**Question 1:**

**Write a program implementing insert, delete and display operation of Circular Queue.**

**Code (In C Programming Language)[USING SINGLE LINKED LIST IMPLEMENTATION]:**

#include<stdio.h>

#include<stdlib.h>

struct Node **{**

int data**;**

struct Node**\*** link**;**

**};**

struct Queue **{**

struct Node **\***front**,** **\***rear**;**

**};**

void enQueue**(**Queue**\*** q**,** int value**){**

struct Node**\*** temp **=** **new** Node**;**

temp**->**data **=** value**;**

**if** **(**q**->**front **==** **NULL)**

q**->**front **=** temp**;**

**else**

q**->**rear**->**link **=** temp**;**

q**->**rear **=** temp**;**

q**->**rear**->**link **=** q**->**front**;**

**}**

int deQueue**(**Queue**\*** q**){**

**if** **(**q**->**front **==** **NULL)** **{**

printf**(**"Queue is empty"**);**

**return** INT\_MIN**;**

**}**

int value**;**

**if** **(**q**->**front **==** q**->**rear**)** **{**

value **=** q**->**front**->**data**;**

free**(**q**->**front**);**

q**->**front **=** **NULL;**

q**->**rear **=** **NULL;**

**}**

**else{**

struct Node**\*** temp **=** q**->**front**;**

value **=** temp**->**data**;**

q**->**front **=** q**->**front**->**link**;**

q**->**rear**->**link **=** q**->**front**;**

free**(**temp**);**

**}**

**return** value**;**

**}**

void displayQueue**(**struct Queue**\*** q**){**

struct Node**\*** temp **=** q**->**front**;**

printf**(**"\nElements in Circular Queue are: "**);**

**while** **(**temp**->**link **!=** q**->**front**)** **{**

printf**(**"%d "**,** temp**->**data**);**

temp **=** temp**->**link**;**

**}**

printf**(**"%d"**,** temp**->**data**);**

**}**

int main**(){**

Queue**\*** q **=** **new** Queue**;**

q**->**front **=** q**->**rear **=** **NULL;**

// Inserting elements in Circular Queue

enQueue**(**q**,** 14**);**

enQueue**(**q**,** 22**);**

enQueue**(**q**,** 6**);**

// Display elements present in Circular Queue

displayQueue**(**q**);**

// Deleting elements from Circular Queue

printf**(**"\nDeleted value = %d"**,** deQueue**(**q**));**

printf**(**"\nDeleted value = %d"**,** deQueue**(**q**));**

// Remaining elements in Circular Queue

displayQueue**(**q**);**

// Inserting elements in Circular Queue

enQueue**(**q**,** 9**);**

enQueue**(**q**,** 20**);**

// Display elements present in Circular Queue

displayQueue**(**q**);**

**return** 0**;**

**}**

**Sample Output of The Program (Insert, Delete, Display of Circular Queue):**

