

S.No. 338

17PCS01

(For the candidates admitted from 2017-18 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2017.

First Semester

Computer Science

DESIGN AND ANALYSIS OF ALGORITHMS

Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Explain Linear data structures with examples.

Or

(b) Define Graph. Explain different types of Graphs.

2. (a) Explain the steps of Divide and Conquer method.

Or

(b) Write a note on Convex-Hull problem.



3. (a) Write an algorithm for computing Binomial coefficient.

Or

- (b) Write down an algorithm to find an optimal Binary Tree by dynamic programming.

4. (a) Compare and contrast Back-Tracking and Branch-and-Bound Techniques.

Or

- (b) Write a note on 4-Queens problem.

5. (a) What is NP-Complete problem? Explain.

Or

- (b) Explain Christofides Algorithm.

PART B — (5 × 10 = 50 marks)

Answer ALL questions.

6. (a) Explain the sequence of steps for designing and analyzing an algorithm.

Or

- (b) Discuss different important types of problems.

7. (a) Describe Quick-sort algorithm with an example.

Or

- (b) Explain Binary Search Technique with an example.

8. (a) Explain Warshall's algorithm for computing the transitive closure of a directed graph.

Or

- (b) Explain how to solve the Knapsack problem by dynamic programming.

9. (a) Explain Subset-sum problem with an example.

Or

- (b) Discuss assignment problem using Branch-and-Bound Technique.

10. (a) Explain Approximation Algorithm for Travelling salesman problem.

Or

- (b) Explain Greedy algorithm for continuous knapsack problem.