

FIRST PRE-BOARD EXAMINATION, 2016 – 17**Sub. : Computer Science (083)****Time : 3 Hrs.]****Class – XII****[M. M. : 70****Instructions :**

- i) *All the questions are compulsory*
- ii) *Programming Language C++*

1. a. What is the difference between Global Variable and Local Variable? Also, give a suitable C++ code to illustrate both. 2
- b. Name the header file(s) that shall be needed for successful compilation of the following C++ code. 1

```
void main ( )
{
char abc [20];
gets (abc);
streat (abc, "DIGITAL INDIA");
puts (abc);
}
```

- c. Rewrite the following program after removing the syntactical error(s) if any. Underline each correction. 2

```
#include<iostream.h>
void Jumpto(int N1; int N2 = 100)
{
N1=N1+N2;
count<<N1>>N2;
}

void main( )
{
First = 15, Second = 75;
Jumpto(First; Second);
Jumpto(Second);
}
```

- d. Find the output of the following program :

```
#include<iostream.h>
void Indirect(int Temp=20)
{
for (int I=10; I<=Temp; I+=5)
cout<<I<<" ";
cout<<endl;
}
void Direct (int &Num)
{
Num+=10;
Indirect(Num);
}
void main()
{
int Number=20;
Direct(Number);
Indirect();
cout<< " Number=" <<Number<<endl ;
}
```

- e. In the following program, if the value of G entered by the user is 65, what will be the expected output(s) from the following options (i), (ii), (iii) and (iv)?

```
#include <iostream.h>
#include <stdlib.h>
void main()
{
int G, N ;
randomize();
cin>>G;
for (int I=1;I<=4;I++)
{
N = G + random( I );
cout<< ( char ) N ;
}
}
```

(i) ABBC

(ii) ACBA

(iii) BCDA

(iv) CABD

f. Find the output of the following code:-

2

```
#include <iostream.h>
void Justd(char Str[ ])
{
    for (int L=0;Str[L]!='\0';L++);
        for (int C=0;C<L/2;C++)
            if (Str[C]=='A' || Str[C]=='E')
                Str[C]='#';
            else
            {
                char Temp=Str[C];
                Str[C]=Str[L-C-1];
                Str[L-C-1]=Temp;
            }
}
void main()
{
    char M[ ]="MAKEININDIA";
    Justd(M);
    cout<<M<<endl;
}
```

2 a. What do you understand by access modifiers?

2

b. Answer the questions (i) and (ii) after going through the following class :

```
class Game
{
    int Duration;
public:
    Game() //Function 1
    {
        Duration=70; cout<<"Count Down begins"<<endl;
    }
    Game (int T) //Function2
    {
        Duration=T; cout<<" Count Down begins "<<endl;
    }
    ~Game() //Function 3
    {
        cout<<"Declare Winners"<<endl;
    }
};
```

- i. In Object Oriented Programming, what is Function 3 referred as and when does it get invoked/ called? 1
- ii) In Object Oriented Programming, which concept is illustrated by Function 1 and Function 2 together? Write an example illustrating the calls for these functions. 1
- c. Define a class book in C++ with the following descriptions: 4

private members :

book_Id long
 title String
 author String
 price float
 quantity Integer
 discount float
 caldisc() A function to calculate and return discount amount as per the following criteria.

Price	Discount
>=500	10%
300-499	5 %
0-299	No discount

public members:

enter_book() A function to input the data members book_Id, title, author, price, and quantity and to invoke caldisc() to assign value to discount.
 show_book() To display the book details.

- d. Answer the questions (i) to (iv) based on the following:- 4

```
class Animal
{
int leg;
protected:
int tail;
public:
void INPUT (int );
void OUT ( );
};
class wild : private Animal
```

```

    }
    int Non_veg;
protected:
    int teeth;
public:
    void INDATA (int, int )
    void OUTDATA( );
};
class pet : public Animal
{
    int veg;
public:
    void DISP (void);
};

```

- (i) Name the type of inheritance shown by the above code.
- (ii) Name the data member(s) that can be accessed from function DISP ().
- (iii) Name the member function(s), which can be accessed from the objects of class pet.
- (iv) Is the member function OUT () accessible by the objects of the class wild?
- 3 a. Write a function in C++ which accepts an integer array and its size as arguments and find the sum of all the elements which are fully divisible by 3 and 5. Example: if an array of five elements initially contains the element as :

3,5,1,15,25,30

The output will be : 45

- b. An array MAT [20][10] is stored in the memory along the column with each of the elements occupying 4 bytes. Find out the base address and address of elements MAT [10][5], if an element MAT[5][7] is stored at the memory location 1000.
- c. Write a function in C++ to delete a node containing customers information, from a dynamically allocated Queue of customers implemented with the help of the following structure.

Assume the Queue implemented with the following structures.

```

struct Customer
{
    int CNo;
    char CName[20];
    Customer *Link;
};

```

- d. Write a function in C++ which accepts a 2D array of integers and its size as arguments and displays the elements which lie on diagonals.
[Assuming the 2D array to be square matrix with odd dimension i.e. 3*3, 5*5, 7*7 etc....]

Eg: 5 4 3
6 7 8
1 2 9

Output through the function should be :

Diagonal one : 5 7 9
Diagonal two : 3 7 1

- e. Evaluate the following postfix notation of expression: 20,8,4,/,2,3,+,*,- 2
4 a. Write a function in C++ to count the words in a text file "Story.Txt". 2
b. Given a binary file STUDENT.DAT, containing records of the following class 3
Student:-

```
class Student
{
char S_Admno[10]; //Admission number of student
char S_Name[30]; //Name of student
int Percentage; //Marks Percentage of student
public:

void EnterData()
{
gets(S_Admno); gets(S_Name); cin>>Percentage;
}

void DisplayData()
{
cout<<S_Admno<<" "<<S_Name<<" "<<Percentage<<endl;
}

int ReturnPercentage() {return Percentage;}
};
```

Write a function in C++, that would read contents of file STUDENT.DAT and display the details of those Students whose Percentage is between 60 to 75 (both values are included).

