Data Structures Laboratory (UE15CS207)

1). Write a program to perform the following operations using a Linked List:

(i) Insert an element at the beginning.

(ii) Delete the specified element from the list.

(iii) Display elements of the list.

(iv) Search a key element in the list

2). Write a program to perform the following operations using Linked List

(i) Insert an element at a specified position

(ii) Delete the element at the end of the list.

(iii) Reverse the nodes in the list.

(iv) Display elements of the list.

3) Write a program to perform the following operations using Doubly Linked List

(i). Insert an element at the beginning

(ii). Delete the specified element from the list.

(iii) display all the elements.

4) Write a program to perform the following operations using Doubly Linked List

(i). Insert an element at a specified position

(ii). Delete the element at the end of the list.

(iii) display all the elements.

5) a. Create a STACK. Provide PUSH, PEEP (or TOP) and POP methods. Check for i) Overflow

ii) Underflow exceptions during these operations.

b. Create a QUEUE. Provide ENQUEUE, DEQUEUE and FRONT methods. Check for i) Overflow

ii) Underflow exceptions during these operations.

6) a) Covert a given infix expression to postfix expression and evaluate the same.

b) Write a program to perform matching of brackets – parentheses, square and flower brackets.

7) a} Implement a circular queue CQUEUE and implement ENQUEUE and DEQUEUE operations.

b) Implement a Priority Queue using array with (i) Insert and (ii) RemoveMin methods.

8) Write following functions for a binary search tree. (i) Insert (ii) Preorder Traversal (iii) Postorder

Traversal and (iv) Inorder Traversal methods. V) Delete a node from the BST.

9) Implement a BST and perform the following

a. Find the minimum element in the tree.

b. Find the maximum element in the tree.

c. Find the number of nodes in the tree.

d. Find the number of internal nodes in the tree.

e. Find the number of external nodes in the tree.

10) Write following functions for a binary search tree. (i) Insert (ii) Preorder Traversal (iii) Postorder

Traversal and (iv) Inorder Traversal methods.. Implement the programs using arrays.