

Last Name: _____ First Name: _____

Multiple Choice (40 items @ 2.5 point each) Select the letter in front of the most correct answer, and mark your scantron accordingly.

1. What is the output of the following code?

```
int p = 1;  
do {  
    System.out.print(p + " ");  
    p++;  
} while (p >= 2 && p <= 7);
```

 - a. 2 3 4 5 6 7
 - b. 1 2 3 4 5 6 7**
 - c. 2 3 4 5 6
 - d. 1
 - e. No output is produced by the loop above
2. What reserved word can be used to end execution of a loop?
 - a. continue
 - b. final
 - c. break**
 - d. this
 - e. complete
3. Objects of which of the following types are iterators?
 - a. String
 - b. int
 - c. Comparable
 - d. Scanner**
 - e. All of the above
4. Which of the following is an infinite loop?
 - a. for (int i = 2; i < 1; i++) { }
 - b. for (int i = 1; i <= 2; i++) { }
 - c. for (int i = -1; i > -4; i--) { }
 - d. for (int i = 3; i > 2; i++) { }**
 - e. for (int i = -1; i < 2; i++) { }
5. Which of the following is a logical operator (i.e. one that must have boolean operands)?
 - a. >
 - b. !=
 - c. =
 - d. %
 - e. None of the above**
6. Suppose that the array `groupList` has a value of `null`. Which of the following will generate a run-time error?
 - a. if (`groupList != null`) { }
 - b. if (`groupList == null`) { }
 - c. if (`groupList != null && groupList.length > 0`) { }
 - d. if (`groupList.length > 0 && groupList != null`) { }**
 - e. None of the above cause a run-time error

7. Which of the following lines correctly instantiates an array?
- a. `int values[];`
 - b. `int[] values;`
 - c. `int values[] = new int[3];`
 - d. `int[] values = new array[3];`
 - e. `int values[] = new ArrayList(3);`
8. What is the output of the following loop?
- ```
int k = 2;
while (k < 8) {
 System.out.print(k + " ");
 k += 2;
}
```
- a. 2 4 6
  - b. 2 4 6 8
  - c. 2 3 4 5 6 7
  - d. 2 3 4 5 6 7 8
  - e. 3 4 5 6 7
9. Suppose that a method has a single formal parameter of type `String` and that the method is invoked with a `String` variable. Which of the following is true about the actual and formal parameter?
- a. They must be referenced using the same variable name
  - b. They must be referenced using two different variable names
  - c. They reference the same object
  - d. They reference two separate memory addresses
  - e. Both b and d
10. Constant class fields are declared with the following two reserved words:
- a. `final, static`
  - b. `public, final`
  - c. `private, final`
  - d. `static, void`
  - e. `public, static`
11. Which of the following lines of code cannot be placed in a static method?
- a. `return new String();`
  - b. `this.count++;`
  - c. `System.out.print("Enter a number: ");`
  - d. `int[] nums;`
  - e. All of the above code can be placed in a static method.
12. Suppose that variable `x` has a value of 200. What is the value of `y` after the following statements are executed (hint: be sure to take into consideration operator precedence)?
- ```
y = x <= 100 && x >= 0 || x % 2 == 0;
```
- a. 100
 - b. 0
 - c. 50
 - d. true
 - e. false

13. Suppose that the Stock class has a static int called agtAmt that is initialized to zero. If the constructor of Stock is defined as follows

```
public Stock (String repIn) {  
    rep = repIn;  
    cost = 1;  
    agtAmt += repIn.length();  
}
```

then what is the value of agtAmt after the following three Stock objects are created?

```
Stock s1 = new Stock("ABC");  
Stock s2 = new Stock("ABCD");  
Stock s3 = new Stock("EFGH");
```

- a. 0
 - b. 3
 - c. 6
 - d. 11
 - e. The value of agtAmt cannot be determined by the given information
14. Static methods are also called _____ methods.
- a. class
 - b. instance
 - c. constant
 - d. overloaded
 - e. abstract
15. The main method cannot directly access _____ variables of the class containing main.
- a. private static
 - b. public static
 - c. static
 - d. instance
 - e. class
16. Which of the following items is most likely to be provided by the client rather than the developer for a software project?
- a. Requirements
 - b. Design
 - c. Code
 - d. Tests
 - e. Both a and b
17. If the Trajectory class uses the static methods found in the Math class, then what is the relationship between Trajectory and Math in a UML class diagram?
- a. general dependency
 - b. inheritance
 - c. aggregation
 - d. static
 - e. There is no relationship between the two classes in this case

18. Which of the following lines in a JUnit test correctly tests the getAmt method which returns a double?

- a. `Assert.assertEquals("Wrong amount", 4.2, st.getAmt());`
- b. `Assert.assertEquals("Wrong amount", 4.2, .1, st.getAmt());`
- c. `Assert.assertEquals(4.2, st.getAmt(), .1, "Wrong amount");`
- d. `Assert.assertEquals(st.getAmt(), 4.2, "Wrong amount", .1);`
- e. `Assert.assertEquals("Wrong amount", 4.2, st.getAmt(), .1);`

19. The following command runs the Java program ItemCheck from the command line and passes it three arguments (balloon 2.0 5.6).

```
> java ItemCheck balloon 2.0 5.6
```

Which of the lines of code below correctly stores the second command line argument (i.e., 2.0) in variable res?

- a. `String res = args[2];`
- b. `int res = args[1];`
- c. `String res = args[1];`
- d. `int res = args[2];`
- e. `int res = args[3];`

20. An aggregate object always contains which of the following:

- a. static variables
- b. constant fields
- c. overloaded methods
- d. reference variables
- e. none of the above

21. If an array is sent as a parameter to a method and modified within that method, the modifications to the array will be lost once the invoked method has ended execution.

- a. true
- b. false

22. Which statement below is true concerning the following array?

```
String[] names = new String[5];
```

- a. `names.length` would return a value of 4
- b. `names[0]` would cause an `ArrayIndexOutOfBoundsException`
- c. `names` contains 5 empty `String` objects
- d. `names` contains 5 null values
- e. `names` is instantiated using an initializer list

23. What is the output of the following lines of code?

```
for(int i = 1; i < 7; i++){  
    System.out.print(i % 2 == 0 ? i + " " : "");  
}
```

- a. 1 2 3 4 5 6
- b. 1 2 3 4 5 6 7
- c. 2 4 6 7
- d. 2 4 6
- e. 1 3 5 7

24. Which of the following statements is true?
- a. Static methods cannot be invoked until an object is created
 - b. A class can have more than one constructor
 - c. Tests in JUnit cannot test return types that are objects
 - d. An ArrayList cannot hold objects of different types
 - e. Casting must be used if a generic type is specified when returning an element of an ArrayList
25. Which of the following class headers correctly implements more than one interface?
- a. `public class Dice implements Rollable, Countable`
 - b. `public class Dice implements Rollable implements Countable`
 - c. `public class Dice implements Rollable & Countable`
 - d. `public class Dice implements Rollable && Countable`
 - e. `public class Dice implements Rollable Countable`
26. If you want to be able to compare two objects, then what interface should you implement?
- a. `compareTo`
 - b. `Compare`
 - c. `Comparable`
 - d. `compare`
 - e. `Iterator`
27. Two methods can have the same name in a class if they have different _____.
- a. return types
 - b. visibility modifiers
 - c. formal parameters
 - d. code
 - e. There cannot be more than one method with the same name in a class
28. Which of the following lines of code accesses an element from the ArrayList `nameList`?
- a. `nameList[nameList.length]`
 - b. `nameList[2]`
 - c. `nameList[-4]`
 - d. `nameList.get(2)`
 - e. `nameList(2)`
29. Suppose that an instance variable called `length` is in the `Race` class. How can the variable be accessed from within the class?
- a. `new int length`
 - b. `this.length`
 - c. `Race.length`
 - d. `length[0]`
 - e. None of the above
30. Interfaces can contain _____ methods and constants.
- a. `void`
 - b. `formal`
 - c. `aggregate`
 - d. `static`
 - e. None of the above

31. Method decomposition _____ the number of methods in a class.

- a. increases
- b. decreases
- c. doesn't affect
- d. keeps constant
- e. counts

32. Which of the following loops can be used to access all indices of array fileNames?

- a. `for(int i = fileNames.length; i > 0; i--)`
- b. `for(int i = 0; i <= fileNames.length; i++)`
- c. `for(int i = fileNames.length - 1; i >= 0; i--)`
- d. `for(int i = fileNames.length; i >= 0; i--)`
- e. `for(int i = 0; i < fileNames.length - 1; i++)`

33. A(n) _____ variable cannot be accessed by a _____ method in the same class.

- a. public, private
- b. private, public
- c. static, instance
- d. instance, static
- e. Any method in a class can reference any variable in that class

34. What is the value of number after the following code is executed?

```
int number = 0;
for (int i = 2; i < 4; i++) {
    for (int j = i; j > 0; j--) {
        number += j;
    }
}
```

- a. 3
- b. 4
- c. 5
- d. 7
- e. 9

35. What is the value of var after the following code is executed?

```
int var = 2;
switch(var) {
    case 1:
        var += 1;
    case 2:
        var += 3;
    case 3:
        var += 5;
}
```

- a. 3
- b. 5
- c. 7
- d. 10
- e. 11

36. Which of the following types can be used as an initial expression in a switch statement?

- a. boolean
- b. double
- c. char
- d. String
- e. All of the above types

37. Suppose that `obj1.compareTo(obj2)` returns a value of -8. Given your knowledge of the `compareTo` method, what can you say about `obj1` and `obj2`?

- a. `obj1` is less than `obj2`
- b. `obj1` is equal to `obj2`
- c. `obj1` is greater than `obj2`
- d. `obj1` minus `obj2` is equal to 8
- e. The `compareTo` method can only return values of 1, -1, and 0

38. Given the following statement, what is the return type of the `getMore` method?

```
int output = getMore() ? 2 : 0;
```

- a. int
- b. boolean
- c. double
- d. char
- e. void

39. Which of the following values for `char ch` causes `num` to be set to 2 after the following code is executed?

```
int num = 0;
if (ch > 'b') {
    if (ch < 'p') {
        num = 1;
    }
    else {
        num = 2;
    }
}
```

- a. 'a'
- b. 'b'
- c. 'p'
- d. 'q'
- e. Either c or d

40. Which of the following completes the if statement below so that `Equal` is printed if the Strings referenced by `str1` and `str2` contain the same characters?

```
if(_____) {
    System.out.println("Equal");
}
```

- a. `str1 == str2`
- b. `str1.compareTo(str2)`
- c. `str1.equals(str2)`
- d. both a and c are valid
- e. both b and c are valid