

A-0884

Total Pages : 4

Roll No. -----

MCS-507

Design and Analysis of Algorithm

(MCA/MSCIT)

2nd / 4th Semester Examination 2024(Dec.)

Time: 2:00 hrs

Max. Marks: 70

Note : This paper is of Seventy (70) marks divided into Two (02) Section A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

P.T.O.

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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.

[2x19=38]

- Q.1. Explain Knapsack Problem and assignment Problem with example.
- Q.2. What do you understand by the concept of Divide and Conquer technique? Explain with an example?
- Q.3. Describe Travelling sales person problem using Branch and Bound technique with an example.
- Q.4. What is Randomized quick sort? Explain its working and why is it used.
- Q.5. Explain the following terms with an example.
 - i. Linear Programming
 - ii. Dynamic programming

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.

[4x8=32]

- Q.1. What is Algorithm? What are the characteristics of an algorithm?
- Q.2. What is a brute force approach? Explain.
- Q.3. Explain the Merge sort algorithm and give its worst-case analysis.
- Q.4. Discuss in detail NP complete problems with an example.
- Q.5. Compare BFS and DFS.
- Q.6. Differentiate space and time complexity.
- Q.7. Differentiate between NP- complete and NP-hard problems?

P.T.O.

Q.8. What is Huffman Algorithm? Explain with an example.
