DATA STRUCTURES SUPER 25 QUESTION FOR EXAM

1. Differentiate between stack and queue
2. Convert infix expression into prefix expression or postfix
3. Describe working of linear search with an example.
4. Find the position of element 29 using binary search method in an array 'A' given below. Show each step. A={11,5,21,3,29,17,2,43}
5. Give adjacency list and adjacency matrix for given graph.
6. Describe working of bubble sort , insertion , selection with example.
7. Construct a binary search tree for following elements: 30,100,90,15,2,25,36,72,78,10 show each step of construction of BST
8. Describe circular linked list with suitable diagram. Also state advantage of circular linked list over linear linked list.
9. Write a program to traverse a linked list.
10. Write C program for performing following operations on array: insertion, display.
11. Differentiate between binary search and sequential search
12. Evaluate the following prefix expression: - * + 4 3 2 5 and 5, 6, 2, +, *, 12, 4, /, - show diagrammatically
13. Sort the given number in ascending order using Radix sort: 348, 14, 641, 3851, 74.
14. Write an algorithm to delete and insert a node from the beginning and end of a circular linked list.
15. Draw an expression tree for the following expression: (a-2b+5e) 2 * (4d=6e) 5
16. Difference between tree and graph(Any 4 points)
17. Write an algorithm to insert an element at the beginning and end of linked list
18. Write an algorithm for performing push and pop operations on stack.
19. Elaborate the steps for performing selection sort for given elements of array. A={37,12,4,90,49,23,-19}
20. Write an algorithm to search a particular node in the given linked list.
21. Create a singly linked list using data fields 90, 25, 46, 39, 56. Search a node 40 from the SLL and show the procedure step-by-step with the help of a diagram from start to end.
22. Write an algorithm to count the number of nodes in a singly linked list.

23. Traverse a tree in inorder preorder and post order
24. Compare Linked List and Array (any 4 points)

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25. Explain time and space complexity with an example.
26. Explain circular Queue with it advantage and need
27. Explain Priority queue with example
28. Write a program to implement insert and delete operation of Queue
29. Explain Recursion with Factorial Program
30. Define and Explain term

- ☐ Directed graph
- ☐ UnDirected Graph
- ☐ Leaf Node
- ☐ Root Node
- ☐ Path
- ☐ Ancestor
- ☐ Descendants
- ☐ Level of Node
- ☐ Application of Queue
- ☐ Algorithm
- ☐ Queue Operation
- ☐ Stack Operation
- ☐ Link List Operation
- ☐ Array Operation
- ☐ Data Structure Operation
- ☐ Overflow of Stack
- ☐ Underflow of Queue

Application of Queue

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