Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14ME2054** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PRINCIPLES OF RESOURCE AND QUALITY MANAGEMENT** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | List out the various applications and advantages of linear programming problem. | CO1 | 4 |
| b. | Formulate the following LPP and solve it. A Person requires atleast 10,12 and 12 units of chemicals A, B and C respectively for his workshop. A liquid product contains 5, 2 and 1 units of A, B and C respectively per bottle. A dry product contains 1, 2 and 4 units of A, B and C per box. If the liquid product sells for Rs.30 per bottle and dry product sells for Rs.20 per box how much of each should be purchased to minimize the cost and meet the requirement. | CO1 | 16 |
| (OR) | | | | |
| 2. | a. | Define Basic solution | CO1 | 2 |
| b. | Solve the following transportation problem. Cell entries represent the unit of shipping.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | I | II | III | IV | V | | A | 12 | 4 | 9 | 5 | 9 | | B | 8 | 1 | 6 | 6 | 7 | | C | 1 | 12 | 4 | 7 | 7 | | D | 10 | 15 | 6 | 9 | 1 |   The availability at the sources I, II, III, IV and V are 40, 20, 50, 30 and 40 respectively. The requirement at destinations A, B, C and D are 55, 45, 30 and 50 respectively. Find the initial solution by Vogell’s approximation method and optimal allocation using MODI method. | CO2 | 18 |
|  |  |  |  |  |
| 3. | a. | Discuss about the Kendall’s notation for representing queuing models. | CO2 | 4 |
|  | b. | Determine the Optimal Sequence of jobs that minimizes the total elapsed time based on the following information. Processing time on a machine is given in hours and passing time is not allowed.   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Job | A | B | C | D | E | F | G | | Machine A | 3 | 8 | 7 | 4 | 9 | 8 | 7 | | Machine B | 4 | 3 | 2 | 5 | 1 | 4 | 3 | | Machine C | 6 | 7 | 5 | 11 | 5 | 6 | 12 | | CO3 | 16 |
| (OR) | | | | |
| 4. | a. | Solve the following game and find the value of the game  Player B   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Player A |  | B1 | B2 | B3 | B4 | | A1 | -5 | 2 | 0 | 7 | | A2 | 5 | 6 | 4 | 8 | | A3 | 4 | 0 | 2 | -3 | | CO3 | 2 |
|  | b. | The activities with time estimates of a project are listed in table   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Activities | 1-2 | 1 -3 | 2 - 4 | 3 -4 | | t**o** | 3 | 2 | 1 | 2 | | t**m** | 6 | 5 | 4 | 5 | | t**p** | 15 | 14 | 7 | 8 |  1. Determine the duration of the project. 2. Find the variance of all activities and the project. 3. What is the probability of completing the project in 14 days? 4. What due date has about 92% chances of being met? | CO3 | 18 |
|  |  |  |  |  |
| 5. | a. | Define Quality Function Deployment. | CO4 | 2 |
|  | b. | Define: Bench marking. List its types. | CO4 | 4 |
|  | c. | Discuss in detail about different levels of Benchmarking and reasons for implementing benchmarking. | CO4 | 14 |
| (OR) | | | | |
| 6. | a. | List out nine dimensions of quality. | CO4 | 2 |
|  | b. | Explain Deming’s 14 principles of quality in detail | CO4 | 18 |
|  |  |  |  |  |
| 7. | a. | Discuss about the different elements in the objectives of TQM. | CO4 | 4 |
|  | b. | List out the seven tools of quality. Discuss in detail. | CO4 | 16 |
| (OR) | | | | |
| 8. | a. | Differentiate Total Quality management and Six Sigma. | CO4 | 4 |
|  | b. | What are the different phases of six sigma concept? Explain. | CO4 | 16 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | What is the difference between ISO 9001 and ISO 9002? | CO4 | 2 |
|  | b. | Write the benefits of ISO registration. | CO4 | 2 |
|  | c. | Discuss the ISO quality management system implementation procedure. | CO4 | 16 |

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