Semester - III

Operations Research ---I

Course No. MM-CP-309 ***Maximum Marks: 100***
Duration of Examination: 3 hrs ***(a) External Exam: 80***
(b) Internal Exam: 20

Unit I

Definition and scope of Operational Research, Applications of Operation Research in Engineering and Management Sciences. Modeling in Operation Research, Principles and its solutions, general methods of solving OR models , main phases of OR study, role of OR in decision making under uncertainty and risk, use of different criteria .

Unit I

Linear programming problems (LPP), applications to industrial problems –optimal product links and activity levels, convex sets and convex functions, simplex method and extreme point theorems. Big M and two phase methods of solving LPP.

Unit III

Revised simplex method, Assignment problem, Hungarian method, Transportation problem, and Mathematical formulation of transportation problem, methods of solving (North-West Corner rule, Vogel's method and U.V. method.)

Unit IV

Concept and applications of duality, formulation of dual problem, duality theorems (weak duality and strong duality theorems), dual simplex method, primal- dual relations, complementary slackness theorems and conditions.

References

1. urchman C.W Ackoff R.L and Arnoff E.L (1957) Introduction to Operations ResearchCh
2. F. S Hiller and G.J. Lieberman: Introduction to Operations Research (Sixth Edition) , McGraw Hill International, Industries Series, 1995.
3. G. Hadley : Linear programming problem, Narosa publishing House, 1995.
4. Gauss S.I : Linear Programming : Wiley Eastern
5. Kanti Swarup, P.K Gupta and Singh M. M: Operation Research; Sultan Chand & Sons.
6. M.S. Bazaara, J.J Jarvis and Hanief D. Sherali : Linear programming and Network flows, John Wiley And Sons. New York 190.
7. Philips D.T., Ravindran A. and Solberg J. Operation Research, Principles and Practice.
8. Taha H.A (1982) Operational Research : An Introduction; M,acmillan.