**Operations research Theory questions**

**Basics of operations research**

1. Discuss the necessity of operations research in industry.
2. Discuss the scope of operations research.
3. Discuss how operations research can be too for decision making.
4. Explain the various applications of operations techniques.
5. State and explain the phases/methodology/approach of operations research.
6. State limitations of operations research.

**Linear Programming Problem**

1. State and discuss the various assumptions in LPP.
2. State various applications of LPP.
3. State advantages and limitations of LPP.
4. State general form of LPP.
5. State standard form of LPP.
6. Write short note on

i. sensitivity analysis in LPP

ii. Duality in LPP

**Transportation problem**

1. State various assumptions in transportation problem.
2. Write transportation problem as a equivalent linear programming problem.
3. What do you understand by unbalanced transportation problem? With an appropriate example explain how the transportation problem can be balanced.
4. What do understand by degeneracy in transportation problem? Explain how the degeneracy is resolved while solving transportation problem.

**Assignment problem**

1. Write assignment problem as a equivalent linear programming problem.
2. Identify the similarities and differences in between transportation and assignment problem.
3. Write short note on ‘Travelling salesman problem”.

**Sequencing problem**

1. State the various assumptions in sequencing problem.

**Games theory**

1. State the various characteristics of game.
2. What do you understand by pure and mixed strategy?
3. Explain various dominance principles during reduction of game.

**Queuing or waiting line problem**

1. State the various applications of queuing model.
2. Explain the various elements/structure of a queuing system.
3. State and explain the various operating characteristics of a queuing system.
4. State various assumptions and limitations of queuing system.

**Replacement model**

1. Write short note on group replacement.
2. Why is replacement of items required?

**Inventory models**

1. State the various types of inventories.
2. State and explain the various inventory associated costs.
3. What do you understand by “Economic order quantity”? State the various assumptions involved.
4. What do you understand by selective inventory control techniques? State at least four and explain one of them.

**Simulation**

1. What is simulation? Explain its significance.
2. State advantages, limitations and applications of simulation technique.
3. Explain Monte Carlo Simulation technique.

**Network analysis**

1. State the objectives of network analysis.
2. State advantages and limitations of network analysis.
3. Explain the distinction in between CPM and PERT.
4. Write short notes on
   1. PERT time calculations
   2. Crashing of network
   3. Resource smoothening and resource leveling
   4. Network updating