

OPTION (E). OPERATIONS RESEARCH

(Questions will be set from each unit/section)

Units	Topics
I	Operations Research and its Scope. Linear Programming - Simplex Method. Theory of the Simplex Method. Duality and Sensitivity Analysis. Other Algorithms for Linear Programming - Dual Simplex Method. Parametric Linear Programming. Upper Bound Technique. Interior Point Algorithm. Linear Goal Programming.
II	Transportation and Assignment Problems. Network Analysis - Shortest Path Problem. Minimum Spanning Tree Problem. Maximum Flow Problem. Minimum Cost Flow Problem. Network Simplex Method. Project Planning and Control with PERT-CPM.
III	Dynamic Programming - Deterministic and Probabilistic Dynamic programming. Game Theory - Two-Person, Zero-Sum Games. Games with Mixed Strategies. Graphical Solution. Solution by Linear Programming.
IV	Integer Programming - Branch and Bound Technique, Simulation Replacement Problems, sequencing.
V	Nonlinear Programming - One and Multi-Variable Unconstrained Optimization. Kuhn-Tucker Conditions for Constrained Optimization. Quadratic Programming. Separable Programming. Convex Programming. Non-convex Programming.