

BT-5/D-18

35001

DESIGN AND ANALYSIS OF ALGORITHMS

CSE-301

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I



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1. What is data structure ? Explain the use of Hash tables in solving problems efficiently.
2. What is Quick Sort ? Explain the steps to choose the pivot element. How does it affect the performance of quick sort ? Explain.

Unit II

3. (a) What is matrix-chain multiplication problem ? Explain using suitable examples.
(b) Explain Optimal polygonals triangulation problem using Dynamic programming approach.

4. What do you understand by disjoint sets ? How are Fibonacci heaps used to store the data ? Explain.

Unit III

5. What is shortest path of a graph ? Explain the Floyd-Warshall algorithm of finding the shortest path using Dynamic programming paradigm.
6. What is directed acyclic graphs ? How to find the shortest path in these graphs ? Explain.

Unit IV

7. Explain the following :
(a) Bipartite matching
(b) Merging network.
8. What is Max-flow Min-cut problem ? How is it solved for following graph :

