

**FACULTY OF INFORMATICS**  
**MCA I Semester (CBCS) Examination,**  
**Sub: Data Structures with CPP Lab**

1. Write a program to implement Binary Search Technique to find the position of a given element in a given list.
2. Write a program to implement Linear Search Technique to find the position of a given element in a given list.
3. Write a program for implementing the sorting method to arrange a list of integers in ascending order using selection sort.
4. Write program for implementing the sorting method to arrange a list of integers in ascending order using Insertion sort.
5. Write a program for implementing the sorting method to arrange a list of integers in ascending order using Merge sort.
6. Write a program for implementing the sorting method to arrange a list of integers in ascending order using Quick sort.
7. Write a program to implement STACKs using Arrays.
8. Write a program to implement STACKs using Linked Representation.
9. Write a program to implement QUEUEs using Arrays.

10. Write a program to implement CIRCULAR QUEUES using Arrays.
11. Write a program to implement PRIORITY QUEUES USING Arrays.
12. Write a program to implement QUEUES using Linked Representation.
13. Write a program that uses stack operations to convert a given infix expression into its postfix equivalent, implement the stack using an array.
14. Write a program to evaluate postfix expression using an array.
15. Write a program to implement a double ended queue ADT using an array.
16. Write a program to implement a double ended queue ADT using doubly linked list.
17. Write a program that uses functions to perform the following:
  - a) Create a singly linked list of integers.
  - b) Delete a given integer from the above linked list.
  - c) Display the contents of the above list after deletion.
18. Write a program that uses functions to perform the following:
  - a) Create a doubly linked list of integers.
  - b) Delete a given integer from the above doubly linked list.

Display the contents of the above list after deletion.

19. Write a program that uses functions to perform the following:

- a) Create a binary search tree of characters.

    Traverse the above Binary search tree recursively in Post order.

20. Write a program that uses functions to perform the following:

- a) Create a binary search tree of integers.

    Traverse the above Binary search tree non recursively in order.

21. Write a program to count the number of nodes in the binary search tree.

22. Write a program to find the largest element in a given doubly linked list.

23. Write programs for implementing the following graph traversal algorithms:

- a) Depth first traversal
- b) Breadth first traversal

24. Write programs for implementing the functions of a dictionary (ADT) using hashing.

25. Write a program to perform the following operation Insertion into a B-tree.

26. Write a C++ program for addition of two polynomials.

27. Write a program to implement all Operations on Single linked list.

28. Write a program to implement all Operations on Linear List using Arrays.

29. Write a program to implement Kruskal's Algorithm.

30. Write a program to implement the Insertion Operation on an AVL Tree.

