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CBSE Guess Paper - 2015
Computer Science XII

Time allowed : 3 hrs.   **Maximum Marks : 70**

General Instruction

1.	Please check this question paper contains 9 printed pages.
2.	Code number given on the right side of question paper should be written on the title page of the answer – book by the candidate
3.	Please check that this question paper contains 7 questions.
4.	Please write down serial number of the question before attempting it.
5.	All questions are compulsory.
6.	Programming language : C++

1. (a) What is the difference b/w Global Variable and Local Variable? Also give a suitable C++ Code to illustrate both.   **2**

(b) Write the name of the header files, which is/are essentially required to run/ execute the following C++ code: **1**

```
void main()
{
        char string[] = "Narendra Modi";
        cout<<setw(12)<<string;
}
```

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

```
#include [iostream.h]                                    2

void main()

{
        int x = 10, y = 20;
```

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```
        Func(x;y);

}

void Func(int arg1, arg2=20)

{

        x = x+y;

        cout<<arg1>>arg2;

}
```

(d) Find the output of the program.   3

```
#include <iostream.h>

#include <ctype.h>

void main()
{
        char str[] = "What@OUTPUT!";
        for(int i=0; str[i]!='\0' ; i++)
        {
                if(!isalpha(str[i]))
                        str[i]='*';
                else if(isupper(str[i]))
                        str[i] = str[i] + 1;
                else
                        str[i] = str[i +1];
        }
        cout<<str;
}
```

(e) Find the output of the following program.   2

```
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 new char[length +1];}
```

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```
                    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("Canada"), country3("Libiya"),S1,S2;
                    S1.replace(country1, country2);
                    S2.replace(S1, country3);
                    S1.display();
                    S2.dispaly();
            }
```

(f)   Observe the following program and find out, which option or options out of (i) to (iv) will not be expected output(s) from the program? What will be the minimum and maximum value assigned to the variable Points.   **2**

```
#include<iostream.h>
#include<stdlib.h>
const int limit = 4;
void main( )
{
        int Points;
        randomize( );
        Points = 100 + random(limit);
        for(int P = points; P>=100; P--)
```

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```
                cout<<P<<"#";

            cout<<endl;

    }
```

(i)   103#102#101#100#

(ii)   100#101#102#103#

(iii)   100#101#102#103#104#

(iv)   104#103#102#101#

2. (a) Reusability of classes is one of the major properties of OOP. How is it implemented in

C++?   **2**

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

```
    class Hospital
    {
            int Pno, Dno;
            public:
                    Hospital(int Pn);           //Function 1
                    Hospital( );                //Function 2
                    Hospital(Hospital &H);          //Function 3
                    void In();                  //Function 4
                    void Disp();                //Function 5
    };
    void main( )
    {
            Hospital H(20);                         //Statement 1
    }
```

(i)   Which member function out of Function 1, Function 2, function 3, and function 4,
        function 5 will get executed when the Statement 1 is executed in the above code?

(ii)   Write a statement to declare a new object G with reference to already existing object H
        using function 3.

(c) Define a class CAR_RENTAL in c++ with the following description: **4**

private members:

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CarId of type int

AboutCar of type string

Cartype of type string

Rent of type float

A member function AssignRent( ) to assign the value of Rent as per the following

CArtype	Rent
Small	1000
Van	800
SUV	2500

public Members

➢ A function Getcar() to allow user to enter the value for carid, Aboutcar, Cartype and call function Assignrent() to assign rent.

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

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

```
class customer
    {
        private:
            int custno;
            char name[20];
        protected:
            void register( );
        public:
            customer( );
            void status( );
    };
    class salesman
    {
        private:
            int sno;
            char sname[20];
        protected:
            float salary;
        public:
            salesman( );
```

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```
            void enter( );
            void show( );
};
class shop: private customer, public salesman
{
            char vno[10];
            char sdate[8];
    public:
            shop( );
            void salesentry( );
            void sales_detail ( );
};
```

(c)   write name of data members which are accessible from object belonging to class customer.

(ii)   Write names of all the members which are accessible from object belonging of class salesman.

(iii)   Write names of all the member function which are accessible from member function of class shop.

(iv)   How many bytes will be required by an object belonging to class shop.

3 (a) Write a function in c++ which accepts a 2D array of integers, number of rows and

number of columns as arguments and assign the elements which are divisible by 3 or 5

into a one dimensional array of integers.   **3**

If the 2D array is
$$\begin{bmatrix} 12 & 3 & 9 & 14 \\ 24 & 25 & 16 & 31 \\ 19 & 32 & 45 & 27 \\ 11 & 5 & 28 & 18 \end{bmatrix}$$

The resultant 1D arrays is   12 , 3 , 9 , 24 , 25 , 45 , 9 , 5 , 18

(b) An array S[30][20] is stored in the memory along the row with each of the element occupying 4bytes, find out the memory location for the element S[15][5], if an element S[20][10] is stored at the memory location 5500.   **3**

(c) Define functions stackpush( ) to insert nodes and stackpop ( ) to delete nodes, for a linked list implemented stack having the following structure for each node.   **4**

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```
struct train

{

        long pnr;

        char pname[40];

        ticket *next;

};
```

(d) Write a function TRANSFORM(int A[][3], int N, int M) in c++ to swap the elements of first and last column.   **2**

(e) Evaluate the following Postfix expression showing the stack contents.   **2**

2 , 4 , * , 3 , − , 10 , 5 , + , /

4 (a) Observe the program segment givenbelow carefully and answer the questions that following

#include<fstream.h>   1

```
class Stock
{
        long Ino;
        char Item[20];
        int Qty;
        public:
                void Get(int); //Function to enter the content
                void show(); // Function to display the content
                void purchase(int Tqty)//function to increment in qty
                {
                        Qty+= Tqty;
                }
                long KnowIno()
                {
                        return Ino;
                }
};
```

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```
void PurchaseItem(long PIno, int Pqty)
{
        fstream File;
        file.open("Item.dat", ios::binary|ios::in|ios::out);
        int Pos =- 1;
        Stock S;
        while(Pos == -1 && File.read((char*)&S,sizeof(S)))
        {
                if(S.KnowIno() == PIno)
                {
                        S.purchase(Pqty);
                        Pos = File.tellg() - sizeof(S);
                        _____// to place the file pointer to the
                                                          required position.
                        _____// to write the object S on to a
                                                          binary file.
                }
        }
        if(Pos == -1)
                cout<<"No updation done as required Ino not found";
        File.close();
}
```

(b) Write a function in C++ to count and display the number of words starting with alphabet 'A' or 'a' or 'p' or 'P' or 'k' or 'K' present in a text file "poem.txt".   **2**

Example

If the file "poem.txt" contains the following lines,

    Kamlesh is captain of Udaipur cricket team.

    Tourist generally visit Zoo of udaipur.

    Today telephone is dead, please note down complain.

(c) Given a binary file "AMOUNT.DAT",containing records of the given class outstand type.

    class outstand   **3**

    {

            int memno;

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```
            int outamt;
        public:
            void getit()
            {       cin>>memno>>outamt;        }
            void putit()
            {       cout<<memno<<outamt;       }
            int returnamt()
            {       return outamt;        }
    };
```

Write a function in C++ to write objects having outamt more than Rs. 10,000 into CRITICAL.DAT file

5 (a) differentiate b/w Data Definition Language and Data Manipulation Language in SQL?   **2**

(b) Consider the following tables Dress and Material. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (viii)   **6**

DRESS

DCODE	DESCRIPTION	PRICE	MCODE	LAUNCHDATE
101	FORMAL SHIRT	2250	M001	22/01/09
120	FROCK	1750	M004	29/09/10
112	INFORMAL SHIRT	2450	M002	26/06/11
119	EVENING GOWN	1850	M003	06/06/11
190	TULIP SKIRT	1850	M002	21/03/11
123	PENCIL SKRIT	2250	M003	29/12/11
189	SLACKS	1850	M003	30/10/11
107	FORMAL PANT	2450	M001	09/03/11
109	INFORMAL PANT	2400	MOO2	22/10/11
124	BABY TOP	1650	M003	17/04/11

MATERIAL

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MCODE	TYPE
M001	TERELENE
M002	COTTON
M004	POLYESTER
M003	SILK

i). To Display DCODE and DESCRIPTION of each dress in ascending order of DCODE.

ii). To Display the details of all the dress which have LAUNCHDATE in between 05/10/10 and 26/06/11 (both dates inclusive).

iii). To display average PRICE of all dress which are made up of material with MCODE as MOO3.

iv). To display MCODE of each dress along with highest and lowest price.

v). SELECT SUM(PRICE) FROM DRESS WHERE MCODE = "M002";

SELECT DESCRIPTION, TYPE

FROM DRESS, MATERIAL

WHERE DRESS.MCODE = MATERIAL.MCODE AND DRESS.PRICE>=2250;

vi). Select MIN (MCODE) FROM MATERIAL;

SELECT COUNT(DISTINCT PRICE) FROM DRESS;

6 (a) State Involution Law and verify the same using truth table.   **2**

b) Write the Product of Sum form of the function F(x , y , z), truth table representation of

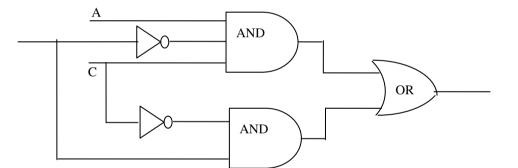F is given below: **2**

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X	Y	Z	F
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

(c) Write the equivalent Boolean Expression for the following Logic Circuit. **2**

(d) Reduce the following Boolean Expression using K-Map **2**

$F(A,B,C,D) = \sum (0, 1, 3, 4, 5, 7, 8, 9, 11, 12, 13, 15)$

7. (a) Write one advantage and disadvantage of Ring Topology. **1**

   (b) Name two transmission media for networking. **2**

   (c) Expand the following terms with respect to Networking. **2**

      i). SMTP
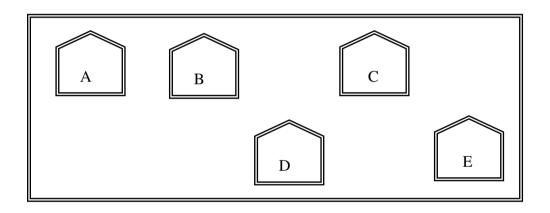
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ii). SMS

iii). NIC

iv). PPP

(c) Differentiate between HTML and XML? 1

(d) Standard Bank has set up its new center in India for its office and web based activities. It has five buildings as shown in the diagram below: 4

Distance between various buildings	
A to B	50 Mts
B to C	30 Mts
C to D	30 Mts
D to E	35 Mts
E to C	40 Mts
D to A	120 Mts

No of computers	
A	55
B	180
C	60
D	55
E	70

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D to B	45 Mts
E to B	65 Mts

   i).   Suggest a possible cable layout for connecting the buildings.

  ii).   Suggest the most suitable place to install the server of this organization with a suitable reason.

 iii).   Suggest the placement of the following devices with justification.

        a) Hub/Switch

        b) Modem

  iv)   The company wants to link its head office in 'A' building to its Office in Sydney

        a) Which type of transmission medium is appropriate for such a link?

        b) What type of network this connection result into?

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