

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 (r e a r = = s i z e - 1 & & f r o n t = = 0||front== rear+1)
{
cout<<"\n Circular queue is full"; return;
}
else if(rear==0)
{
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)

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