Sardar Vallabhbhai National Institute of Technology, Surat
Department of Artificial Intelligence
Data Structure (AI102)
B.Tech I - II Semester
Assignment-5

Note: Input should be taken from the user

Q1: Write a C/C++ program to implement a circular linked list with the following operations:

a) Insert an element at a specific position specified by the user.
b) Insert an element at the beginning of the list
c) Insert an element at the end of the list.
d) Delete an element from a specific position specified by the user.
e) Delete the first element from the list.
f) Delete the last element from the list.

Note: The program should continuously prompt the user to select an operation and execute it until the user enters 0 to terminate.

Q2: Write a C/C++ code to implement stack with following operations using array.

a) create () = Create a stack.
b) push() = Pushing (storing) an element on the stack
c) pop() = Removing (accessing) an element from the stack.
d) peek() = Get the top data element of the stack, without removing it
e) isFull() = Check if stack is full.
f) isEmpty() = Check whether the stack is empty, and return true or false.

Note: (i) Create a separate function for each of the operations defined above.
(ii) Define the stack as follows.

```
#define MAXSIZE 100
struct stack {
int stArr[MAXSIZE];
int top;
```

```
};
typedef struct stack STACK;
```

Q3: Write a C/C++ code to implement stack with all the operations defined in Q2 using Linked list.