**PSG COLLEGE OF TECHNOLOGY**

**DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES**

**II semester MSc SS –Data Structures Lab**

**Mock Lab test - 1**

Duration: 2 Hours Total Marks: 25

**Evaluation Pattern**

**Marks**

Algorithm / pseudo code 20 % - 5

Coding 40 % - 10

Syntax / Coding style 20 % - 5

Validation with test data 15 % - 3

Output of the program 5 % - 2

**Question 1**

Write an efficient C or C++ program to read an infix expression and convert it into postfix expression using stack. Assume that your compiler uses the following precedence and associativity table for handling any expression.

|  |  |  |
| --- | --- | --- |
| Operators | Precedence | Associativity |
| \*(multiplication), / (division) | 5 | Left to right |
| +(addition), - (subtraction) | 4 | Left to right |
| <, <=,>,>=,==,!= | 3 | Left to right |

Also evaluate the postfix expression to reduce it into a single value using stack. The output of your program should show the step by step conversion phase of infix to postfix, also print the value of each phase of evaluation.