APRIL 2025 **52507/225C4A**

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer any TEN questions.

1. What are the time and space complexity?

2. Show the applications of arrays.

3. Write a note on linear list.

4. Define: "Queues".

5. State the applications of stack.

6. What is circular queue?

7. List the advantages of B Trees.

8. Narrate the representation of graphs.

9. What is Kruskal's algorithm?

10. Comment on Asymptotic notations.

11. Define the term "Quick Sort".

12. What do you mean by binary search?

PART B — (5 × 5 = 25 marks)

Answer any FIVE questions.

13. Describe the sparse matrix and its representation.

14. Enumerate the procedure for circular linked list.

15. Highlight the infix to postfix conversion with example.

16. What are the applications of queues? Explain.

17. Elaborate the representation of binary tree.

18. Point out the implementation of single source shortest path.

19. Elucidate the basic concept of graph coloring in backtracking.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

20. Illustrate the deletion and searching operations on linear list.

21. Discuss the array and linked representations of queues.

22. Estimate the algorithm for inorder in binary tree traversals.

23. Compare and construct the breadth first traversal and depth first traversal.

24. Determine the 8-Queens problem using backtracking.

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