6. Develop a menu driven Program in C for the following operations on Circular QUEUE of Characters (Array Implementation of Queue with maximum size MAX)

   a. Insert an Element on to Circular QUEUE
   b. Delete an Element from Circular QUEUE
   c. Demonstrate Overflow and Underflow situations on Circular QUEUE
   d. Display the status of Circular QUEUE
   e. Exit

   Support the program with appropriate functions for each of the above operations

→
```c
#include<stdio.h>
#include<stdlib.h>

#define max 10

int q[10],front=0,rear=-1;

void insert(){
        int x;
        if((front==0&&rear==max-1)||(front>0&&rear==front-1))
                printf("Queue is overflow !\n");
        else{
                printf("Enter element to be insert : ");
                scanf("%d",&x);
                if(rear==max-1&&front>0){
                        rear=0;
                        q[rear]=x;
                }else if((front==0&&rear==-1)||(rear!=front-1))
                        q[++rear]=x;
        }
}

void delete(){
        int a;
        if((front==0)&&(rear==-1)){
                printf("Queue is underflow !\n");
                exit(1);
        }
        if(front==rear){
                a=q[front];
                rear=-1;
                front=0;
        }else if(front==max-1){
                a=q[front];
                front=0;
        }else
                a=q[front++];

        printf("Deleted element is : %d\n",a);
}

void display(){
        int i,j;
        if(front==0&&rear==-1){
                printf("Queue is underflow !\n");
                exit(1);
        }
        if(front>rear){
                for(i=0;i<=rear;i++)
                        printf("%d ",q[i]);
                for(j=front;j<=max-1;j++)
                        printf("%d ",q[j]);
        }else{
                for(i=front;i<=rear;i++)
                        printf("%d ",q[i]);
        }

        printf("\nRear is at %d",q[rear]);
        printf("\nFront is at %d\n",q[front]);
}

void main(){
        int ch;

        printf("\nCircular Queue operations\n");
        printf("1. Insert\n2. Delete\n3. Display\n4. Exit\n");

        while(1){
                printf("\nEnter your choice : ");
                scanf("%d",&ch);

                switch(ch){
                        case 1:
                                insert();
                                break;
                        case 2:
                                delete();
                                break;
                        case 3:
                                display();
                                break;
                        case 4:
                                exit(1);
                        default:
                                printf("Invalid option !\n");
                }
        }
}
```