B. Tech.

(SEM. VI) EXAMINATION, 2006-07

TOTAL QUALITY MANAGEMENT

Time : 3 Hours] [Total Marks : 100

Note : Attempt all questions. Marks are shown against each question.

1  Attempt any four parts : 5×4=20
   a. Enlist any five definitions of quality.
   b. Explain evaluation of Total Quality Management (TQM) concept from quality control.
   c. Explain concept of external customer and internal customer giving example from business and industry.
   d. Compare centralized purchasing and decentralised purchasing process.
   e. Explain vendor rating procedure.
   f. Distinguish between quality control and inspection.

2  Attempt any two parts : 10×2=20
   a. Briefly describe various quality costs. How do quality costs differ between manufacturing and service organization.
b. Write short note on Pareto analysis.

c. How attitude of top management does affect the quality of output. Differentiate between vision statement and mission statement of an organization.

3 Attempt any two parts: 10×2=20

a. Explain any two of following:
   i. Normal distribution
   ii. Binomial distribution
   iii. Poisson distribution.

b. The following table shows the number of defective items discovered in 10 items taken on 10 consecutive days of a month.

<table>
<thead>
<tr>
<th>Data</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defects per unit</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>16</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>20</td>
<td>16</td>
<td>4</td>
</tr>
</tbody>
</table>

Construct control chart for number of defects per unit from the above data.

c. M/s Gida Electricals Ltd. produces tube lights. The following data is available on the number of lumens for 40 watt tubelights.

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>1st Tube Light</th>
<th>2nd Tube Light</th>
<th>3rd Tube Light</th>
<th>4th Tube Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>604</td>
<td>612</td>
<td>566</td>
<td>600</td>
</tr>
<tr>
<td>2</td>
<td>597</td>
<td>601</td>
<td>607</td>
<td>603</td>
</tr>
<tr>
<td>3</td>
<td>581</td>
<td>570</td>
<td>585</td>
<td>592</td>
</tr>
<tr>
<td>4</td>
<td>620</td>
<td>605</td>
<td>595</td>
<td>588</td>
</tr>
<tr>
<td>5</td>
<td>590</td>
<td>614</td>
<td>608</td>
<td>604</td>
</tr>
</tbody>
</table>
Draw $\bar{X}$ and $R$ charts and state process control position.
(It is given that for sample size of 4, $D_4 = 2.282$, $D_3 = 0$, $A_2 = 0.729$)

4 Attempt any two parts: $10 \times 2 = 20$
   a. What do you understand by acceptance sampling? Describe briefly double sampling plan.
   b. Describe OC curve and explain following terms:
      i. Manufacture’s Risk
      ii. Purchaser’s Risk
      iii. AQL
      iv. LTPD.
   c. Find the probability of a lot being accepted if it has a incoming quality 5% defective a sample size of 40 and acceptance number is 1.

5 Attempt any two parts: $10 \times 2 = 20$
   a. Explain simplification and standardization.
      Illustrate each with suitable examples.
   b. Describe major elements of ISO : 9000
   c. Write short notes on:
      i) Quality loss function
      ii) MRP.