EXERCISES

Review Questions

1. What is a priority queue? Give its applications.
2. Explain the concept of a circular queue? How is it better than a linear queue?
3. Why do we use multiple queues?
4. Draw the queue structure in each case when the following operations are performed on an empty queue.
   (a) Add A, B, C, D, E, F
   (b) Delete two letters
   (c) Add G (d) Add H
   (e) Delete four letters (f) Add I
5. Consider the queue given below which has FRONT = 1 and REAR = 5.

	A	B	C	D	E				

   Now perform the following operations on the queue:
   (a) Add F (b) Delete two letters
   (c) Add G (d) Add H
   (e) Delete four letters (f) Add I
6. Consider the dequeue given below which has LEFT = 1 and RIGHT = 5.

	A	B	C	D	E				

   Now perform the following operations on the queue:
   (a) Add F on the left
   (b) Add G on the right
   (c) Add H on the right
   (d) Delete two letters from left
   (e) Add I on the right
   (f) Add J on the left
   (g) Delete two letters from right

Programming Exercises

1. Write a program to calculate the number of items in a queue.
2. Write a program to create a linear queue of 10 values.
3. Write a program to create a queue using arrays which permits insertion at both the ends.
4. Write a program to implement a dequeue with the help of a linked list.
5. Write a program to create a queue which permits insertion at any vacant location at the rear end.
6. Write a program to create a queue using arrays which permits deletion from both the ends.
7. Write a program to create a queue using arrays which permits insertion and deletion at both the ends.

8. Write a program to implement a priority queue.
9. Write a program to create a queue from a stack.
10. Write a program to create a stack from a queue.
11. Write a program to reverse the elements of a queue.
12. Write a program to input two queues and compare their contents.

Queue using Array: Assignments

Assignments:

1. Write a program to insert an element into the queue using an array (Enqueue Operation).
2. Write a program to delete an element from the queue using an array (Dequeue Operation).
3. Write a program to return the value of the FRONT element of the queue(without deleting it from the queue) using an array (Peep operation).
4. Write a program to display the elements of a queue using an array.

Queue using Linked List: Assignments

Assignments:

1. Write a program to insert an element into the queue using linked list (Insert Operation).
2. Write a program to delete an element from the queue using linked list (Delete Operation).
3. Write a program to return the value of the front element of the queue (without deleting it from the queue) using linked list (Peep operation).
4. Write a program to display the elements of a queue using linked list .

Circular Queue: Assignments

Assignments:

1. Write a program to **insert** an element into the circular queue.
2. Write a program to **delete** an element from a circular queue.
3. Write a program to return the value of the **FRONT** element of the circular queue(without deleting it from the queue).
4. Write a program to **display** the elements of a circular queue.