**18ME702**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **December, 2021** | **Mechanical Engineering** | | |
| **Seventh Semester** | **OPEARTIONS MANAGEMENT** | | |
| **Time:** Three Hours | | **Maximum:** 50 Marks | |
| *Answer Question No.1 compulsorily.* | | | (10X1 = 10 Marks) |
| *Answer ONE question from each unit.* | | | (4X10=40 Marks) |

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| 1. | a) | List types of forecasting. | CO1 |  |
|  | b) | What are aggregate planning strategies? | CO1 |  |
|  | c) | Define inventory. | CO2 |  |
|  | d) | Define scheduling | CO1 |  |
|  | e) | Write any four benefits of MRP. | CO2 |  |
|  | f) | What is the use of Travelling Salesman Problem? | CO4 |  |
|  | g) | Concept of ERP | CO3 |  |
|  | h) | What is Quality engineering? | CO3 |  |
|  | i) | Concept of acceptance sampling. | CO3 |  |
|  | j) | Degeneracy in Transportation. | CO4 |  |
| **Unit -I** | | | | |
| 2. |  | What is aggregate planning? What are its objectives? What is the need for  aggregate planning and explain various steps in aggregate planning? | CO1 | 10M |
| **(OR)** | | | | |
| 3. | a) | Distinguish between the qualitative and quantitative methods of sales  forecasting techniques. | CO1 | 5M |
|  | b) | Discuss different types of production systems with suitable examples? | CO1 | 5M |
| **Unit -II** | | | | |
| 4. | a) | Explain P and Q systems of controlling the inventories with neat diagrams. | CO2 | 5M |
|  | b) | Explain various benefits and demerits of JIT system. | CO2 | 5M |
| **(OR)** | | | | |
| 5. |  | Explain about ABC and VED analysis. | CO2 | 10M |
| **Unit -III** | | | | |
| 6. |  | The following table gives the number of defects in a casting used for making crank case of diesel engine.   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Casting No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | Number of  defects | 15 | 11 | 25 | 10 | 12 | 20 | 15 | 10 | 17 | 13 |   Construct an appropriate control chart with the control limits and comment on the process. | CO3 | 10M |
| **(OR)** | | | | |
| 7. | a) | Discuss about Quality Function Deployment. | CO3 | 5M |
|  | b) | Write about Juran’s steps for Quality Improvement. | CO3 | 5M |
| **Unit -IV** | | | | |
| 8. | | Solve the linear programming problem using Simplex method.  Max Z =3x1 + 2x2  Subject to 4x1+ 3x2 ≤ 12, 4x1 + x2 ≤ 8, 4x1 - x2 ≤ 8, x1 , x2 ≥ 0 | CO4 | 10M |
| **(OR)** | | | | |
| 9. | | A salesman has to visit five cities A, B, C, D and E. The distance (in hundred miles between the five cities are as follows:  If the salesman starts from city A and has to come city A, which route should he select so that the total distance travelled is minimum?   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  |  | A | B | C | D | E | | A | --- | 7 | 6 | 8 | 4 | | B | 7 | --- | 8 | 5 | 6 | | C | 6 | 8 | --- | 9 | 7 | | D | 8 | 5 | 9 | --- | 8 | | E | 4 | 6 | 7 | 8 | --- | | CO4 | 10M |

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