Mahindra University Hyderabad

École Centrale School of Engineering

Minor-II Exam

Program: B. Tech. Branch: CM Year: II Semester: IV

Subject: Optimization Techniques (MA2210)

Date: 17/04/2025 Start Time: 2:00 PM

Time Duration: 1.5 Hours Max. Marks: 20

Instructions:

1) There are 3 questions, all of which are compulsory.
2) Justify your answer wherever required. Guesswork will not be considered in evaluation.
3) Use of non-programmable scientific calculator is allowed. However, sharing calculators during exams is strictly prohibited.

Course outcomes (COs)

CO 1: Formulate and classify optimization problems, including identifying design vectors and constraints.

CO 2: Apply classical optimization techniques to find optimal solutions to single and multivariable problems.

CO 3: Solve linear programming problems and comprehend their real-world applications.

CO 4: Solve transportation problems using different methods and understand their relevance in logistics and supply chain management.

CO 5: Apply integer programming techniques to tackle problems involving discrete decision variables.

Q.No.	Questions	Marks	CO	BL	PO	PI Code
1	Write the given LPP in standard form: Minimize $x_1 - 3x_2 + 2x_3$ subject to $3x_1 - x_2 + 3x_3 \leq 7; -2x_1 + 4x_2 \leq 12; -4x_1 + 3x_2 + 8x_3 \leq 10; x_1, x_2, x_3 \geq 0$.	5	CO3	L2	PO2	2.1.1
2	Solve the above LPP (given in Q1) using simplex method.	10	CO3	L4	PO1	1.1.1
3	Answer the following questions: a) When do we use graphical method to solve a Linear Programming Problem? (1) b) What is a Basic Feasible Solution? (2) c) What is post optimality analysis? (2)	5	CO3	L2	PO1	1.2.1

P.T.O.