1. What is Data Structure ? Necessity of Data Structure \*\*\*

2. Difference between linear & non linear data structures

4. Definition of linear array. Representation of linear array in memory. Find the location of given element (by row or column method)\*\*\*

5. Traversing a linear array. Problems of array.

6. Pointer arrays. Representation of pointer array in memory.

7.Advantage of pointer over array \*\*

8. Records : Structure . Representation of structures in memory.

9. Difference between linear array & record \*\*

10. Sparse, triangular, tridiagonal matrix (definition)

11. linked list. Representation of linked list memory \*\*\*

12. garbage collection , overflow , underflow (definition)

13. Header linked list (circular & grounded) , Stacks, queue , deque, priority queue & recursion (definition) . \*\*\*

14. Array representation of stack.

15. polish notation? Advantage of using polish notation. \*\*\*

# Infix to postfix, Infix to prefix (using normal mathematical equation) \*\*\*

#infix to postfix (using stack) \*\*\*

16. Quick sort algorithm application

17. Recursion ? criteria of being a function recursive \*\*\*

18. stack ? Operation of stack \*\*\*

19. Importance of priority queue \*\*\*

20. Binary trees , Complete binary tree , Extended binary tree\*\*\*

21. Array & linked list representation of binary tree \*\*\*

22. Traversing a tree (Preorder, in order , Post order ) \*\*\*

23. Given a node Find depth of a tree \*\*\*

24. Siblings , successor , ancestor , level, depth (definition) \*\*\*

25. Binary search tree ? importance of binary search tree ? Simulation based on binary search tree \*\*\*

26. Heap. simulation based on heap. \*\*\*

27. Application of Huffman algorithm \*\*\*

28. graph , Multi graph . degree of a node , path ,tree graph, Labelled graph, multiple edges, loops ,finite graph , trivial graph, Directed graph, Out degree , in degree , adjacency matrix , path matrix (definition)

29. warshall ’s shortest path algorithm application \*\*\*

30. Linked representation of a graph

31. DFS, BFS algorithm application \*\*\*

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