Queue

Long Answer Type Questions [4 marks each]

Question 1:
Define member function delque() to perform delete operation on a linked queue where each node has the following structure :

```
struct node
{
char name[20]
int marks;
node *link;
};
class queue
{
node *front,‘rear;
public :
queue() {front=rear=NULL;
}
void delque ( );
};     [CBSE Comptt., 2014]
```

Answer:

```
void queue : : delque ()
{
if ( front != NULL)
{
node *Temp = front;
cout << Temp -> name << Temp
->marks;
front = front->link;
delete Temp;
if(front == NULL)
rear = NULL;
}
else
cout << "Queue is empty";
}
```

(4 marks for correct program)

Question 2:
Give the necessary declaration of linked’ implemented Queue containing players information (as defined in the following definition of Node). Also write a user defined function in C++ to delete one Player’s information from the Queue.
[CBSE Comptt., 2013]

```
struct node
{
int Player No ;
char PlayerName[20];
Node*Link;
}
```

Answer:
NODE *QUEUEDEL(Node * front, int val, char val2[ ])

```
{
Node *temp;
if (front ==NULL)     [1]
cout<<"Queue EMPTY";
{
else
{
temp=front ;
temp®PlayerNo=val;     [1]
strcpy (temp®PlayerName, val2);
front=front®Link;     [1]
delete temp;
}
return (front);
}   [1]
```

Question 3:
Write a function QDELETE ( ) in C++ to perform delete operation on a Linked Queue, which contains Passenger no and Passenger name. Consider the following definition of Node in the code,

```
struct node
{
long int Pno;
char Pname [20];
node *Link;
};     [O.D, 2013]
```

Answer:
//Function to delete queue elements Node * QUEUE (Node * front, int val, char vail [])

```
{
Node *temp;
if (front == NULL)
cout <<"Queue Empty";
else
{
temp = front;
temp®Pno=val;
strcpy (temp®Pname, vail);
front = front®Link;
delete temp;
}
return (front);
}     [4]
```

Question 4:
Write a function QINSERT() in C+ + to perform insert operation on a Linked Queue, which contains Client no and Client name. Consider the following definition of NODE in the code of . QINSERT ().   **[Delhi, 2013]**

```
struct Node
{
long int Cno; // Client No
char Cname [20]; //
Client Name
Node *Next ;
};
```

Answer:
Function to Insert element
Node * QINSERT (Node *rear, int val),

```
char val []
{
Node *temp;
temp = new Node;
temp®Cno = val;
strcpy (temp®Cname, val);
temp®NEXT=NULL;
rear®NEXT=temp;
rear=temp;
return (rear);
}     [4]
```

Question 5:
Write a function in C++ to perform Insert operation in a circular Queue containing Layer’s information (represented with the help of an array of structure Player). ***[CBSE SQP 2013]***

```
struct Player
{
long PID;     //Player ID
char Pname [20];}     //Player Name
Player*Link;
}
```

Answer:

```
void Insert ( )
{
PLAYER *P = new PLAYER;
cout <<"Enter Player ID & Name";
cin>>P→PID;
gets (P→ Pname);
P®Link=NULL;
if ((fronts = NULL) && (rear == NULL))
{
front = rear = P;
}
else
{
rear®Link = P;
rear = P;
}
}     [4]
```

Question 6:
Write a function in C++ to perform insert operation in a static circular queue containing book’s information (represented with the help of an array of structure BOOK). ***[O.D, 2012]***

```
struct BOOK
{
long Accno; //Book Accession Number char Title[20];     //Book
Title
};
```

Answer:

```
struct BOOK
{
long Accno; char Title [20] ;
int front, rear;
}B [10] ;
void insert()
{
if (rear==size-l&&front==0||front== rear+1)
{
cout<<"\n Circular queue is full"; return;
}
else if(rear==-l)
{
rear++;
front++;
}
else if(rear==size-1)
rear=0;
else
{
rear++;
}
cout<<"Enter Title : ” ;
cin>>B[rear] . Title;
cout<<"Enter Accno : ” ;
 cin>>B[rear] . Accno;
}     [4]
```

Question 7:
Write a function in C++ to perform insert operation in a dynamic queue containing DVD’s information (represented with the help of an array of structure DVD). ***[Delhi, 2012]***

Answer:
/*Function in C++ to perform insert in a dynamic queue is given as*/

```
struct DVD
{
long No; // DVD Number
char Title[20]; // DVD Title
DVD *Link
};
void insert(struct DVD *start, char data[20] ) ;
{
```

```
DVD *q, *temp;
// Dynamic memory has been allocated for a node
temp=(DVD*)malloc(size of (DVD));
temp=Title[20]=data[20] ;
temp"Next=NULL;
if (start    =    = NULL) /*Element
inserted at end*/
while (q"Next ! = NULL)
q=q.Next;
q.Next = temp;
}     [4]
```

Question 8:

Write the definition of a member function INSERT() for a class QUEUE in C++, to insert a CUSTOMER in a dynamically allocated Queue of items considering the following code which is already written as a part of the program,

```
struct CUSTOMER
{
int CNO; char CNAME[20];
CUSTOMER *Link;
};
Class QUEUE
{
CUSTOMER *R,*F;
Public:
QUEUE(){R=NULL;F=NULL;}
void INSERT();
void DELETE()
-QUEUE();
};     [CBSE SQP 2013]
```

Answer:

```
void QUEUE : : INSERT ()
{
CUSTOMER*T=New CUSTOMER;
cin>>T>>;
gets(T→CNAME);
//OR cin>>T>>CNAME;
T → LINK = NULL;
if (R==NULL)
{
F=T; R=T;
}
else
{ R → LINK = T; R = T;
}
}
```

(1 Mark for correct a new code)
(1/2 Mark for entering data to new code)
(1/2Mark for assigning NULL to link of the new code)
(1/2 Mark for assigning front to the first code as L=T)
(1/2 Mark for linking the last node to new code as R→Link=T)
(1 Mark for assign Read to the new code as R=T)