

B.A/B. Sc-III Semester- VI

Paper-II (ST-602)

Time: 3 Hours

M.M.:B. Sc: 40+10*

B.A: 28+7*

* Internal Assessment

Operations Research

Note : There will be nine questions in all. Question No.1 will be compulsory covering whole of the syllabus and comprising 5 to 8 short answer type questions. Rest of the eight questions will be set from the four units uniformly i.e. two from each unit. The candidate will be required to attempt five questions in all selecting one question from each unit and the compulsory one. All the questions will carry equal marks except the compulsory question, the distribution of marks for which will be as follows:-

B.Sc.8 marks and B.A. 6 marks.

UNIT-I

Objective of O.R., nature and definitions of O.R., Scope of O.R., Meaning and necessity of O.R. models, classification of O.R. models, Advantages & disadvantages of O.R. models. Steps in model formulation, principles of modeling. Characteristics of a good model, Allocation problems.

UNIT-II

Linear programming problem (LPP): Definition, objective function, constraints, graphical solution of L.P.P., limitations of graphical method, Simplex method to solve L.P.P., concept of initial basic feasible solution, computation procedure for Simplex method.

UNIT-III

Artificial variable techniques: Big-M method, Two-phase method. Duality in Linear Programming; Concept of duality, Fundamental properties of duality.

UNIT-IV

Transportation Problem (T.P.): Formulation, Basic feasible solution. Different methods to find initial feasible solution: North-West corner rule, Row minima method, column minima method, Matrix minima method (Least cost entry method), Vogel's Approximation method (or Unit cost penalty method). UV-method (Modi's method) for finding the optimum solution of T.P.

Books recommended

| S. No. | Title of Book | Name of author | Publisher |
|---------------|--------------------------------------|-------------------------------|--------------------|
| 1. | Operations Research | Hillier F.S. & Lieberman G.J. | Tata McGraw Hill |
| 2. | Linear Programming | Hadley G. | Narosa |
| 3. | Operations Research: An Introduction | Taha H.A. | Macmillan Pub. Co. |
| 4. | Operations Research | Goel B.S. & Mittal S.K. | Pragati Prakashan |
| 5. | Operations Research | Sharma S.D. | KedarNath & Co. |
| 6. | Operations Research | Sharma J.K. | Macmillan Pub. |