Q4) WAP to simulate the working of a circular queue of integers using an array. Provide the following operation.

a) Insert b) Delete c) Display

The Program should print appropriate message for queue empty and queue overflow condition.

Sol^n :-

```
# include <stdio.h>
# include <conio.h>
# include <stdlib.h>
# define Que_Size 3
int item, q[Que_size];
int front=0, rear=-1, count=0;
void insertrear() {
    if (count == Que_Size) {
        Printf ("Queue Overflow \n");
        return;
    }
    rear = (rear+1) % Que_Size;
    q[rear] = item;
    count++;
}
int deletefront() {
    if (count==0) return -1;
    item = q[front];
    front = (front+1) % Que_Size;
    count = count-1;
    return item;
}
void display Q() {
    int i, f;
    if (count==0) {
        Printf ("queue is empty \n");
```

```
        return;
    }
    f = front;
    Printf ("Contents of queue \n");
    for (i=1; i<=count; i++){
        Printf ("%d \n", q[f]);
        f = (f+1) % Que_size;
    }
}
void main()
{
    int choice;
    for(;;)
    {
        Printf ("\n1. insertrear \n 2. deletefront \n 3. display \n 4. exit \n");
        Printf ("enter the choice \n");
        scanf ("%d", &choice);
        switch (choice)
        {
            case 1: printf ("Enter the item to be inserted \n");
                    scanf ("%d", &item);
                    insertrear ();
                    break;
            case 2: item = deletefront();
                    if (item == -1)
                        Printf ("queue is Empty \n");
                    else
                        printf ("Item deleted = %d \n", item);
                    break;
            case 3: display Q();
                    break;
            default: exit(0);
        }
    }
}
```