



# PON VIDYASHRAM GROUP OF CBSE SCHOOLS

## VACATION HOME TEST (2017-2018)

STD XII

COMPUTER SCIENCE

Time: 3hrs

M.M: 70

**Instructions:**

- i. All Questions are Compulsory.
- ii. Programming Language: Section A : C++
- iii. Programming Language: Section B: Python
- iv. Answer either Section A or B, and Section C is compulsory

**Section : A (C++)**

Q1 a. Define Macro with suitable example.

2

b. Which C++ header file (s) will be included to run /execute the following C++ code? 1

```
void main()  
{  
    int Last =26.5698742658;  
    cout<<setw(5)<<setprecision(9)<<Last; }  
}
```

c. Rewrite the following program after removing any syntactical errors. Underline each correction made. 2

```
#include<iostream.h>  
  
void main( )  
  
    int A[10];  
  
    A=[3,2,5,4,7,9,10];  
  
    for( p = 0; p<=6; p++)  
        {  
            if(A[p]%2=0)  
                int S = S+A[p]; }  
  
    cout<<S; }
```

d. Find the output of the following C++ program: 2

```
#include<iostream.h>  
  
void repch(char s[])
```

```

    {
        for (int i=0;s[i]!='\0';i++)
        {
            if(((i%2)!=0) &&(s[i]!=s[i+1]))
            {
                s[i]='@';
            }
            else if (s[i]==s[i+1])
            {
                s[i+1]='!';
                i++;
            }
        }
    }
}

void main()
{
    char str[]="SUCCESS";
    cout<<"Original String"<<str
    repch(str);
    cout<<"Changed String"<<str;
}

```

e. Find the output of the following :

```

#include<iostream.h>
void switchover(int A[ ],int N, int split)
{
    for(int K = 0; K<N; K++)
        if(K<split)
            A[K] += K;
        else
            A[K]*= K;
}

```

3

```

void display(int A[ ],int N)
{
    for(int K = 0; K<N; K++)
        (K%2== 0) ?cout<<A[K]<<"%" : cout<<A[K]<<endl;
}
void main( )
{
    int H[ ] = {30,40,50,20,10,5};
    switchover(H,6,3);
    display(H,6);
}

```

f. Observe the following C++ code and find out , which out of the given options i) to iv) are the expected correct output. Also assign the maximum and minimum value that can be assigned to the variable 'Go'. 2

```

void main()
{ int X [4] = {100,75,10,125};
int Go = random(2)+2;
    for (inti = Go; i< 4; i++)
cout<<X[i]<<"$$";
}

```

- i. 100\$\$75    ii. 75\$\$10\$\$125\$\$    iii. 75\$\$10\$\$    iv. 10\$\$125\$

Q2a. Differentiate between data abstraction and data hiding. 2

b. Answer the questions (i) and (ii) after going through the following class : 2

```

class Exam
{
    int Rollno;
    char Cname[25];
    float Marks ;
public :
    Exam()        //Function 1
    {
        Rollno = 0 ;
        Cname="";
        Marks=0.0;
    }
}

```

```

}
Exam(int Rno, char candname) //Function 2
{
    Rollno = Rno ;
    strcpy(Cname,candname);

}
~Exam() //Function 3
{
    cout << "Result will be intimated shortly" << endl ;
}
void Display( ) //Function 4
{
    cout << "Roll no :"<<Rollno;
    cout<<"Name : " <<Cname;
    cout <<" Marks:"<<Marks;
}
};

```

(i) Which OOP concept does Function 1 and Function 2 implement. Explain?

(ii) What is Function 3 called? When will it be invoked?

c. Define a class **Candidate** in C++ with the following specification : 4

**Private Members :**

A data members Rno(Registration Number) type long

A data member Cname of type string

A data members Agg\_marks (Aggregate Marks) of type float

A data members Grade of type char

A member function setGrade () to find the grade as per the aggregate marks obtained by the student. Equivalent aggregate marks range and the respective grade as shown below.

<u>Aggregate Marks</u>	<u>Grade</u>
>=80	A
Less than 80 and >=65	B

Less than 65 and  $\geq 50$       C  
Less than 50                      D

**Public members:**

**A constructor to assign default values to data members:**

Rno=0,Cname="N.A",Agg\_marks=0.0

A function GetData () to allow users to enter values for Rno. Cname, Agg\_marks and call function setGrade () to find the grade.

A function dispResult() to allow user to view the content of all the data members.

d. Give the following class definition answer the question that is follow:      4

```
class University
{
    char name [20];
    protected :
    char vc[20];
    public :
    void estd();
    void inputdata();
    void outputdata();
}

class College : protected University
{
    int regno;
    protected
    char principal()
    public :
    int no_of_students;
    void readdata();
    void dispdata ( );
};

class Department : public College
    char name[20];
```

```

        char HOD[20];
    public :
        void fetchdata(int);
        void displaydata(); }

```

- i). Name the base class and derived class of college. 1
- ii) Name the data member(s) that can be accessed from function displaydata().
- iii) What type of inheritance is depicted in the above class definition?
- iv) What will be the size of an object (in bytes) of class Department?

Qs. 3a. An integer array A [30][40] is stored along the column in the memory. If the element A[20][25] is stored at 50000, find out the location of A[25][30]. 3

b. Write the definition of functions for the linked implemented queue containing passenger informations as follows: 4

```

struct NODE
{
    int Ticketno;
    char PName[20];
    NODE * NEXT;    };

class Queueofbus
{
    NODE *Rear, *Front;
public:
    Queueofbus()
    {
        Rear = NULL;
        Front = NULL;    };

    void Insert();
    void Delete();
    ~Queueofbus()
    {
        cout<<"Object destroyed";    }
};

```

c. Write a function to sort any array of n elements using insertion sort . Array should be passed as argument to the function. 3

d. Write a function NewMAT(int A[ ][ ],int r,int c ) in C++, which accepts a 2d array of integer and its size as parameters divide all those array elements by 6 which are not in the range 60 to 600(both values inclusive) in the 2d Array . 2

e.Evaluate the following postfix expression using stack and show the contents after execution of each Operations:470,5,4,^,25,/,6,\* 2

Q4a.Consider a file F containing objects E of class Emp. 1

i)Write statement to position the file pointer to the end of the file

ii)Write statement to return the number of bytes from the beginning of the file to the current position of the file pointer.

b. Write a function RevText() to read a text file “ Input.txt “ and Print only word starting with ‘I’ in reverse order . 2

Example: If value in text file is: INDIA IS MY COUNTRY

Output will be: AIDNI SI MY COUNTRY

c. Write a function in C++ to search and display details, whose destination is “Chandigarh”from binary file “Flight.Dat”.- Assuming the binary file is containing the objects of the following class: 3

```
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 input()      { cin>>Fno>>; gets(From); get(To); }
    void show()       { cout<<Fno<< “:”<<From << “:” <<To<<endl; }
};
```

### Section - B (Python)

Q1. a. ~~List one similarity and one difference between List and Dictionary datatype~~ 2

