Q1. Construct an expression tree for the expression (a+b*c) + ((d*e+f)*g). Give the outputs when you apply inorder, preorder and postorder traversals.

Q2. How to insert and delete an element into a binary search tree and write down the code for the insertion routine with an example.

Q3. Write a function called 'push' that takes two parameters: an integer variable and a stack into which it would push this element and returns a 1 or a 0 to show success of addition or failure.

Q4. A circular queue has a size of 5 and has 3 elements 10,20 and 40 where Front=2 and Rear=4. After inserting 50 and 60, what is the value of Front and Rear. Trying to insert 30 at this stage what happens? Delete 2 elements from the queue and insert 70, 80 & 90. Show the sequence of steps with necessary diagrams with the value of Front & Rear.

Q5. Write an algorithm for Push and Pop operations on Stack using Linked list

Q6. Write down the function to insert an element into a queue, in which the queue is implemented as an array

Q7. What are the postfix and prefix forms of the expression $A + B * (C - D)/(P - R)$

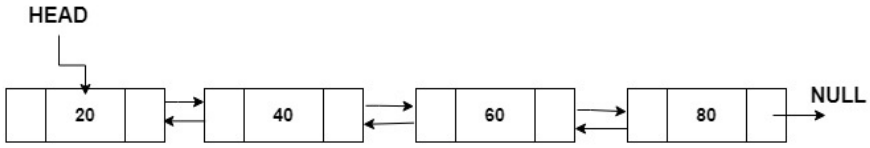
Q8. Write the postfix form for the expression $-A + B - C + D$

Q9. Write an algorithm to insert a node at the beginning of list

Q10. What is a Binary Search Tree (BST)? Make a BST for the following sequence of numbers. 45, 36, 76, 23, 89, 115, 98, 39, 41, 56, 69, 48 Traverse the tree in Preorder, Inorder and postorder.

Q11. Explain infix, postfix and prefix notations with the help of examples

Q12. Suppose you have doubly linked list



Write an algorithm of node insertion with a value of 70, in its right position.