

NOVEMBER/DECEMBER 2019

**MCS34 — DESIGN AND ANALYSIS OF
ALGORITHMS**

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Explain about algorithm with suitable notation of algorithm.

Or

- (b) Illustrate the problem types that you face during algorithm analysis.

2. (a) What are the advantages of divide and conquer? How do you solve divide and conquer problems.

Or

- (b) How do you perform a binary search? Explain with suitable example.

3. (a) What is dynamic programming? How does it work?

Or

- (b) How do you find the optimal binary search tree? Examine the time complexity in it.

4. (a) Define backtracking. Discuss 8-queen's problem using backtracking.

Or

- (b) Illustrate the Hamiltonian algorithm with suitable problem.

5. (a) Discuss in detail about the graph traversal algorithms.

Or

- (b) Design and analysis of minimum spanning trees.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. List out the steps involved in analysis of linear search. Explain in detail.
7. What are the characteristics of greedy algorithm? Summarize its features.
8. What is travelling sales man problem? Is it solvable. Explain in detail.
9. Explain graph coloring algorithm with suitable example.
10. Attempt TWO of the following in detail :
- (a) 0/1 knapsack problem
 - (b) NP-Complete problem
 - (c) NP-Hard problem.