CIRCULAR QUEUE:

```
#include <stdio.h>

# define max 6
int queue[max];  // array declaration
int front=-1;
int rear=-1;
// function to insert an element in a circular queue
void enqueue(int element)
{
   if(front==-1 && rear==-1)   // condition to check queue is empty
   {
      front=0;
      rear=0;
      queue[rear]=element;
   }
   else if((rear+1)%max==front)  // condition to check queue is full
   {
      printf("Queue is overflow..");
   }
   else
   {
      rear=(rear+1)%max;       // rear is incremented
      queue[rear]=element;     // assigning a value to the queue at the rear position.
   }
}

// function to delete the element from the queue
int dequeue()
{
   if((front==-1) && (rear==-1))  // condition to check queue is empty
   {
      printf("\nQueue is underflow..");
   }
 else if(front==rear)
{
   printf("\nThe dequeued element is %d", queue[front]);
   front=-1;
   rear=-1;
}
else
{
    printf("\nThe dequeued element is %d", queue[front]);
   front=(front+1)%max;
}
}
// function to display the elements of a queue
```

```
void display()
{
   int i=front;
   if(front==-1 && rear==-1)
   {
      printf("\n Queue is empty..");
   }
   else
   {
      printf("\nElements in a Queue are :");
      while(i<=rear)
      {
         printf("%d,", queue[i]);
         i=(i+1)%max;
      }
   }
}
int main()
{
   int choice=1,x;   // variables declaration

   while(choice<4 && choice!=0)   // while loop
   {
   printf("\n Press 1: Insert an element");
   printf("\nPress 2: Delete an element");
   printf("\nPress 3: Display the element");
   printf("\nEnter your choice");
   scanf("%d", &choice);

   switch(choice)
   {

      case 1:

      printf("Enter the element which is to be inserted");
      scanf("%d", &x);
      enqueue(x);
      break;
      case 2:
      dequeue();
      break;
      case 3:
      display();

   }}
   return 0;
}
```

OUTPUT:

```
Press 3: Display the element
Enter your choice
1
Enter the element which is to be inserted2

 Press 1: Insert an element
Press 2: Delete an element
Press 3: Display the element
Enter your choice1
Enter the element which is to be inserted3

 Press 1: Insert an element
Press 2: Delete an element
Press 3: Display the element
Enter your choice1
Enter the element which is to be inserted4

 Press 1: Insert an element
Press 2: Delete an element
Press 3: Display the element
Enter your choice3

Elements in a Queue are :2,3,4,
 Press 1: Insert an element
Press 2: Delete an element
Press 3: Display the element
Enter your choice2

The dequeued element is 2
 Press 1: Insert an element
Press 2: Delete an element
Press 3: Display the element
Enter your choice3

Elements in a Queue are :3,4,
 Press 1: Insert an element
Press 2: Delete an element
Press 3: Display the element
Enter your choice1
Enter the element which is to be inserted9

 Press 1: Insert an element
Press 2: Delete an element
Press 3: Display the element
Enter your choice3

Elements in a Queue are :3,4,9,
 Press 1: Insert an element
Press 2: Delete an element
Press 3: Display the element
Enter your choice
```