Operations Management

Date : 15.12.2022
Max. Marks : 70
Time : 10.00 a.m to 1.00 p.m.
Duration : 3 Hrs.

Instructions:
1. From Part A – answer all questions (compulsory). Each sub question carries 1 mark. Total : 20 Marks
2. From Part B – Answer any 3 questions out of 5 questions. Each question carries 10 marks. Total : 30 Marks
3. Part C is a case study (compulsory) with questions. Read the case study carefully and answer the questions. Total: 20 Marks

Part – A
(Attempt all questions. Each sub question carries 1 mark.)

Q1 Fill in the blanks –

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bottleneck</td>
<td>Day to day activities</td>
</tr>
<tr>
<td>2. Operations Research</td>
<td>The first task must be completed before starting the second task</td>
</tr>
<tr>
<td>3. Precedence</td>
<td>slows down a process</td>
</tr>
<tr>
<td>4. Functional strategy</td>
<td>Problem solving using analytical tools</td>
</tr>
</tbody>
</table>

Q2 Match the following –

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) The layout in which Machines performing similar operations are grouped together is call __________ layout.</td>
<td></td>
</tr>
<tr>
<td>b) The process of arranging manufacturing activities according to their starting and completion times is called __________.</td>
<td></td>
</tr>
<tr>
<td>c) Time lapsed between two successive outputs is called __________ time.</td>
<td></td>
</tr>
<tr>
<td>d) Mass Services have a _______ level of labour intensity but a _______ level of cooperation and _______ customization.</td>
<td></td>
</tr>
<tr>
<td>e) _______ is not a strategy for capacity addition.</td>
<td></td>
</tr>
</tbody>
</table>

Q3 Write the full form of –

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. CRM</td>
<td>b. QMS</td>
</tr>
<tr>
<td>c. DoE</td>
<td>d. PERT</td>
</tr>
<tr>
<td>e. KPI</td>
<td></td>
</tr>
</tbody>
</table>

Q4 Select the right option –

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
</table>
| a) Green sourcing does NOT include the following –
  i) Digital communication
  ii) Using green colour paint over the materials
  iii) Recycled materials
  iv) Renewable energy sources |
| b) The 3rd stage in a product life cycle is
  i) Growth
  ii) Decline
  iii) Maturity
  iv) Sine wave |
| c) Which of the following features of services means that services cannot be stored
  i) Heterogeneity
  ii) Intangibility
  iii) Compatibility
  iv) Perishability |
| d) Service processes can be controlled using this method –
  i) testing
  ii) audit
  iii) Review
  iv) All of these |
| e) Corporate strategy decides in what markets the business will operate
  i) True
  ii) False |
| f) Green sourcing does NOT include the following
  i) Digital communication
  ii) Using green colour paint over the materials
  iii) Recycled materials
  iv) Renewable energy sources |
PART B
(Attempt any 3. Each question carries 10 marks)

Q5 a) Compare and contrast Process layout with Product Layout? [5 marks]
b) For assembling a car, which layout would you choose and why? [5 marks]

Q6 a) Define Quality. Explain the various costs of Quality [5 marks]
b) Explain the Ishikawa diagram [5 marks]

Q7 a) Explain how Breakeven Analysis method is used for Facility location planning [5 marks]
b) Harry Potter Magic Kingdom, a chain of theme parks, is evaluating two prospective locations for its expansion – Chennai India and Shanghai China. The table below shows the relevant factors and their rating, used by the company to determine the most suitable location for its next theme park. [5 marks]

<table>
<thead>
<tr>
<th>Factor</th>
<th>Factor rating (1-5)</th>
<th>Rating for Chennai (1-10)</th>
<th>Rating for Shanghai (1-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax incentives</td>
<td>4</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Proximity to customers</td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Per capita income</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Utilities availability</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

Suggest the best location for the next theme park

Q8 a) Explain the Service Process Matrix with examples [5 marks]
b) Explain the stages of a Project life cycle [5 marks]

Q9 Write short notes on any TWO –(2 x 5 = 10 marks)
a. Johnson’s algorithm  b. Dynamic programming
c. Differentiate between cycle time and throughput time  d. Service blueprint

PART –C
[20 marks]

Q. 10. Case study – Compulsory

Suntech Power Holdings of China (later called Wuxi Suntech Power Co Ltd, PR China) was the world’s largest producer of photovoltaic cells for converting light energy into electricity. In anticipation of America and Europe’s continued drive for alternate energy sources, Suntech aggressively expanded Plant construction and capacity development to take advantage of the expected steady growth in the solar power industry. But the anticipated big increase in demand did not occur. The company was stuck with idle capacity and excess inventory. Suntech was forced to declare bankruptcy in 2015 because it’s anticipated higher demand for photovoltaic cells never materialized. Because of cheaper oil prices and US Government’s decision to protect home grown companies to putting tariffs on Suntech’s exports, the company found that it’s too rapid expansion had made it impossible to remain profitable

Q1 Write a line on any 4 types of capacity
Q2 What are the general steps followed in capacity augmentation?
Q3 What is the difference between incremental and One step expansion
Q4. What could Suntech have done to remain profitable?

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