CSE 1384 Name_____

Quiz 1 NetID_____ Lab Time_____

1. What is the definition of an object? (10 points)

   An object is an instance of a class.

   Note: This one should be almost word perfect (though some may not have used a full sentence). If you showed that you had the right idea, but didn't say it perfectly, you should get partial credit (between 4 – 7 points of partial credit). If you said something that was totally wrong – you should still get one point. Blank should get you 0 points.

2. In a Python class definition, most methods have the parameter *self*. What does it refer to? (15 points)

   The reference variable self refers to the calling object (or in the case of the constructor, the newly created object).

   Note: I doubt if many (or anyone) mentioned the constructor – that's not a problem. If you didn't mention that it refers to an object – then you missed most of the points (half or more). If you said something that was totally wrong – you should still get one point. Blank will get you 0 points.

3. What is operator overloading? How is it useful? (15 points)

   Writing methods in a class definition that define how the different Python operators (such as +, -, *, /, etc.) and Python functions (such as str(), len(), etc.) work with your class objects.

   Note: We are throwing this question out – so everyone gets the full 15 point credit. I think most of you knew what it was (since we had just done it in class the period before), but didn't remember the term. Be aware that you will need to know this information on the test.

4. Write a Python class, Pen, that has two instance variables of type str. One represents the type of pen (felt tip, ball point, etc.) and the other represents the color (blue, black, red, etc.). Your class must include a constructor method that initializes each variable to an appropriate value, and your class should provide a method for setting the value of the color. It should also provide methods for retrieving the value of each of the instance variables. The instance variables should be **private**. (30 points)
   Note: When you run out of room, continue on back.

```
class Pen:
        def __init__(self):
                self.__type = "ball point"
                self.__color = "black"

        def set_color(self, color):
```

```
            self.__color = color

    def get_color(self):
            return self.__color

    def get_type(self):
            return self.__type
```

Note: If you added the set_type method (as some of you did), that's fine. I was trying to make it shorter, and instead I think I confused some of you as several of you thought that I had just forgotten to instruct you to write it. I didn't specify if your constructor had to accept arguments or if you needed default arguments or if you accepted no arguments at all. So long as the constructor that you wrote works, you should get full credit. Basically each method is worth 7 points. That leaves a couple for the class definition.

Note: The last 3 are almost all or nothing except for minor syntax errors.

5. Create an object of your class. (10 points)

   my_pen = Pen()

   Note: This one should look very much like the one above though you may have different names. If your constructor required arguments to be passed, then you should pass arguments. If it had default arguments, then it was your choice whether to pass arguments or not. It you didn't allow arguments, then you should have any arguments in the parentheses.

6. Use the setter to specify the color of your object. (10 points)

   my_pen.set_color("purple")

   Note: I don't care what color you used. The name of the object should match the object created in problem 5. The name of the method should match the setter in problem 4.

7. Use the getter methods to print out the pen type and color of your object. (10 points)

   print(my_pen.get_type(), my_pen.get_color())

   Note: This could have been done in 3 lines of code by storing the results of the method calls, and then printing using the separate variables. That's fine.

"On my honor, as a Mississippi State University student, I have neither given nor received unauthorized assistance on this academic work."

_____(Student Signature)