

## Paper 1.6: Operations Research

### UNIT-1:

**Introduction to operations research:** Meaning, Models and Techniques. **Linear programming:** Definition, mathematical formulation of linear programming models, graphical and simplex methods for both maximising and minimising, duality

### UNIT-2:

**Transportation Problems:** Various methods of initial feasible solution and optimal cost, maximisation transportation problem, Prohibited routes. **Assignment Problems:** Introduction, simple and unbalanced problems

### UNIT-3:

**Game Theory:** Concept of two –persons zero sum game, pure and mixed strategy games, saddle point, odds method and dominance methods for solving mixed strategy game.

**Data Envelopment Analysis:** Meaning and application of DEA (elementary)

### UNIT -4:

**Queuing Theory:** Single chain analysis **Replacement Theory:** Replacement of assets with deteriorates with time, replacement of assets which fail suddenly.

### UNIT -5:

**Network Analysis:** application of PERT and CPM Network drawing, calculation of Floats, Project crashing

### **Suggested Readings:**

Agrawal, N.P.: Quantitative Techniques, Ramesh Book Depot, Jaipur.

Gupta P.K. and Hira D.S. :Operation Research, S. Chand &Company, New Delhi

Kapoor, V.K. : Operations Research,Sultan Chand & Sons, New Delhi

Kothari, C.R. : An Introduction to Operations Research, Vikas Publishing House

Vohra, N.D. : Quantitative Techniques in Management, Tata McGraw Hill, New Delhi