Name:_____ (PRINT CLEARLY)

Lab Section:_____   Grader:_____

Quiz 2A – November 1
CS 2102 B19

Use the code in the accompanying handout to help you answer these questions.

1. (4 points) A `SchoolBus` is a kind of `Bus` that keeps track of the name of the school district the school bus operates for and whether or not the bus has seat belts. A school bus is considered safe if the mileage on the odometer is less than 100,000 miles and the school bus has seat belts. A school bus always has AC.

```java
public class SchoolBus extends Bus {
        String district;
        boolean hasSeatBelts;

        public SchoolBus (int seats, int mileage,
                        String district, boolean hasSeatBelts) {
            this.district = district;
            this.hasSeatBelts = hasSeatBelts;
        }

        public boolean isSafe() {
            return this.odom < 100000 && this.hasSeatBelts;
        }
}
```

There is a line of code missing from this class. Write it below, and explain where in this class it goes and what it does.

ANS: The line of missing code is

```java
super(true, seats, mileage);
```

This is the first line of the constructor body, and it calls the constructor in the superclass.

Grading:

+1 for specifying the `super()` constructor

+1 for the correct parameters (including `true` as the first parameter)

+1 for correctly specifying where it goes

+1 for correctly specifying what it does

Do not penalize for any additional information provided.

2. (3 points) Does the `SchoolBus` class use overloading (yes or no)? If the answer is yes, describe how the `SchoolBus` class uses overloading. If the answer is no, provide a general definition of overloading.

ANS: No, the SchoolBus class does not use overloading. Overloading means we have the same constructor or method used more than once but with different parameters, so Java can distinguish between the two based on the parameters passed into it.

1.5 points: Correctly identifies that overloading is not used

1.5 points: Correct definition of overloading

3. (3 points) Does the `SchoolBus` class use overriding (yes or no)? If the answer is yes, describe how the `SchoolBus` class uses overriding. If the answer is no, provide a general definition of overriding.

ANS: Yes, the SchoolBus class does use overriding. The `isSafe()` method used overrides the `isSafe()` method in the Bus superclass since both have the same method signature. The SchoolBus `isSafe()` method is the one that instances of the SchoolBus class will use.

1.5 points: Correctly identifies that overriding is used.

1.5 points: Correctly identifies that the SchoolBus `isSafe()` method overrides the `isSafe()` method in the superclass.