

Fill-in-the-blank (2% each)

1. Add the complete and concise Javadoc comment to the following method code:


```
public void setElectric(boolean isElectric) {  
    this.electric = isElectric;  
    return this.electric;  
}
```

2. The general type of method exhibited in the previous question is called a

“_____”.

3. Two tags that can be used in Javadoc documentation comments for methods are:

@_____ and @_____.

4. The Java compiler takes high-level source code and converts it into

_____.

5. By default, the literal 99.9, in Java, would be considered a value of the data type

_____.

6. A conventional package name be for a Java package that is distributed by the website,

<http://applets.nyu.edu>, would be _____.

7. Fill in the blanks to set up the code to receive a line of input from the user’s keyboard:

```
Scanner inp = _____;  
String veggie = _____;
```

8. Using a Boolean operator always results in an expression that evaluates to the

_____ data type.

9. The code, $x \% 2$, where x is an even integer evaluates to _____.

10. _____ are a useful data structure for storing and manipulating grid-like tabular data in code.

11. An object is an _____ of a class.
12. The “new” operator in Java is used to _____
13. Dot-notation (using the period “.” in code) is used to indicate _____
14. Fill in two blanks to make this class inherit from the Car class and explicitly call it’s constructor when instantiated.
- ```
public class SelfDrivingCar _____ Car {
 String brand;
 SelfDrivingCar() {
 _____ //call the parent class’s constructor
 System.out.println(“Whoof!”); //let us know that it’s alive
 }
}
```
15. The “static” keyword is used to indicate that a method or data field  
\_\_\_\_\_.
16. Three of the core concepts of object oriented programming are: \_\_\_\_\_  
, \_\_\_\_\_, \_\_\_\_\_.
17. Implementing an interface means that a class must \_\_\_\_\_ the methods  
contained within the interface definition.
18. A method that contains code that may trigger an exception must either  
\_\_\_\_\_ or \_\_\_\_\_ to handle the exception, or pass  
that exception down the call stack, respectively.
19. A method that is recursive must contain a call to \_\_\_\_\_.
20. The Integer, Character, and BigDecimal classes are known as \_\_\_\_\_  
classes, because they provide useful methods and attributes to each of their underlying  
primitive data types.

**Multiple choice** (2% each)

1. Integers have a higher bit depth than longs in Java.
  - a. True
  - b. False
2. String is a primitive data type in Java.
  - a. True
  - b. False
3. To reliably compare the value of two strings, one should use:
  - a. `string1 == string2`
  - b. `string1.equals(string2)`
4. The correct answer to the previous question is better because...
  - a. Strings are primitive data types, so they must be compared by value.
  - b. Strings with identical values are always stored in the same part of memory.
  - c. Strings with identical values can sometimes be stored in different parts of memory.
  - d. Strings are not primitive data types, so they are always stored as static classes.
5. Which of the following data would not be appropriate to store as a static variable?
  - a. The value of pi, 3.14159...
  - b. The two gender values of a class Mammal, which allows only one of two genders for any object instantiated from it.
  - c. The name property of an object of a class Human, which allows any name to be assigned to an object instantiated from it.
  - d. \*All of the above\*
  - e. \*None of the above\*
6. The break keyword can be used to escape out of... (select all that apply):
  - a. for loops
  - b. while loops
  - c. if/else statements
  - d. switch statements
  - e. \*None of the above\*
7. Two sets of random numbers generated from the same starting seed will be identical.
  - a. True
  - b. False
8. Arrays can store any data type, including your own custom class types.
  - a. True
  - b. False
9. An ArrayList that is initialized with 15 elements in it can have a 16<sup>th</sup> element added to it later in the code.
  - a. True
  - b. False
10. Each element in a two-dimensional array must have the same number of sub-elements.
  - a. True

- b. False
11. A try/catch block can handle more than one types of exception.
    - a. True
    - b. False
  12. Constructors in a class definition... (select all that apply):
    - a. ...must accept no parameters
    - b. ...must have no return value
    - c. ...must be overloaded at least once
    - d. ...must not be declared as public or private
  13. The keyword "super" is a reference to a class's... (select all that apply):
    - a. no-args constructor
    - b. parent class
    - c. instantiated object
    - d. package
    - e. access modifier
  14. To adhere to the concept of abstraction, where possible, data fields in a Java program should be made....
    - a. public
    - b. static
    - c. private
    - d. void
    - e. *-None of the above-*
  15. Taken from a larger class definition, we can say for sure that the method accepts as its parameter (select all that apply)...
- ```
public static void whoopDeeDoo(DooWop whoopDee) {
    whoopDee.doo();
}
```
- a. A DooWop object, passed by value
 - b. A DooWop object, passed by reference
 - c. A static DooWop object
 - d. A static DooWop class
 - e. *-None of the above-*
16. The == operator performs a comparison....
 - a. by reference
 - b. by value
 17. The special keyword, *this*, when used within a static method of a class, refers to (select all that apply)...
- a. the current class
 - b. the current object
 - c. the parent object
 - d. *-All of the above-*
 - e. *-None of the above-*

18. The Swing GUI toolkit provides (select all that apply)...
- a. native components
 - b. emulated components
 - c. native components, when available, and emulated components otherwise
 - d. emulated components when available, and native components otherwise
19. An ActionListener in Swing (select all that apply)...
- a. is a class
 - b. can be used to handle button click events
 - c. is an interface that can be implemented by a class
 - d. can be inherited by a class
20. A method that throws a FileNotFoundException must, as a requirement of the language, contain code to try/catch a FileNotFoundException.
- a. True
 - b. False

Short Answers (5% each)

1. Draw a flow chart for a program that asks a user to enter their birthdate over and over again until the user enters a valid date. Once a valid date is entered, the program outputs the user's horoscope for today.
2. Imagine you are coding a Saxophone class. Write a method that accepts as its parameter a musical note as a string and returns a Boolean indicating whether this note is valid or not. The method determines whether the note is valid by comparing it to each of the values in a static array of acceptable notes. (You do not need to create this array... assume that it has been defined elsewhere in the code).

3. Imagine you are coding a Dog class with the instance variables indicated in the UML diagram below. Please write two overloaded constructors. The first constructor should allow the dog to be instantiated with just a name. The second constructor should allow a Dog object to be constructed with all three properties. Show code indicating how to instantiate a Dog object using each of these constructors.

Dog
-name : String
-gender : boolean
-age : int

4. Explain the benefit of abstraction in software development.

