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Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(CSE Engg.) (2015 to 2017) (EI-I) (Sem.-3)**OPTIMIZATION TECHNIQUES****Subject Code : MTCS-303****M.Code : 74160****Time : 3 Hrs.****Max. Marks : 100****INSTRUCTIONS TO CANDIDATES :**

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. Define Operation Research. State the different types of models used in Operations Research. Briefly explain the general methods of solving these models.
2. Solve the following problem using Simplex method :

$$\text{Maximize } Z = f(x,y) = 3x + 2y$$

subject to :

$$2x + y \leq 18$$

$$2x + 13y \leq 42$$

$$3x + y \leq 24$$

$$x \geq 0, y \geq 0$$

3. What is Linear Programming Problem? Explain the detailed structure of Linear Programming.
4. Develop an algorithm for North-West Corner method for solving transportation problem.
5. What is dynamic programming? Differentiate between Deterministic and Probabilistic Dynamic Programming. Give applications of dynamic programming.
6. If $P(X) = 0.3$, $P(Y) = 0.2$ and $P(Z) = 0.1$ and X, Y, Z are independent events, find the probability of occurrence of at least one of the three events X, Y and Z .
7. What is Integer Programming? Explain in detail Branch and Bound method with the help of an example.
8. Explain in detail Gomory's cutting-plane algorithm for solving an integer Linear Programming, by taking suitable example.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.