**Lab Sheet-III**

**INSTRUCTIONS**

Given below are the lab questions for the day. For each question, you should prepare a document with following titles.

1. PROBLEM
2. ALGORITHM
3. CODE (with formal coding standard)
4. TESTING
   1. INPUT SET
   2. OUTPUT

**QUESTIONS**

**[For all the questions, intermediary results should also be displayed.]**

1. Implement a program to reverse a string using stack.
2. Implement a program to check for balanced parentheses.

[Balanced parentheses mean that each opening symbol has a corresponding closing symbol and the pairs of parentheses are properly nested.]

1. Implement a program to convert Infix expression to Postfix expression.
2. Implement a program to convert Infix expression to Prefix expression.
3. Implement a program to evaluate Postfix expression.
4. Implement a program to evaluate Prefix expression.
5. Implement a program for “Tower of Hanoi” puzzle.

[ The **Tower of Hanoi** is a [mathematical game](http://en.wikipedia.org/wiki/Mathematical_game) or [puzzle](http://en.wikipedia.org/wiki/Puzzle). It consists of three rods, and a number of disks of different sizes which can slide onto any rod. The puzzle starts with the disks in a neat stack in ascending order of size on one rod, the smallest at the top, thus making a [conical](http://en.wikipedia.org/wiki/Cone) shape.

The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules:

1. Only one disk can be moved at a time.
2. Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack.
3. No disk may be placed on top of a smaller disk.]

