**Question 1**

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

#include<stdio.h>

#include<conio.h>

#define MAX 10

int queue[MAX];

int front=–1, rear=–1;

void insert(void);

int delete\_element(void);

void display(void);

{

int option, val;

clrscr();

//selection

do {

printf("\n \*\*\*\*\* MAIN MENU \*\*\*\*\*");

printf("\n 1. Insert an element");

printf("\n 2. Delete an element");

printf("\n 3. Display the queue");

printf("\n 4. EXIT");

printf("\n Enter your option : ");

scanf("%d", &option);

switch(option)

{

case 1:

insert();

break;

case 2:

val = delete\_element();

if(val!=–1)

printf("\n The number deleted is : %d", val);

break;

case 3:

display();

break;

}

}while(option!=4);

getch();

return 0;

}

void insert()

{

int num;

printf("\n Enter the number to be inserted in the queue : ");

scanf("%d", &num);

if(front==0 && rear==MAX–1)

printf("\n OVERFLOW");

else if(front==–1 && rear==–1)

{

front=rear=0;

queue[rear]=num;

}

else if(rear==MAX–1 && front!=0)

{

rear=0;

queue[rear]=num;

}

else

{

rear++;

queue[rear]=num;

}

}

int delete\_element()

{

int val;

if(front==–1 && rear==–1)

{

printf("\n UNDERFLOW");

return –1;

}

val = queue[front];

if(front==rear)

front=rear=–1;

else

{

if(front==MAX–1)

front=0;

else

front++;

}

return val;

}

void display()

{

int i;

printf("\n");

if (front ==–1 && rear= =–1)

printf ("\n QUEUE IS EMPTY");

else

{

if(front<rear)

{

for(i=front;i<=rear;i++)

printf("\t %d", queue[i]);

}

else

{

for(i=front;i<MAX;i++)

printf("\t %d", queue[i]);

for(i=0;i<=rear;i++)

printf("\t %d", queue[i]);

}

}

}