

CLASS – XII COMPUTER SCIENCE (083) 50 QUESTIONS

FOR EXAM

1. Find the correct identifiers out of the following, which can be used for naming variable, constants or functions in a C++ program :

While, for, Float, new, 2ndName, A%B, Amount2, _Counter

2. Observe the following program very carefully and file(s), write the names of those header files which are essentially needed to compile and execute the following program successfully :

```
typedef char TEXT[80];
void main()
{
    TEXT Str[] = "Peace is supreme";
    int Index=0;
    while (Str[Index]!='\0')
        if (isupper(Str[Index]))
            Str[Index++]='#';
        else
            Str[Index++]='*';
    puts(Str);
}
```

3. Observe the following C++ code very carefully and rewrite it after removing any/all syntactical errors with each correction underlined.

Note : Assume all required header files are already being included in the program.

```
#Define float Max=70.0;
Void main()
{
    int Speed  char Stop='N';
    cin>>Speed;
    if Speed>Max
    Stop='Y';
    cout<<Stop<<endl;
}
```

4. Write the output of the following C++ program code :

Note : Assume all required header files are already being included in the program.

```
void Position(int &C1,int C2=3)
{
    C1+=2;
    C2+=Y;
}
void main()
{
    int P1=20, P2=4;
    Position(P1);
    cout<<P1<<', '<<P2<<endl;
    Position(P2,P1);
    cout<<P1<<', '<<P2<<endl;
}
```

```
}
```

5. Write the output of the following C++ program code:

Note : Assume all required header files are already being included in the program.

```
class Calc
{
    char Grade;
    int Bonus;
public:
    Calc()
    {
        Grade='E';
        Bonus=0;
    }

    void Down(int G)
    {
        Grade-=G;
    }
    void Up(int G)
    {
        Grade+=G;
        Bonus++;
    }
    void Show()
    {
        cout<<Grade<<"#"<<Bonus<<endl;
    }
};
void main()
{
    Calc c;
    C.Down(2);
    C.Show();
    C.Up(7);
    C.Show();
    C.Down(2);
    C.Show();
}
```

6. Study the following program and select the possible output(s) from the options (i) to (iv) following it. Also, write the maximum and the minimum values that can be assigned to the variable NUM.

Note :

- Assume all required header files are already being included in the program.
- random(n) function generates an integer between 0 and n - 1.

```
void main()
{
    randomize();
    int NUM;
    NUM=random(3)+2;
    char TEXT[]="ABCDEFGHIJK";
    for (int I=1; I<=NUM; I++)
    {
```


(ii) Which function will be executed at //Stops here ? What is this function referred as ?

9. Write the definition of a class PIC in C++ with following description :

Private Members

- Pno //Data member for Picture Number (an integer)
- Category //Data member for Picture Category (a string)
- Location //Data member for Exhibition Location (a string)
- FixLocation //A member function to assign

//Exhibition Location as per category

//as shown in the following table

Category	Location
Classic	Amina
Modern	Jim Plaq
Antique	Ustad Khan

Public Members

- Enter() //A function to allow user to enter values
//Pno, category and call FixLocation() function
- SeeAll() //A function to display all the data members

10. Answer the questions (i) to (iv) based on the following :

```
class Exterior
{
    int OrderId;
    char
    Address[20];
protected:
    float Advance;
public:
    Exterior();
    void Book(); void View();
};

class Paint:public Exterior
{
    int
    WallArea,ColorCode;
protected:
    char Type;
public:
    Paint();
    void
    PBook();
    void
    PView();
};

class Bill : public Paint
{
    float Charges;
    void
    Calculate();
public :
```

```

    Bill();
    void Billing();
    void Print();
};

```

(i) Which type of Inheritance out of the following is illustrated in the above example ?

- Single Level Inheritance
- Multi Level Inheritance
- Multiple Inheritance

(ii) Write the names of all the data members, which are directly accessible from the member functions of class Paint.

(iii) Write the names of all the member functions, which are directly accessible from an object of class Bill.

(iv) What will be the order of execution of the constructors, when an object of class Bill is declared ?

11. Write the definition of a function **Alter(int A[], int N)** in C++, which should change all the multiples of 5 in the array to 5 and rest of the elements as 0. For example, if an array of 10 integers is as follows :

After executing the function, the array content should be changed as follows :

A[0]	A[1]	A[2]	A[3]	A[4]	A[5]	A[6]	A[7]	A[8]	A[9]
55	43	20	16	39	90	83	40	48	25

A[0]	A[1]	A[2]	A[3]	A[4]	A[5]	A[6]	A[7]	A[8]	A[9]
5	0	5	0	0	5	0	5	0	5

12. A two dimensional array P[20] [50] is stored in the memory along the row with each of its element occupying 4 bytes, find the address of the element P[10] [30], if the element P[5] [5] is stored at the memory location 15000.

13. Write the definition of a member function Pop() in C++, to delete a book from a dynamic stack of TEXTBOOKS considering the following code is already included in the program.

```

struct TEXTBOOKS
{
    char ISBN[20];
    char TITLE[80];
    TEXTBOOKS *Link;
};
class STACK
{
    TEXTBOOKS *Top;
public:
    STACK()
    {
        Top=NULL;
    }
};

```

```

    }
    void Push();
    void Pop();
    ~STACK();
};

```

14. Write a function **REVCOL (int P[] [5], int N, int M)** in C++ to display the content of a two dimensional array, with each column content in reverse order.

Note : Array may contain any number of rows. For example, if the content of array is as follows :

15	12	56	45	51
13	91	92	87	63
11	23	61	46	81

The function should display output as :

11	23	61	46	81
13	91	92	87	63
15	12	56	45	51

15. Convert the following infix expression to its equivalent Postfix expression, showing the stack contents for each step of conversion. **X / Y + U * (V-W)**

16. Write function definition for **SUCCESS()** in C++ to read the content of a text file **STORY.TXT**, count the presence of word **STORY** and display the number of occurrence of this word.

Note :

- The word **STORY** should be an independent word
- Ignore type cases (i.e. lower/upper case) Example :

If the content of the file **STORY.TXT** is as follows :

Success shows others that we can do it. It is possible to achieve success with hard work. Lot of money does not mean SUCCESS.

The function **SUCCESS()** should display the following :

3

17. Write a definition for function **Economic ()** in C++ to read each record of a binary file **ITEMS.DAT**, find and display those items, which costs less than 2500. Assume that the file **ITEMS.DAT** is created with the help of objects of class **ITEMS**, which is defined below :

```

class ITEMS
{
    int ID;
    char GIFT[20];
    float Cost;
public :
    void Get()
    {
        cin>>CODE;
        gets(GIFT);
        cin>>Cost;
    }
}

```

```

}
void See()
{
    cout<<ID<<":"<<GIFT<<":"<<Cost<<endl;
}
float GetCost()
{
    return Cost;
}
};

```

18. Find the output of the following C++ code considering that the binary file CLIENTS.DAT exists on the hard disk with records of 100 members.

```

class CLIENTS
{
    int Cno;
    char Name[20];
public :
    void In();
    void Out();
};

void main()
{
    fstream CF;
    CF.open("CLIENTS.DAT",ios::binary|ios::in);
    CLIENTS C;
    CF.read((char*) &C, sizeof(C));
    CF.read((char*) &C, sizeof(C));
    CF.read((char*) &C, sizeof(C));
    int POS=CF.tellg()/sizeof(C);
    cout<<"PRESENT RECORD:"<<POS<<endl;
    CF.close();
}

```

19. Observe the following table carefully and write the names of the most appropriate columns, which can be considered as (i) candidate keys and (ii) primary key.

Id	Product	Qty	Price	Transaction Date
101	Plastic Folder 12"	100	3400	2014-12-14
104	Pen Stand Standard	200	4500	2015-01-31
105	Stapler Medium	250	1200	2015-02-28
109	Punching Machine Big	200	1400	2015-03-12
103	Stapler Mini	100	1500	2015-02-02

20. Consider the following DEPT and WORKER tables. Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (viii) :

Table : DEPT

DCO	DEPARTMENT	CITY
D01	MEDIA	DELHI
D02	MARKETING	DELHI
D03	INFRASTRUCTURE	MUMBAI
D05	FINANCE	KOLKATA
D04	HUMAN RESOURCE	MUMBAI

Table : WORKER

WN	NAME	DOJ	DOB	GENDE	DCOD
1001	George K	2013-09-02	1991-09-01	MALE	D01
1002	Ryma Sen	2012-12-11	1990-12-15	FEMAL	D03
1003	Mohitesh	2013-02-03	1987-09-04	MALE	D05
1007	Anil Jha	2014-01-17	1984-10-19	MALE	D04
1004	Manila Sahai	2012-12-09	1986-11-14	FEMAL	D01
1005	R SAHAY	2013-11-18	1987-03-31	MALE	D02
1006	Jaya Priya	2014-06-09	1985-06-23	FEMAL	D05

Note : DOJ refers to date of joining and DOB refers to date of Birth of workers.

- (i) To display Wno, Name, Gender from the table WORKER in descending order of Wno.
- (ii) To display the Name of all the FEMALE workers from the table WORKER.
- (iii) To display the Wno and Name of those workers from the table WORKER who are born between '1987-01-01' and '1991-12-01'.
- (iv) To count and display MALE workers who have joined after '1986-01-01'.
- (v) **SELECT COUNT(*), DCODE FROM WORKER GROUP BY DCODE HAVING COUNT(*)>1;**
- (vi) **SELECT DISTINCT DEPARTMENT FROM DEPT;**
- (vii) **SELECT NAME, DEPARTMENT, CITY FROM WORKER W,DEPT D WHERE W.DCODE=D.DCODE AND WNO<1003;**
- (viii) **SELECT MAX(DOJ), MIN(DOB) FROM WORKER;**

21. Verify the following using Boolean Laws.

$$X + Y' = X.Y + X.Y' + X'.Y'$$

22. Draw the Logic Circuit for the following Boolean Expression :

$$(U + V').W' + Z$$

23. Derive a Canonical SOP expression for a Boolean function F, represented by the following truth table :

A	B	C	F(A,B,C)
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

24. Reduce the simplest form

$$F(X,Y,Z,W) =$$

following Boolean Expression to its using K-Map :

$$\Sigma(0,1,6,8,9,10,11,12,15)$$

25. Illustrate the Bus and a Star topology of Networks.

layout for connecting 5 computers in a

26. (a) What is a spam mail ?

(b) Differentiate between ftp and http.

(c) Out of the following, which is the fastest (i) wired and (ii) wireless medium of communication?

Infrared, Coaxial Cable, Ethernet Cable, Microwave, Optical Fiber

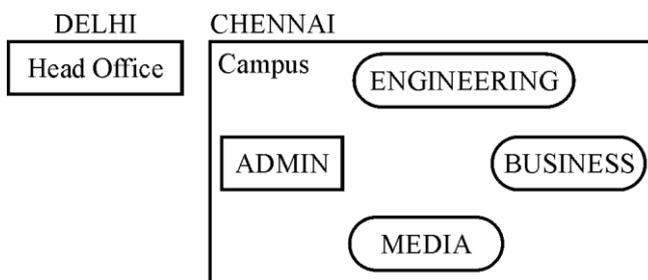
(d) What is Worm ? How is it removed ?

(e) Out of the following, which all comes under cyber crime ?

- (i) Stealing away a brand new computer from a showroom.
- (ii) Getting in someone's social networking account without his consent and posting pictures on his behalf to harass him.
- (iii) Secretly copying files from server of a call center and selling it to the other organization.
- (iv) Viewing sites on a internet browser.

27. Perfect Edu Services Ltd. is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings - ADMIN, ENGINEERING, BUSINESS and MEDIA.

You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (iv), keeping in mind the distances between the buildings and other given parameters.



Shortest distances between various buildings :

ADMIN to ENGINEERING	55 m
ADMIN to BUSINESS	90 m
ADMIN to MEDIA	50 m
ENGINEERING to BUSINESS	55 m
ENGINEERING to MEDIA	50 m
BUSINESS to MEDIA	45 m
DELHI Head Office to CHENNAI Campus	2175 km

Number of Computers installed at various buildings are as follows :

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI Head Office	20

- Suggest the most appropriate location of the server inside the CHENNAI campus (out of the 4 buildings), to get the best connectivity for maximum no. of computers. Justify your answer.
- Suggest and draw the cable layout to efficiently connect various buildings within the CHENNAI campus for connecting the computers.
- Which hardware device will you suggest to be procured by the company to be installed to protect and control the internet uses within the campus ?
- Which of the following will you suggest to establish the online face-to-face communication between the people in the Admin Office of CHENNAI campus and DELHI Head Office ?

Cable TV Email Video Conferencing Text Chat

28. What is the difference between automatic type conversion and type casting? Also, give a suitable C++ code to illustrate both.

29. Find the output of the following program :

```
#include<iostream.h>
struct POINT
{
    int X, Y, Z;
};

void StepIn( POINT &P, int Step =1)
{
    P.X += Step ;
    P.Y  -= Step ;
    P.Z += Step;
```

```

}

void StepOut (POINT &P, int Step = 1)
{
    P.X -= Step ;
    P.Y += Step ;
    P.Z  -= Step;
}

void main()
{
    POINT P1= {15,25,5}, P2= {10,30,20};
    StepIn(P1);
    StepOut(P2,4);
    cout<<P1.X<<', '<<P1.Y<<', '<<P1.Z<<endl;
    cout<<P2.X<<', '<<P2.Y<<', '<<P2.Z<<endl;
    StepIn(P2,12);
    cout<<P2.X<<', '<<P2.Y<<', '<<P2.Z<<endl;
}

```

30. Find the output of the following program ;

```

#include<iostream.h>
#include <ctype.h>
void ChangeIt (char Text[ ], char C)
{
    for (int K=0; Text [K]!='\0' ; K++)
    {
        if (Text[K] >='F' && Text[K] <='L')
            Text[K]=tolower(Text[K]);
        else if (Text[K]=='E' || Text[K]=='e')
            Text[K]=C;
        else if (K%2==0)
            Text[K]=toupper(Text[K]);
        else
            Text[K]=Text[K-1];
    }
}

void main( )
{
    char oldText[ ]= "p0wERALone" ;
    ChangeIt (oldText,'%');
    cout <<"New TEXT:"<<oldText<<endl;
}

```

31. The following code is from a game which generates a set of 4 random numbers : Yallav is playing this game. Help him to identify the correct option(s) out of the four choices given below as the possible set of such numbers generated from the program code so that he wins the game. Justify your answer.

```

#include <iostream.h>
#include <stdio.h>

```

```

const int LOW = 15 ;
void main( )
{
    randomize( ) ;
    int POINT =5, Number ;
    for (int I = 1 ; I <= 4 ; I ++ )
    {
        Number = LOW + random(POINT) ;
        cout << Number << ":" ;
        POINT-- ;
    }
}

```

(i) 19:16:15:18:

(ii) 14:18: 15:16:

(iii)19:16:14:18:

(iv) 19:16:15:16:

32. Answer the questions (i) to (iv) based on the following :

```

class Chairperson
{
    long CID ;    //Chairperson Identification Number
    char CName[20] ;
protected :
    char Description[40] ;
    void Allocate( ) ;
public :
    Chairperson( ) ;
    void Assign( ) ;
    void Show( ) ;
} ;

class Director
{
    int DID ;    //Director ID
    char Dname[20] ;
protected :
    char Profile[30] ;
public :
    Director( ) ;
    void Input( ) ;
    void output( ) ;
} ;

class Company : private Chairperson, public Director
{
    int CID ;    //Company ID char City[20] , Country[20] ;
public :

```

```

    Company( ) ;
    void Enter( ) ;
    void Display( ) ;
} ;

```

- (i) Which type of Inheritance out of the following is specifically is illustrated in the above C++ code ?
- (a) Single Level Inheritance (b) Multi Level Inheritance (c) Multiple Inheritance
- (ii) Write the names of data members, which are accessible by objects of class type Company.
- (iii) Write the name of all the member functions, which are accessible by objects of class type Company.
- (iv) Write the names of all members, which are accessible from member functions of class Director.

33. (a) Write a function CHANGE() in C++, which accepts an array of integer and its size as parameters and divide all those array elements by 7 which are divisible by 7 and multiply other array elements by 3.

Sample Input Data of the array

A[0]	A[1]	A[2]	A[3]	A[4]
21	12	35	42	18

Content of the array after calling CHANGE() function

A[0]	A[1]	A[2]	A[3]	A[4]
3	36	5	6	54

- (b) An array p[50][60] is stored in the memory along the column with each of the element occupying 2bytes, find out the memory location for the element p[10][20], if the Base Address the array is 6800.
- (c) Write a complete program in C++ to implement a dynamically allocated Stack containing names of Countries.
- (d) Write a function int SKIPSUM(int A[] [3], int N, int M) in C++ to find and return the sum of elements from all alternate elements of a two-dimensional array starting from A[0][0].

[Hint: If the following is the content of the array

A[0][0]	A[0][0]	A[0][0]
4	5	1
A[0][0]	A[0][0]	A[0][0]
2	8	7
A[0][0]	A[0][0]	A[0][0]
9	6	3

The function SKIPSUM() should add elements A[0][0],A[0][2], A[1][1], A[2][0] and A[2][2].]

- (e) Evaluate the following postfix notation of expression :
 (Show status of Stack after each operation)
 False, True, NOT, OR, True, False, AND, OR

34. (a) Observe the program segment given below carefully and fill in the blanks marked as Statement 1 and Statement 2 using tellg () and seek () functions for performing the required task.

```
#include <fstream. h>
class client
{
    long Cno ;
    char Name [20], Email [30] ;
public :
//Function to allow user to enter the cno,Nme , Email
    void Enter ( ) ;
// Function to allow user to enter (modify) Email
    void modify ( ) ;
    long ReturnCno( )
    {
        return Cno ;
    }
} ;

void changeEmail ( )
{
    Client C ;
    fstream F ;
    F. open ("INFO.DAT" , ios :: binary |ios :: in|ios :: out) ;
    long Cnoc ; //Client's no. whose Email needs to be changed cin >>
    Cnoc ;
    while (F. read (( char*) &C, sizeof (C)))
    {
        if (Cnoc == C.Returncno( ))
        {

            C.Modify( ) ;
            //To find the current position of file pointer

            int Pos = _____; //Statement 1
            //To move the file pointer to write
            //the modified record back into the
            //file for the desired cnoc

            -----; //statement 2
            F.write ((char*) &C, sizeof(C));
```

```

    }
}
F.close( ) ;
}

```

- b) Write a function in C++ to count the words “this” and “these” present in a text file “ARTICLE.TXT”.
[Note that the words “this” and “these” are complete words]
- c) Write a function in C++ to search and display the details of all flights, whose destination is “Mumbai” from “FLIGHT.DAT”. Assuming the binary file is containing objects of class.

```

class FLIGHT
{
    int Fno;
//Flight Number
    char From[20] ; //Flight Starting point
    char To[20] ; //Flight Destination public :
    char* GetFrom( )
    {
        return From ;
    }
    char* GetTo( )
    {
        return To ;
    }
    void Enter( )
    {
        cin >> Fno ;
        gets (From) ;
        gets(To) ;
    }
    void Display( )
    {
        cout << Fno<< ":" << From <<":"<< To << endl ;
    }
};

```

35. What do you understand by Candidate Keys in a table ? Give a suitable example of Candidate keys from a table containing some meaningful data.

36. Consider the following tables STORE and SUPPLIERS and answer (b1) and (b2) parts of this question.

Table: STORE

Item No	Item	Scode	Qty	Rate	LastBuy
2005	Sharpener	23	60	8	31-jun-09
2003	Ball	22	50	25	01-Feb-10
2002	Gel Pen Premium	21	150	12	24-Feb-10
2006	Gel Pen Classic	21	250	20	11-Mar-09

2001	Eraser Small	22	220	6	19-Jan-09
2004	Eraser Big	22	110	8	02-Dec-09
2009	Ball Pen 0.5	21	180	18	03-Nov-09

Table :SUPPLIERS

scode	Sname
21	Premium
23	Soft Plastics
22	Tera Supply

(b1) Write SQL commands for the following statements :

- (i) To display details of all the items in the Store table in ascending order of LastBuy.
- (ii) To display ItemNo and Item name of those items from Store table Whose Rate is more than 15 Rupees.
- (iii) To display the details of those items whose Suppliers code (Scode) is 22 or Quantity in Store (Qty) is more than 110 from the table Store.
- (iv) To display Minimum Rate of items for each Supplier individually as per Scode from the table Store.

(b2) Give the output of the following SQL queries:

- (i) SELECT COUNT (DISTINCT Scode) FROM Store;
- (ii) SELECT Rate*Qty FROM Store WHERE ItemNO = 2004;
- (iii) SELECT Item, Sname FROM Store S, Suppliers P WHERE S.Scode = P.Scode AND Item No = 2006 ;
- (iv) SELECT MAX (LastBuy) FROM Store ;

37. Write the De-Morgan's laws. Prove them algebraically.

38. Reduce the following Boolean expression using K-map :

$$F(U,V,W,Z) = \Pi(3,5,7,10,11,13,15)$$

39. (a) What was the role of ARPANET in Computer Network ?

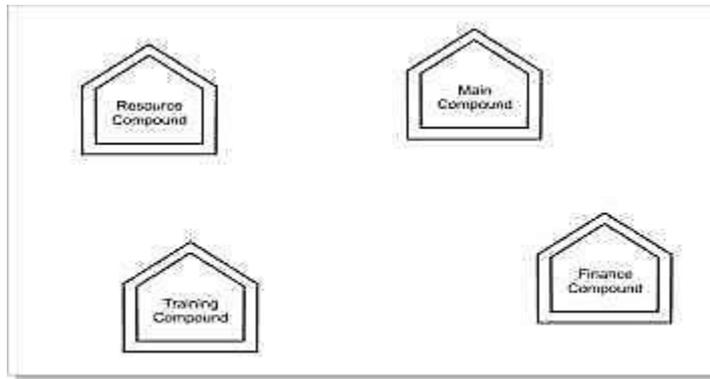
(b) Which of the following is not a unit for data transfer rate ?

- (i) bps (ii) abps (iii) gbps (iv) kbps

(c) What is the difference between Trojan Horse and Virus in terms of computers?

(d) What term we use for a software/hardware device, which is used to block, unauthorized access while permitting authorized communications. This term is also used for a device or set of devices configured to permit, deny, encrypt, or proxy all (in and out) computer traffic between different security domains based upon a set of rules and other criteria.

(e) "Learn Together" is an educational NGO. It is setting up its new campus at Jabalpur for its webbased activities. The campus has 4 compounds as shown in the diagram below:



Center to center distance between various Compounds as per architectural drawings(in meter) is as follows:

Main Compound to Resource Compound	110 m
Main Compound to Training Compound	115 m
Main Compound to Finance Compound	35m
Resource Compound to Training	25 m
Resource Compound to Finance	135 m
Training Compound to Finance	100m

Expected Number of Computer in each Compound is as follows:

Main Compound	5
Resource	15
Training	150
Account	20

- (e1) Suggest a cable layout of connection between the compounds.
- (e2) Suggest the most suitable place (i.e., compound) to house the server for this NGO. Also provide a suitable reason for your suggestion.
- (e3) Suggest the placement of the following devices with justification:
 - (i) Repeater
 - (ii) Hub/switch
- (e4) The NGO is planning to connect its International office situated in Mumbai, which out of following wired communication link, you will suggest for a very speed connectivity ?:
 - (i) Telephone Analog Line
 - (ii) Optical Fiber
 - (iii) Ethernet Cable
- (f) Write the full of the following:
 - GNU
 - XML
- (g) Write one advantages of each for open Sources and Proprietary software.

40. Write a function EUCount() in C++, which should read each character of a text file IMP.TXT, should count and display the occurrence of alphabets 'E' and 'U' (including small cases 'e' and 'u' too).

Example: If the file content is as follows :

Updated information

Is simplified by official websites.

The EUCount() function should display the output as

E:4

U:1

41. Write a function POPBOOK() in C++ to perform delete operation from a Dynamic Stack, which contains Bno and Title. Consider the following definition of NODE, while writing your C++ code.

```
struct NODE
{
    int Bno;
    char Title[20];
    NODE *Link;
};
```

42. Write a function QINSERT() in C++ to perform insert operation on a Linked Queue(Dynamic Queue), which contains Client No and Client name. Consider the following definition of NODE in the code of QINSERT().

```
struct NODE
{
    long int Cno;    // client no
    char Cname[20]; // client name
    NODE *Next;
};
```

43. Write the output of the following C++ code. Also, write the name of feature of Object Oriented Programming used in the following program jointly illustrated by the functions [I] to [IV].

```
#include<iostream.h>
void Print ( )
{
    // Function [I]
    for (int K=1; K<=60; K++) cout<<"-";
    cout<<endl;
}
void Print (int N)    //Function[II]
{
    for (int K=1; K<=N; L++) cout<<"*";
    cout<<endl;
}
void Print(int A, int B)    //Function[III]
{
    for(int K=1; K<=B; K++) cout<<A*k;
    cout<<endl;
}
void Print(char T, int N)    // Function[IV]
{
    for (int K=1; k<=N; K++) cout<<T;
    cout<<endl;
}
void main( )
{
    int U=9,V=4,W=3;
    char C ='@';
    Print(C,V);
}
```

```

        Print(U,W);
    }

```

44. Write a Get1From2() function in C++ to transfer the content from two arrays FIRST[] and SECOND[] to array ALL[]. The even places (0, 2, 4,...) of array ALL[] should get the content from the array FIRST[] and odd places (1,3,5,...) of the array ALL[] should get the content from the array SECOND[].

Example:

If the FIRST[] array contains 30, 60, 90

And the SECOND[] array contains 10, 50, 80

The ALL[] array should contain 30, 10, 60, 50, 90, 80

45. (c) Write a function in C++ to search for a laptop from a binary file "LAPTOP.DAT" containing the objects of class LAPTOP (as defined below). The user should enter the Model No and the function should search and display the details of the laptop. 3

```

class LAPTOP
{
    long ModelNo;
    float RAM, HDD;
    char Details[120];
public:
    void StockEnter ( )
    {
        cin>>Model No>>RAM>>HDD;
        gets(Details);
    }

    void StockDisplay( )
    {
        cout<<ModelNo<<RAM<<HDD<<Details<<endl;
    }

    long ReturnModelNo ( )
    {
        return ModelNo ;
    }
};

```

46. Using the code given below, define the function Insert() in C++ to insert an element into a dynamically allocated Queue where each node contains a name (of type string) as data. Assume the following definition of THENODE for the same.

```

struct THENODE
{
    char Name[20];
    THENODE *Link;
};

class Queue
{
    THENODE *front,*rear;
public:

```

```

Queue( )
{
    front = rear = NULL;
}
void Insert( );
void Delete( );
void Display( );
};

```

47. Evaluate the following postfix notation of expression (Show status of stack after execution of each operation):

4, 10, 5, +, *, 15, 3, /, -

48. Write the definition for the function Delete() in C++ to Delete an element from a dynamically allocated Queue where each node contains a real number as data. Assume the following definition of MYNODE for the same:

```

struct MYNODE
{
    float NUM;
    MYNODE * Link;
};

class Queue
{
    MYNODE *front,*rear;
public:
    Queue( )
    {
        front=rear=NULL;
    }
    void Insert( );
    void Delete( );
    void Display( );
};

```

49. Define the function Pop() in C++ to delete a node containing Book's information, from a dynamically allocated Stack of Books implemented with the help of the following structure.

```

struct Book
{
    int BNo ;
    char BName[20] ;
    Book *Next ;
} ;

class Stack
{
    Book *Top;
public:
    Stack( )
    {
        Top = NULL;
    }
    void Push( );
    void Pop( );
    void Display( );
};

```

50. Given a binary file TELEPHON.DAT, containing records of the following class Directory :

```
class Directory
{
    char Name[20] ;
    char Address[30] ;
    char AreaCode[5] ;
    char phone_No[15] ;
public ;
    void Register( ) ;
    void Show( ) ;
    int CheckCode(char AC[ ])
    {
        return strcmp(AreaCode, AC) ;
    }
} ;
```

Write a function COPYABC() in C++, that would copy all those records having AreaCode as "123" from TELEPHON.DAT to TELEBACK.DAT.
