Assignment 6 (due 11 pm, Apr. 28, 2016)

Note:

a. Please write down handwriting part in HW6_ID.doc.
b. Incorrect formation files will not be graded.
c. If you work with others for this assignment, please put their name in the HW6_ID.doc

Q1. Answer what is “operator=”, and how it works in C++ (you can explain by using examples)
Q2. Answer what is “constructor” and “destructor”, and how they work in C++ (you can explain by using examples)
Q3. Answer what is “inherit”, and how it works in C++ (you can explain by using examples)
Q4. Answer what is “friend”, and how it works in C++ (you can explain by using examples)
Q5. Answer what is “public”, “private” and “protected”, and how they work in C++ (you can explain by using examples)

Q6. Suppose that a singly linked list is implemented with both a header and a tail node.
Describe constant-time algorithms to

a. Insert item x before position p (given by an iterator)
b. Remove item x before position p (given by an iterator)

Q7. Proof the designed algorithms in Q7.

Q8. Use tree to show the expression (a+b*c) +((d*e+f)*g)

Q9. Write a step by step conversion of the infix expression (a+b*c) +((d*e+f)*g) into the postfix expression using stacks.

Q10. Write an algorithm for printing a singly linked list in reverse, using only constant extra space. This implies that you cannot use recursion but you may assume that your algorithm is a list member function.