CSE 1202

(Constructor, Destructor, and Objects as Function Parameter)

1. Create a class `Person` with private members `name` and `age`. Implement:

- A parameterized constructor to initialize `name` and `age`.
- A destructor to display a message when the object is destroyed. Write a program that creates a `Person` object and displays the details.

2. Create a class `Rectangle` with private members `length` and `width`. Implement:

- A default constructor to initialize both `length` and `width` to 1.
- A parameterized constructor to initialize `length` and `width` with given values.
- A destructor to display a message when the object is destroyed. Write a program to create two `Rectangle` objects, one with the default constructor and one with the parameterized constructor, and display their areas.

3. Create a class `Rectangle` with private members `length` and `width`. Implement:

- A parameterized constructor to initialize the dimensions.
- A method `area()` to calculate and return the area.
- A function `compareArea(Rectangle r)` that takes a `Rectangle` object by value and compares its area with the current object's area. Write a program to create two `Rectangle` objects and use the `compareArea()` function to compare their areas.

4. Create a class `Complex` to represent a complex number with real and imaginary parts. Implement:

- A parameterized constructor to initialize the complex number.
- A function `addComplex(Complex c1, Complex c2)` that takes two `Complex` objects as arguments and returns their sum as a new `Complex` object. Write a program to demonstrate adding two complex numbers using this function.