Dequeue:

```
#include<stdio.h>
#include<stdlib.h>
#define qsize 3.
int f=0,r=-1;
int item,q[10];
int isfull()
{   return(r==qsize-1)? 1:0;
}
int isempty()
{   return(f>r)? 1:0;
}
void insert_rear()
{  if(isfull())
   {  printf("Queue overflow \n");
      return;
   }
   r=r+1;
   q[r]=item;
}
void delete_front()
{   if(isempty())
    {  printf("Queue is empty \n");
       return;
    }
    printf("Item deleted is %d \n",q[f++]);
```

```
if(f>r)
{ f=0;
  r=-1;
}
}
void insert_front()
{ if(f!=0)
  { f=f-1;
    q[f]=item;
    return;
  }
  else if((f==0) && (r==-1))
  { q[++r]=item;
    return;
  }
  else
    printf("\nInsertion at front end is not possible\n");
}
void delete_rear()
{ if(isempty())
  { printf("\nItem Queue is empty\n");
    return;
  }
  printf("\nItem deleted is %d\n",q[r--]);
if(f>r) { f=0;
          r=-1;
}
}
```

```
void display()
{ int i;
  if(isempty())
  { printf("Queue is empty\n");
    return;
  }
  printf("Contents of the queue:");
  for(i=f;i<=r;i++)
    printf("%d", q[i]);
  printf("\n");
}
void main()
{   int choice;
  for(;;)
  {
  printf("\n1. insert_rear 2. insert_front
3. delete_rear. 4. delete_front 5. display
6. exit\n");
printf("Enter choice:");
scanf("%d", &choice);
switch(choice)
{
  case 1: printf("Enter the item:");
          scanf("%d", &item);
          insert_rear();
          break;
```

```
case 2: printf("Enter the item :");
        scanf("%d", &item);
        insert_front();
        break;
case 3: delete_rear();
        break;
case 5: display();
        break;
default: exit(0);
}
}
}
```

Output

```
1. insert_rear  2. insert_front  3. delete_rear
4. delete_front  5. display  6. exit
Enter choice : 1
Enter the item : 10.

1. insert_rear  2. insert_front  3. delete_rear
4. delete_front  5. display  6. exit
Enter choice : 1
Enter the item : 20.

1. I R  2. I F  3) D R  4) D F
5. display  6. exit
Enter choice : 1
Enter the item : 30.
```

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 1
Enter the item: 40
Queue overflow.

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 2
Enter the item: 5
Insertion at front end is not possible

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 5
~~Item deleted is 10.~~
Contents of the queue: 10 20 30

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 4
Item deleted: 10

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 3
Item deleted is 30.

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 2
Enter the item: 25.

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 5.
Contents of the queue: 25 20.

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 3
Item deleted is 20.

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 4
Item deleted is 25

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 5
Queue is empty.

1. IR 2. IF 3. DR 4. DF 5. display 6. exit
Enter choice: 6.