Practice Quiz 3

Name

1. Consider the following code segment.

```
/* missing loop header */
{
for (int k = 0; k < 4; k++)
{
System.out.print(k);
}
System.out.println();
}
```

The code segment is intended to produce the following output.

```
0123
0123
0123
```

Which of the following can be used to replace /* *missing loop header* */ so that the code segment works as intended?

1. `for (int j = 0; j < 3; j++)`
2. `for (int j = 1; j < 3; j++)`
3. `for (int j = 1; j <= 3; j++)`

(A) I only

(B) II only

(C) III only

(D) I and II

(E) I and III

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2. Consider the following code segment.

```
System.out.print("Hello System.out.println");
System.out.print("!!!");
```

What is printed as a result of executing the code segment?

(A) Hello!!!

(B) Hello System.out.println!!!

(C)
```
Hello
!!!
```

(D)
```
Hello System.out.println
!!!
```

(E) Nothing is printed because the text "System.out.println" cannot appear inside a print statement.

---

3. Consider the following code segment.

```
int counter = 0;
for (int x = 10; x > 0; x--)
{
for (int y = x; y <= x; y++)
{
counter++;  // line 6
}
}
```

How many times will the statement in line 6 be executed as a result of running the code segment?

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(A) 0

(B) 1

(C) 10

(D) 11

(E) 20

4. Consider the following code segment.

```
int outerMax = 10;
int innerMax = 5;
for (int outer = 0; outer < outerMax; outer++)
{
for (int inner = 0; inner <= innerMax; inner++)
{
System.out.println(outer + inner);
}
}
```

How many values will be printed when the code segment is executed?

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(A) 45

(B) 50

(C) 55

(D) 60

(E) 66

5. Consider the following code segment.

```
int x = 3;
int y = -1;
if (x - 2 > y)
{
x -= y;
}
if (y + 3 >= x)
{
y += x;
}
System.out.print("x = " + x + " y = " + y);
```

What is printed as a result of the execution of the code segment?

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(A) x = -1 y = -1

(B) x = 2 y = 1

(C) x = 3 y = 2

(D) x = 4 y = -1

(E) x = 4 y = 3

---

6. The following code segment is intended to interchange the values of the int variables x and y. Assume that x and y have been properly declared and initialized.

```
int temp = x;
/* missing code */
```

Which of the following can be used to replace /* *missing code* */ so that the code segment works as intended?

(A)
```
x = y;
x = temp;
```

(B)
```
x = y;
y = temp;
```

(C)
```
y = x;
x = temp;
```

(D)
```
y = x;
temp = y;
```

(E)
```
y = x;
temp = x;
```

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7. The following method is intended to print the number of digits in the parameter num.

```
public int numDigits(int num)
{
int count = 0;
while (/* missing condition */)
{
count++;
num = count / 10;
}
return count;
}
```

Which of the following can be used to replace /* *missing condition* */ so that the method will work as intended?

(A) count != 0

(B) count > 0

(C) num >= 0

(D) num != 0

(E) num == 0

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8. The following method is intended to return true if and only if the parameter val is a multiple of 4 but is not a multiple of 100 unless it is also a multiple of 400. The method does not always work correctly.

```
public boolean isLeapYear(int val)
{
if ((val % 4) == 0)
{
return true;
}
else
{
return (val % 400) == 0;
}
}
```

Which of the following method calls will return an incorrect response?

(A) isLeapYear(1900)

(B) isLeapYear(1984)

(C) isLeapYear(2000)

(D) isLeapYear(2001)

(E) isLeapYear(2010)

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9. Consider the following code segment, which is intended to print the sum of all the odd integers from 0 up to and including 101.

```
int r = 0;
int sum = 0;
/* missing loop header */
{
if (r % 2 == 1)
{
sum += r;
}
r++;
}
System.out.println(sum);
```

Which of the following could replace /* *missing loop header* */ to ensure that the code segment will work as intended?

(A) `while (r <= 100)`

(B) `while (sum <= 100)`

(C) `while (r < 101)`

(D) `while (r <= 101)`

(E) `while (sum <= 101)`

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10. Consider the following code segment.

```
for (int outer = 0; outer < 3; outer++)
{
for (/* missing loop header */)
{
System.out.print(outer + "" + inner + "_");
}
}
```

Which of the following can be used as a replacement for /* *missing loop header* */ so that the code segment produces the output 00_01_02_11_12_22_ ?

(A) int inner = 0; inner < 3; inner++

(B) int inner = 1; inner < 3; inner++

(C) int inner = outer - 1; inner < 3; inner++

(D) int inner = outer; inner < 3; inner++

(E) int inner = outer + 1; inner < 3; inner++

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11. Consider the following code segment.

```
int count = 0;
for (int x = 1; x <= 3; x++)
{
/* missing loop header */
{
count++;
}
}
System.out.println(count);
```

Which of the following should be used to replace /* *missing loop header* */ so that the code segment will print 6 as the value of count ?

(A) `for (int y = 0; y <= 2; y++)`

(B) `for (int y = 0; y < 3; y++)`

(C) `for (int y = 2; y >= 0; y--)`

(D) `for (int y = 3; y > 0; y--)`

(E) `for (int y = 0; y < x; y++)`

---

12. Consider the following code segment.

```
int k = 0;
/* missing loop header */
{
k++;
System.out.print(k + " ");
}
```

Which of the following can be used as a replacement for /* *missing loop header* */ so that the code segment prints out the string "1 2 3 4 "?

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(A) while (k < 3)

(B) while (k < 4)

(C) while (k < 5)

(D) while (k <= 4)

(E) while (k <= 5)

13. Consider the following code segment.

```
if (false && true || false)
{
if (false || true && false)
{
System.out.print("First");
}
else
{
System.out.print("Second");
}
}
if (true || true && false)
{
System.out.print("Third");
}
```

What is printed as a result of executing the code segment?

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(A) First

(B) Second

(C) Third

(D) FirstThird

(E) SecondThird

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14. Consider the following code segment.

```
int start = 4;
int end = 5;
boolean keepGoing = true;
if (start < end && keepGoing)
{
if (end > 0)
{
start += 2;
end++;
}
else
{
end += 3;
}
}
if (start < end)
{
if (end == 0)
{
end += 2;
start++;
}
else
{
end += 4;
}
}
```

What is the value of `end` after the code segment is executed?

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(A) 5

(B) 6

(C) 9

(D) 10

(E) 16

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15. Consider the following code segment.

```
int x = 7;
int y = 4;
boolean a = false;
boolean b = false;
if (x > y)
{
if (x % y >= 3)
{
a = true;
x -= y;
}
else
{
x += y;
}
}
if (x < y)
{
if (y % x >= 3)
{
b = true;
x -= y;
}
else
{
x += y;
}
}
```

What are the values of a, b, and x after the code segment has been executed?

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(A) a = true, b = true, x = -1

(B) a = true, b = false, x = 3

(C) a = true, b = false, x = 7

(D) a = false, b = true, x = 3

(E) a = false, b = false, x = 11

---

16. A student has created a Car class. The class contains variables to represent the following.

- A String variable called color to represent the color of the car
- An int variable called year to represent the year the car was made
- A String variable called make to represent the manufacturer of the car
- A String variable called model to represent the model of the car

The object vehicle will be declared as type Car.

Which of the following descriptions is accurate?

(A) An instance of the vehicle class is Car.

(B) An instance of the Car object is vehicle.

(C) An attribute of the year object is int.

(D) An attribute of the vehicle object is color.

(E) An attribute of the Car instance is vehicle.

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17. Consider the following code segment.

```
num += num;
num *= num;
```

Assume that num has been previously declared and initialized to contain an integer value.
Which of the following best describes the behavior of the code segment?

(A) The value of num is two times its original value.

(B) The value of num is the square its original value.

(C) The value of num is two times the square of its original value.

(D) The value of num is the square of twice its original value.

(E) It cannot be determined without knowing the initial value of num.

---

18. Consider the code segment below.

```
int a = 1988;
int b = 1990;

String claim = " that the world's athletes " +
"competed in Olympic Games in ";

String s = "It is " + true + claim + a +
" but " + false + claim + b + ".";

System.out.println(s);
```

What, if anything, is printed when the code segment is executed?

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(A) It is trueclaima but falseclaimb.

(B) It is trueclaim1998 but falseclaim1990.

(C) It is true that the world's athletes competed in Olympic Games in a but false that the world's athletes competed in Olympic Games in b.

(D) It is true that the world's athletes competed in Olympic Games in 1988 but false that the world's athletes competed in Olympic Games in 1990.

(E) Nothing is printed because the code segment does not compile.

---

19. Consider the following code segment, which is intended to print the digits of the two-digit int number num in reverse order. For example, if num has the value 75, the code segment should print 57. Assume that num has been properly declared and initialized.

```
/* missing code */
System.out.print(onesDigit);
System.out.print(tensDigit);
```

Which of the following can be used to replace /* *missing code* */ so that the code segment works as intended?

(A)
```
int onesDigit = num % 10;
int tensDigit = num / 10;
```

(B)
```
int onesDigit = num / 10;
int tensDigit = num % 10;
```

(C)
```
int onesDigit = 10 / num;
int tensDigit = 10 % num;
```

(D)
```
int onesDigit = num % 100;
int tensDigit = num / 100;
```

(E)
```
int onesDigit = num / 100;
int tensDigit = num % 100;
```

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20. Which of the following expressions evaluate to 7 ?

1. 9 + 10 % 12
2. (9 + 10) % 12
3. 9 – 2 % 12

(A) I only

(B) II only

(C) I and III

(D) II and III

(E) I, II, and III

---

21. A student has created an OrderedPair class to represent points on an xy-plane. The class contains the following.

- An int variable called x to represent an x-coordinate.
- An int variable called y to represent a y-coordinate.
- A method called printXY that will print the values of x and y.

The object origin will be declared as type OrderedPair.

Which of the following descriptions is accurate?

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(A) origin is an instance of the printXY method.

(B) origin is an instance of the OrderedPair class.

(C) origin is an instance of two int objects.

(D) OrderedPair is an instance of the origin object.

(E) printXY is an instance of the OrderedPair class.

---

22. Consider the following code segment.

```
int x = 5;
x += 6 * 2;
x -= 3 / 2;
```

What value is stored in x after the code segment executes?

(A) -1.5

(B) 1

(C) 9

(D) 15.5

(E) 16

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23. Consider the following code segment, where k and count are properly declared and initialized int variables.

```
k++;
k++;
count++;
k--;
count++;
k--;
```

Which of the following best describes the behavior of the code segment?

(A) The code segment leaves both k and count unchanged.

(B) The code segment increases both k and count by 2.

(C) The code segment increases k by 4 and count by 2.

(D) The code segment leaves k unchanged and increases count by 2.

(E) The code segment increases k by 2 and leaves count unchanged.

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24. Consider the following Point2D class.

```
public class Point2D
{
private double xCoord;
private double yCoord;

public Point2D(double x, double y)
{
xCoord = x;
yCoord = y;
}
}
```

Which of the following code segments, appearing in a class other than Point2D, will correctly create an instance of a Point2D object?

(A) `Point2D p = (3.0, 4.0);`

(B) `Point2D p = Point2D(3.0, 4.0);`

(C) `new p = Point2D(3.0, 4.0);`

(D) `new Point2D = p(3.0, 4.0);`

(E) `Point2D p = new Point2D(3.0, 4.0);`

---

25. Consider the following code segment.

```
int a = 10;
int b = 5 * 2;
System.out.print(a == b);
```

What is printed as a result of executing the code segment?

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(A) 5

(B) 10

(C) 10 == 10

(D) true

(E) false

26. Consider the following code segment.

```
int a = 4;
int b = 5;
a++;
b++;
int c = a + b;
a -= 1;
System.out.println(a + c);
```

What is printed when the code segment is executed?

(A) 9

(B) 10

(C) 14

(D) 15

(E) 25

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27. Consider the following code segment.

```
System.out.print("AP");
System.out.println();
System.out.println("CS");
System.out.print("A");
```

What is printed as a result of executing the code segment?

(A) APCSA

(B)
```
APCS
A
```

(C)
```
AP
CSA
```

(D)
```
AP
CS
A
```

(E)
```
AP

CS
A
```

---

28. Consider the following code segment.

```
int num = 1;
while (num < 5)
{
System.out.println("A");
num += 2;
}
```

What is printed as a result of executing the code segment?

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(A) A

(B) AA

(C) AAA

(D) AAAA

(E) AAAAA

---

29. Consider the following code segment.

```
System.out.print(I do not fear computers. );   // Line 1
System.out.println(I fear the lack of them.);  // Line 2
System.out.println(--Isaac Asimov);            // Line 3
```

The code segment is intended to produce the following output but may not work as intended.

```
I do not fear computers. I fear the lack of them.
--Isaac Asimov
```

Which change, if any, can be made so that the code segment produces the intended output?

(A) In line 1, `print` should be changed to `println`.

(B) In lines 2 and 3, `println` should be changed to `print`.

(C) The statement `System.out.println()` should be inserted between lines 2 and 3.

(D) In lines 1, 2, and 3, the text that appears in parentheses should be enclosed in quotation marks.

(E) No change is needed; the code segment works correctly as is.

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30. Consider the following code segment.

```
System.out.print(*);    // Line 1
System.out.print("*");  // Line 2
System.out.println();   // Line 3
System.out.println("*"); // Line 4
```

The code segment is intended to produce the following output, but may not work as intended.

```
**
*
```

Which line of code, if any, causes an error?

(A) Line 1

(B) Line 2

(C) Line 3

(D) Line 4

(E) The code segment works as intended.

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