1. (2 pts) Is the following an example of a compile-time error or a run-time error? Explain.

   ```java
   int[] numbers = {0, 1, 2, 3, 4};
   System.out.println(numbers[5]);
   ```

2. (2 pts) Does the following violate the immutability of Strings? Explain.

   ```java
   String s = "Hello";
   s = "World";
   ```

3. (2 pts) When all references to an object are lost, that object becomes ________________, and it is ________________ that the object is guaranteed to be garbage collected as soon as it becomes garbage.

4. (2 pts) Given the access control keywords available is it possible to define an instance variable in a class definition so that no instance method within the class definition can directly access the variable? Explain.

5. (2 pts) What is printed when the following code is interpreted? Explain.

   ```java
   public class Question5 {
       public static void gcd(int b, int a) {
           b = (a > 2) ? 1 : (int)(100.0);
           a = 4;
       }

       public static void main(String[] args) {
           int b = 3;
           int a = 2;

           gcd(b, a);

           System.out.println(a + " " + b);
       }
   }
   ```