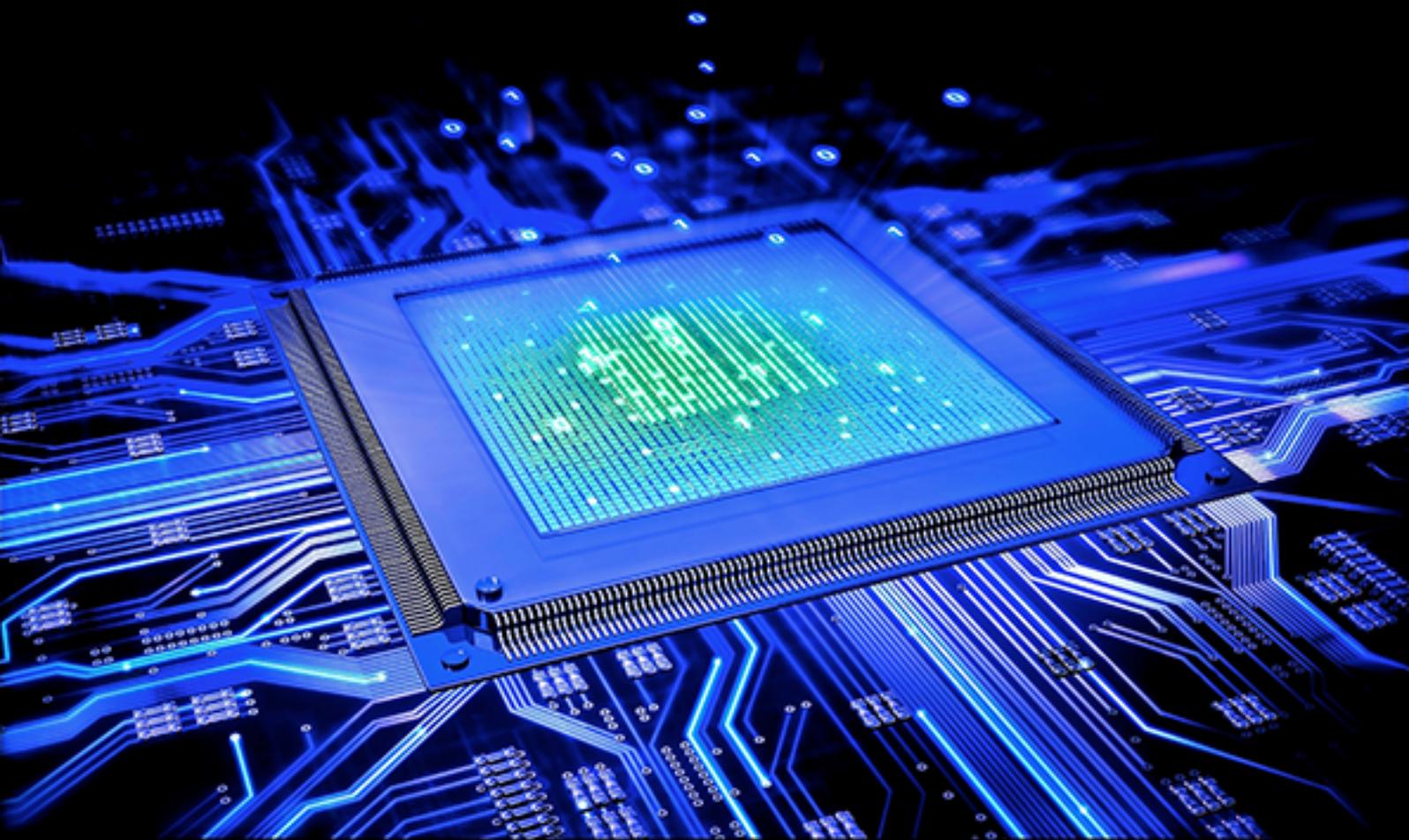


Cbse Class 12 Computer Science



**Previous Year Question
Paper 2005-2015**

Series : SSO/1

Code No. 91/1

Roll No.

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Candidates must write the Code on the title page of the answer-book.

- Please check that this question paper contains **16** printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains **11** questions.
- **Please write down the Serial Number of the question before attempting it.**
- 15 minutes time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period.

COMPUTER SCIENCE

Time allowed : 3 hours]

[Maximum marks : 70

General Instructions :

- All questions are compulsory.*
- Programming Language : Section A refers to C++*
- Programming Language : Section B refers to Python.*
- Attempt either Section A or Section B.*
- Section C is compulsory for all.*
- It is compulsory to mention 'Section A' or 'Section B' before attempting the question paper.*

Section – A

(Only for C++ Candidates)

- (a) Find the correct identifiers out of the following, which can be used for naming variable, constants or functions in a C++ program : 2

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

- (b) Observe the following program very carefully and write the names of those header file(s), which are essentially needed to compile and execute the following program successfully : 1

```
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);
}
```

- (c) Observe the following C++ code very carefully and rewrite it after removing any/all syntactical errors with each correction underlined. 2

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<<end;
}
```

- (d) Write the output of the following C++ program code : 2

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<<end1;
    Position(P2,P1);
    cout<<P1<<" ,"<<P2<<end1;
}
```

(e) Write the output of the following C++ program code :

3

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();
}
```

- (f) 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. 2

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[]="ABCDEFGHJK";
    for (int I=1;I<=NUM; I++)
    {
        for(int J=NUM; J<=7;J++)
            cout<<TEXT[J];
        cout<<endl;
    }
}
```

- | | | | |
|----------|--------------|------------|-------------|
| (i) FGHI | (ii) BCDEFGH | (iii) EFGH | (iv) CDEFGH |
| FGHI | BCDEFGH | EFGH | CDEFGH |
| FGHI | | EFGH | |
| FGHI | | EFGH | |

2. (a) What is a copy constructor ? Give a suitable example in C++ to illustrate with its definition within a class and a declaration of an object with the help of it. 2
- (b) Observe the following C++ code and answer the questions (i) and (ii) :

```
class Traveller
{
    long PNR;
    char TName[20];
public :
    Traveller() //Function 1
    {cout<<"Ready"<<endl;}

    void Book(long P,char N[]) //Function 2
    {PNR = P; strcpy(TName, N);}

    void Print () //Function 3
    {cout<<PNR << TName <<endl;}

    ~Traveller() //Function 4
    {cout<<"Booking cancelled!"<<endl;}
};
```

- (i) Fill in the blank statements in Line 1 and Line 2 to execute Function 2 and Function 3 respectively in the following code : 1

```
void main()
{
    Traveller T;
    _____ //Line 1
    _____ //Line 2
} //Stops here
```

- (ii) Which function will be executed at }//Stops here ? What is this function referred as ? 1
- (c) Write the definition of a class PIC in C++ with following description : 4

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

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

```
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 ?

3. (a) 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 : 2

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

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]
5	0	5	0	0	5	0	5	0	5

- (b) 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. 3
- (c) 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. 4

```

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

```

- (d) 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. 3

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

```

- (e) Convert the following infix expression to its equivalent Postfix expression, showing the stack contents for each step of conversion. 2

X / Y + U* (V-W)

4. (a) 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. 2

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

- (b) 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 : 3

```
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;}
};
```

- (c) 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. 1

```
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();
}
```

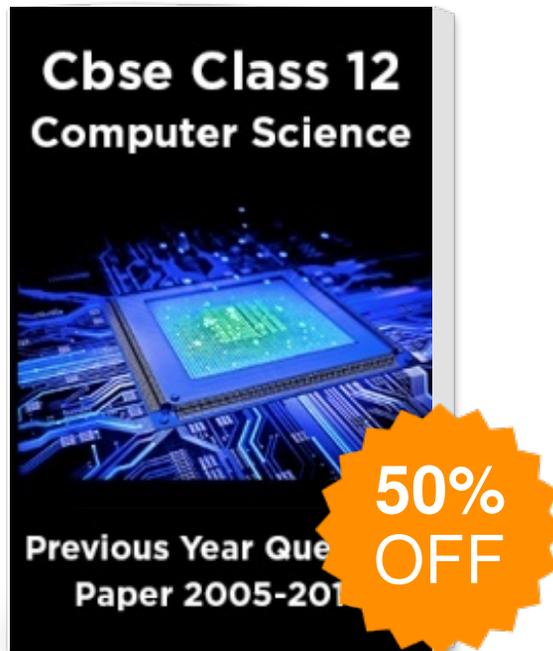
Section – B
(Only for Python Candidates)

1. (a) How is `_init()` different from `_del()` ? 2
- (b) Name the function/method required to 1
- (i) check if a string contains only uppercase letters
 - (ii) gives the total length of the list.
- (c) Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. 2

```
def Tot(Number) #Method to find Total
    Sum=0
    for C in Range (1, Number+1):
        Sum+=C
    RETURN Sum

print Tot[3] #Function Calls
print Tot[6]
```

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