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Important Questions 2010
Class-XII (Computer Science)

Q. 1. (a) What is recursive function? Specify the conditions when you can not create recursive function?

(b) Name the Header file(s) that shall be needed for successful compilation of the following C++ code?

```
 void main()
{
        char st[20];
        cin.getline(st,15);
        if(islower(st[0])
                cout<<"Starts with alphabet";
        else
                cout<<strlen(st);
}
```

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

```
#include<iostream.h>
#define SIZE =10
VOID Main()
{
        int a[SIZE]={1,2,3,4,5};
        float x=2;
        SIZE=5;
for(int i=0;i<SIZE;i++)
                cout<<a[i]%x;
}
```

(d) Find the output of the following program :

i)
```
#include<iostream.h>
#include<string.h>
struct Student
{
        int rno;
        char name[20];
};
void main()
{
        student a[2]={1,"Anil",}{2,"Sunil"}};
        for(int i=0;i<2;i++)
        {
                cout<<"\n Rno"<<a[i].rno;
                cout<<"\n Name ";
                for(int j=0;j<strlen(a[i].name);j++)
```

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```
                    cout<<a[i].name[i]<<" ";
            }
}
```

(ii)

```
#include<iostream.h>                                                    3
#include<conio.h>
int main()
{
                    char string[]="Pointers and strings";
                    cout<<*(&string[2])<<endl;
                    cout.write(string+5,15).put('\n');
                    cout<<*(string+3)<<"\n";
                    return 0;
}
```

(iii) In the following program, find the correct possible output(s) from the options:

```
#include<stdlib.h>
#include<iostream.h>
void main()
{
 randomize();
 char Area[][10]={"NORTH","SOUTH","EAST","WEST"};
 int ToGo;
 for(int I=0;I<3;I++)
 {
   ToGo=random(3)+1;
   cout<<Area[ToGo]<<":";
 }
}
```

a) SOUTH:EAST:SOUTH:
b) NORTH:SOUTH:NORTH:
c) SOUTH:EAST:WEST:
d) WEST:EAST:EAST:

Q. 2. a. Define a class ELECTION with the following specifications. Write a suitable main ( ) function also to declare 3 objects of ELECTION type and find the winner and display the details.

Private members:
Data : candidate_name, party, vote_received
Public members:
Functions : enterdetails ( ) – to input data
Display ( ) – to display the details of the winner
Winner ( ) – To return the details of the winner through the object after comparing the votes received by three candidates.

b. class data

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```
        {
                int num ;
        public:
        data ( int n )
        {       num = n ;
}
        void show ( )
        {       cout << n <<endl;
        }};
class database : public data
{
char name[12];
data d ;
public :
_____________________
};
```

Fill in the blanks to define a constructor for the derived class assigning values of the data passed from main ( ) and to assign a data 15 of base class constructor data n.

c. Difference between Structured programming language and Object Oriented Programming Language.

d. How the copy constructor is different from parameterized constructor? Explain with help of example.

e. Define the terms class and object?

f. class cat

```
{
public:
        cat(int initialAge)
        {
        itsAge=initialAge;
        }
        ~cat()
        {
        }
        int getAge()
        {
        return itsAge;
        }
        void setAge(int Age)
        {
        itsAge=Age;
        }
        void Meow()
        {
        cout<< "Meow\n";
        }
```

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```
        private:
                int itsAge;
        }
void main()
  {
        cat Friskey(5);
        _____________ //Statement 1
        cout<< "Friskey is a cat who is";
        cout<<_______________ << "years old\n"; //Statement 2
        _______________ //Statement 3
        Friskey.setAge(7);
        cout<< "\n Now Friskey is";
        cout<<_______________ << "years old\n"; //Statement 4
  }
```

Observe the program given above carefully and fill the blanks marked as Statement 1, Statement 2, Statement 3 and Statement 4 to produce the following output:

```
Meow
Friskey is a cat who is 5 years old
Meow
Now Friskey is 7 years old
```

g. Define a class named Publisher in C++ with the following descriptions :

Private members

Id	long
title	40 char
author	40 char
price , stockqty	double
stockvalue	double
valcal()	A function to find price*stockqty with double as return type

Public members

a constructor function to initialize price , stockqty and stockvalue as 0

Enter() function to input the idnumber , title and author

Takestock() function to increment stockqty by N(where N is passed as argument to this function) and call the function valcal() to update the stockvalue().

sale() function to decrease the stockqty by N (where N is sale quantity passed to this function as argument) and also call the function valcal() to update the stockvalue

outdata() function to display all the data members on the screen.

Q. 3. a. Explain the different types of inheritance? With help of diagram.

b. Write the difference between public, protected and private?

c. class RED

```
{
        char n [ 20 ];
        void input ( );
protected:
        int x , y ;
        void read ( );
```

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```
public :
        RED ( );
        RED ( int a );
        void get_red ( );
        void put_red ( );
};
class WHITE : protected RED
{
        void a , b ;
protected :
        int c , d ;
        void get_white( );
public:
        WHITE ( );
        void put_white ( );
};
class BLACK : private WHITE
{
        void * p ;
        char st[20];
protected :
        int q;
        void get_black( );
public:
        BLACK ( );
        void put_black ( );
}ob;
```

i. Name the data members and functions which are accessible by the objects of class BLACK.
ii. Give the size of object ob
iii. Name the OOPS concept implemented above and its type.
iv. Name the members accessible by function get_black( );

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

```
class company
{               char Cname[25];
protected:      char Hoffice[25];
public :  company();
                char Country[25];
                void EnterDate();
                void DisplayData();
};

class delhi:public company
{               long NOE;
char Ctry[25] ;
protected:      void Association();
public:         delhi();
```

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```
                void Add();
                void Show();
};
class mcdonald:public delhi
{                       char State[25];
public:                  mcdonald();
                       void Enter();
                       void Output();
};
```

1. Which class's constructor will be called first at the time of declaration of an object of class mcdonald.
2. How many bytes an object belonging to class delhi require?
3. Name the member function(s) which are accessed from the object(S) of class mcdonald.
4. Name the Data members which are accessible from the objects(s) of class delhi.

Q. 4. a. Rewrite the following program after removing syntactical error(s) if any. Underline each correction.

```
struct group
{
        int x1,x2;
}
void main()
{
        g1,g2 group;
        cin>>g1.x1<<g2.x2;
        g2=g1;
        cout<<g2.x2<<g2.x1<<endl;
        2+=g1.x1;
        cout<<g1.x1<<g1.x2;
}
```

b. Explain the typedef user defined datatype.

Q. 5. a. Following is the structure of each record in a data file named "Colony.dat"

```
struct Colony
{
        char colony_code[10];
        char colony_name[10];
        int no_of_people;
};
```

a. Write a function to update the file with a new value of No_of_people. The value of colony_code and no_of_people are read during the execution of the program.

b. Write a function in c++ to copy all the lines from file text1.text into text2.txt which is starting from 'A' letter. Assuming that each and every line does not exceed from 50 characters.

c. Differentiate between read() and write() function.

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d. Following program intends to display a text file with each word in new line.

```
#include<fstream.h>
void main()
{
        ifstream fin("abc.txt");
        char word[20];
        while( !fin.eof() )
        {
                _______________                         //statement 1
                cout<<word<<endl;
        }
        _______________                                 //statement 2
}
```

Complete the above program by providing missing functionality.

e. Observe the program segment given below carefully and fill in the blanks marked as statment1 and statement2 using write() and remove() functions for performing the required task.

```
#include<fstream.h>
class Emp
{
        int Eno;
        char name[20];
        public :
        //function which will delete the data of a specific employee
        void deleteRec(int Eid);
};
void Emp::deleteRec(int Eid)
{
        fstream file;
        file.open("Emp.dat",ios::in|ios::out|ios::binary);
        ofstream ofile("temp.dat");
        while(file)
        {
                file.read((char *)this,sizeof(eobj));
                if(this->Eno !=Eid)
                _________________//statement1
        }
        _________________//statement 2
        rename("temp.dat","emp.dat");
}
```

Q. 6. a. What is a relation? What is the difference between a tuple and an attribute?

(b) Consider the following tables EMPLOYEE and DESIG. Write SQL commands for the statements (i) to (vi) and give outputs for SQL queries (vii) to (x)

EMPLOYEE

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W_ID	FIRSTNAME	LASTNAME	CITY
102	AAM	TONES	PARIS
105	SARAH	ACKERMAN	NEW YORK
144	MANILA	SENGUPTA	NEW DELHI
210	GEORGE	SMITH	HOWARD
255	MARY	JONES	HUSTON
300	ROBERT	SAMUEL	WASHINGTON
335	HENRY	WILLIAMS	BOSTON
400	RONNY	LEE	NEW YORK
451	PAT	THOMPSON	PARIS

DESIG

W_ID	SALARY	BENEFITS	DESIGNATION
102	75000	15000	MANAGER
105	85000	25000	DIRECTOR
144	70000	15000	MANAGER
210	75000	12500	MANAGER
255	50000	12000	CLERK
300	45000	10000	CLERK
335	40000	10000	CLERK
400	32000	7500	SALESMAN
451	28000	7500	SALESMAN

i. Display FirstName and City of Employee having salary between 50,000 and 90,000
ii. Display details of Employees who are from “PARIS” city.
iii. Increase the benefits of employee having W_ID = 210 by 500.
iv. Count number of employees whose name starts from character ‘S’ or ‘M’.
v. List all the employee names who are earning more than 50000 as salary.
vi. Display the salary and benefits designation wise.
vii. Select MAX(salary) from desig;
viii. Select FirstName from employee, desig where designation = ‘MANAGER’ AND employee.W_ID = desig.W_ID;
ix. Select COUNT (DISTINCT designation) from desig;

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x. Select designation, SUM(salary) from desig Group by designation Having count (*) > 2;