Computer Programming Lab **12/10/2007**

Implementing Expression Trees

Expression Trees are a very handy data structure. It is used for various purposes, starting from simple expression manipulations to the area of compiler designs.

a) Write a C-code to read the infix expression, involving +, -, *, / and also parenthesis. The expression may have as many blanks inside. Check whether the expression is well-formed (that is the parenthesis are *balanced*).

b) Convert the infix expression to postfix and store them in an expression tree. Traverse the tree post-order and check whether it tallies with the postfix form of the expression.

c) Evaluate the expression tree.

d) Can you adapt your program to handle exponentiation (denote by ^) also. Note that 2^2^3 = 2^8=256 and not 64 (that is the expression is evaluated right to left).