What is the disadvantage of linear queue? How do you overcome this?

If the characters 'D', 'C', 'B', 'A' are placed in a queue (in that order), and then removed one at a time, in what order will they be removed?

Compare linear and circular queue.

Write the pseudo-code for Insert and Delete operations in a queue of integers implemented using 2 linear stacks or Write a program to implement a queue using 2 stacks.

Given a queue with functions as Insert(), Delete(), and Findmax(). You can use these functions any time. The Findmax() should return the largest value in the queue at that point. You can use auxiliary space.

Write functions to check if the queue is full or empty without using the counter variable in a circular queue. The function takes the address of the queue structure as the parameter and returns the status of the queue. Show the initialization parameters.

Give the algorithms for insertion and deletion into a Circular Queue.

Define priority Queue. Explain how priority queues can be implemented?

Create a linked list representing a string. Write a program to check whether the given string is palindrome.

Given 2 linked lists with header node representing two polynomials, write a function AddPoly, which adds these two polynomials and returns a pointer to the resultant polynomial.

A singly linked list has integer as data in each node. Assume all the nodes have unique integers and pointer to first node, **First** is global and assigned to NULL. Write a function **Delete(int)** to delete a node containing given integer from the list. The function should print “**Node Missing”** in case the given integer is not present in the list otherwise it should print “**Node Deleted”.**

Given 2 lists of ordered numbers represented using singly linked lists, write a function to merge these 2 lists and return the new list.

Compare and contrast the linear and non-linear data structures.

A singly linked list has integer as data in each node. Write a function to delete a node from the list given an integer as argument. (Assume all the nodes have unique integers)

Give the node definition of a singly linked list in C++.

Assuming the pointer to the first node (Nodeptr first) is global, Implement any ONE of the following operations on singly linked list:

1. InsertAfter(X,Y) – Insert Y after X
2. Delete(Z) - Delete the node containing Z
3. Invert() – Invert the list

What is the advantage of doubly linked list over singly linked list? Assuming that the pointer to first node (Nodeptr first) is global, give the algorithm for any ONE of the following operations:

1. Delete(X) – Delete the node containing the value X
2. InsertLast(X) – Insert X at the end.

Manipal Campus Express Train (12431) runs daily between MIT hostels to college and has got 2 classes of seats: Chair Car (CC) and Executive Chair Car (EC). There are five CC coaches and one EC coach. Each CC coach can accommodate 60 passengers with seats arranged in 3 rows of 20 seats each. The EC coach can accommodate 50 passengers with seats arranged in 2 rows of 25 seats each. Each passenger need to do buy the ticket at the counter before time of departure. Each ticket is assigned a unique PNR number (4-digit integer) and contains the information regarding name of the passenger, age and mobile number. When all the coaches in a class are full, tickets are issued with WAITING LIST (WL) status. A maximum of 50 seats are issued with WL status in each class. If the total reservations with WL status exceed 50, an additional coach of that particular class is attached to the train during the departure. Similarly, when there are no passengers in a coach during the time of departure, a coach is detached from the train. The coach composition of the train is as follows: engine, CC(s), EC(s). Write a program to simulate the above using doubly linked list with a header node. The header node represents the engine.

Given two singly linked lists A and B, give the algorithm for computing C = A-B.

Explain with an example, the different storage representations for a binary tree.

Define the following terms w.r.t a binary tree and illustrate with an example

1. Level of a node
2. Strictly Binary Tree

Write a function to traverse a binary tree in Level Order.

Give the recursive algorithm for inorder traversal.

Write the routines to insert and remove a node from Binary Search Tree.

Show the resulting of inserting 2,1,4,5,9,3,6,7 into an empty AVL tree.  
  
Write the procedure to implement single and double rotations while inserting nodes in an AVL tree.