C1029

Total Pages : 3   Roll No. ....

MCS-507

Design & Analysis of Algorithm

(MSCIT-21/MCA-20)

4th Semester / 2nd Semester Examination, 2022 (June)

Time : 2 Hours]   **Max. Marks : 80**

Note : This paper is of Eighty (80) 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 Twenty (20) marks each. Learners are required to answer any Two (02) questions only.

(2×20=40)

1. What is Design Analysis and Algorithm? Explain Interactive and recursive algorithm.

C1029 / MCS-507   **[P.T.O.**

2. Write Divide – and – Conquer recursive Merge sort algorithm and derive the time complexity of this algorithm.

3. What is the principle difference between the divide and conquer technique and dynamic programming technique?

4. Explain Prim's Minimum cost spanning tree algorithm with suitable example.

5. What is matrix chain multiplication problem? Describe a solution for matrix chain multiplication problem.

SECTION–B
(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any Four (04) questions only.   (4×10=40)

1. What is the significance of complexity of algorithms?

2. Distinguish between backtracking and branch - and bound techniques.

3. Define Minimum Cost spanning tree and list its applications.

4. Explain the general principle of Greedy method and also list the applications of Greedy method.

5. Explain how branch and bound technique is used to solve 0/1 knapsack problem.

6. Explain the principle of Binary search technique with an example and also List the drawbacks of it.

7. Compare BFS and DFS algorithm with an example graph and denote its time complexities.

8. What are the elements of dynamic programming? Explain.

————————