Practice Quiz 4

Name

1. 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.

---

2. 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?

Practice Quiz 4

A
```
*
**
***
****
```

B
```
*
**
*******
```

C
```
*
*****
****
```

D
```
***
***
****
```

E
```
***
*******
```

3. 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?

Practice Quiz 4

(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

---

4. 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?

Practice Quiz 4

(A) 3

(B) 6

(C) 12

(D) 15

(E) 18

5. 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?

Practice Quiz 4

(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.

---

6. Consider the following method.

```
public double puzzle(int x)
{
Double y = x / 2.0;
y /= 2;

return y.doubleValue();
}
```

Assume that the method call `puzzle(3)` appears in a method in the same class as `puzzle`. What value is returned as a result of the method call?

(A) 0.0

(B) 0.5

(C) 0.75

(D) 1.0

(E) 1.5

Practice Quiz 4

7. Which of the following statements assigns a random integer between 1 and 10, inclusive, to rn ?

(A) `int rn = (int) (Math.random()) * 10;`

(B) `int rn = (int) (Math.random()) * 10 + 1;`

(C) `int rn = (int) (Math.random() * 10);`

(D) `int rn = (int) (Math.random() * 10) + 1;`

(E) `int rn = (int) (Math.random() + 1) * 10;`

---

8. Consider the following code segment, which is intended to assign to num a random integer value between min and max, inclusive. Assume that min and max are integer variables and that the value of max is greater than the value of min.

```
double rn = Math.random();
int num = /* missing code */;
```

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

(A) `(int) (rn * max) + min`

(B) `(int) (rn * max) + min - 1`

(C) `(int) (rn * (max - min)) + min`

(D) `(int) (rn * (max - min)) + 1`

(E) `(int) (rn * (max - min + 1)) + min`

Practice Quiz 4

9. The following code segment is intended to round val to the nearest integer and print the result.

```
double val = -0.7;
int roundedVal = (int) (val + 0.5);
System.out.println(roundedVal);
```

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

(A) The code segment works as intended.

(B) The code segment does not work as intended because val and roundedVal should be declared as the same data type.

(C) The code segment does not work as intended because the expression (val + 0.5) should be cast to a double instead of an int.

(D) The code segment does not work as intended because val should be cast to an int before 0.5 is added to it.

(E) The code segment does not work as intended because the expression (int) (val + 0.5) rounds to the nearest integer only when val is positive.

---

10. A school that does not have air conditioning has published a policy to close school when the outside temperature reaches or exceeds 95°F. The following code segment is intended to print a message indicating whether or not the school is open, based on the temperature. Assume that the variable degrees has been properly declared and initialized with the outside temperature.

```
if (degrees > 95)
{
System.out.println("School will be closed due to extreme heat");
}
else
{
System.out.println("School is open");
}
```

Which of the following initializations for degrees, if any, will demonstrate that the code segment may not work as intended?

Practice Quiz 4

(A) degrees = 90;

(B) degrees = 94;

(C) degrees = 95;

(D) degrees = 96;

(E) The code will work as intended for all values of degrees.

11. Consider the following code segment.

```
int x = 7;
if (x < 7)
{
x = 2 * x;
}
if (x % 3 == 1)
{
x = x + 2;
}
System.out.print(3 * x);
```

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

Practice Quiz 4

(A) 7

(B) 9

(C) 14

(D) 21

(E) 27

12. Consider the following code segment.

```
double regularPrice = 100;
boolean onClearance = true;
boolean hasCoupon = false;
double finalPrice = regularPrice;
if(onClearance)
{
finalPrice -= finalPrice * 0.25;
}
if(hasCoupon)
{
finalPrice -= 5.0;
}
System.out.println(finalPrice);
```

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

Practice Quiz 4

(A) 20.0

(B) 25.0

(C) 70.0

(D) 75.0

(E) 95.0

---

13. A student has created a Song class. The class contains the following variables.

- A String variable called artist to represent the artist name
- A String variable called title to represent the song title
- A String variable called album to represent the album title

The object happyBirthday will be declared as type Song.

Which of the following statements is true?

(A) artist, title, and album are instances of the Song class.

(B) happyBirthday is an instance of three String objects.

(C) happyBirthday is an instance of the Song class.

(D) Song is an instance of the happyBirthday object.

(E) Song is an instance of three String objects.

---

14. Which of the following statements stores the value 3 in x ?

Practice Quiz 4

(A) int x = 4 / 7;

(B) int x = 7 / 3;

(C) int x = 7 / 4;

(D) int x = 5 % 8;

(E) int x = 8 % 5;

15. Consider the following method.

```
public String wordPlay(String word)
{
String str = "";
for (int k = 0; k < word.length(); k++)
{
if (k % 3 == 0)
{
str = word.substring(k, k + 1) + str;
}
}
return str;
}
```

The following code segment appears in another method in the same class as wordPlay.

```
System.out.println(wordPlay("Computer Science"));
```

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

Practice Quiz 4

(A) C

(B) ci tm

(C) eeStm

(D) ncepC

(E) eeSepC

Practice Quiz 4

16. Consider the following class definition.

```
public class Student
{
private int studentID;
private int gradeLevel;
private boolean honorRoll;

public Student(int s, int g)
{
studentID = s;
gradeLevel = g;
honorRoll = false;
}

public Student(int s)
{
studentID = s;
gradeLevel = 9;
honorRoll = false;
}
}
```

Which of the following code segments would successfully create a new Student object?

1. Student one = new Student(328564, 11);
2. Student two = new Student(238783);
3. int id = 392349; int grade = 11;Student three = new Student(id, grade);

Practice Quiz 4

(A) I only

(B) II only

(C) III only

(D) I and II only

(E) I, II, and III

Practice Quiz 4

17. Consider the following class definition.

```
public class Thing
{
public void talk()
{
System.out.print("Hello ");
}

public void name()
{
System.out.print("my friend");
}

public void greet()
{
talk();
name();
}
/* Constructors not shown */
}
```

Which of the following code segments, if located in a method in a class other than Thing, will cause the message "Hello my friend" to be printed?

(A) Thing a = new Thing(); Thing.talk();Thing.name();

(B) Thing a = new Thing(); Thing.greet();

(C) Thing a = new Thing(); a.talk();

(D) Thing a = new Thing(); a.greet();

(E) Thing a = new Thing(); a.name(); a.talk();

Practice Quiz 4

18. Consider the following method.

```
public int timesTwo (int n)
{
return n * 2;
}
```

The following code segment appears in a method in the same class as the timesTwo method.

```
Integer val = 10;
int result1 = timesTwo(val);
Integer result2 = result1;
System.out.print(result2);
```

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

(A) 10

(B) 20

(C) Nothing; the code segment will not compile because timesTwo cannot accept an Integer parameter.

(D) Nothing; the code segment will not compile because the value returned by timesTwo cannot be assigned to result1.

(E) Nothing; the code segment will not compile because the int variable result1 cannot be assigned to the Integer variable result2.

---

19. Consider the following statement.

```
boolean x = (5 < 8) == (5 == 8);
```

What is the value of x after the statement has been executed?

Practice Quiz 4

(A) 3

(B) 5

(C) 8

(D) true

(E) false

20. Consider the following method.

```
public static String changeStr(String str)
{
String result = "";
for (int i = str.length() - 1; i >= str.length() / 2; i -= 2)
{
result += str.substring(i, i + 1);
}
return result;
}
```

What value is returned as a result of the method call changeStr("12345") ?

Practice Quiz 4

(A) "4"

(B) "53"

(C) "531"

(D) "543"

(E) "54321"

---

21. Consider the following Boolean expression in which the int variables x and y have been properly declared and initialized.

$(x <= 10) == (y > 25)$

Which of the following values for x and y will result in the expression evaluating to true ?

(A) $x = 8$ and $y = 25$

(B) $x = 10$ and $y = 10$

(C) $x = 10$ and $y = 30$

(D) $x = 15$ and $y = 30$

(E) $x = 25$ and $y = 30$

Directions: Select the choice that best fits each statement. The following question(s) refer to the following incomplete class declaration.

Practice Quiz 4

```
public class TimeRecord
{
  private int hours;
  private int minutes; // 0 ≤ minutes < 60
  /** Constructs a TimeRecord object.
   *  @param h the number of hours
   *           Precondition: h ≥ 0
   *  @param m the number of minutes
   *           Precondition: 0 ≤ m < 60
   */
  public TimeRecord(int h, int m)
  {
    hours = h;
    minutes = m;
  }

  /** @return the number of hours
   */
  public int getHours()
  { /* implementation not shown */ }

  /** @return the number of minutes
   *  Postcondition: 0 ≤ minutes < 60
   */
  public int getMinutes()
  { /* implementation not shown */ }

  /** Adds h hours and m minutes to this TimeRecord.
   *  @param h the number of hours
   *           Precondition: h ≥ 0
   *  @param m the number of minutes
   *           Precondition: m ≥ 0
   */
  public void advance(int h, int m)
  {
    hours = hours + h;
    minutes = minutes + m;
    /* missing code */
  }
  // Other methods not shown
```

22. Which of the following can be used to replace / * *missing code* * / so that advance will correctly update the time?

(A) minutes = minutes % 60;

(B) minutes = minutes + hours % 60;

(C) hours = hours + minutes / 60;
minutes = minutes % 60;

(D) hours = hours + minutes % 60;
minutes = minutes / 60;

(E) hours = hours + minutes / 60;

Practice Quiz 4

23. Consider the following code segment.

```
for (int j = 1; j < 10; j += 2)
{
System.out.print(j);
}
```

Which of the following code segments will produce the same output as the code segment above?

Practice Quiz 4

(A)
```
int j = 1;
while (j < 10)
{
j += 2;
System.out.print(j);
}
```

(B)
```
int j = 1;
while (j < 10)
{
System.out.print(j);
j += 2;
}
```

(C)
```
int j = 1;
while (j <= 10)
{
j += 2;
System.out.print(j);
}
```

(D)
```
int j = 1;
while (j >= 10)
{
j += 2;
System.out.print(j);
}
```

(E)
```
int j = 1;
while (j >= 10)
{
System.out.print(j);
j += 2;
}
```

Practice Quiz 4

24. Consider the following class.

```
public class WindTurbine
{
private double efficiencyRating;
public WindTurbine()
{
efficiencyRating = 0.0;
}
public WindTurbine(double e)
{
efficiencyRating = e;
}
}
```

Which of the following code segments, when placed in a method in a class other than WindTurbine, will construct a WindTurbine object wt with an efficiencyRating of 0.25 ?

(A) `WindTurbine wt = new WindTurbine(0.25);`

(B) `WindTurbine wt = 0.25;`

(C) `WindTurbine wt = new WindTurbine(); wt = 0.25;`

(D) `WindTurbine wt = new WindTurbine();wt.efficiencyRating = 0.25;`

(E) `new WindTurbine wt = 0.25;`