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

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**End Semester Examination – Nov/Dec – 2018**

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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. | Solve the following LPP using Simplex method  Minimize Z=5x1 – 6x2 -7x3  Subject to : x1 + 5x2 – 3x3 ≥ 15  5x1 - 6x2 + 10x3 ≤ 20  x1 + x2 + x3 =5  x1,x2,x3 ≥ 0 | CO1 | 18 |
| b. | Enumerate the limitation of graphical method in LPP? | CO1 | 2 |
| (OR) | | | | |
| 2. |  | There are three factories located at places P,Q and R. .These factories supply products to whole sale agents located at places S, T and W. The weekly capacities of factories P,Q and R are 76,82 AND 72 units respectively. Weekly requirements of agents S, T and W are 72,102 and 41 units respectively. the unit transportation cost in rupees from P to S, Tand W are5,8 and 8 respectively, from Q to S,T and W are16,25 AND 15 respectively and R to S,T and W are 9,16 and 25 respectively. Find the optimum transportation schedule. | CO2 | 20 |
|  |  |  |  |  |
| 3. |  | There are six jobs each of which must go through the two machines A and B in the order A-B. Processing times in hours are given in table.   |  |  |  | | --- | --- | --- | | JOB | Processing Time(Hours) | | | Machine-A | Machine-B | | 1 | 3 | 2 | | 2 | 6 | 5 | | 3 | 4 | 6 | | 4 | 7 | 3 | | 5 | 5 | 2 | | 6 | 8 | 8 |   Determine the sequence for the six jobs which will minimize the elapse time and idle time. | CO3 | 18 |
|  | b. | Describe row wise reduction in assignment model? | CO2 | 2 |
| (OR) | | | | |
| 4. | a. | The jobs of the project with their respective time estimates (days) are given in the table   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Jobs | 1-2 | 1-3 | 2-4 | 2-3 | 3-4 | 3-5 | 4-6 | 5-6 | | Optimistic  Time | 2 | 4 | 2 | 2 | 0 | 3 | 6 | 1 | | Most probable  Time | 6 | 8 | 3 | 4 | 0 | 6 | 10 | 3 | | Pessimistic time | 10 | 12 | 4 | 6 | 0 | 9 | 14 | 5 |  1. Draw the network and calculate the following.   Duration, variance and standard deviation of the project.   1. What is the probability that the job will be completed by the due date 23days & 25 days? | CO2 | 18 |
|  | b. | List the applications of CPM model and PERT model. | CO2 | 2 |
|  |  |  |  |  |
| 5. | a. | Solve the following game by using the concept of dominance  Player B   |  |  |  |  | | --- | --- | --- | --- | | 3 | 2 | 4 | 0 | | 2 | 4 | 2 | 4 | | 4 | 2 | 4 | 0 | | 0 | 4 | 0 | 8 |     Player A | CO2 | 18 |
|  | b. | Write the properties of 2 person game. | CO2 | 2 |
| (OR) | | | | |
| 6. | a. | Arrivals at a public telephone are considered to be Poisson with an average time of 8 minutes between one arrival and next. The length of the telephone calls is assumed to be exponentially distributed with a mean value of 2 minutes  i) Find arrival rate and service rate.  ii) Determine the average queue length and average waiting time. | CO2 | 18 |
|  | b. | Estimate the formula for the total probability of the project. | CO3 | 2 |
|  |  |  |  |  |
| 7. | a. | Explain the Deming philosophy of 14 principles. | CO4 | 18 |
| b. | Enumerate the definision of TQM. |  | 2 |
| (OR) | | | | |
| 8. |  | Define Benchmarking and explain the procedure to perform the same. | CO4 | 20 |
|  | |  |  |  |
|  | | **Compulsory:** |  |  |
| 9. |  | Explain the basic requirements of ISO 9001:2000, quality management systems. | CO4 | 20 |