Difference in Total Overheads}}{\text{Difference in levels in terms of machine hours}} \)

\[
= \frac{\text{Rs.3,47,625 - Rs.3,38,875}}{15,500 \text{ hours - 14,500 hours}} = \text{Rs.8.75 per machine hour.}
\]

(ii) Calculation of Total fixed overheads:

<table>
<thead>
<tr>
<th></th>
<th>(Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total overheads at 14,500 hours</td>
<td>3,38,875</td>
</tr>
<tr>
<td>Less: Variable overheads (Rs. 8.75 × 14,500)</td>
<td>(1,26,875)</td>
</tr>
<tr>
<td>Total fixed overheads</td>
<td>2,12,000</td>
</tr>
</tbody>
</table>

(iii) Calculation of Budgeted level of activity in machine hours:

Let budgeted level of activity = \( X \)
Then, \( \frac{(Rs.8.75 \times X + Rs.2,12,000)}{X} = Rs.22 \)

\[ 8.75X + Rs.2,12,000 = 22X \]

\[ 13.25X = 2,12,000 \]

\[ X = 16,000 \]

Thus, budgeted level of activity = 16,000 machine hours.

(iv) Calculation of Under / Over absorption of overheads:

<table>
<thead>
<tr>
<th></th>
<th>(Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual overheads</td>
<td>3,22,000</td>
</tr>
<tr>
<td>Absorbed overheads (14,970 hours × Rs. 22 per hour)</td>
<td>3,29,340</td>
</tr>
<tr>
<td>Over-absorption (3,29,340 – 3,22,000)</td>
<td>7,340</td>
</tr>
</tbody>
</table>

(v) Departmental absorption rates provide costs which are more precise than those provided by the use of blanket absorption rates. Departmental absorption rates facilitate variance analysis and cost control. The application of these rates makes the task of stock and work-in-process (WIP) valuation easier and more precise. However, the setting up and monitoring of these rates can be time consuming and expensive.

2. (a) The total production overheads are Rs.52,00,000:

Product A: 20,000 × Rs.30  =  Rs.6,00,000
Product B: 40,000 × Rs.40  =  Rs.16,00,000
Product C: 60,000 × Rs.50  =  Rs.30,00,000

On the basis of ABC analysis this amount will be apportioned as follows:

**Statement Showing “Activity Based Production Cost”**

<table>
<thead>
<tr>
<th>Activity Cost Pool</th>
<th>Cost Driver</th>
<th>Ratio</th>
<th>Total Amount (Rs.)</th>
<th>A (Rs.)</th>
<th>B (Rs.)</th>
<th>C (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stores Receiving</td>
<td>Purchase Requisition</td>
<td>6:9:10</td>
<td>5,92,000</td>
<td>1,42,080</td>
<td>2,13,120</td>
<td>2,36,800</td>
</tr>
<tr>
<td>Inspection</td>
<td>Production Runs</td>
<td>5:7:8</td>
<td>17,88,000</td>
<td>4,47,000</td>
<td>6,25,800</td>
<td>7,15,200</td>
</tr>
<tr>
<td>Dispatch</td>
<td>Orders Executed</td>
<td>6:9:10</td>
<td>4,20,000</td>
<td>1,00,800</td>
<td>1,51,200</td>
<td>1,68,000</td>
</tr>
<tr>
<td>Machine Setups</td>
<td>Setups</td>
<td>12:13:15</td>
<td>24,00,000</td>
<td>7,20,000</td>
<td>7,80,000</td>
<td>9,00,000</td>
</tr>
<tr>
<td>Total Activity Cost</td>
<td></td>
<td></td>
<td>14,09,880</td>
<td>17,70,120</td>
<td>20,20,000</td>
<td></td>
</tr>
<tr>
<td>Quantity Produces</td>
<td></td>
<td></td>
<td>20,000</td>
<td>40,000</td>
<td>60,000</td>
<td></td>
</tr>
<tr>
<td>Unit Cost (Overheads)</td>
<td></td>
<td></td>
<td>70.49</td>
<td>44.25</td>
<td>33.67</td>
<td></td>
</tr>
<tr>
<td>Add: Conversion Cost</td>
<td></td>
<td></td>
<td>130</td>
<td>120</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>200.49</td>
<td>164.25</td>
<td>163.67</td>
<td></td>
</tr>
</tbody>
</table>

(b) **Cost Sheet of M/s A&R Brothers for the month ended March 2020:**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Amount (Rs.)</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Materials consumed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Opening stock</td>
<td>6,06,000</td>
<td></td>
</tr>
</tbody>
</table>

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3. (a) Calculation of Economic Order Quantity (E.O.Q)

Annual requirement (usage) of raw material in kg. (A) = \( \frac{1,00,000 \text{ units}}{2.5 \text{ units per kg.}} = 40,000 \text{ kg.} \)

Ordering Cost (Handling & freight cost) (O) = Rs.1,460 + Rs.940 = Rs.2,400

Carrying cost per unit per annum (C) i.e. inventory carrying cost + working capital cost

= (Rs.2.5 \times 12 \text{ months}) + Rs.18 = Rs.48 per kg.

E.O.Q. = \( \sqrt{\frac{2 \times A \times O}{C}} = \sqrt{\frac{2 \times 40,000 \text{ kg.} \times \text{Rs.2,400}}{\text{Rs.48}}} = 2,000 \text{ kg.} \)

(ii) Frequency of placing orders for procurement:

Annual consumption (A) = 40,000 kg.

Quantity per order (E.O.Q) = 2,000 kg.

No. of orders per annum \( \left( \frac{A}{E.O.Q} \right) = \frac{40,000 \text{ kg.}}{2,000 \text{ kg.}} = 20 \text{ orders} \)

Frequency of placing orders (in days) = \( \frac{360 \text{ days}}{20 \text{ orders}} = 18 \text{ days} \)

(iii) Percentage of discount in the price of raw materials to be negotiated:

<table>
<thead>
<tr>
<th>Particulars</th>
<th>On Quarterly Basis</th>
<th>On E.O.Q Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Annual Usage (in Kg.)</td>
<td>40,000 kg.</td>
<td>40,000 kg.</td>
</tr>
</tbody>
</table>
2. Size of the order  
<table>
<thead>
<tr>
<th>kg.</th>
<th>kg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000</td>
<td>2,000</td>
</tr>
</tbody>
</table>

3. No. of orders (1 + 2)  
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>

4. Cost of placing orders or Ordering cost  
(No. of orders × Cost per order)  
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs.9,600</td>
<td>Rs.48,000</td>
</tr>
<tr>
<td>(4 order × Rs2,400)</td>
<td>(20 orders × Rs2,400)</td>
</tr>
</tbody>
</table>

5. Inventory carrying cost  
(Average inventory × Carrying cost per unit)  
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs.2,40,000</td>
<td>Rs.48,000</td>
</tr>
<tr>
<td>(10,000 kg. × ½ × Rs.48)</td>
<td>(2,000 kg. × ½ × Rs.48)</td>
</tr>
</tbody>
</table>

6. Total Cost (4 + 5)  
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs.2,49,600</td>
<td>Rs.96,000</td>
</tr>
</tbody>
</table>

When order is placed on quarterly basis the ordering cost and carrying cost increased by Rs.1,53,600 (Rs.2,49,600 - Rs.96,000).

So, discount required = Rs.1,53,600

Total annual purchase = 40,000 kg. × Rs.180 = Rs.72,00,000

So, Percentage of discount to be negotiated = \[
\frac{Rs.1,53,600}{Rs.72,00,000} \times 100 = 2.13\%
\]

(b) (i) Process- A Account

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
<th>Amount (Rs.)</th>
<th></th>
<th>Units</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Inputs</td>
<td>40,000</td>
<td>3,60,000</td>
<td>By Normal wastage</td>
<td>2,000</td>
<td>30,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(2,000 units × Rs.15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Material</td>
<td>---</td>
<td>2,42,000</td>
<td>By Abnormal loss A/c</td>
<td>1,000</td>
<td>27,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1,000 units × Rs.27)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Direct wages</td>
<td>---</td>
<td>2,58,000</td>
<td>By Process- B</td>
<td>29,600</td>
<td>7,99,200</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(29,600 units × Rs.27)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Manufacturing Exp.</td>
<td>---</td>
<td>1,96,000</td>
<td>By Profit &amp; Loss A/c</td>
<td>7,400</td>
<td>1,99,800</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(7,400 units × Rs.27)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

40,000  10,56,000  40,000  10,56,000

Cost per unit = \[
\frac{Rs.10,56,000 - Rs.30,000}{40,000 units - 2,000 units} = Rs. 27 per unit
\]

Normal wastage = 40,000 units × 5% = 2,000 units

Abnormal loss = 40,000 units – (37,000 units + 2,000 units) = 1,000 units

Transfer to Process- B = 37,000 units × 80% = 29,600 units

Sale = 37,000 units × 20% = 7,400 units

Process- B Account

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
<th>Amount (Rs.)</th>
<th></th>
<th>Units</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Process- A A/c</td>
<td>29,600</td>
<td>7,99,200</td>
<td>By Normal wastage</td>
<td>2,960</td>
<td>59,200</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(2,960 units × Rs. 20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Material</td>
<td>---</td>
<td>2,25,000</td>
<td>By Profit &amp; Loss A/c</td>
<td>27,000</td>
<td>12,96,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(27,000 units × Rs. 48)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Direct Wages</td>
<td>---</td>
<td>1,90,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Manufacturing Exp.</td>
<td>---</td>
<td>1,23,720</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To Abnormal Gain A/c
(360 units × Rs. 48)

<table>
<thead>
<tr>
<th>Units</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>360</td>
<td>17,280</td>
</tr>
</tbody>
</table>

\[ \text{Cost per unit} = \frac{\text{Rs.13,37,920} - \text{Rs.59,200}}{29,600 \text{units} - 2,960 \text{units}} = \text{Rs. 48 per unit} \]

\[ \text{Normal wastage} = 29,600 \text{ units} \times 10\% = 2,960 \text{ units} \]

\[ \text{Abnormal gain} = (27,000 \text{ units} + 2,960 \text{ units}) - 29,600 \text{ units} = 360 \text{ units} \]

(ii) **Costing Profit & Loss Account**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Amount (Rs.)</th>
<th>Particulars</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Process- A A/c</td>
<td>1,99,800</td>
<td>By Sales:</td>
<td></td>
</tr>
<tr>
<td>To Process- B A/c</td>
<td>12,96,000</td>
<td>- Process-A</td>
<td>2,73,800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(7,400 units × Rs. 37)</td>
<td></td>
</tr>
<tr>
<td>To Abnormal loss A/c</td>
<td>12,000</td>
<td>- Process- B</td>
<td>16,47,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(27,000 units × Rs. 61)</td>
<td></td>
</tr>
<tr>
<td>To Indirect Expenses</td>
<td>4,48,080</td>
<td>By Abnormal gain</td>
<td>10,080</td>
</tr>
<tr>
<td></td>
<td></td>
<td>By Net loss</td>
<td>25,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19,55,880</td>
<td></td>
<td>19,55,880</td>
</tr>
</tbody>
</table>

**Working Notes:**

### Normal wastage (Loss) Account

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Units</th>
<th>Amount (Rs.)</th>
<th>Particulars</th>
<th>Units</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Process- A A/c</td>
<td>2,000</td>
<td>30,000</td>
<td>By Abnormal Gain A/c</td>
<td>360</td>
<td>7,200</td>
</tr>
<tr>
<td>To Process- B A/c</td>
<td>2,960</td>
<td>59,200</td>
<td>(360 units × Rs. 20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4,960</td>
<td>89,200</td>
<td>By Bank (Sales)</td>
<td>4,600</td>
<td>82,000</td>
</tr>
</tbody>
</table>

### Abnormal Loss Account

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Units</th>
<th>Amount (Rs.)</th>
<th>Particulars</th>
<th>Units</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Process- A A/c</td>
<td>1,000</td>
<td>27,000</td>
<td>By Bank A/c</td>
<td>1,000</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1,000 units × Rs. 15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>By Profit &amp; Loss A/c</td>
<td>---</td>
<td>12,000</td>
</tr>
</tbody>
</table>

### Abnormal Gain Account

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Units</th>
<th>Amount (Rs.)</th>
<th>Particulars</th>
<th>Units</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Normal loss A/c</td>
<td>360</td>
<td>7,200</td>
<td>By Process- B A/c</td>
<td>360</td>
<td>17,280</td>
</tr>
<tr>
<td>To Profit &amp; Loss A/c</td>
<td></td>
<td>10,080</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>360</td>
<td>17,280</td>
<td></td>
<td>360</td>
<td>17,280</td>
</tr>
</tbody>
</table>
4. (a) Workings:

Preparation of Cost Sheet/ Cost Statement

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>26,80,000</td>
</tr>
<tr>
<td>Wages</td>
<td>17,80,000</td>
</tr>
<tr>
<td>Prime Cost</td>
<td>44,60,000</td>
</tr>
<tr>
<td>Add: Factory expenses (20% of Rs. 44,60,000)</td>
<td>8,92,000</td>
</tr>
<tr>
<td>Factory cost/ Cost of Production</td>
<td>53,52,000</td>
</tr>
<tr>
<td>Less: Closing Stock ( \frac{Rs.53,52,000 \times 2000 \text{units}}{52,000 \text{units}} )</td>
<td>(2,05,846)</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>51,46,154</td>
</tr>
<tr>
<td>Add: General administrative expenses (10% of Rs.53,52,000)</td>
<td>5,35,200</td>
</tr>
<tr>
<td>Add: Selling expenses (Rs.10 x 50,000 units)</td>
<td>5,00,000</td>
</tr>
<tr>
<td>Cost of Sales</td>
<td>61,81,354</td>
</tr>
<tr>
<td>Profit (Balancing figure)</td>
<td>18,646</td>
</tr>
<tr>
<td>Sales Value</td>
<td>62,00,000</td>
</tr>
</tbody>
</table>

Costing Profit and Loss Account

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Materials</td>
<td>26,80,000</td>
</tr>
<tr>
<td>To Wages</td>
<td>17,80,000</td>
</tr>
<tr>
<td>To Factory expenses</td>
<td>8,92,000</td>
</tr>
<tr>
<td>To General administrative expenses</td>
<td>5,35,200</td>
</tr>
<tr>
<td>To Selling expenses</td>
<td>5,00,000</td>
</tr>
<tr>
<td>To Profit (Balancing figure)</td>
<td>18,646</td>
</tr>
<tr>
<td></td>
<td>64,05,846</td>
</tr>
</tbody>
</table>

Reconciliation of profit as per Cost Accounts and as per Financial Accounts

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit as per Cost Accounts</td>
<td>18,646</td>
</tr>
</tbody>
</table>

Additions:

- General administrative expenses (Over-absorbed) (Rs. 5,35,200 – Rs.4,80,200) | 55,000
- Selling expenses (Overcharged) (Rs. 5,00,000 – Rs. 2,50,000) | 2,50,000
- Dividend received | 80,000

Deductions:

- Factory expenses (Under-absorbed) (Rs.9,50,000 – 8,92,000) | 58,000
- Closing stock (Over-valued) (Rs.2,05,846 – Rs. 1,50,000) | 55,846
- Preliminary expenses written off | 70,000

<table>
<thead>
<tr>
<th>Profit as per Financial Accounts</th>
<th>1,83,846</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit as per Cost Accounts</td>
<td>2,19,800</td>
</tr>
</tbody>
</table>
### (b) (i) Calculation of Budgeted profit for the FY 2019-20

<table>
<thead>
<tr>
<th></th>
<th>30,000 units</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per unit (Rs.)</td>
<td>Amount (Rs.)</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>400.00</td>
<td>1,20,00,000</td>
<td></td>
</tr>
<tr>
<td>Less: Variable Costs:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Direct Material</td>
<td>150.00</td>
<td>45,00,000</td>
<td></td>
</tr>
<tr>
<td>- Direct Wages</td>
<td>50.00</td>
<td>15,00,000</td>
<td></td>
</tr>
<tr>
<td>- Variable Overheads</td>
<td>50.00</td>
<td>15,00,000</td>
<td></td>
</tr>
<tr>
<td>- Direct Expenses</td>
<td>30.00</td>
<td>9,00,000</td>
<td></td>
</tr>
<tr>
<td>- Variable factory expenses (75% of Rs.40p.u.)</td>
<td>30.00</td>
<td>9,00,000</td>
<td></td>
</tr>
<tr>
<td>- Variable Selling &amp; Dist. exp. (80% of Rs.20p.u.)</td>
<td>16.00</td>
<td>4,80,000</td>
<td></td>
</tr>
<tr>
<td>Total Variable Cost</td>
<td>326.00</td>
<td>97,80,000</td>
<td></td>
</tr>
<tr>
<td>Contribution</td>
<td>(C) = (A – B)</td>
<td>74.00</td>
<td>22,20,000</td>
</tr>
<tr>
<td>Less: Fixed Costs:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Office and Admin. exp. (100%)</td>
<td>--</td>
<td>3,00,000</td>
<td></td>
</tr>
<tr>
<td>- Fixed factory exp. (25%)</td>
<td>--</td>
<td>3,00,000</td>
<td></td>
</tr>
<tr>
<td>- Fixed Selling &amp; Dist. exp. (20%)</td>
<td>--</td>
<td>1,20,000</td>
<td></td>
</tr>
<tr>
<td>Total Fixed Costs</td>
<td>(D)</td>
<td>--</td>
<td>7,20,000</td>
</tr>
<tr>
<td>Profit</td>
<td>(C – D)</td>
<td>--</td>
<td>15,00,000</td>
</tr>
</tbody>
</table>

### (ii) Expense Budget of GP Ltd. for the FY 2020-21 at 50% & 60% level

<table>
<thead>
<tr>
<th></th>
<th>30,000 units</th>
<th>36,000 units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per unit (Rs.)</td>
<td>Amount (Rs.)</td>
</tr>
<tr>
<td>Sales</td>
<td>400.00</td>
<td>1,20,00,000</td>
</tr>
<tr>
<td>Less: Variable Costs:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Direct Material</td>
<td>165.00</td>
<td>49,50,000</td>
</tr>
<tr>
<td>- Direct Wages</td>
<td>55.00</td>
<td>16,50,000</td>
</tr>
<tr>
<td>- Variable Overheads</td>
<td>55.00</td>
<td>16,50,000</td>
</tr>
<tr>
<td>- Direct Expenses</td>
<td>33.00</td>
<td>9,90,000</td>
</tr>
<tr>
<td>- Variable factory expenses</td>
<td>33.00</td>
<td>9,90,000</td>
</tr>
<tr>
<td>- Variable Selling &amp; Dist. exp.</td>
<td>17.60</td>
<td>5,28,000</td>
</tr>
<tr>
<td>Total Variable Cost</td>
<td>358.60</td>
<td>1,07,58,000</td>
</tr>
<tr>
<td>Contribution</td>
<td>(C) = (A – B)</td>
<td>41.40</td>
</tr>
<tr>
<td>Less: Fixed Costs:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Office and Admin. exp. (100%)</td>
<td>--</td>
<td>3,45,000</td>
</tr>
<tr>
<td>- Fixed factory exp. (25%)</td>
<td>--</td>
<td>3,45,000</td>
</tr>
<tr>
<td>- Fixed Selling &amp; Dist. exp. (20%)</td>
<td>--</td>
<td>1,38,000</td>
</tr>
<tr>
<td>Total Fixed Costs</td>
<td>(D)</td>
<td>--</td>
</tr>
<tr>
<td>Profit</td>
<td>(C – D)</td>
<td>--</td>
</tr>
</tbody>
</table>
5. (a) Total cost statement of KR Resort (P) Limited

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Cost per annum (Rs. in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Salaries</td>
<td>780.00</td>
</tr>
<tr>
<td>Room Attendant’s Wages (Refer working note 3)</td>
<td>286.20</td>
</tr>
<tr>
<td>Lighting, Heating &amp; Power</td>
<td>350.00</td>
</tr>
<tr>
<td>Repairs, Maintenance &amp; Renovation</td>
<td>220.00</td>
</tr>
<tr>
<td>Linen</td>
<td>60.00</td>
</tr>
<tr>
<td>Laundry charges</td>
<td>34.00</td>
</tr>
<tr>
<td>Interior Decoration</td>
<td>85.00</td>
</tr>
<tr>
<td>Sundries</td>
<td>36.28</td>
</tr>
<tr>
<td>Depreciation: (Refer working note 4)</td>
<td></td>
</tr>
<tr>
<td>- Building</td>
<td>45.00</td>
</tr>
<tr>
<td>- Furniture &amp; Fixture</td>
<td>9.00</td>
</tr>
<tr>
<td>- Air Conditioners</td>
<td>7.50</td>
</tr>
<tr>
<td>Total cost for the year</td>
<td>1912.98</td>
</tr>
</tbody>
</table>

Computation of profit:

Let Rs. x be the rent for deluxe from.

Equivalent deluxe room days are 90,720 (Refer working note 2)

Total takings = Rs. 90,720x

Profit is 25% of total takings.

Profit = 25% of Rs. 90,720x = Rs. 22,680x

Total takings = Total Cost + Profit

Rs. 90,720x = Rs. 19,12,98,000 + Rs. 22,680x

Rs. 90,720x - Rs. 22,680x = Rs. 19,12,98,000

Rs. 68,040x = Rs. 19,12,98,000

\[ x = \frac{Rs.19,12,98,000}{Rs.68,040} = Rs. 2,811.55 \]

Rent to be charged for deluxe room = Rs. 2,811.55

Rent to be charged for super deluxe room = Rs. 5,623.10

Rent to be charged for luxury suite = Rs. 8,434.65

Working Notes:

(1) Computation of Room Occupancy

<table>
<thead>
<tr>
<th>Type of Room</th>
<th>No. of rooms x no. of days x occupancy %</th>
<th>Room days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deluxe Room</td>
<td>100 rooms x 360 days x 90% occupancy</td>
<td>32,400</td>
</tr>
<tr>
<td>Super Deluxe Room</td>
<td>60 rooms x 360 days x 75% occupancy</td>
<td>16,200</td>
</tr>
</tbody>
</table>
Luxury Suite 40 rooms x 360 days x 60% occupancy 8,640
Total 57,240

(2) Computation of equivalent deluxe room days
Rent of ‘super deluxe’ room is to be fixed at 2 times of ‘deluxe room’ and luxury suite’ is 3 times of ‘deluxe room’. Therefore, equivalent room days would be:

<table>
<thead>
<tr>
<th>Type of Room</th>
<th>Room days</th>
<th>Equivalent deluxe room days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deluxe Room</td>
<td>32,400 x 1</td>
<td>32,400</td>
</tr>
<tr>
<td>Super Deluxe Room</td>
<td>16,200 x 2</td>
<td>32,400</td>
</tr>
<tr>
<td>Luxury Suite</td>
<td>8,640 x 3</td>
<td>25,920</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>90,720</td>
</tr>
</tbody>
</table>

(3) Computation of room attendant’s wages
Room occupancy days @ Rs. 500 per day = 286.2 lakhs (i.e. 57,240 days ×Rs. 500)

(4) Computation of Depreciation per annum

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Cost (Rs.)</th>
<th>Rate of Depreciation</th>
<th>Depreciation (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>9,00,00,000</td>
<td>5%</td>
<td>45,00,000</td>
</tr>
<tr>
<td>Furniture &amp; Fixtures</td>
<td>90,00,000</td>
<td>10%</td>
<td>9,00,000</td>
</tr>
<tr>
<td>Air Conditioners</td>
<td>75,00,000</td>
<td>10%</td>
<td>7,50,000</td>
</tr>
</tbody>
</table>

(b) (i) Journal Entries under Integrated system of accounting

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Rs.</th>
<th>Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Work-in-Progress Control A/c</td>
<td>Dr. 6,50,000</td>
<td></td>
</tr>
<tr>
<td>Factory Overhead Control A/c</td>
<td>Dr. 2,30,000</td>
<td>8,80,000</td>
</tr>
<tr>
<td>To Stores Ledger Control A/c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Being issue of Direct and Indirect materials)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) Work-in Progress Ledger Control A/c</td>
<td>Dr. 6,75,000</td>
<td></td>
</tr>
<tr>
<td>Factory Overhead control A/c</td>
<td>Dr. 2,25,000</td>
<td>9,00,000</td>
</tr>
<tr>
<td>To Wages Control A/c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Being allocation of Direct and Indirect wages)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iii) Factory Overhead Control A/c</td>
<td>Dr. 60,000</td>
<td>60,000</td>
</tr>
<tr>
<td>To Costing Profit &amp; Loss A/c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Being transfer of over absorption of Factory overhead)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costing Profit &amp; Loss A/c</td>
<td>Dr. 50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>To Administration Overhead Control A/c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Being transfer of under absorption of Administration overhead)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iv) Trade Payables A/c</td>
<td>Dr. 9,00,000</td>
<td></td>
</tr>
<tr>
<td>To Cash/ Bank A/c</td>
<td></td>
<td>9,00,000</td>
</tr>
<tr>
<td>(Being payment made to creditors)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(v) Cash/ Bank A/c
   To Trade receivables A/c
   (Being payment received from debtors)

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution per unit (Rs.)</td>
<td>40</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>II.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units (Lower of Production / Market Demand)</td>
<td>2,000</td>
<td>2,000</td>
<td>900</td>
</tr>
<tr>
<td>III.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possible Contribution (Rs.) [ I × II ]</td>
<td>80,000</td>
<td>60,000</td>
<td>45,000</td>
</tr>
<tr>
<td>IV.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity Cost* (Rs.)</td>
<td>60,000</td>
<td>80,000</td>
<td>80,000</td>
</tr>
</tbody>
</table>

\* Opportunity cost is the maximum possible contribution forgone by not producing alternative product i.e. if Product X is produced then opportunity cost will be maximum of (Rs. 60,000 from Y, Rs. 45,000 from Z).

6. (a) Accounting treatment of idle time wages & overtime wages in cost accounts: Normal idle time is treated as a part of the cost of production. Thus, in the case of direct workers, an allowance for normal idle time is built into the labour cost rates. In the case of indirect workers, normal idle time is spread over all the products or jobs through the process of absorption of factory overheads.

**Under Cost Accounting, the overtime premium is treated as follows:**

If overtime is resorted to at the desire of the customer, then the overtime premium may be charged to the job directly.

If overtime is required to cope with general production program or for meeting urgent orders, the overtime premium should be treated as overhead cost of particular department or cost center which works overtime.

Overtime worked on account of abnormal conditions should be charged to costing Profit & Loss Account.

If overtime is worked in a department due to the fault of another department, the overtime premium should be charged to the latter department.

(b) Zero-based budgeting (ZBB) involves the following stages:

(i) Identification and description of Decision packages

(ii) Evaluation of Decision packages

(iii) Ranking (Prioritisation) of the Decision packages

(iv) Allocation of resources

(i) **Identification and description of Decision packages:** Decision packages are the programmes or activities for which decision is required to be taken. The programmes or activities are described for technical specifications, financial impact in the form of cost benefit analysis and other issues like environmental, regulatory, social etc.

(ii) **Evaluation of Decision packages:** Once Decision packages are identified and described, it is evaluated against factors like synchronisation with organisational objectives, availability of funds, regulatory requirement etc.

(iii) **Ranking (Prioritisation) of the Decision packages:** After evaluation of the decision packages, it is ranked on the basis priority of the activities. Because of this prioritization feature ZBB is also known as **Priority-based Budgeting.**
(iv) **Allocation of resources:** After ranking of the decision packages, resources are allocated for decision packages. Budgets are prepared like it is done first time without taking reference to previous budgets.

(c) **Differences between Job costing and Batch costing:**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Job Costing</th>
<th>Batch Costing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Method of costing used for non-standard and non-repetitive products produced as per customer specifications and against specific orders.</td>
<td>Homogeneous products produced in a continuous production flow in lots.</td>
</tr>
<tr>
<td>2</td>
<td>Cost determined for each Job.</td>
<td>Cost determined in aggregate for the entire Batch and then arrived at on per unit basis.</td>
</tr>
<tr>
<td>3</td>
<td>Jobs are different from each other and independent of each other. Each Job is unique.</td>
<td>Products produced in a batch are homogeneous and lack of individuality.</td>
</tr>
</tbody>
</table>

(d) **By-product cost can be dealt in cost accounting in the following ways:**

(i) **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.

(ii) **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 up to the point of separation, should be apportioned over by-products and joint products by using a logical basis. In this case, the joint costs may be divided over joint products and by-products by using relative market values; physical output method (at the point of split off) or ultimate selling prices (if sold).

(iii) **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.

If total sales value of by-products at split-off point is small, it may be treated as per the provisions discussed above under (i).

In the contrary case, the amount realised from the sale of by-products will be considerable and thus it may be treated as discussed under (ii).