**DATA STRUCTURES USING C -LAB CYCLE**

1. Write programs to demonstrate the use of storage classes (local variable, global variable, static variable, register variable) in C.

2. Use a menu-driven program to insert, search, delete and sort elements in an array using functions (use global variables)

3. Use a menu-driven program to insert, search, delete and sort elements in an array using functions (use only local variables)

4. Search for all the occurrences of an element in an integer array (positions)

5. Sort the array elements in ascending order (minimum three functions: read, disp and sort)

6. Display the array elements in the same order using a recursive function

7. Display array elements in reverse order using a recursive function.

8. Write a program to Perform the addition of two matrix and Subtraction of one matrix from another

9. Write a program to perform multiplication of two matrix

10. Write a program to find the transpose of a matrix

11. Write a program to find the Determinant of a matrix (2x2 and 3x3)

**Section 2: Stack**

12. Implement stack operations using arrays

**Session 3 - String**

13. Read a String and Just print it in the reverse order

14. Read a String and Reverse the string in the same array itself

15. Read n Strings and display them in the ascending order.

**Session 4 - Stack .. Continued**

16. Reverse a string using Stack

17. Convert an expression from infix expression to postfix using stack

18. Convert an expression from infix expression to prefix using stack

19. Evaluate an infix expression using stack

20. Evaluate an expression using stack by converting it into postfix before evaluating

21. A letter means push and an asterisk means pop in the following sequence. Give the sequence of values returned by the pop operations when this sequence of operations is performed on an initially empty LIFO stack.

**Session 5 - Sparse Matrix**

**22.** Read and display a sparse matrix

23. Write a program to add two sparse matrix

24. Write a program to multiply two sparse matrix

**Session - 6 Polynomial using array**

25. Read a polynomial and display

26. Add two polynomials

27. Subtract two polynomials

28. Multiply two polynomials

**Session-7**

29. Demonstrate queue using array

30. Demonstrate circular queue using array.