

Note: Correct responses are based on Java, J2sdk v 5.0, from Sun Microsystems, Inc. All provided code segments are intended to be syntactically correct, unless otherwise stated (i. e. `error` is an answer choice) and any necessary Java 2 Standard Packages have been imported. Ignore any typographical errors and assume any undefined variables are defined as used.

QUESTION 1	
$11011_2 + 11101_2 =$ A. 22112_2 B. 111011_2 C. 110010_2 D. 110110_2 E. 111000_2	
QUESTION 2	
What is the output? A. 1.0 B. 1.05 C. 1.5 D. 23.25 E. division by zero error	<pre>int x = 21, y = 4; double z = 5; z = x / y / z; out.println(x);</pre>
QUESTION 3	
What is the output? A. 6 B. 3 C. 6.0 D. 3.0 E. compile error	<pre>int x = 27, y = 4; double z = .5; z = x % y / z; out.println(z);</pre>
QUESTION 4	
What is the output if the initial value of <code>int x</code> is 5? A. 6 B. 5 C. 4 D. 8 E. 7	<pre>if(x < 5) x++; else x--; x+=2; out.println(x);</pre>
QUESTION 5	
What is the output? A. 1 B. 14 C. 9 D. 10 E. 0	<pre>String s = "COMPUTER SCIENCE"; out.println(s.indexOf("C"));</pre>
QUESTION 6	
What is the output? A. 20 B. 10 C. D. 15 E. 8	<pre>int i, j = 0; for(i = 0; i < 5; i++) j += i; System.out.println(i+j);</pre>
QUESTION 7	
What is the output? A. UIL123123 B. 123123UIL C. UIL123UIL D. 123UILUIL E. UILUILUIL	<pre>String s = "UIL", t = "123", w; w = s; s = t; t = w; out.println(w + s + t);</pre>
QUESTION 8	
What is the output? A. 9.5 B. 54.5 C. 9.50 D. 5 + 4.50 E. 54.50	<pre>int x = 5; double y = 4.5; out.printf("%d + %.2f", x, y);</pre>
QUESTION 9	
How many <code>*</code> 's will be printed by this code segment? A. 12 B. 15 C. 16 D. 20 E. 24	<pre>for(int i = 1; i < 5; i++) for(int j = 1; j < 4; j++) out.print("*");</pre>
QUESTION 10	
What is the output? A. 28 B. 30 C. 24 D. 26 E. 24	<pre>out.println(14 + 014);</pre>

<p>QUESTION 11</p> <p>What will be the value of <code>j</code> after this code segment executes if: <code>n = 8</code> and <code>j</code> is not modified in the loop body?</p> <p>A. 32 B. 64 C. 7 D. 8 E. 0</p>	<pre>int n, i=0, j=0; for(i = 1; i < n; i++) for(j = 0; j < i; j++) { //do something }</pre>
<p>QUESTION 12</p> <p>What is the Big-O for this algorithm? Choose the smallest correct answer.</p> <p>A. $O(1)$ B. $O(n)$ C. $O(\log n)$ D. $O(2^n)$ E. $O(n^2)$</p>	
<p>QUESTION 13</p> <p>What is the output?</p> <p>A. 22 B. 20 C. 18 D. 10 E. 30</p>	<pre>out.println(20 10);</pre>
<p>QUESTION 14</p> <p>What is the output of the code segment to the right?</p> <p>A. true 5 L B. false 5 RSH C. true 5 RSH D. false 4 L E. true 4 L</p>	<pre>String s = "UIL SCHOLARSHIPS"; String t[] = s.split("[AIO]"); out.print(s.matches(".*I.*L.*")); out.print(" " + t.length); out.println(" " + t[3]);</pre>
<p>QUESTION 15</p> <p>After this code segment is executed, what is the value of <code>m[3][1]</code>?</p> <p>A. 4 B. 12 C. 10 D. 0 E. 11</p>	<pre>int [][] m = new int[4][3]; int x = 1; for(int i=0; i<m.length; i++) { x++; for(int j=0; j<m.length; j+=2) m[i][j] = x++; } out.println(x);</pre>
<p>QUESTION 16</p> <p>After this code segment is executed, what is the value of <code>m[1][2]</code>?</p> <p>A. 6 B. 9 C. 8 D. 0 E. 7</p>	
<p>QUESTION 17</p> <p>What is the output?</p> <p>A. 8 B. 9 C. 12 D. 13 E. 16</p>	
<p>QUESTION 18</p> <p>What is the output?</p> <p>A. true B. #1TEXAS C. false D. TE#1XAS E. TEX#1AS</p>	<pre>StringBuffer sb = new StringBuffer("TEXAS"); out.println(sb.insert(3, "#1"));</pre>
<p>QUESTION 19</p> <p>What is the output?</p> <p>A. 3 6 B. 3 5 C. 2 6 D. 3 6 E. 3 6</p>	<pre>int a = 0, count = 0; while (count < 5) { if(count % 2 == 0) a++; count++; } out.println(a + " " + count);</pre>
<p>QUESTION 20</p> <p>What is the output?</p> <p>A. 7 B. 6 C. 4 D. 9 E. -1</p>	<pre>int []a = {5,8,-4,9,2,0,4,-1}; a[2] = 6; Arrays.sort(a); a[2] = 7; out.println(a[3]);</pre>

<p>QUESTION 21</p> <p>Which could replace <code>< *1 ></code> without an exception being thrown?</p> <p>A. <code>Integer.parseInt(s);</code> B. <code>s.toValue();</code> C. <code>Double.parseDouble(s);</code> D. A and B only E. A and C only</p>	<pre>String s = "2006"; int x = < *1 ></pre>
<p>QUESTION 22</p> <p>What is returned by the method call <code>fun1(6)</code>?</p> <p>A. 21 B. 22 C. 2 D. 24 E. 23</p>	<pre>public int fun1(int x) { if(x > 0) return x + fun1(x-1); else return 2; }</pre>
<p>QUESTION 23</p> <p>What is the output?</p> <p>A. 246 B. 135 C. 024 D. 01234 E. 12345</p>	<pre>for(int i = 0; i < 5; i++) out.print(++i);</pre>
<p>QUESTION 24</p> <p>Which could replace <code>< *1 ></code> without error?</p> <p>A. byte B. double C. Double D. exactly two of these E. any of these</p>	<pre>int x = 85; < *1 > y = x;</pre>
<p>QUESTION 25</p> <p>For what value of <code>size</code> would this code segment successfully assign each element of array <code>array</code> a non-zero value?</p> <p>A. 25 B. 50 C. 45 D. 20 E. 30</p>	<pre>int k = 0, size; int [] array = new int[size]; for(int i = 5; i < 10; i++) for(int j = 0; j < 5; j++) array[k++] = i + j;</pre>
<p>QUESTION 26</p> <p>Assume <code>size</code> is the correct value. What is the value of <code>a[12]</code>?</p> <p>A. 7 B. 9 C. 12 D. 14 E. 16</p>	
<p>QUESTION 27</p> <p>What is the output?</p> <p>A. 100 20 B. 100 21 C. 105 21 D. 95 20 E. 105 20</p>	<pre>int x = 0, count = 0; do { x += 5; count++; } while(x <= 100); out.println(x + " " + count);</pre>
<p>QUESTION 28</p> <p>What is the output?</p> <p>A. 4 3 B. true 3 C. false 3 D. true 2 E. RuntimeException is thrown</p>	<pre>Set<Integer> s = new TreeSet<Integer>(); s.add(5); s.add(4); s.add(5); s.add(3); out.print(s.remove(4) + " "); out.print(s.size());</pre>
<p>QUESTION 29</p> <p>What is the output?</p> <p>A. 4 5 7 3 2 B. 4 9 5 7 3 8 2 C. 7 8 9 D. 9 7 8 E. 9 8</p>	<pre>int a[] = {4,9,5,7,3,8,2}; for(int i : a) if(i > a.length) out.print(i + " ");</pre>

QUESTION 30

What is the output from line 1?

- A. [Nina, Pinta, Santa Maria, Bar None]
- B. [Nina, Pinta, Santa, Bar]
- C. [Bar None, Nina, Pinta, Santa Maria]
- D. [Bar, Nina, Pinta, Santa]
- E. the address where ArrayList ships is stored

QUESTION 31

What is the output from line 2?

- A. Spirit Pinta Santa Maria Bar None
- B. Pinta Santa Maria Bar None Spirit
- C. Pinta Santa Maria Bar None
- D. Bar None Pinta Santa Maria Spirit
- E. Nina Pinta Santa Maria Bar None Spirit

QUESTION 32

What is the output from line 3?

- A. Spirit Nina Pinta Santa Maria Bar None
- B. Nina Spirit Pinta Santa Maria Bar None
- C. Nina Santa Maria Bar None Spirit
- D. Bar None Nina Santa Maria Spirit
- E. Nina Pinta Santa Maria Bar None Spirit

QUESTION 33

Which call to f would result in a return value of 3?

- A. f(2, 2, 3) B. f(2, 2, 2)
- C. f(2, 3, 3) D. f(1, 2, 3)
- E. f(3, 2, 3)

QUESTION 34

Which call to f would result in a return value of 1?

- A. f(2, 2, 3) B. f(2, 2, 2)
- C. f(2, 3, 3) D. f(1, 2, 3)
- E. f(3, 2, 3)

QUESTION 35

Which of these method calls will return true?

- A. g(4) B. g(-9)
- C. g(12) D. g(150) E. more than one of these

QUESTION 36

Method g returns true only when n is:

- A. even B. positive
- C. negative D. divisible by 10 E. odd

```
ArrayList<String> ships = new
                        ArrayList<String>();
ships.add("Nina");
ships.add("Pinta");
ships.add("Santa Maria");
ships.add("Bar None");
ListIterator<String> it =
                        ships.listIterator();
if (it.next().equals("Pinta"))
    it.remove();

out.println(ships);           // line 1

it.add("Spirit");

while (it.hasNext())
    out.print(it.next()+" "); // line 2

out.println();

for(Object i : ships)
    out.print(i + " ");      // line 3
```

```
public static int f(int x,int y, int z) {
    if(x == y)
        if(x == z)
            return 1;
        else
            return 2;
    else if(x == z)
        return 3;
    else if(y == z)
        return 4;
    else
        return 5;
}
```

```
public static boolean g(int n)
{
    switch(n%2) {
        case 0: return (n%5 == 0);
        case 1: return false;
        default: return false;
    }
}
```

QUESTION 37

For the variables to the right, which statement will evaluate to false?

- A. `s.compareTo(r)>0 && s.compareTo(t)>0`
- B. `r.compareTo(s)<0 && t.compareTo(s)<0`
- C. `r.compareTo(s)>0 && t.compareTo(s)>0`
- D. `s.compareTo(r)>0 && r.compareTo(t)<0`
- E. more than one of these

```
String r = "October";
String s = "october";
String t = "oct";
```

QUESTION 38

What is the expected running time of the `add` method to the right? Choose the smallest correct answer.

- A. $O(n \log_2 n)$
- B. $O(n^2)$
- C. $O(\log_2 n)$
- D. $O(n)$
- E. $O(1)$

```
TreeSet<String> t = new TreeSet<String>();
t.add("Big O");
```

QUESTION 39

Which of the following would correctly replace **<*1>** so that this constructor initializes the instance variable `a` to 7?

- A. `super(7);`
- B. `new A(7);`
- C. `super(new Integer(7));`
- D. `super.a(7);`
- E. more than one of these

```
public abstract class A {
    private int a;
    public A(int x) {
        a = x;
    }
    public String toString() {
        return "A = " + a;
    }
    public abstract void fun();
}
```

QUESTION 40

Assume **<*1>** was filled correctly. What must be true for class C?

- A. it must overload the method `toString`
- B. it must override the method `toString`
- C. it must overload the method `fun`
- D. it must override the method `fun`
- E. more than one of these

```
-----
public class C extends A {
    public C() {
        <*1>
    }

    //rest of class not shown
}
```