

5222/A26

MAY 2011

**COMPUTER ALGORITHMS AND DATA
STRUCTURES**

Time : Three hours Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

Answer any SIX questions.

1. Write short notes on Divide and Conquer method.
2. Define Space complexity and Time complexity.
3. Explain Job sequencing with deadlines problem in detail.
4. What is Greedy method and explain it.
5. Define Dynamic programming and write its applications.
6. What is 0/1 knapsack problem? Explain.
7. Compare and contrast stack with queue.
8. What is Garbage Collection and Compaction?
9. Write any one binary tree traversal algorithm in detail.

10. Define the following;

- (a) Tree
- (b) Binary tree
- (c) Forest.

PART B — (4 × 10 = 40 marks)

Answer any FOUR questions.

- 11. Explain selection sort with an algorithm.
- 12. Describe briefly about optimal storage on tapes.
- 13. Write short notes on multi stage graphs.
- 14. Write an algorithm to insert and delete an element from queue.
- 15. What is sparse matrices? Explain how to store sparse Matrices, with example.
- 16. Explain the different ways of representing binary trees in detail.

PART C — (2 × 15 = 30 marks)

Answer any TWO questions.

- 17. With examples, explain the algorithm of strassen's matrix multiplication.

18. Explain the linked list representation of stacks and the various operations performed on it.

19. Explain threaded binary tree in detail.