DATA STRUCTURES LABORATORY MANUAL – ICE 2144

III SEMESTER B. TECH

EXPT. 2: CLASS

1. Write a program Illustrating Class Declarations, Definition, and Accessing Class Members.

```
#include<iostream>
using namespace std;

class sample
        {
                private:
                public:
                        int a;
                        char b;
                        float c;
                        void get_data()
                        {
                                cout<<"Enter an integer value:";
                                cin>>a;
                                cout<<"Enter a character:";
                                cin>>b;
                                cout<<"Enter a float value:";
                                cin>>c;
                        }
                        void print_data()
                        {
                                cout<<"\n Values read from keyboard are: \n";
                                cout<<"Integer value:"<<a<<endl;
                                cout<<"character is:"<<b<<endl;
                                cout<<"float value is:"<<c<<endl;
                        }
};
int main()
{
        sample s;//creation of object
        s.get_data();
        s.print_data();
        return 0;
}
```

2. Given that an EMPLOYEE class contains following members: data members: Employee number, Employee name, Basic, DA, IT, Net Salary and print data members.

```
#include<iostream>
#include<conio.h>
using namespace std;
```

```
class employee
{
        int emp_num;
        char emp_name[20];
        float emp_basic;
        float sal;
        float emp_da;
        float net_sal;
        float emp_it;
        public:
                void get_details();
                void find_net_sal();
                void show_emp_details();
};
void employee :: get_details()
{
        cout<<"\n Enter employee number:\n";
        cin>>emp_num;
        cout<<"\n Enter employee name:\n";
        cin>>emp_name;
        cout<<"\n Enter employee basic:\n";
        cin>>emp_basic;
}
void employee :: find_net_sal()
{
        emp_da=0.52*emp_basic;
        emp_it=0.30*(emp_basic+emp_da);
        net_sal=(emp_basic+emp_da)-emp_it;
}

void employee :: show_emp_details()
{
        cout<<"\n\n\n Details of: "<<emp_name;
        cout<<"\n\n Employee number: "<<emp_num;
        cout<<"\n Basic salary: "<<emp_basic;
        cout<<"\n Employee DA: "<<emp_da;
        cout<<"\n Income Tax: "<<emp_it;
        cout<<"\n Net Salary: "<<net_sal;
}
int main()
{
        employee emp[10];
        int i, num;
        (“cls”);          // for Code blocks only
        cout<<"\n Enter number of employee details\n";
        cin>>num;
```

```
        for(i=0;i<num;i++)
                emp[i].get_details();
        for(i=0;i<num;i++)
                emp[i].find_net_sal();
        for(i=0;i<num;i++)
                emp[i].show_emp_details();
        return 0;
}
```

3. Write a C++ Program to illustrate default constructor, parameterized constructor and copy constructors.

```
#include<iostream>
using namespace std;

class code
{
        int id;
        int count;
        public:
                code()
                {
                        cout<<"Default constructor called\n";
                        id=0;
                        cout<<"id="<<id<<endl;
                }
                code(int a)
                {
                        cout<<"Parameterized constructor called\n";
                        id=a;
                        cout<<"id="<<id<<endl;
                }
                code(code&x)
                {
                        cout<<"copy constructor called\n";
                        id=x.id;
                        cout<<"id="<<id<<endl;
                }
                void display()
                {
                        cout<<"id="<<id<<endl;
                }
                ~code()
                {
                        cout<<"Object Destroyed"<<endl;
                }
```

```
};
int main()
{
        code a(100);          //calls parameterized constructor
        code b(a);            //calls copy constructor
        code c(a);            //calls copy constructor
        code d;               //calls default constructor
        cout<<"\n For object d, ";
        d.display();
        cout<<"\n For object a, ";
        a.display();
        cout<<"\n For object b, ";
        b.display();
        cout<<"\n For object c, ";
        c.display();
        return 0;
}
```

EXERCISE:

1. Write a C++ program to display Names, Roll No., and grades of 3 students who have appeared in the examination. Declare the class of name, Roll No. and grade. Create an array of class objects. Read and display the contents of the array.
2. Write a C++ program to create an array of pointers. Invoke functions using array objects.
3. Write a C++ program to declare a class. Declare pointer to class. Initialize and display the content of the class member.
4. Write a program to access members of a STUDENT class using pointer to object members.
5. Write a Program to generate Fibonacci Series by using Constructor to initialize the data members.