Çankaya University

Department of Computer Engineering

CENG 218 Data Structures

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Time Allowed: **120** minutes   Date: 07 / 08 / 2007

Name and Surname   : ………………………………………..

Student Number   : ………………………………

Q1. Evaluate the following postfix expression, showing the values in the stack at each indicated point in the Postfix string(points A, B, and C). (10p)

```
              A              B              C
8   5   *   4   6   +   /   2   8   *   -   4   5   +   *
```

		9
A	B	C

The Final value of the expression is _____

Q2. Write a C program to read a group of input lines, each containing one word. Print each word that appears in the input and the number of times that it appears. (word "END" terminates the input process) (25p)

Q3. Develop a **non recursive** algorithm for Find smalles Node in Binary Search Tree. (10p)

Q3. Develop a **recursive** algorithm for Find smalles Node in Binary Search Tree. (10p)

Q4. Write a function that takes root of a binary tree an returns the number of nodes that has only left child.(20p)

Q5. Write an algorithm to delete all the leaves from a binary tree, leaving the root and intermediate(internal) nodes in place.(20p)

Q6. Write a recursive function to count occurrances of a substring in a string.(15p)

Q6. Write a recursive function to count occurances of a given character(7p)

Q7. Consider a linked list whose members are integer numbers only. (20 P)
Write a function *removeitems(NODE *head)* function that removes the **two digit** elements.　　Consider following example:

Input LList:Listhead-> 41-> 3-> 41-> 2-> 7-> 7-> 1-> 9->12-> NULL

Output LList: Listhead-> 3-> 2-> 7-> 7-> 1-> 9-> NULL
*Node * removeItems(NODE *head){*

Q7. write a function which would delete the alternate nodes starting with the second node, and would return the remaining list. It is specified that the given list, pList contains at least two nodes. However, total number of nodes could be even or odd. Your code should be able to handle both the cases. (20p)