

NOVEMBER 2023 57701/CS21A/436C1A

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer any TEN questions.

1. Define the term - Time complexity of Algorithms.
2. What are Asymptotic notations?
3. Define the term — AVL Tree.
4. What is B-Tree?
5. Define the term — B+ Tree.
6. What is Divide-and-Conquer approach?
7. Distinguish between Internal and External sorting.
8. Mention the use of Dijkstra's algorithm.
9. What is Matrix chain multiplication?
10. Define the term — Huffman code.
11. What is Graph coloring problem?
12. Define the term — Hamiltonian cycles.

PART B — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

13. Explain the Performance analysis of Algorithms.
14. Describe the basics of Fibonacci heap.
15. Discuss on the working of Bellman-Ford algorithm.
16. Explain the Strassen's matrix multiplication algorithm.
17. Describe the algorithm for 0/1 Knapsack problem in Dynamic programming.
18. Discuss on the Traveling sales person problem in Dynamic programming.
19. Explain the LC and FIFO Branch and Bound solutions.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions.

20. Discuss on the Pseudo-code for expressing Algorithms
21. Explain the insertion and deletion operations in Binary search tree.

22. Describe the Prim's algorithm for finding minimum cost Spanning tree.
 23. Discuss on the working of K-way Merge sort algorithm using an example
 24. Explain the algorithm for Job sequencing with deadlines problem.
 25. Describe the algorithm for n-Queens problem using Backtracking
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