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| Name:         |  |
| Enrolment No: |  |

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, May 2022**

**Course: Operations & Materials Management**

**Program: BBA Core**

**Course Code: LSCM 1004**

**Semester: II**

**Time : 03 hrs.**

**Max. Marks: 100**

**Instructions:**

**SECTION A  
10Qx2M=20Marks**

| S. No. |  | Marks         | CO  |
|--------|--|---------------|-----|
| Q 1    | Which of the following are the primary functions of all organizations?<br>A) production/operations, marketing, and human resources<br>B) marketing, human resources, and finance/accounting<br>C) sales, quality control, and production/operations<br>D) marketing, production/operations, and finance/accounting<br>E) research and development, finance/accounting, and purchasing  | 2             | CO1 |
| Q 2    | The _____ is how an organization expects to achieve its missions and goals.  | 2             | CO1 |
| Q 3    | _____ is the Japanese word for the ongoing process of unending improvement.  | 2             | CO1 |
| Q 4    | <b>Identify the name of contributor(s)/author(s) for following statements:</b><br>a) <i>“The process of planning and regulating the operations of that part of an enterprise, which is responsible for actual transformation of materials into finished products”.</i><br>b) <i>“The concept of Cause and Effect diagram is one of the most important tool out of seven quality tools and the father of Quality Control Circle (QCC)”.</i> | 2             | CO1 |
| Q 5    | In the six-sigma process, each letter of DMAIC signifies _____;<br>_____; _____; _____; and _____.   | 2             | CO1 |
| Q 6    | <b>True/False Statements:</b><br>a) Rapid delivery focused on shorter time between order placement and delivery.<br>b) Outsourcing refers to hiring out or subcontracting some of the work that a company needs to do.<br>c) Value is the attractiveness of a product relative to its affordable quality.<br>d) Routing indicates the loading and sequencing of the shop floor.  | 4Qx1<br>M = 4 | CO1 |
| Q 7    | The TBL (Triple Bottom Line) dimensions commonly called the three Ps: _____.   | 2             | CO1 |
| Q 8    | _____ concept is used when services and companies leave because of over concentration of industries.   | 2             | CO1 |

|     |   |   |     |
|-----|---|---|-----|
| Q 9 | Introduction, _____, Maturity, and _____ are the four stages of product life cycle (PLC). | 2 | CO1 |
|-----|---|---|-----|

**SECTION B**  
**4Qx5M= 20 Marks**

|      |  |   |     |
|------|--|---|-----|
| Q 10 | Explain the distinction between goods and services.                        | 5 | CO2 |
| Q 11 | Explain the ways through which quality improves the <u>Profitability</u> . | 5 | CO2 |
| Q 12 | Discuss the store functions.   | 5 | CO2 |
| Q 13 | Explain the factor rating method for location decision.                    | 5 | CO2 |

**SECTION-C**  
**3Qx10M=30 Marks**

| Q 14             | <p>Complete the following diagram by filling up point 1 to 10.</p> <div style="text-align: center;"> </div> <p align="center"><b>OR</b></p> <p>Jack's Refrigeration Repair is under contract to repair, recondition, and/or refurbish commercial and industrial icemakers from restaurants, seafood processors, and similar organizations. Jack currently has five jobs to be scheduled, shown in the order in which they arrived.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Job</th> <th>Processing Time (hours)</th> <th>Due (hours)</th> </tr> </thead> <tbody> <tr> <td>V</td> <td>20</td> <td>50</td> </tr> <tr> <td>W</td> <td>10</td> <td>35</td> </tr> <tr> <td>X</td> <td>50</td> <td>90</td> </tr> <tr> <td>Y</td> <td>15</td> <td>35</td> </tr> <tr> <td>Z</td> <td>55</td> <td>75</td> </tr> </tbody> </table> <p>(a) Complete the following table. (Show your supporting calculations below).<br/>           (b) Which dispatching rule has the best score for flow time?<br/>           (c) Which dispatching rule has the best score for work-in-process (jobs in the system)?<br/>           (d) Which dispatching rule has the best score for lateness?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Dispatching Rule</th> <th>Job Sequence</th> <th>Average Flow Time</th> <th>Average Number of Jobs</th> <th>Average Lateness</th> </tr> </thead> <tbody> <tr> <td>FCFS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SPT</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>EDD</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | Job               | Processing Time (hours) | Due (hours)      | V | 20 | 50 | W | 10 | 35 | X | 50 | 90 | Y | 15 | 35 | Z | 55 | 75 | Dispatching Rule | Job Sequence | Average Flow Time | Average Number of Jobs | Average Lateness | FCFS |  |  |  |  | SPT |  |  |  |  | EDD |  |  |  |  | <b>10</b> | <b>CO3</b> |
|------------------|---|-------------------|-------------------------|------------------|---|----|----|---|----|----|---|----|----|---|----|----|---|----|----|------------------|--------------|-------------------|------------------------|------------------|------|--|--|--|--|-----|--|--|--|--|-----|--|--|--|--|-----------|------------|
| Job              | Processing Time (hours)   | Due (hours)       |                         |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| V                | 20  | 50                |                         |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| W                | 10  | 35                |                         |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| X                | 50  | 90                |                         |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| Y                | 15  | 35                |                         |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| Z                | 55  | 75                |                         |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| Dispatching Rule | Job Sequence  | Average Flow Time | Average Number of Jobs  | Average Lateness |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| FCFS             |   |                   |                         |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| SPT              |   |                   |                         |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| EDD              |   |                   |                         |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |
| Q 15             | Explain the concept of <i>Ergonomics</i> by giving an example of your university. Name  | <b>10</b>         | <b>CO3</b>              |                  |   |    |    |   |    |    |   |    |    |   |    |    |   |    |    |                  |              |                   |                        |                  |      |  |  |  |  |     |  |  |  |  |     |  |  |  |  |           |            |

|                                   | all seven types of wastes of lean manufacturing that an industry should eliminate with its use.   |                 |     |   |   |                   |    |    |    |                   |    |    |    |                          |   |     |     |                              |   |   |   |                                   |   |     |   |    |     |
|-----------------------------------|---|-----------------|-----|---|---|-------------------|----|----|----|-------------------|----|----|----|--------------------------|---|-----|-----|------------------------------|---|---|---|-----------------------------------|---|-----|---|----|-----|
| Q 16                              | <p>Calculate the vendor rating for the following. The item under consideration is the same from all suppliers.</p> <table border="1"> <thead> <tr> <th>Supplier's Data</th> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>Quantity Supplied</td> <td>90</td> <td>80</td> <td>75</td> </tr> <tr> <td>Quantity accepted</td> <td>78</td> <td>80</td> <td>70</td> </tr> <tr> <td>Price of each item (Rs.)</td> <td>4</td> <td>4.2</td> <td>3.9</td> </tr> <tr> <td>Delivery promised (in weeks)</td> <td>6</td> <td>6</td> <td>6</td> </tr> <tr> <td>Actual deliveries made in (weeks)</td> <td>8</td> <td>6.2</td> <td>7</td> </tr> </tbody> </table> <p><i>Weightage for quality = 70%, Price = 20%, Delivery = 10%</i></p> | Supplier's Data | A   | B | C | Quantity Supplied | 90 | 80 | 75 | Quantity accepted | 78 | 80 | 70 | Price of each item (Rs.) | 4 | 4.2 | 3.9 | Delivery promised (in weeks) | 6 | 6 | 6 | Actual deliveries made in (weeks) | 8 | 6.2 | 7 | 10 | CO3 |
| Supplier's Data                   | A   | B               | C   |   |   |                   |    |    |    |                   |    |    |    |                          |   |     |     |                              |   |   |   |                                   |   |     |   |    |     |
| Quantity Supplied                 | 90  | 80              | 75  |   |   |                   |    |    |    |                   |    |    |    |                          |   |     |     |                              |   |   |   |                                   |   |     |   |    |     |
| Quantity accepted                 | 78  | 80              | 70  |   |   |                   |    |    |    |                   |    |    |    |                          |   |     |     |                              |   |   |   |                                   |   |     |   |    |     |
| Price of each item (Rs.)          | 4   | 4.2             | 3.9 |   |   |                   |    |    |    |                   |    |    |    |                          |   |     |     |                              |   |   |   |                                   |   |     |   |    |     |
| Delivery promised (in weeks)      | 6   | 6               | 6   |   |   |                   |    |    |    |                   |    |    |    |                          |   |     |     |                              |   |   |   |                                   |   |     |   |    |     |
| Actual deliveries made in (weeks) | 8   | 6.2             | 7   |   |   |                   |    |    |    |                   |    |    |    |                          |   |     |     |                              |   |   |   |                                   |   |     |   |    |     |

**SECTION-D**  
**2Qx15M= 30 Marks**

|      |   |    |     |
|------|---|----|-----|
| Q 17 | What is the objective of aggregate planning? Explain the aggregate planning options and strategies.   | 15 | CO4 |
| Q 18 | <p>(i) There are two industries manufacturing two types of plugs. The standard time per piece is 1.5 minutes. The output of the two industries is 300 and 200 respectively per shift of 8 hours.</p> <p>a) What is the productivity of each per shift of 8 hours?</p> <p>b) What is the production of each per week (6 days) on the basis of double shift?</p> <p>(ii) How control charts are different from run charts? Give examples in support of your answer.</p> | 15 | CO4 |