

Dronacharya College of Engineering, Gurgaon

Department of Electronics and Computers Engineering

Subject: Analysis and Design of Algorithms (CSE-305-F) **Semester:** VIII/ **Branch:** ECS

Important Questions

Section A

1. Explain the Time Space Trade-off for measuring complexity
2. Explain Asymptotic Notations with diagram
3. What is a Recurrence equation?
4. How do you solve a recurrence equation?
5. Explain the complexity analysis of linear search.
6. What is the Divide and Conquer approach of designing algorithms
7. Write the algorithm for finding Maximum and Minimum in an array
8. Explain Merge Sort. Also explain its complexity.

Section B

1. Explain the Greedy approach of designing algorithms
2. State the fractional Knapsack Problem and how you solve it.
3. State the 0/1 Knapsack Problem and how you solve it
4. What are Multistage Graphs?
5. What is the algorithm for finding all-pair shortest paths in graph theory
6. Explain the Travelling salesperson problem.

Section C

1. What is the backtracking technique of designing algorithms?
2. Explain the 8 Queens problem
3. Explain the sum of subsets problem
4. Explain the graph colouring problem and its complexity analysis
5. What is the Branch and Bound technique for designing Algorithms?
6. Explain the 0/1 Knapsack problem.

Section D

1. What do you mean by Class P problems?
2. What do you mean by Class NP problems?
3. What do you mean by Class NP Hard problems?
4. What do you mean by Class NP Complete problems?
5. State the cook's theorem.