

**Please answer on separate paper. Write clearly. Don't write on this test.**

1. Objects are created from \_\_\_\_\_.
2. Objects keep track of their state by using \_\_\_\_\_.
3. Objects communicate with other objects by using their \_\_\_\_\_.
4. When an object is first created, it is set up properly by a \_\_\_\_\_.
5. The section of code where a variable may be accessed is known as its' \_\_\_\_\_.
6. Storing a value into a variable is known as \_\_\_\_\_.
7. Variables of \_\_\_\_\_ type store references to objects.
8. The non-object types in Java, such as `int`, are known as \_\_\_\_\_ types.
9. The type that holds only the values `true/false` is called \_\_\_\_\_.
10. A tool that may be used to examine how an application executes is called a(n) \_\_\_\_\_.
11. The special value that may be assigned to object variables that means 'no object' is \_\_\_\_\_.
12. Write complete Java code to meet the following specification:
  - a. Name the class `Point`.
  - b. The state will be stored in `x` and `y` variables inside the class.
  - c. Provide code to set the values of `x`, `y`.
  - d. Provide code to get the values of `x`, `y`.
  - e. Provide **two** ways to initialize objects of type `Point`.
    - i. Default `x`, `y` to zero.
    - ii. Allow the user of `Point` to specify initial values for `x`, `y` when creating `Points`.
- f. Provide a `displayPoint()` that will return a `String` suitable for printing a `Point`.
13. Using your code from Question #12 write sample Java statements to:
  - a. Create a default `Point` and store it in a variable named **p1**.
  - b. Create a `Point` with `x = 3, y = -9`, and name it **p2**.
  - c. Set the `x` and `y` values of `Point p1` to 8.
  - d. Store the sum of the `x` and `y` values of `Point p2` into a declared variable named **sum**.
  - e. Use `println()` to display `Point p1`.
14. Your text book had you work with a Notebook project. Write the Java code to print out all the notes in a `Notebook` object. The notes were stored in an `ArrayList` object named `notes`. Use an iterator for your code.
15. An `ArrayList` object understands the `size()` message, returning an `int`. Write code for the `Notebook` class providing an `isEmpty()` message. It should return `true` or `false`. Use a single return statement.
16. If `total` has the value 41 and `limit` has the value 12 (both are type `int`), what is the result of:
  - a. `total % LIMITvalue`
  - b. `total / LIMITvalue`
17. Write an `if` statement that sets the value of `max` to `x` if `x` is greater than zero and `x` is greater than `z`, otherwise set `max` to `z`.
18. Given a `String` called `name` and an `int` called `age`, write a `println()` statement to create output that would look like the following:
 

Hello Bill, you are 31 years old.