Q1. Define a class Complex to represent a complex number. Declare instance member variables to store real and imaginary part of a complex number, also define instance member functions to set values of complex number and print values of complex number.

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

class Complex {

    private:
        int r, i;

    public:
        void setValue(void) {

            cout << "Enter real part : ";
            cin >> r;

            cout << "Enter imaginary part : ";
            cin >> i;

        }

        void disp(void) {

            cout << "\nComplex number : " << r << " + " << i << "i";
```

```
        }
};

int main() {

    Complex c;

    c.setValue();
    c.disp();

}
```

Q2. Define a class Time to represent Time (like 3 hr 45 min 20 sec). Declare appropriate number of instance member variables and also define instance member functions to set values for time and display values of time.

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

class Time {

    private:
        int hr, min, sec;

    public:
        void setValue(void) {

            cout << "Enter Hour : ";
            cin >> hr;

            cout << "Enter Minute : ";
            cin >> min;

            cout << "Enter Second : ";
            cin >> sec;
        }

        void disp(void) {
```

```
                    cout << "\nTime : " << hr << " hr " << min << " min " <<
sec << " sec";
                }
};

int main() {

    Time t;
    t.setValue();
    t.disp();
}
```

Q3. Define a class Factorial and define an instance member function to find the Factorial of a number using class.

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

class Factorial {

    private:
        int num, ans;

    public:
        void setData(void) {

            cout << "Enter number : ";
            cin >> num;
        }

        void fact(void) {
            ans = num;

            while (--num) {
                ans = ans * (num);
            }
        }

        void disp(void) {
```

```
                cout << "Factorial : " << ans;
        }
};

int main() {

    Factorial f;

    f.setData();
    f.fact();
    f.disp();
}
```

Q4. Define a class LargestNumber and define an instance member function to find the Largest of three Numbers using the class.

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

class LargestNumber {

        private:

        public:
                void Largest(int *a, int *b, int *c) {

                        ( *a > *b) ? (*a > *c) ? cout << *a << " is greater" : cout << *c << " is greater" :
                                                (*b > *c) ? cout << *b << " is greater" : cout << *c << " is greater";
                }
};

int main() {

        LargestNumber L;

        int a, b, c;

        cout << "Enter three numbers : ";
        cin >> a >> b >> c;
```

```
        L.Largest(&a, &b, &c);
}
```

Q5. Define a class ReverseNumber and define an instance member function to find Reverse of a Number using class.

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

class ReverseNumber {

        private:
                int num, rev = 0;

        public:
                void Reverse(void) {

                        cout << "Enter number : ";
                        cin >> num;

                        do {
                                rev = rev * 10;
                                rev = rev + (num % 10);
                        } while (num /= 10);

                        cout << "Revers of a number : " << rev;
                }
};

int main() {
```

```
    ReverseNumber r;
    r.Reverse();
}
```

Q6. Define a class Square to find the square of a number and write a C++ program to Count number of times a function is called.

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

int count = 0;

class Square {

    private:
        int num;

    public:
        void square(void) {

            cout << "Enter number : ";
            cin >> num;

            num = num * num;

            cout << endl << "Square : " << num << endl << endl;

            count = count + 1;
        }
};

int main() {
```

```
    Square s;

    s.square();
    s.square();
    s.square();

    cout << endl << endl << "Number of times function called : " << count;
}
```

Q7. Define a class Greatest and define instance member function to find Largest among 3 numbers using classes.

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

class Greatest {

        private:
                int a = 5, b = 1, c = 10;

        public:
                void largest(void) {

                        if (a > b)
                                if (a > c)
                                        cout << a << " is greater";
                                else
                                        cout << c << " is greater";
                        else if (b > c)
                                cout << b << " is greater";
                        else
                                cout << c << " is greater";
                }
};

int main() {
```

```
        Greatest g;
        g.largest();
}
```

Q8. Define a class Rectangle and define an instance member function to find the area of the rectangle.

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

class Rectangle {

        private:
                float w, l;

        public:
                void area(void) {

                        cout << "Enter width and length : ";
                        cin >> w >> l;

                        float area = w * l;

                        cout << "Area : " << area;
                }
};

int main() {

        Rectangle r;
        r.area();
}
```

Q9. Define a class Circle and define an instance member function to find the area of the circle.

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

class Circle {

	private:
		float r;

	public:
		void area(void) {

			cout << "Enter radius : ";
			cin >> r;

			cout << "Area : " << (22 / 7)*r *r;
		}
};

int main() {

	Circle c;
	c.area();
}
```

Q10. Define a class Area and define instance member functions to find the area of the different shapes like square, rectangle, circle etc.

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

class Area {

    private:
        float a, w, l, r;
    public:
        void square(void) {
            cout << "Enter side of a square : ";
            cin >> a;

            cout << "Area of square ; " << a *a;
        }

        void circle(void) {

            cout << "Enter radius : ";
            cin >> r;

            cout << "Area : " << (22 / 7)*r *r;
        }

        void rect(void) {
```

```
                cout << "Enter width and length : ";
                cin >> w >> l;

                float area = w * l;

                cout << "Area : " << area;
        }
};

int main() {

    Area a;
    a.circle();

    cout << endl;

    a.rect();

    cout << endl;

    a.square();
}
```