S-776

Total Pages : 4 **Roll No. ----------**

MCS-507

Design and Analysis of Algorithm

(MCA/MSCIT)

2nd /4th Semester, Examination 2022(Dec.)

Time: 2 Hours Max. Marks: 70

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

Section – A

(Long Answer – type questions)

Note: Section 'A' contains Five (05) long-answer-type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

[2 x 19 = 38]

P.T.O.

Q.1. What are the features of an efficient algorithm? Difference performance estimation and performance measurement of algorithms in details with example.

Q.2. Explain the concept of Backtracking. Explain how 4 Queen Problem can be solved using backtracking.

Q.3. Explain Dijkstra's Single Source Shortest path algorithm with an example and analyze the complexity of algorithm.

Q.4. Explain quick sort algorithm with example. Analyze the best, average and worst case complexity of quick sort.

Q.5. State Matrix Chain Multiplication Problem. Write Dynamic Programming Algorithm for Matrix Chain Multiplication Problem.

Section – B

(Short-answer-type questions)

Note: Section 'B' contains Eight (08) short-answer-type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.

[4 x 8 = 32]

Q.1. Explain classification of algorithm with suitable example.

Q.2. Explain Travelling Salesman Problem (TSP) with an example.

Q.3. Specify the difference between divide and conquer strategy and dynamic programming.

Q.4. Explain Greedy approach and write the general greedy algorithm.

Q.5. Write and explain recursive binary search algorithm.

P.T.O.

Q.6. Explain Optimal Binary Search tree with an example.

Q.7. Compare BFS and DFS algorithm with example.

Q.8. Describe the algorithm for Hamiltonian cycles with an example.

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