

**3 Marks Questions**  
**Programming in C++**

1 Give output of following code fragment:

```
int val, res, n = 1000;
cin >> val;
res = n + val > 1750 ? 400 : 200;
cout << res;
(a) if the input is 2000.
(b) if the input is 1000.
(c) if the input is 500.
```

2 What will be the output if input is:

(i) a            (ii) c            (iii) d            (iv) h            (v) b

```
char ch, out [10] = " ";
cin >> ch;
switch (ch) {
    case 'a':    strcat(out, "a");
    case 'b':    strcat(out, "b");
    case 'c':    strcat(out, "c");
                break;
    case 'd':    strcat(out, "d");
                break;
    default :    strcat(out, "Not abcd");
}
```

```

    }
    cout << out << endl;

```

- 3 Give output of following code fragment:

```

char *msg = "a ProFile";
for (int i = 0; i < strlen (msg); i++)
    if (islower(msg[i]))
        msg[i] = toupper (msg[i]);
    else
        if (isupper(msg[i]))
            if( i % 2 != 0)
                msg[i] = tolower (msg[i-1]);
            else
                msg[i--];
cout << msg << endl;

```

- 4 Give output of following code fragment:

```

5char *msg = "WELCOME";
for (int i = strlen (msg) - 1; i >= 0; i--)
    if (islower(msg[i]))
        msg[i] = toupper (msg[i]);
    else
        if (isupper(msg[i]))
            if( i % 2 != 0)
                msg[i] = tolower (msg[i-1]);
            else
                msg[i--];
cout << msg << endl;

```

- 5 Find output

```

#include<iostream.h>
struct Box {
    int Len, Bre, Hei;
};
void Dimension(Box B)
{
    cout << B.Len << " X " << B.Bre << " X ";
    cout << B.Hei << endl;
}
void main ( )
{
    Box B1 = {10, 20, 8}, B2, B3;
    ++B1.Hei;
    Dimension (B1);
    B3= B1;
    ++B3.Len;
    B3.Bre++;
    Dimension (B3);
    B2= B3;
    B2.Hei += 5;
    B2.Len - = 2;
}

```

- ```

        Dimension (B2);
    }
6    Give output
    int Execute( int M)
    {
        if (M % 3 = 0)
            return M * 3;
        else
            return M + 10;
    }
    void output( int B = 2)
    {
        for (int T = 0; T < B; T++)
            cout << Execute(T) << “*”;
        cout << endl;
    }
    void main()
    {
        output (4);
        output ();
        output (3);
    }
7    Give the output of the following program:
    void main()
    {
        int ar[] = {2, 3, 4, 5};
        int *ptr = arr;
        int val = *ptr; cout << val << endl;
        val = *ptr ++; cout << val << endl;
        val = *ptr;    cout << val << endl;
        val = * ++ptr; cout << val << endl;
    }
8    Give the output of the following program:
    void main()
    {
        int ar[] = {2, 3, 4, 5};
        int *ptr = arr;
        int val = *ptr;    cout << val << endl;
        val = *ptr ++;    cout << val << endl;
        val = *ptr;      cout << val << endl;
        val = * ++ptr;   cout << val << endl;
    }
9    Give the output of the following program :
    #include<iostream.h>
    struct point
    {

```

```

int x,y;
};
void showpoint p)
{
    cout<<p.x<< ':'<<p.y<<endl;
}
void main()
{
point u = {20,10},V,W;
v=u;
v.x+=20;
w=v;
u.y+=10;
u.x+=5;
w.x-=5;
show(u);
show(v);
show(w);
}

```

10. Write the output of the following program :

```

#include<iostream.h>
int calc(int u)
{
    if(u%2==0)
        return u+10;
    else
        return u*2;
}
void pattern(char M, int B=2)
{
    for(int cnt=0;cnt<b;cnt++)
        cout<<calc(cnt)<<m;
    cout<<endl;
}
void main()
{
    pattern('*');
    pattern('#',4);
    pattern('@',3);
}

```

- 11 Find the output of the following program:

```

#include<iostream.h>
#include<conio.h>
void ChangeContent(int Arr[], int Count)
{
    for(int C=1 ; C<Count ; C++)
    {
        Arr[C-1]+=Arr[C] ;
    }
}

```

```

}
void main()
{
clrscr();
int A[ ]={3, 4 , 5}, B[ ]={10,20,30,40}, C[ ]={900, 1200}, L ;
ChangeContent(A,3);
ChangeContent(B,4);
ChangeContent(C,2);
for(L=0 ; L<3 ; L++)
{
cout<<A[L]<<"#";
}
cout<<endl;
for(L=0 ; L<4 ; L++)
{
cout<<B[L]<<"#" ;
}
cout<<endl;
for(L=0 ; L<2 ; L++)
{
cout<<C[L]<<"#" ;
}
getch();
}

```

- 12 Find the output of the following program:

```

#include<iostream.h>
#include<conio.h>
struct Game
{
    char Magic[20];
    int Score;
};
void main()
{
clrscr();
Game M={"Tiger", 500} ;
char *Choice ;
Choice = M.Magic;
Choice[4]='P' ;
Choice[2]='L' ;
M.Score+=50;
cout<<M.Magic<<M.Score<<endl;
Game N= M;
N.Score-=120 ;
cout<<N.Magic<<N.Score<<endl;
getch();
}

```

- 13 Write the output of the following program:

```

#include<iostream.h>

```

```

#include<string.h>
#include<ctype.h>
void convert (char str[], int len)
{
    for (int count =0; count <len; count++)
    {
        if ( isupper(str[count]))
            str[count]=tolower(str[count]);
        else if ( islower(str[count]))
            str[count]=toupper(str[count]);
        else if ( isdigit(str[count]))
            str[count]=str[count]+2;
        else
            str[count]= '#';
    }
}

void main()
{
char text[]= "AISSCE 2008@";
int size =strlen(text);
convert (text,size);
cout<<text<<endl;
for (int c =0, r=size-1; c<=size/2;c++, r--)
{
    char temp= text[c];
    text [c]= text[r];
    text[r]= temp;
}
cout<< text << endl;
}

```

- 14 Give the output of the following program.

```

#include < iostream.h >
#include <conio.h >
int a = 10;
int main( )
{
    void demo ( int &, int , int *);
    clrscr( );
    int a = 20;
    demo ( ::a,a,&b);
    cout << ::a << "\t" << a << "\t" << b;
}
void demo ( int &x, int y , int *z )
{
    a += x; y *= a; *z = a+y;
    cout << x << "\t" << y << "\t" << *z << endl;
}

```

- 15 Write the output of the following program segment

```

char *NAME="ComPUteR";
for(int x=0;x<strlen(NAME);x++)
if(islower(NAME[x]))
    NAME[x]=toupper(NAME[x]);
else
    if(isupper(NAME[x]))
    if(x%2==0)
        NAME[x]=tolower(NAME[x]);
    else
        NAME[X]=NAME[x-1];
puts(NAME);

```

- 16 What will be the output of the following program

```

#include<iostream.h>
#include<ctype.h>
#include<conio.h>
#include<string.h>
void changestring(char text[], int &counter)
{
    char *ptr = text;
    int length=strlen(text);
    for(;counter<length-2;counter+=2,ptr++)
    {
        *(ptr+counter) = toupper(*(ptr+counter));
    }
}
void main()
{
    clrscr();
    int position = 0;
    char message[] = "Mouse Fun";
    changestring(Message,position);
    cout<<message<< "@" <<position;
}

```

- 17 What will be the output of the following program:

```

#include<iostream.h>
#include<ctype.h>
#include<conio.h>
#include<string.h>
void changestring(char text[], int &counter)
{
    char *ptr = text;
    int length=strlen(text);
    for(    ;counter<length-2; counter+=2,ptr++)
    {
        *(ptr+counter) = toupper(*(ptr+counter));
    }
}
void main()

```

```

{
    clrscr();
    int position = 0;
    char message[] = "Pointer Fun";
    changestring(Message, position);
    cout<<message<< "@" <<position;
}

```

18. Find the output of the following program

```

#include<iostream.h>
#include<string.h>
class state
{
    char * state name;
    int size;
public:
    state(); { size=0; state name=new char[size+1]; }
    state(char *s)
    {
        size = strlen(s) ; state name = new char[size+1];}
        strcpy(state name, s);
    }
    void display() {cout<<state name<<endl; }
    void Replace (state &a, state &b)
    {
        size = a.size + b.size;
        delete state name;
        state name = new char[size+1] ;
        strcpy(state name, a.state name);
        strcat(state name, b.state name);
    }
};
void main()
{
    char *temp = "Delhi";
    state state1(temp), state2("Mumbai"), state3("Nagpur"), S1, S2;
    S1.Replace(state1, state2);
    S2.Replace(S1, state3);
    S1.display( );
    S2.display( );
}

```

19. Rewrite the following program after removing the syntactical error(s), if any. Underline each correction.

```

#include <iostream.h>
void main( )
{
    struct movie
    {
        char movie name [20];
        char movie type;
        int ticket cost = 100;
    }MOVIE;
    gets(movie name);
    gets(movie type);
}

```



- 20 Find the output of the following program:
- ```

#include<iostream.h>
#include<string.h>
class student
{
    char *name;
    int I ;
    public:
    student() {I=0; name=new char [ I+1]; }
    student (char *s)
    {
        I=strlen(s); name=new char[I+1];
        strcpy (name,s);
    }
    void display( ) {cout<<name<<endl;}
    void manipulate(student & a, student & b)
    { I = a.I + b.I;
    delete name;
    name=new char[I+1];
    strcpy(name, a.name);
    strcat(name, b.name);
    }
};
void main( )
{
    char * temp = "Jack";
    student name1 (temp), name2(" Jill"), name3("John"),S1,S2;
    S1 .manipulate (name1, name2);
    S2.manipulate (S1, name3);
    S1.display ( );
    S2.display ( );
}

```
- 21 Find the output of the following program:
- ```

#include<iostream.h>
#include<string.h>
class country
{
    char *country name;
    int length;
    public:
    country ( ) {length =0; country name=new char [length+1];}
    country (char *s)
    {
        length = strlen(s); country name=new char [length +1];
        strcpy (country name, s);
    }
    void display ( ) { cout<< country name <<endl;}
    void Replace (country & a, country & b)
    {
        length a.length + b.length;
        delete country name;
        country name=new char [length + 1];
        strcpy (country name, a.country name);
        strcat (country name, b.country name);
    }
}

```

```

};
void main ()
{
    char * temp = "India";
    country country1 (temp), country2 ("Nepal"), country3 ("China"), S1,S2;
    S1.Replace (country1, country2);
    S2.Replace (S1,country3);
    S1.display ();
    S2.display ();
}

```

22 Find the output of the following program:

```

#include < iostream.h>
void main()
{
    int *PointerArray [10];
    int marks [ = {75, 68, 90, 34, 0, 10, 90, 65};
    for (int I = 0; marks [ I]!=0; I++)
    {
        PointerArray [I]=&marks[I];
        * (PointerArray [I] ) += 5;
    }
    int index = 0;
    while(index < I )
    {
        int p=*(PointerArray[index] );
        if(p >=60) cout <<p<< ' , ' ;
        index ++;
    }
}

```

23

```

class book
{
    int book no;
    char book name[20];
    float price;
public:
    void enter book Details()
    {
        cin>> book no>> price; gets(book name);
    }
    void show book Details();
};

```

Assuming a binary file "BOOK.DAT" contains objects belonging to class book, write a user defined function to add more records to the end of it.

- 24 Assuming a binary file "BOOK.DAT" contains objects belonging to class book, write a user defined function to add more records to the beginning of it.
- 25 Assuming a binary file "BOOK.DAT" contains ten objects belonging to class book, write a user defined function to add a record as fifth record to this file. After the execution of your code, the file "BOOK.DAT" should contain eleven records
- 26 A librarian maintains the record of books in a file named as "STOCK BOOK.DAT". Write a function in C++ to delete a record for book no 10.
- 27 Observe the program segment carefully and answer the question that follows:

```

class student
{
    int student no;
    char student name[20];
    int mark;
public:
    void enterDetails()
    {
        cin>> student no >> mark ; gets(student name);
    }

    void showDetail();
    int get mark(){ return mark;}
};

```

Assuming a binary file “RESULT.DAT” contains records belonging to student class, write a user defined function to separate the records having mark

- (i) Greater than 79 into “EXCELLENT.DAT” file
- (ii) Greater than 59 but less than 80 into “AVERAGE.DAT” file.
- (iii) Remaining records should be in “RESULT.DAT” file.

- 28 Given the binary file TELEPHONE.DAT , containing the 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 only those records having areaCode as “123” from TELEPHONE.DAT to TELEBACK.DAT.

- 29 Write a function in C++ to add a new record into a binary file “customer.dat” , if the file contains the objects of the following class:

```

class customer
{
    int cust no;
    char name[20];
public:
    void getData( )
    {

```

```

        cin>> cust no;
        cin.getline(name, 20 );
    }

    void showData( ); // Function to display customer details

};

```

30 Given the binary file ITEM.DAT, containing the records of the following structure:

```

struct item
{
    int item no;
    char item name[20];
    int stock;
};

```

Implement the function AddStock( item x, int n), which updates a record by adding n to the existing stock for the item x in the file.

31 Write definition for a function SUMSEQUENCE() in C++ with two arguments/parameters – double x and int n. The function should return a value of type double and it should perform sum of the following series :

$$1-x/1! + x^2/3! - x^3/5! + x^4/7! - x^5/9 + \dots \text{Up to } n \text{ terms.}$$

(Note : The symbol ! represents Factorial of a number i.e. 5! = 5\*4\*3\*2\*1)

32 Write a C++ function SUMFUN() having parameters X (of type double) and n (of type integer) with a result type as double to find the sum of the series given below :

$$X + X^2/3! + X^3/5! + \dots + X^n/(2N-1)!$$

33 An array of a structure Student, S is required to be arranged in descending order of marks. Write a C++ function to arrange the same with the help of bubble sort. The array and its size is required to be passed as parameters to the function.

Definition of structure student is as follows

```

struct Student
{
    int rollno;
    char name[20];
    float marks;
};

```

34 An array E containing elements of structure Employee is required to be arranged in descending order of salary. Write a C++ function to arrange the same with the help of Selection sort. The array and its size is required to be passed as parameters to the functions. Definitions of the structure is as follows

```

struct Employee
{
    int empno;
    char Ename[20];
    float salary;
};

```

35 Give the output of the following program :

```

#include<iostream.h>
#include<conio.h>
#include<string.h>
#include<ctype.h>
void main( )
{
    int b;
    char bboy[10];
    clrscr( );
    bboy[0]='d',bboy[1]='e',bboy[2]='f',bboy[3]='g';
    len(bboy);
    getch( );
    return 0;
}
void len(char boy[10])
{
    int l,v=0;
    l=strlen(boy);
    for (int i=0;i<=l;i++)
    {
if ((boy[i]=='a')||(boy[i]=='e')||(boy[i]=='i')||(boy[i]=='o' || (boy[i]=='u'))
        v=v+1;
    }
cout<<l<<v;
return;
}

```

36. Give the output of the following program :

```

#include<iostream.h>
#include<conio.h>
main( )
{
    int number[10],a,b,c,d;
    clrscr( );
    for(int i=0;i<10;i++)
    {
        number[i]=i+i;
    }
    clrscr( );
    for(int j=0;j<9;j++)

```

```

    {
        for(int k=j+1;k<10;k++)
        {
            if (number[j]>number[k])
            {
                a=number[j];
                number[j]=number[k];
                number[k]=a;
            }
        }
    }
    cout<<endl;
    for(i=0;i<10;i++)
    cout<<number[i]<<"\t";i++;
    getch( );
    return 0;
}

```

37 Give the output of the following program :

```

#include<iostream.h>
#include<conio.h>
main( )
{
int a=0;
clrscr( );
char *name;
name= "Internet Browsing";
for(a=0;a<=8;a++)
cout<<name[a+1];
cout<<endl;
cout<<name[a];
cout<<endl<<(int)name[a]-1;
getch( );
return 0;
}

```

38 Give the output of the following program :

```

#include<iostream.h>
#include<conio.h>
main( )

```

```

{
void arm(int);
clrscr( );
int num;
num=191;
arm(num);
getch( );
return 0;
}
void arm(int n)
{
int number, sum=0,dg,dgg,digit;
number=n;
while(n>0)
{
dg=n/10;
dgg=dg*10;
digit=n-dgg;
cout<<digit+digit<<endl;
sum=sum+digit*digit*digit;
n=n/10;
}
cout<<digit<<endl<<sum;
}

```

- 39 Give the output of the following program :

```

#include<iostream.h>
#include<conio.h>
#include<string.h>
main()
{
clrscr( );
char *name;
int l;
name= "SHANA";
l=strlen(name);
cout<<l<<endl<<(int) name[l-2];
cout<<endl;
cout<<name[l-3];
getch( );

```

```
        return 0;
    }
```

40 Give the output of the following program :

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
#include<string.h>
main()
{
    clrscr();
    char *name;
    int len=0;
    name= "dheeraj@lw1.vsnl.net.in";
    len = strlen(name);
    len = len-1;
    cout<<endl;
    for(int i=len;i>=0;i=i-2)
    { cout<<name[i];}
    cout<<endl;
    cout<<i;
    cout<<endl;
    cout<<name[i+4];
    cout<<endl;
    getch();
    return 0;
}
```

41 Assuming the class Employee given below and a binary file EMPLOYEE.DAT contains objects of this class, write functions in C++ to perform the followings:

- (i) Write an object at the end of the binary file.
- (ii) Update the salary of all the employees whose salary is 10000 with a new salary 20000.

```
class Employee{
    int emp no;
    char name[20];
    float salary;
public:
    void getData()
    {
        cin>> emp no>>salary;
```



```

        gets(name);
    }
    void setSalary(float f)
    {
        salary = f;
    }
    float get_salary()
    {
        return salary;
    }
};

```

- 42 What is the output of the following program( Assume all necessary header files are included) :

```

void main()
{
    char *name= "IntraNet";
    for ( int i = 0; i < strlen( name) ; i++)
    {
        if ( islower( name[i]) )
            name[i] =toupper(name[i]) ;
        else
            name[i] = name[i - 1] ;
    }
}

```

- 43 What is the output of the following program( Assume all necessary header files are included) :

```

void main()
{
    char * name= "teAmIndia";
    for ( int i = 0; name[i] != '\0' ; i + 2)
    {
        if ( islower( name[i]) )
            name[i] = toupper(name[i]) ;
        else
            name[i] = tolower(name[i]);
    }
}

```

- 44 What is the output of the following program( Assume all necessary header files are included) :

```

void main()
{

```

```

char * name= "The bEst mAN wINs";
for ( int i = 0; name[i] != '\0' ; i + 1)
{
    if ( islower( name[i] )
        name[i] = toupper(name[i]) ;
    else
        if( isupper(name[i]) )
            if ( i % 2 == 0) name[i] -- ;
        else
            name[i] = tolower(name[i - 1]
    }
}

```

- 45 What is the output of the following program( Assume all necessary header files are included) :

```

void main()
{
    char * str = "TEACHER";
    for ( int i = strlen(str) - 1 ; i >= 0 ; i --)
    {
        for ( int x = 0 ; x <= i ; x ++ )
            cout<<s[x] ;
        cout<<"\n";
    }
}

```

- 46 What is the output of the following program( Assume all necessary header files are included) :

```

void main()
{
    int * p[10];
    int score[] = {80, 30, 74, 50, 34, 67,0, 98};
    for ( int i = 0 ; score[i] != 0 ; i ++ )
    {
        p[i] = & score[i];
        *(p[i]) += 10;
    }
    int count = 0;
    while( count < i)
    {
        int q = *(p[count]);
        count++ ;
        if(q > 50)
            cout<<q<< " , " ;
    }
}

```

47 What will be the output of the following program :

```
#include<iostream.h>
#include<ctype.h>
#include<conio.h>
#include<string.h>
void NewText(char str[ ], int & pos)
{
    char * p = str;
    int length = strlen(p);
    for( ; pos < length - 2; pos += 2 , p++)
    {
        *(p + pos) = toupper(*(p+pos));
    }
    cout<<str;
}
void main()
{
    clrscr();
    NewText("Good Morning", 0);
}
```

48 What is the output of the following program( Assume all necessary header files are included) :

```
#include <iostream.h>
#include<ctype.h>
#include<string.h>
#include<conio.h>
class country{
    char * c name;
    int length;
public:
    country()
    {
        length = 0;
        c name = new char[length+1];
    }
    country(char * s)
    {
        length = strlen(s);
        c name = new char[length+1];
        strcpy(c name, s);
    }
}
```

```

void display()
{
    cout<<c name<<endl;
}
void replace(country &a, country &b)
{
    length= a.length+b.length;
    c name = new char[length+1];
    strcpy(c name, a.c name);
    strcpy(c name, b.c name);
}
};
void main()
{
    char *temp="India";
    clrscr();
    country c1=temp, c2("Nepal"),c3;
    c3.replace(c1,c2);
    c3.display();
    getch();
}

```

- 53 Find the output of the following program

```

#include<iostream.h>
void main ( )
{
    char *name;
    node *next;
}
node n[ ]={
    {"Anamika", n+1},
    {"Shruthi",n+2},
    {"Swathi",n}
};
node * m[3];

for(int i=0;i<3;i++)
    m[i]=n[i].next;

cout.write(m[0]->name,7); cout.put('\n');
cout.write((*m)->name,7); cout.put('\n');

```

49. Write a function in C++ to count the number of vowels present in a text file STORY.TXT".