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FIRST SEMESTER

Roll No.
M.Tech. (THE)

SUPPLEMENTARY EXAMINATION

February 2019

ME-513 OPTIMIZATION TECHNIQUE

Time: 3:00 Hours

Max. Marks: 100

Note: Answer any FIVE questions. All questions carry equal marks.
Assume suitable missing data, if any.

1. a) Consider the following minimization problem.
Minimize $U = x^2 + y^2 + z^2$
Subject to constraint:
 $3x + 2y + z = 10$ & $x + 2y + 2z = 6$.
Solve this using the Lagrange multiplier method. (10)
- b) Explain the solution procedure for two variable unconstrained optimization problems. (10)
2. Find optimal solution of the following transportation problem. (20)

	D ₁	D ₂	D ₃	D ₄	Supply
S ₁	9	16	15	9	15
S ₂	2	1	3	5	25
S ₃	6	4	7	3	20

3. A company wishes to assign 4 jobs to 3 machines. The estimates of the times (in minutes) each machine would take to complete a job is given below. How should the jobs should be allocated to the machines, so that the total cost is minimum?

Jobs	Machine		
	M ₁	M ₂	M ₃
I	8	25	14
II	12	26	5
III	34	19	14
IV	17	29	19

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4. Discuss the procedure to solve an optimization problem using dynamic programming. (20)
5. Explain the branch and bound method for solving an Integer programming problem. (20)
6. a) Illustrate Golden Section method with suitable example. (10)
b) Write a short note on Duality. (10)
7. Write short note on any two from the various Intelligent Techniques of optimization. (20)

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