Test Bank for Starting Out with Java From Control Structures through Objects 7th Gaddis

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TRUE/FALSE

1. Programming style includes techniques for consistently putting spaces and indentation in a program to help create visual cues.

   ANS: T

2. Both character and string literals can be assigned to a **`char`** variable.

   ANS: F

3. A variable's scope is the part of the program that has access to that variable.

   ANS: T

4. Named constants are initialized with a value and that value cannot change during the execution of the program.

   ANS: T

5. When you call one of the **`Scanner`** class's methods to read a primitive value, such as **`nextInt`** or **`nextDouble`**, and then call the **`nextLine`** method to read a string, an annoying and hard-to-find problem can occur.

   ANS: T

6. Class names and key words are examples of variables.

   ANS: F

7. The Java API provides a class named **`Math`** that contains numerous methods which are useful for performing complex mathematical operations.

   ANS: T

8. The **`System.out.printf`** method allows you to format output in a variety of ways.

   ANS: T

9. A Java program will not compile unless it contains the correct line numbers.

   ANS: F

10. Java is not case sensitive.

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ANS: F

11. If the compiler encounters a statement that uses a variable before the variable is declared, an error will result.

ANS: T

MULTIPLE CHOICE

1. Which of the following is a value that is written into the code of a program?

a. a literal
b. an assignment statement
c. an operator
d. a variable

ANS: A

2. A Java program must have at least one of the following:

a. a comment
b. a class definition
c. a **`System.out.println();`** statement
d. a variable declaration

ANS: B

3. Which of the following would contain the translated Java byte code for a program named `Demo`?

a. `Demo.java`
b. `Demo.code`
c. `Demo.class`
d. `Demo.byte`

ANS: C

4. Which of the following is a named storage location in the computer's memory?

a. a literal
b. an operator
c. a constant
d. a variable

ANS: D

5. Which of the following is not a valid Java comment?

a. **`/** Comment one */`**
b. **`*/ Comment two /*`**
c. **`// Comment three`**
d. **`/* Comment four */`**

ANS: B

6. To compile a program named `First` you would use which of the following commands?

a. `java First.java`
b. `javac First`
c. `javac First.java`
d. `compile First.javac`

ANS: C

7. A Java source file must be saved with the extension

a. **`.java`**
b. **`.javac`**
c. **`.src`**
d. **`.class`**

ANS: A

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8. Which of the following is not a rule that must be followed when naming identifiers?

   a. After the first character, you may use the letters a-z, A-Z, an underscore, a dollar sign, or the digits 0-9.
   b. Identifiers can contain spaces.
   c. Uppercase and lowercase characters are distinct.
   d. The first character must be one of the letters a-z, A-Z, an underscore, or a dollar sign.

   ANS: B

9. Character literals are enclosed in _____ and string literals are enclosed in _____.

   a. single quotes, double quotes
   b. double quotes, single quotes
   c. single quotes, single quotes
   d. double quotes, double quotes

   ANS: A

10. Variables are classified according to their

    a. names
    b. values
    c. locations
    d. data types

    ANS: D

11. What is the result of the following expression?

```
17 % 3 * 2 - 12 + 15
```

    a. `105` b. `12` c. `7` d. `8`

    ANS: C

12. What is the result of the following expression?

```
10 + 5 * 3 - 20
```

    a. `-5` b. `-50` c. `5` d. `25`

    ANS: C

13. In the following Java statement, what value is stored in the variable **`name`**?

```
String name = "John Doe";
```

    a. `"name"`
    b. the memory address where `"John Doe"` is located
    c. the memory address where `name` is located
    d. `John Doe`

    ANS: B

14. What is the value of **`z`** after the following statements have been executed?

```
int x = 4, y = 33;
double z;
z = (double) (y / x);
```

    a. `8.25` b. `4` c. `0` d. `8.0`

    ANS: D

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15. What output will be displayed as a result of executing the following code?

```
int x = 5, y = 20;
x += 32;
y /= 4;
System.out.println("x = " + x + ", y = " + y);
```

a. `x = 160, y = 80`
b. `x = 32, y = 4`
c. `x = 37, y = 5`
d. `x = 9, y = 52`

ANS: C

16. Which of the following statements will correctly convert the data type, if **x** is a **float** and **y** is a **double**?

a. `x = float y;`
b. `x = <float>y;`
c. `x = (float)y;`
d. `x = y;`

ANS: C

17. Which of the following statements is invalid?

a. `double r = 9.4632E15;`
b. `double r = 9.4632e15;`
c. `double r = 2.9X106;`
d. `double r = 326.75;`

ANS: C

18. To print **"Hello, world"** on the monitor, which of the following Java statements should be used?

a. `System.out.println("Hello, world");`
b. `System Print = "Hello, world";`
c. `SystemOutPrintln('Hello, world');`
d. `system.out.println(Hello, world);`

ANS: A

19. The **boolean** data type may contain which of the following range of values?

a. `-128 to + 127`
b. `true or false`
c. `-2,147,483,648 to +2,147,483,647`
d. `-32,768 to +32,767`

ANS: B

20. Variables of the **boolean** data type are useful for

a. evaluating conditions that are either true or false
b. working with small integers
c. working with very large integers
d. evaluating scientific notation

ANS: A

21. What would be displayed as a result of executing the following code?

```
int x = 578;
```

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```
System.out.print("There are " +
x + 5 + "\n" +
"hens in the hen house.");
```

a. `There are 583`
`hens in the hen house.`
b. `There are 5785`
`hens in the hen house.`
c. `There are x5\nhens in the hen house.`
d. `There are 5785 hens in the hen house.`

ANS: B

22. What would be displayed as a result of executing the following code?

```
final int x = 22, y = 4;
y += x;
System.out.println("x = " + x + ", y = " + y)
```

a. `x = 22, y = 26`
b. `x = 22, y = 4`
c. `x = 22, y = 88`
d. Nothing. There is an error in the code.

ANS: D

23. What would be displayed as a result of executing the following code?

```
int x = 15, y = 20, z = 32;
x += 12;
y /= 6;
z -= 14;
System.out.println("x = " + x +
                   ", y = " + y +
                   ", z = " + z);
```

a. `x = 27, y = 3.333, z = 18`
b. `x = 27, y = 2, z = 18`
c. `x = 37, y = -14, z = 4`
d. `x = 27, y = 3, z = 18`

ANS: D

24. What is the value of **z** after the following code is executed?

```
int x = 5, y = 28;
float z;
z = (float) (y / x);
```

a. `5.6`
b. `3.0`
c. `5.0`
d. `5.60`

ANS: C

25. Which of the following statements correctly creates a **Scanner** object for keyboard input?

a. `Scanner kbd = new Scanner(System.keyboard);`
b. `Scanner keyboard = new Scanner(System.in);`
c. `Scanner keyboard(System.in);`
d. `Keyboard scanner = new Keyboard(System.in);`

ANS: B

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26. Which **`Scanner`** class method reads a **`String`**?

a. **`nextLine`**
b. **`charAt`**
c. **`nextString`**
d. **`getLine`**

ANS: A

27. The primitive data types only allow a(n) _____ to hold a single value.

a. class
b. literal
c. object
d. variable

ANS: D

28. In Java, _____ must be declared before they can be used.

a. variables
b. literals
c. key words
d. comments

ANS: A

29. If the following Java statements are executed, what will be displayed?

```
System.out.println("The top three winners are\n");
System.out.print("Jody, the Giant\n");
System.out.print("Buffy, the Barbarian");
System.out.println("Adelle, the Alligator");
```

a. The top three winners are
Jody, the Giant
Buffy, the Barbarian
Adelle, the Alligator

b. The top three winners are Jody, the Giant\nBuffy, the BarbarianAdelle, and the Albino

c. The top three winners are
Jody, the Giant\nBuffy, the BarbarianAdelle, the Alligator

d. The top three winners are
Jody, the Giant
Buffy, the BarbarianAdelle, the Alligator

ANS: D

30. A value that is written into the code of a program is a(n) _____.

a. literal
b. assignment statement
c. variable
d. operator

ANS: A

31. When the + operator is used with strings, it is known as the

a. assignment operator
b. string concatenation operator
c. addition operator
d. combines assignment operator

ANS: B

32. What would be printed out as a result of the following code?

```
System.out.println("The quick brown fox" +
                   "jumped over the \n"
```

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```
"slow moving hen.");
```

a. The quick brown fox jumped over the \nslow moving hen.
b. The quick brown fox jumped over the
slow moving hen.
c. The quick brown fox
jumped over the
slow moving hen.
d. Nothing - this is an error

ANS: D

33. Which of the following is ***not*** a rule that must be followed when naming identifiers?
a. The first character must be one of the letters a-z, A-Z, and underscore or a dollar sign.
b. Identifiers can contain spaces.
c. Uppercase and lowercase characters are distinct.
d. After the first character, you may use the letters a-z, A-Z, the underscore, a dollar sign, or digits 0-9.

ANS: B

34. Which of the following cannot be used as identifiers in Java?
a. variable names
b. class names
c. key words
d. objects

ANS: C

35. Which of the following is not a primitive data type?
a. `short`
b. `long`
c. `float`
d. `string`

ANS: D

36. Which of the following is valid?
a.
```
float y;
y = 54.9;
```
b.
```
float y;
double z;
z = 934.21;
y = z;
```
c.
```
float w;
w = 1.0f;
```
d.
```
float v;
v = 1.0
```

ANS: C

37. If `x` has been declared an `int`, which of the following statements is invalid?
a. `x = 0;`
b. `x = -59832;`
c. `x = 1,000;`
d. `x = 592`

ANS: C

38. To display the output on the next line, you can use the `println` method or use the _____ escape sequence in the `print` method.
a. `\n`
b. `\r`
c. `\t`
d. `\b`

ANS: A

39. Every Java application program must have

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a. a class named `MAIN`
b. a method named `main`
c. at least two data types
d. integer variables

ANS: B

40. What will be displayed as a result of executing the following code?

```
int x = 6;
String msg = "I am enjoying this class.";
String msg1 = msg.toUpperCase();
String msg2 = msg.toLowerCase();
char ltr = msg.charAt(x);
int strSize = msg.length();
System.out.println(msg);
System.out.println(msg1);
System.out.println(msg2);
System.out.println("Character at index x = " + ltr);
System.out.println("msg has " + strSize + "characters.");
```

a. I am enjoying this class.
I AM ENJOYING THIS CLASS.
i am enjoying this class.
Character at index x = e
msg has 24 characters.

b. I am enjoying this class.
I AM ENJOYING THIS CLASS.
i am enjoying this class.
Character at index x = e
msg has 25 characters.

c. I am enjoying this class.
I AM ENJOYING THIS CLASS.
i am enjoying this class.
Character at index x = n
msg has 24 characters.

d. I am enjoying this class.
I AM ENJOYING THIS CLASS.
i am enjoying this class.
Character at index x = n
msg has 25characters.

ANS: D

41. What will be displayed as a result of executing the following code?

```
public class test
{
   public static void main(String[] args)
   {
      int value1 = 9;
      System.out.println(value1);
      int value2 = 45;
      System.out.println(value2);
      System.out.println(value3);
      value = 16;
   }
}
```

a. 9
45
16

b. 94516

c. 9 45 16

d. Nothing. This is an error

ANS: D

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Starting Out with Java - From Control Structures through Objects
Answers to Review Questions

Chapter 2

Multiple Choice and True/False

1. c
2. b
3. a
4. b and c
5. a, c, and d
6. a
7. c
8. b
9. a
10. d
11. b
12. a
13. a
14. c
15. a
16. True
17. True
18. False
19. True
20. False
21. False

Predict the Output

1.
```
0
100
```
2.
```
8
2
```
3.
```
I am the incrediblecomputing
machine
and I will
amaze
you.
```
4.
```
Be careful
This might/n be a trick question.
```
5.
```
23
1
```

Find the Error

- The comment symbols in the first line are reversed. They should be `/*` and `*/`.

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- The word `class` is missing in the second line. It should read `public class MyProgram`.
- The `main` header should not be terminated with a semicolon.
- The fifth line should have a left brace, not a right brace.
- The first four lines inside the `main` method are missing their semicolons.
- The comment in the first line inside the `main` method should begin with forward slashes (`//`), not backward slashes.
- The last line inside the `main` method, a call to `println`, uses a string literal, but the literal is enclosed in single quotes. It should be enclosed in double quotes, like this: `"The value of c is"`.
- The last line inside the `main` method passes `C` to `println`, but it should pass `c` (lowercase).
- The class is missing its closing brace.

Algorithm Workbench

1.
```
double temp, weight, age;
```
2.
```
int months = 2, days, years = 3;
```
3.
a)
```
b = a + 2;
```
b)
```
a = b * 4;
```
c)
```
b = a / 3.14;
```
d)
```
a = b - 8;
```
e)
```
c = 'K';
```
f)
```
c = 66;
```
4.
a) 12
b) 4
c) 4
d) 6
e) 1
5.
a) 3.287E6
b) -9.7865E12
c) 7.65491E-3
6.
```
System.out.print("Hearing in the distance\n\n\n");
System.out.print("Two mandolins like creatures in the\n\n\n");
System.out.print("dark\n\n\n");
System.out.print("Creating the agony of ecstasy.\n\n\n");
System.out.println(" - George Barker");
```
7.
```
10 20 1
```
8.
```
12
```
9.
```
a
```
10.
```
HAVE A GREAT DAY!
Have a great day!
```

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11.
```
int speed, time, distance;
speed = 20;
time = 10;
distanct = speed * time;
System.out.println(distance);
```
12.
```
double force, area, pressure;
force = 172.5;
area = 27.5;
pressure = area / force;
System.out.println(pressure);
```

13.
```
double income;
// Create a Scanner object for keyboard input.
Scanner keyboard = new Scanner(System.in);
// Ask the user to enter his or her desired income
System.out.print("Enter your desired annual income: ");
income = keyboard.nextDouble();
```
14.
```
String str;
double income;
str = JOptionPane.showInputDialog("Enter your desired " +
                          "annual income.");
income = Double.parseDouble(str);
```

15.
```
total = (float)number;
```

Short Answer

1. Multi-line style
2. Single line style
3. A self-documenting program is written in such a way that you get an understanding of what the program is doing just by reading its code.
4. Java is a case sensitive language, which means that it regards uppercase letters as being entirely different characters than their lowercase counterparts. This is important to know because some words in a Java program must be entirely in lowercase.
5. The `print` and `println` methods are members of the `out` object. The `out` object is a member of the `System` class. The `System` class is part of the Java API.
6. A variable declaration tells the compiler the variable's name and the type of data it will hold.
7. You should always choose names for your variables that give an indication of what they are used for. The rather nondescript name, `x`, gives no clue as to what the variable's purpose is.
8. It is important to select a data type that is appropriate for the type of data that your program will work with. Among the things to consider are the largest and smallest

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possible values that might be stored in the variable, and whether the values will be whole numbers or fractional numbers.

9. In both cases you are storing a value in a variable. An assignment statement can appear anywhere in a program. An initialization, however, is part of a variable declaration.
10. Comments that start with `//` are single-line style comments. Everything appearing after the `//` characters, to the end of the line, is considered a comment. Comments that start with `/*` are multi-line style comments. Everything between these characters and the next set of `*/` characters is considered a comment. The comment can span multiple lines.
11. Programming style refers the way a programmer uses spaces, indentations, blank lines, and punctuation characters to visually arrange a program's source code. An inconsistent programming style can create confusion for a person reading the code.
12. One reason is that the name `PI` is more meaningful to a human reader than the number 3.14. Another reason is that any time the value that the constant represents needs to be changed, we merely have to change the constant's initialization value. We do not have to search through the program for each statement that uses the value.
13. `javadoc SalesAverage.java`
14. The result will be an `int`.

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