Total Pages: 2

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DESIGN AND ANALYSIS OF ALGORITHMS Paper: PC-CS208A

Time: Three Hours]

[Maximum Marks: 75

Note: Attempt five questions in all, selecting at least one question from each unit. All questions carry equal marks.

UNIT_I

- What do you understand by a recurrence? Write a detailed note on the substitution method for solving a recurrence.
 - Discuss the concepts of asymptotic notations and its properties.
- What do you understand by time complexity? What is Big O notation? Write the Quick Sort algorithm and discuss its time complexity.

UNIT-II

- 3. What do you understand by dynamic programming? Discuss using the example of matrix chain multiplication.
- What is a Huffman code? Discuss the greedy algorithm for 4. constructing the Huffman code.

UNIT-III

- 5 What is minimum spanning tree? Discuss the Steps for finding Minimum Spanning Tree using Prim's Algorithm.
- 6. Discuss Bellman-Ford algorithm that computes shortest paths from a single source vertex to all of the other vertices in a weighted digraph.

UNIT-IV

- 7. What is a bitonic sequence? Discuss bitonic sort algorithm and its time complexity.
 - 8. What is a sorting network? Discuss the structure of bubble sorting network.

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