

Roll No.

Exam Code : J-19

Subject Code—0391-X

M. C. A. (Fourth Year) EXAMINATION

(5 Years Integrated Course)

(Prior to 2009 batch Re-appear)

ANALYSIS AND DESIGN OF COMPUTER
ALGORITHMS

MCA-403

Time : 3 Hours

Maximum Marks : 100

Section A

Note : Attempt any *Seven* questions. **7×7=49**

1. Define Data Structure. What are elementary data structures ?
2. What is Heap ? What are the different types of heaps ?

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3. Briefly describe adjacency matrix.
4. What is Greedy Method ? How is it different from dynamic programming ?
5. What is a Recurrence Relation ?
6. Briefly describe graph coloring problem.
7. Define NP complete problem.
8. Write an algorithm for finding smallest number in an array.
9. What is the problem of optimal storage on tape ?
10. Differentiate between Backtracking and Branch and Bound.

Section B

Note : Attempt all the questions. **17×3=51**

11. What is Minimum Spanning Tree ? How we build a minimum spanning tree using Kruskal's algorithm.

Or

What is the problem of Optimal Binary Search Tree ? How we will solve this problem using Dynamic Programming ?

12. How backtracking solves the problem of Sum of Subsets ?

Or

Explain 0/1 knapsack problem using Branch and Bound taking a suitable example.

13. Write an algorithm for Quick Sort.

Or

Write an algorithm for Binary Search.