**20ME703/PE**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular) DEGREE EXAMINATION** | | | | |
| **January, 2024** | | **Mechanical Engineering** | | |
| **Seventh Semester** | **Operations Management** | | | |
| **Time:** Three Hours | | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | | **(4X14=56 Marks)** |

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|  |  |  | CO | BL | M |
| 1 | a) | What is the purpose of forecasting? | CO1 | L1 | 1M |
|  | b) | Define job production in manufacturing. | CO1 | L1 | 1M |
|  | c) | What are the quantitative techniques? | CO1 | L1 | 1M |
|  | d) | Name two aggregate planning strategies. | CO2 | L1 | 1M |
|  | e) | How does scheduling contribute to efficient production? | CO2 | L2 | 1M |
|  | f) | What are common scheduling techniques? | CO2 | L1 | 1M |
|  | g) | Define materials management. | CO3 | L1 | 1M |
|  | h) | What are P and Q systems in inventory control? | CO3 | L1 | 1M |
|  | i) | List the inputs for MRP. | CO3 | L1 | 1M |
|  | j) | Explain the concept of inventory. | CO3 | L2 | 1M |
|  | k) | What do P chart and C chart represent in SQC? | CO4 | L2 | 1M |
|  | l) | Define acceptance sampling. | CO4 | L1 | 1M |
|  | m) | What are the key components of Industry 4.0? | CO4 | L1 | 1M |
|  | n) | What is Total Quality Management (TQM)? | CO4 | L1 | 1M |
| **Unit-I** | | | | | |
| 2 | Analyze the advantages and disadvantages of each production system concerning product customization, economies of scale, and inventory management. | | CO1 | L2 | 14M |
| **(OR)** | | | | | |
| 3 | Compare and contrast qualitative and quantitative forecasting methods, highlighting their strengths and limitations. | | CO1 | L3 | 14M |
| **Unit-II** | | | | | |
| 4 | a) | Explain the significance of aggregate planning methods in the overall operations of a company. | CO2 | L2 | 7M |
|  | b) | Differentiate between forward scheduling and backward scheduling processes in production planning. | CO2 | L3 | 7M |
| **(OR)** | | | | | |
| 5 | a) | Identify and elaborate on common challenges or problems encountered during the process of aggregate planning strategies. | CO2 | L3 | 14M |
| **Unit-III** | | | | | |
| 6 | a) | Discuss the different types of Inventory Cost. | CO3 | L2 | 7M |
|  | b) | Derive the expression for EOQ model. | CO3 | L2 | 7M |
| **(OR)** | | | | | |
| 7 | a) | Explain ABC and VED analysis in detail. | CO3 | L2 | 7M |
|  | b) | Discuss the outputs generated from MRP and how they guide production and procurement decisions. | CO3 | L3 | 7M |
| **Unit-IV** | | | | | |
| 8 | a) | Explain the role of quality engineering in ensuring product or service excellence. | CO4 | L2 | 7M |
|  | b) | Define Supply Chain Management and its significance in today's global business environment. | CO4 | L2 | 7M |
| **(OR)** | | | | | |
| 9 |  | The average size of a cast cylinder measured at five different cross sections, range of dimensions taken over ten days are tabulated below. Compute control limit plot and R charts. Also take A2 = 0.58, D3 = 0, D4 = 2.11.   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Sample No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |  | 7 | 7.5 | 8 | 10 | 9.5 | 11 | 11.5 | 4 | 3.5 | 4 | | R | 2 | 3 | 2 | 2 | 5 | 3 | 6 | 2 | 2 | 3 | | CO4 | L2 | 14M |

