

Guess Paper – 2010

Class – XII

Subject – Computer Science

Programming Language: C++

- 1) a) Write the names of the header files to which the following belong : **2**
(i) random() (ii) fmod() (iii) floodfill() (iv) gotoxy()

- b) Give the output of the following program segment (Assume all required header files are included in the program) **2**

```
void main()
{
    char *name;
    int l=0;
    name="Windows98";
    l = strlen(name);
    cout<<endl;
    for (int asc=90;asc>=65;asc--)
    {
        for(int i=0;i<l;i++)
        {
            if(name[i]==char(asc)||name[i]==char(asc+32))
                cout<<name[i];
        }
    }
    cout<<endl;
}
```

- c) Find output of the following code : **2**

```
ii) #include<iostream.h>
int a=10;
void main()
{
    void demo(int &,int,int*);
    int a=20,b=5;
    demo(a,a,&b);
    cout<<::a<<a<<b<<endl;
}
void demo(int &x, int y, int *z)
{
    a+=x;
```

```
        y*=a;  
        *z=a+y;  
        cout<<x<<y<<*z<<endl;  
    }
```

d) What are the first and last values of **i** output by this loop? 2

```
    n = 10;  
    i = 0;  
    while (++i < n)  
    { cout<<i<<endl;    }
```

e) Differentiate between Local and Global variable with example. 2

2.) a) Consider the following code: 2

```
class ci  
{  
    int L;  
public:  
    ci (int j) { L = j; }           //function 1  
    ci (ci & rv ) { L = rv.L; }    //function 2  
    void initialize() { L = 0; }  
};
```

Referring to the sample code above answer the questions (i) and (ii)

(i) How would function1 and function2 get executed? Give example.

(ii) main()

```
{  
    ci original (1);  
    ci X1(original);  
    ci X2 = original;  
}
```

Referring to above sample code, what initializes the object X1?

(i) initialize() function **(ii)** The default constructor

- (iii) The copy constructor (iv) The default copy constructor

Justify your answer.

- b) Define a class BALANCED_MEAL in C++ with following description: **4**

Private Members:

Access number	Integer
Name of Food	String of 25 characters
Calories	Integer
Food type	String
Cost	Float
AssignAccess()	Generates random numbers between 0 to 99 and return it.

Public Members

A function INTAKE() to allow the user to enter the values of Name of Food, Calories, Food type cost and call function AssignAccess() to assign Access number.
A function OUTPUT() to allow user to view the content of all the data members, if the Food type is fruit.

- c) Consider the following declarations and answer the questions given below: **4**

```
class Mydata
{
    protected:
        int data;
    public:
        void Get_mydata(int);
        void Manip_mydata(int);
        void Show_mydata(int);
        Mydata( );
        ~Mydata( );
};

class Personal_data
{
    protected:
        int data1;
    public:
        void Get_personaldata(int);
        void Show_personaldata(int);
        Mydata1( );
        ~Mydata1( );
};

class Person: public Mydata, Personal_data
{
    public:
```

```
void Show_person(void);  
person();  
~person();           };
```

- i) How many bytes will be required by an object belonging to class Person?
- ii) Which type of inheritance is depicted in the above example?
- iii) List the data members that can be accessed by the member function Show_person()
- iv) What is the order of constructor execution at the time of creating an object of class Person?

- 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 M[15][35] is stored in the memory along the column with each of its elements occupying 8 bytes. Find out the base address and the address of an element M[2][5], if the element M[5][10] is stored at address 4000. **2**

- c) Evaluate the following Postfix expression showing the stack contents. **2**

16 , 2 , 6 , + , / , 2 , * , 1 , -

- d) Write a C++ function which will insert a node in a dynamically allocated stack defined as: **3**

```
struct stack {  
    int u,v;  
    stack *next; };
```

- 4 a) Write a user defined function in C++ to read the content from a text file "Mybook.txt", count and display the number of word "India" present in the file. **3**

- b) Differentiate between ios::app and ios::ate file opening modes. **2**
- c) Convert the following infix expression into postfix. show the stack status after execution of each operation: **2**
TRUE OR FALSE AND NOT FALSE OR FALSE
- d) Given a binary file “COLONY.DAT”, containing records of the following **3**
class colony type.

```
class colony
{
    char c_no[10];
    char c_name[40];
    long no_of_ppl;
public:
    void getdata()
    {
        gets(c_no); gets(c_name); cin>>no_of_ppl;
    }
    void showdata()
    {
        cout<<"Colony Number : "; puts(c_no);
        cout<<"Colony Name   : "; puts(c_name);
        cout<<" No. of peoples : "<<no_of_ppl;
    }
    char * returnname()
    {    return c_name;    }
};
```

Write a function in C++ that would read contents of file “COLONY.DAT” and display the details of those colonies where number of peoples are greater than 1000.

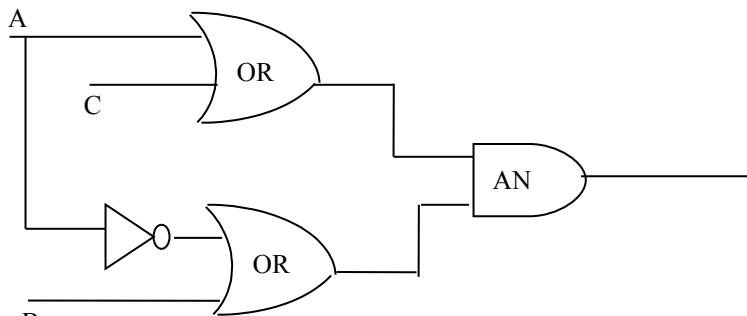
- 5.) a) What do you understand by the terms Cardinality and Degree of a relation in relational database? **2**

(b) Given the following **LAB** table, write SQL command for the questions (i) to (vi) and give the output of (iv). 8

LAB						
No	ItemName	CostPerItem	Quantity	Dateofpurchase	Warranty	Operational
1	Computer	60000	9	21/5/96	2	7
2	Printer	15000	3	21/5/97	4	2
3	Scanner	18000	1	29/8/98	3	1
4	Camera	21000	2	13/10/96	1	1
5	Switch	8000	1	31/10/99	2	1
6	UPS	5000	5	21/5/96	1	4
7	Router	25000	2	11/1/2000	2	5

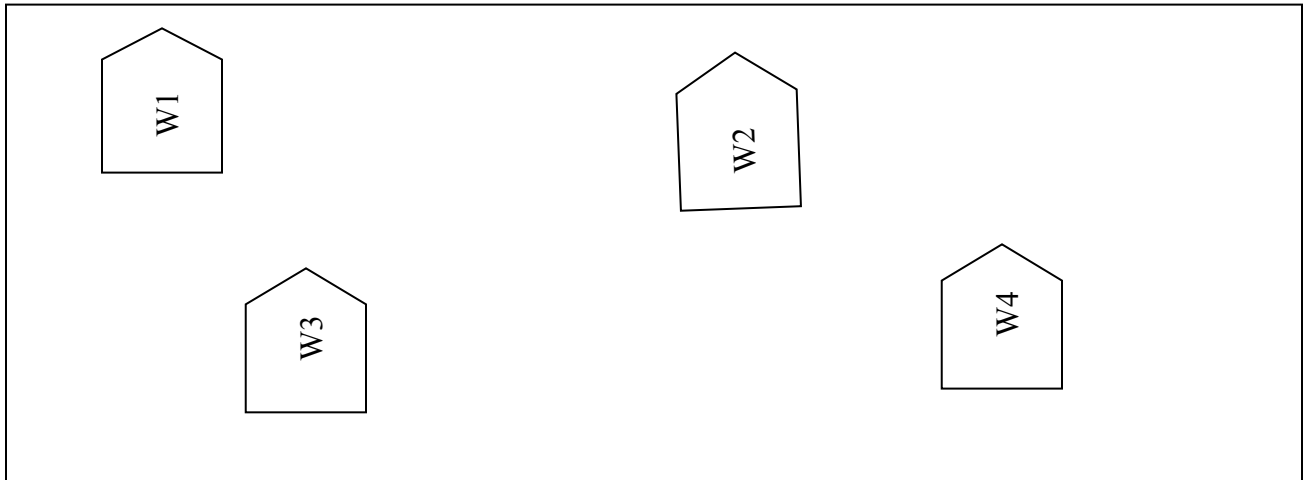
- (i) To select the ItemName, which are within the Warranty period till present date.
- (ii) To display all the itemName whose name starts with "C".
- (iii) To list the ItemName in ascending order of the date of purchase where quantity is more than 3.
- (iv) Give the output of the following SQL commands:
 - (a) select min(DISTINCT Quantity) from LAB;
 - (b) select max(Warranty) from LAB;
 - (c) select sum(CostPerItem) from Lab;
- v) Update the ItemName to "Web Cam" where ItemName ends with 'a'
- vi) Create a new table MyLab which will have the same structure of Lab table. The rows will not be copied.

- 6) a) Prove that $XY + YZ + YZ' = Y$ algebraically 2
- b) State and verify Idempotent Law 2
- (c) Write the equivalent Boolean Expression for the following Logic Circuit. 2



- (d) Reduce the following Boolean Expression using K-Map 3
 $F(A,B,C,D) = \prod (0, 1, 2, 3, 4, 5, 10, 11, 15)$
- e) Obtain OR Gate from NAND Gate 1

7. a) Expand the following : i) SIM ii) CDMA 1
b) Differentiate between Internet and Intranet. 2
c) Define- Web Browser, URL , GPRS 3
d) A company in Reliance has 4 wings of buildings as shown in the diagram: 4



Center to center distances between various Buildings:

W3 to W1	50m
W1 to W2	60m
W2 to W4	25m
W4 to W3	170m
W3 to W2	125m
W1 to W4	90m

Number of computers in each of the wing:

W1	150
W2	15
W3	15
W4	25

Computers in each wing are networked but wings are not networked. The company has now decided to connect the wings also.

- i) Suggest a most suitable cable layout & topology of the connection between the wings.
ii) The company wants internet accessibility in all the wings. Suggest an economic technology .
iii) Suggest the placement of the following devices with justification if the company wants minimized network traffic :
1) Repeater
2) Hub

Downloaded From: <http://www.cbseportal.com>

- 3) Switch
- 4) Bridge

iv) The company is planning to link its head office situated in India with the offices at Reliance. Suggest a way to connect it; the company does not want to compromise with the speed of connectivity. Justify your answer.