Assignment 1

Q1) Consider the following stack of characters, where STACK is allocated N=8 memory cells

STACK: A,C,D,F,K____,_____,_____

Here _____ means empty memory cell. Describe the stack as the following operations take place:

1. POP(STACK,ITEM)
2. POP(STACK,ITEM)
3. PUSH(STACK,L)
4. PUSH(STACK,P)
5. POP(STACK,ITEM)
6. PUSH(STACK,R)
7. PUSH(STACK,S)
8. POP(STACK,ITEM)

Q2) Consider the data in problem Q1. When will overflow occur? When will C be deleted before D?

Q3) Translate, by inspection manually as well with stack, each infix expression into its equivalent postfix expression.

1. (A - B) * (D / E)
2. (A + B ^ D) / (E - F) + G

Q4) Consider the following queue, where QUEUE is a double ended which size is 5. Describe the queue as the following operations take place and draw full tracing for each operation with proper message and F and R value.

1. Insert from front 55
2. Insert from rear 44
3. Insert from rear 22
4. Insert from front 33
5. Delete from front
6. Insert from front 99
7. Delete from rear
8. Insert from rear 100
9. Delete from rear
10. Delete from front
11. Delete from rear
12. Delete from front
13. Delete from rear
14. Delete from rear

Q5) Consider the following queue, where QUEUE is a Linear which size is 5. Describe the queue as the following operations take place and draw full tracing for each operation with proper message and F and R value.

1. Insert 555
2. Insert 444
3. Insert 222
4. Insert 1133
5. Delete
6. Insert 909
7. Delete
8. Insert 1000
9. Delete
10. Delete
11. Delete
12. Delete

Q.6) Write a program to search an element from a singly linked list with header node