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Name

1. 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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2. 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?

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(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.

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3. 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.

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4. 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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5. 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

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6. 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?

(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.

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7. 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

---

8. 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?

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(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.

---

9. 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?

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(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);

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10. 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?

(A) 5

(B) 10

(C) 10 == 10

(D) true

(E) false

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11. 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

---

12. 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?

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(A) APCSA

(B)
APCS
A

(C)
AP
CSA

(D)
AP
CS
A

(E)
AP
CS
A

13. 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?

(A) A

(B) AA

(C) AAA

(D) AAAA

(E) AAAAA

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14. 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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15. 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?

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(A) Line 1

(B) Line 2

(C) Line 3

(D) Line 4

(E) The code segment works as intended.

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16. Consider the following code segment.

```
for (int j = 0; j < 3; j++)
{
for (int k = 0; k < 4; k++)
{
System.out.println("Fun");
}
}
```

Which of the following best explains how changing the outer `for` loop header to `for (int j = 0; j <= 3; j++)` affects the output of the code segment?

(A) The output of the code segment will be unchanged.

(B) The string "Fun" will be printed more times because the outer loop will execute more times.

(C) The string "Fun" will be printed more times because the inner loop will execute more times in each iteration of the outer loop.

(D) The string "Fun" will be printed fewer times because the outer loop will execute fewer times.

(E) The string "Fun" will be printed fewer times because the inner loop will execute fewer times in each iteration of the outer loop.

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17. Consider the following code segment.

```
System.out.print("*");
System.out.println("**");
System.out.println("***");
System.out.print("****");
```

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

(A)
```
*
**
***
****
```

(B)
```
*
**
*******
```

(C)
```
*
*****
****
```

(D)
```
***
***
****
```

(E)
```
***
*******
```

18. Consider the following code segment.

```
System.out.print("One");   // Line 1
System.out.print("Two");   // Line 2
System.out.print("Three"); // Line 3
System.out.print("Four");  // Line 4
```

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

```
OneTwo
ThreeFour
```

Which of the following changes can be made so that the code segment produces the intended output?

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(A) Changing print to println in line 1 only

(B) Changing print to println in line 2 only

(C) Changing print to println in line 3 only

(D) Changing print to println in lines 2 and 3 only

(E) Changing print to println in lines 1, 2, 3, and 4

---

19. Consider the following code segment.

```
int val = 1;
while (val <= 6)
{
for (int k = 0; k <= 2; k++)
{
System.out.println("Surprise!");
}
val++;
}
```

How many times is the string "Surprise!" printed as a result of executing the code segment?

(A) 3

(B) 6

(C) 12

(D) 15

(E) 18

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20. Consider the following methods, which appear in the same class.

```
public void printSum(int x, double y)
{
System.out.println(x + y);
}

public void printProduct(double x, int y)
{
System.out.println(x * y);
}
```

Consider the following code segment, which appears in a method in the same class as printSum and printProduct.

```
int num1 = 5;
double num2 = 10.0;
printSum(num1, num2);
printProduct(num1, num2);
```

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

(A)
15
50

(B)
15
50.0

(C)
15.0
50

(D)
15.0
50.0

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