PART – A

Answer any <u>FIVE</u> questions   **5 X 5 = 25**

1. What is an Algorithm? Explain about different Asymptotic Notations with an example.

2. What is an Array? Explain about different operations on Arrays with an example.

3. Write the differences between Stacks & Queues.

4. Explain about Union and Find operations with an example.

5. Write Short Notes on Splay Tree.

6. Discuss about Adjacency Matrix and Linked Representation of a Graph with an example?

7. Write a Program in Java to implement Bubble Sort for N numbers.

8. Compare the Sorting techniques with respect to its Algorithm complexity.

9. Write an Algorithm & explain Binary Search Method of Sorting the Integers with an example.

10. Write the differences between B Tree & B+ Tree.

PART – B

Answer any <u>ONE</u> question from each Unit   **5 X 15 = 75**

UNIT-I

11. Write an Algorithm for PUSH & POP Operations on Stacks using Linked List? Explain with an example.   **(OR)**

12. Explain about (a) Circular Queue   (b) Double Ended Queue with an example?

UNIT-II

13. Write an Algorithm to convert Infix expression to Postfix form? Convert the following Expression to Postfix form (A+B*C-(D/E↑F)*G)*H   **(OR)**

14. What is Graph Traversal? Explain DFS Traversal algorithm with an example?

UNIT-III

15. What is AVL Tree? Explain Insertion & Deletion Operations on AVL Tree with an example. **(OR)**

16. Explain the process of Expression tree with an Example?

UNIT-IV

17. What is a Heap Sort? Implement heap sort for keys: 44, 33, 99, 11, 22, 55, 66, 88, 77, 99. **(OR)**

18. Write a program in java to perform Quick sort and explain with suitable example and also obtain its time complexity.

UNIT-V

19. Explain about (a) Hash Indexing. (b) Connecting Component with an example?   **(OR)**

20. Explain the concept of B-Tree and its different operations with a neat diagram.

PART – A

Answer any <u>FIVE</u> questions   5 X 5 = 25

1. Write the Differences between Single Linked List & Doubled Linked List?

2. What is a Linked List? Explain about Circular Linked List's with an example?

3. What is a Expression Tree? Construct an Expression Tree for (A+B*C)-((D*E+F)/G)

4. Write the differences between AVL Tree & RED-BLACK Tree?

5. Write a short notes on Threaded Binary Tree?

6. Write the differences between DFS & BFS?

7. What is sorting? Explain Insertion sort for the give set of Numbers: **34, 21, 5, 7, 98, 54, 10,16,11**

8. Write Short notes on Sorting of Tapes?

9. Write a short notes on Hashing & Indexing?

10. Write the differences between Linear Search & Binary Search?

PART – B

Answer any <u>ONE</u> question from each Unit   5 X 15 = 75

UNIT-I

11. Write a program to find factorial value of a number using recursion and obtain its complexity? **(OR)**

12. What are different applications of Stacks? Explain (a) Reverse of a string (b) Decimal to binary conversion with an example?

UNIT-II

13. What is Minimal Cost Spanning Tree? Explain Prim's Algorithm with an example.

(OR)

14. Explain about BFS Algorithm with an example?

UNIT-III

15. Explain about RED-BLACK Tree with an example? **(OR)**

16. Explain about SPLAY Tree and its different rotations & operations with an example?

UNIT-IV

17. Explain Radix Sort Algorithm with an example and obtain the time complexity? **(OR)**

18. Write a short notes on (a)Polyphase merge   (b) Cylinder Surface Indexing

UNIT-V

19. Explain the concept of Binary Search with an algorithm and discuss with an example? **(OR)**

20. Explain about   (a) B^+ Tree   (b)Handing Overflow in Hash tables