Exam. Code : 206702
Subject Code : 4802

M.Sc. Computer Science 2nd Semester

DESIGN AND ANALYSIS OF ALGORITHMS

Paper—MCS-203

Time Allowed—2 Hours] [Maximum Marks—100

Note :— There are ***eight*** questions of equal marks. Candidates are required to attempt any ***four*** questions.

1. (a) How algorithm is developed ? Explain its features and importance.

   (b) How the performance of an algorithm is measured for time and space ? Explain through example.

2. What is asymptotic notation ? How and which of these notations are used to calculate best, average and worst cases ?

3. (a) How maximum and minimum is found using "Divide and Conquer" technique ? Explain.

   (b) Explain quick sort along with complexity.

4. (a) Explain 'selection' through "Divide and Conquer". Take suitable example.

   (b) Exemplify the procedure of Binary search along with its complexity.

5. (a) How a problem is solved through greedy method ? Explain various associated issues also.

   (b) How single-source shortest path is implemented to solve problems ? Explain through example.

6. (a) Demonstrate Knapsack problem along with example.

   (b) Generate minimum cost spanning tree using Kruskal's algorithm.

7. (a) Demonstrate all Pairs shortest paths through dynamic programming.

   (b) Explain how graph nodes are traversed. Give example also.

8. (a) How graph coloring is solved through backtracking ? Explain.

   (b) Explain how an item is searched in Binary trees.