# Lab Specification
# B.Sc. Engg. Part 2, Odd Semester
# CSE 2122: Data Structure Lab

1. Design, develop and implement a program for the following Array operations

    a. Creating an Array of N Integer Elements

    b. Display of Array Elements with Suitable Headings

    c. Inserting an Element (ELEM) at a given valid Position (POS)

    d. Deleting an Element at a given valid Position (POS)

2. Design, Develop and Implement a program for the following Array operations

    a. Creating an Array of N Integer Elements

    b. Sort the elements using Bubble Sort Algorithm

    c. Search an item using Linear Search Algorithm

    d. Search an item using Binary Search Algorithm

3. Design, Develop and Implement a menu driven Program in C for the following operations on STACK of Integers (Array Implementation of Stack with maximum size MAX)

    a. Push an Element on to Stack

    b. Pop an Element from Stack

    c. Display the status of Stack

4. Design, Develop and Implement a Program for converting an Infix Expression to Postfix Expression. Program should support for both parenthesized and free parenthesized expressions with the operators: +, -, *, /, % (Remainder), ^ (Power) and alphanumeric operands.

5. Design, Develop and Implement a Program for the following Stack Applications

    a. Evaluation of Postfix expression with single digit operands and operators: +, -, *, /, %, ^ .

6. Design, Develop and Implement a Program for the following Recursion Applications

a. Calculate the factorial of n

b. Display the Fibonacci sequence of n numbers

7. Design, Develop and Implement a Program for the following operations on Graph(G) of Cities

a. Take the Adjacency Matrix with m nodes as input and calculate B and from that calculated Path Matrix and tell whether the matrix is strongly connected or not.

b. Print the shortest path from a weighted graph using Warshall‘s Algorithm.