BT-5/D09

DESIGN & ANALYSIS OF ALGORITHMS
Paper : CSE-301

Time : Three Hours]   [Maximum Marks : 100

Note : Attempt *five* questions in all, selecting at least *one* question from each unit.

UNIT–I

1. (a) What are Hash tables ? Explain their uses with examples.
                                                                    10

    (b) What is Recurrence relation ? Explain their use with example.   10

2. What is Quicksort ? Explain the algorithm for quicksort. Apply it to the following list :

    15   10   35   9   3   25   10

    Analyze its time complexity.   20

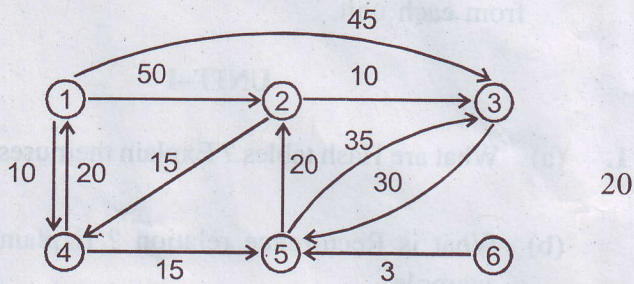## UNIT–II

3. (a) What are B trees ? Explain the operations that can be performed on B trees.   10

    (b) What is Greedy method ? Explain its uses in solving the problems with example.   10

4. (a) Discuss the Activity selection problem.   10

    (b) Write the algorithm for longest common subsequence. Analyze its Time complexity.   10

5. (a) Write the Kruskal algorithm to find the minimum spanning tree. Analyze its Time complexity. **10**

   (b) Explain Dijkstra's algorithm to find the shortest path. **10**

6. Write the algorithm for all pairs shortest path. Show the steps for the following graph :

UNIT–IV

7. (a) Explain the maximum bipartite matching technique. **10**

   (b) Explain the Merging network with example. **10**

8. Write short notes on the following :

   (a) The zero-one principle.

   (b) Ford Fulkerson method. **10+10=20**

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