Part – A (attempt all questions)  (1 x 32 = 32 marks)

1. Select the correct option:
   a. Effective _______ ensures right materials, in right quantities, at right price at place.
      i. Materials management.
      ii. Inventory management.
      iii. Work study.
      iv. None of the above.

   b. Which of the following is not a factor to be considered while taking a plant location decision?
      i. Proximity to market
      ii. Availability of labour
      iii. Inventory management
      iv. Sources of raw material

   c. Quality implies
      i. Conformance to specifications
      ii. Fulfillment of customer needs
      iii. Fitness for use
      iv. Any of the above

   d. Which of the following is incorrect about products and services
      i. Products are tangible, services are intangible
      ii. Products cannot be inventoried, services can be inventoried
      iii. Products require greater fixed cost, services require less fixed cost
      iv. All of the above
e. Which of the following is not a strategy for managing service demand?
   i. Segmenting customers
   ii. Reservation system
   iii. Differential pricing
   iv. Customer participation

f. Fish-bone diagram is also known as
   i. Histograms
   ii. Cause and effect diagrams
   iii. Scatter diagrams
   iv. Check sheets

g. Group technology layout is also known as:
   i. Product layout
   ii. Process layout
   iii. Stationary layout
   iv. Cellular layout

h. In least square method, the sum of square of deviations of various points from line of fit is:
   i. Minimum
   ii. Maximum
   iii. Can’t say
   iv. Depends on whether data is linear or non-linear

2. Match the following:

<table>
<thead>
<tr>
<th>Column “A”</th>
<th>Column “B”</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Product layout</td>
<td>i. Project management technique</td>
</tr>
<tr>
<td>b. Aggregate planning strategy</td>
<td>ii. Standardized products</td>
</tr>
<tr>
<td>c. VED</td>
<td>iii. Environmental aspects</td>
</tr>
<tr>
<td>d. Availability of labour</td>
<td>iv. Overtime</td>
</tr>
<tr>
<td>e. ISO 14000</td>
<td>v. Zero profit</td>
</tr>
<tr>
<td>f. BEP</td>
<td>vi. Inventory management</td>
</tr>
<tr>
<td>g. PERT</td>
<td>vii. Decreased materials handling cost</td>
</tr>
<tr>
<td>h. Good plant layout</td>
<td>viii. Factor affecting Plant location decision</td>
</tr>
</tbody>
</table>
3. Fill in the blanks:
   a. Forecasting involves the projection of the past into the _______.  
   b. The _______ or buy decision represents a fundamental dilemma faced by many companies.  
   c. _______ is systematic problem solving for continuous improvement.  
   d. Shigeo Shingo is associated with the concept of _______.  
   e. Production can be defined as adding or _______ value.  
   f. _______ is considered father of Japanese Quality Management System.  
   g. _______ curves are used to depict the failure rate of equipment over their life cycles.  
   h. _______ causes are those that occur due to random events that cannot be controlled.

4. Give the full forms:

<table>
<thead>
<tr>
<th>a) JIT</th>
<th>b) EBQ</th>
<th>c) FMS</th>
<th>d) LOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>c) CADD</td>
<td>f) PDCA</td>
<td>g) ERP</td>
<td>h) MRP</td>
</tr>
</tbody>
</table>

5. Production management and operations management are one and the same thing. Do you agree? Explain.

6. What is forecasting? Why is it necessary in Production Function?

7. Write a detailed note on aggregate planning and its strategies.

8. a. Describe the objectives of plant layout.
    b. What do you understand Kanban Cards?

9. Write short notes on ANY FOUR of the following:
    a. Work study.
    b. Statistical quality control.
    c. Capacity planning.
    d. Quality circle.
    e. Production planning and control.
10. Consider the following project:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Predecessor</th>
<th>Duration (Weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>A</td>
<td>7</td>
</tr>
<tr>
<td>D</td>
<td>B</td>
<td>8</td>
</tr>
<tr>
<td>E</td>
<td>C</td>
<td>9</td>
</tr>
<tr>
<td>F</td>
<td>D, E</td>
<td>4</td>
</tr>
</tbody>
</table>

a. Draw the network diagram.

b. Determine critical path and minimum project duration.

c. Compute EST, EFT, LST, LFT and float available on each activity.