MMA-C214
OPTIMIZATION TECHNIQUES

MM : 100 | Sessional : 30
Time : 3 hrs | ESE : 70
L T P | Pass Marks : 40
5 2 0

NOTE: The question paper shall consist of two sections (Sec.-A and Sec.-B). Sec.-A shall contain 10 short answer type questions of six marks each and student shall be required to attempt any five questions. Sec.-B shall contain 8 descriptive type questions of ten marks each and student shall be required to attempt any four questions. Questions shall be uniformly distributed from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.

Introduction: Definition of O.R., General methods for solving O.R. models, Phases of O.R. study, Simplex method, Two-phase and Big-M methods, Transportation and assignment problem.

Non-linear Programming: Convex sets and convex functions, Quadratic programming, K-T conditions, Beale's methods.

Sequencing Theory: Introduction, Processing with n-jobs and two machines, n-jobs and three machines, n-jobs and m- machines, Concept of jobs blocks, Processing two jobs on m-machines.

Game Theory: Saddle point, Graphical method for 2 x n and m x 2 games, Solution of m x n games by linear programming.

Inventory Management: Inventory control, Types of inventories, Cost associated with inventories, Factors affecting inventory control, Single item deterministic problems with and without shortages, Inventory control with price breaks, Inventory control for one period without setup cost with uncertain demands.

Queuing Theory: Introduction, Characteristics of queuing systems, Poisson process and Exponential distribution, Classification of queues, Transient and steady states, Poisson queues (M/M/1, M/M/C).

Text /Reference Books

1. H.A. Taha, Operations Research: An introduction,Macmillan Publishing Company
2. P.K.Gupta, Kanti Swarup& Man Mohan, Operations Research, Sultan Chand & Co
3. R.L.Ackoff and N.W. Sasieni, Fundamental of Operations Research, John Willy, New York
4. S.D.Sharma, Operations Research, Kedar Nath Ram Nath