

Note: Correct responses are based on Java, **J2sdk v 1.8.x**, 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. **For all output statements, assume that the `System` class has been statically imported...** `import static java.lang.System.*;`

**QUESTION 1**

What is  $0110_2 + 1001_2$  ?

- A.  $27_{10}$                       B.  $16_{10}$                       C.  $15_2$                       D.  $15_{10}$                       E.  $0110_2$

**QUESTION 2**

What is output by the code to the right?

- A. 10              B. 7              C. 6              D. 9              E. 3

```
out.println( 3 + 2 * 2 );
```

**QUESTION 3**

What is output by the code to the right?

- A. `UIL\tis\tfun!`  
 B. `UIL`  
    `is`  
    `fun!`  
 C. `UIL`    `is`  
      `fun!`  
 D. `UIL`    `is`    `fun!`  
 E. No output due to error

```
out.println( "UIL\tis\tfun!" );
```

**QUESTION 4**

What is output by the code to the right?

- A. `alo`        B. `aa`        C. `loh`        D. `loa`  
 E. No output due to error

```
String a="aloha";
String b=a.substring(0,1);
String c=a.substring(a.length()-1);
out.println(b+c);
```

**QUESTION 5**

What is output by the code to the right?

- A. `true`        B. `false`

```
boolean a = true;
boolean b = true;
boolean c = false;

out.println( a || b && c || a );
```

**QUESTION 6**

What is output by the code to the right?

- A. 8              B. 4.0        C. 8.0        D. 4              E. 23

```
out.println( Math.pow( 2, 3 ) );
```

**QUESTION 7**

What is output by the code to the right?

- A. 13.5        B. 13        C. 13.0        D. 14.5        E. 14.0

```
int x = 13;
double y = 15;
out.print( x / 2 + y / 2 );
```

**QUESTION 8**

What is output by the code to the right?

- A. `HiThere`                      B. `HiBusterJoe`  
 C. `HiThereJoe`                      D. `Joe`  
 E. `Hi`

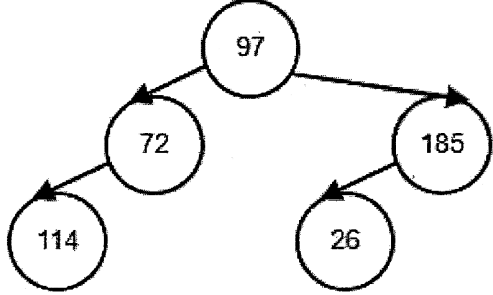
```
int x = 12;
if ( x % 3 == 0 ) {
    out.print( "Hi" );
} else if ( x % 2 == 0 ) {
    out.print( "There" );
} else if ( x % 5 == 0 ) {
    out.print( "Buster" );
}
```

<p><b>QUESTION 9</b></p> <p>What is output by the code to the right?</p> <p>A. 12481632                      B. 1248163264128 C. xxxxxxxx                      D. 1248163264 E. No output due to infinite loop</p>	<pre>for ( int x = 1; x &lt; 100; x += x ) {     out.print( x ); }</pre>
<p><b>QUESTION 10</b></p> <p>What is output by the code to the right?</p> <p>A. 5              B. 7              C. 2              D. 1              E. 3</p>	<pre>int[] x = { 7, 2, 1, 5, 3 }; out.print(x[x.length-1]);</pre>
<p><b>QUESTION 11</b></p> <p>What is output by the code to the right?</p> <p>A. 15177    B. 9              C. 21              D. 14              E. 20</p>	<pre>int x = 0; Scanner s=new Scanner("1 5 1 7 7"); while ( s.hasNextInt() ) {     x += s.nextInt(); } out.println( x );</pre>
<p><b>QUESTION 12</b></p> <p>What is output by the code to the right?</p> <p>A. 31              B. 40              C. 19              D. 36              E. 15</p>	<pre>int y = 0; int x = 0; while ( x &lt; 5 ) {     x++;     y += x; } out.println( y );</pre>
<p><b>QUESTION 13</b></p> <p>What is output by the code to the right?</p> <p>A. 37              B. 45              C. 44              D. 99              E. 0</p>	<pre>int[] n = {1,3,5,7,9,2,4,6,8}; int s = 0; for ( int x : n ) {     s += x; } out.println( s );</pre>
<p><b>QUESTION 14</b></p> <p>Which of the following is the smallest value?</p> <p>A. Short.MAX_VALUE    B. Long.MAX_VALUE    C. Integer.MAX_VALUE;    D. Byte.MAX_VALUE E. More than one of these</p>	
<p><b>QUESTION 15</b></p> <p>What is output by the code to the right?</p> <p>A. [2.5,1.5,1.12,1.0]    B. [1.0,1.12,1.5,2.5] C. [1.5,1.0,2.5,1.12]    D. [1.12,2.5,1.0,1.5] E. [2.5,1.5,1.12]</p>	<pre>ArrayList&lt;Double&gt; nums = new ArrayList&lt;&gt;(); nums.add( 1.5 ); nums.add( 0, 1.0 ); nums.add( 2.5 ); nums.add( 1.12 ); Collections.sort( nums ); Collections.reverse( nums ); System.out.println( nums );</pre>
<p><b>QUESTION 16</b></p> <p>What is output by the code to the right?</p> <p>A. 45              B. 20              C. 25              D. 12              E. 18</p>	<pre>int[][] m={{1,2,3},{4,5,6},{7,8,9}}; int s = 0; for ( int[] r : m ) {     for ( int c : r ) {         if ( c % 2 == 0 ) {             s += c;         }     } } out.println( s );</pre>

<b>QUESTION 17</b> What is output by the code to the right? A. a-1      B. a-2      C. a-3      D. -4      E. a-4	<pre>String s = "abcabcabcabc"; String[] sp = s.split( "bc" ); out.print(sp[0]+"-"+sp.length );</pre>
<b>QUESTION 18</b> What is output by the code to the right? A. UIL      B. UUIUIL C. UILILL      D. UILIU E. UILUIL	<pre>String a = "UIL"; String b = ""; int w = 0; while ( w &lt; a.length() ) {     b += a.substring( w );     w++; } out.println( b );</pre>
<b>QUESTION 19</b> What is output by the code to the right? A. 27      B. 2      C. 4      D. 3      E. 9	<pre>public int recur( int i ) {     if ( i &gt; 9 ) {         return 3;     }     return recur( i + 3 ); } // Client Code out.println( recur( 2 ) );</pre>
<b>QUESTION 20</b> What is output by the code to the right? A. 17      B. -1      C. -17      D. 1.25      E. 0	<pre>out.println( Math.abs( -17 ) * -1 );</pre>
<b>QUESTION 21</b> What is output by the code to the right? A. dc      B. d      C. Adc      D. dcA      E. cdA	<pre>class A {     public A() {         System.out.print( "A" );     }     public void c() {         System.out.print( "c" );     } }  class B extends A {     public void c() {         System.out.print( "d" );         super.c();     } }  // Client Code A b = new B(); b.c();</pre>
<b>QUESTION 22</b> What is output by the code to the right? A. 1      B. 2      C. 0      D. 3      E. 4	<pre>int[] x = {1,2,0,2,3,4,1,0}; int y=x.length; System.out.print(x[x[x[x[x[y-1]]]]]);</pre>
<b>QUESTION 23</b> What is output by the code to the right? A. 1272      B. 1278      C. 102      D. 1542      E. 100	<pre>int x = 1272; x  = 102; System.out.println( x );</pre>
<b>QUESTION 24</b> What is output by the code to the right? A. 5      B. Hi5      C. HiHi5 D. HiHi6      E. HiHiHi6	<pre>int z = 5; if ( z-- &gt; 6 &amp;&amp; --z &lt;= 6    ++z &gt; 4 ) {     out.print( "Hi" ); } out.print( z );</pre>

<p><b>QUESTION 25</b></p> <p>What is output by the code to the right?</p> <p>A. 112      B. 733      C. 988      D. 122      E. 987</p>	<pre> PriorityQueue pq = new PriorityQueue(); for(int i:new int[]{7,3,5,8,9,2, 2,1, 4}){     pq.add( i ); } System.out.print( pq.poll() ); System.out.print( pq.poll() ); System.out.print( pq.peek() ); </pre>
<p><b>QUESTION 26</b></p> <p>What is output by the code to the right?</p> <p>A. A      B. b      C. B      D. a      E. 1</p>	<pre> List&lt;String&gt; s = new ArrayList&lt;&gt;( Arrays.asList(new String[]{     "A", "b", "B", "a", "1" } ) ); Collections.sort(s); System.out.print(s.get(3)); </pre>
<p><b>QUESTION 27</b></p> <p>For which of the following strings would the code to the right print true?</p> <p>A. c:\autoexec.bat  B. c:\windows\system32  C. c:/windows/system32/  D. c:\windows/system32  E. More than one of these</p>	<pre> String x = ??; boolean b = x.matches(".*[\\/]"); out.print(b); </pre>
<p><b>QUESTION 28</b></p> <p>What is output by the code to the right?</p> <p>A. 3-6-9-12-15      B. 3-6-9-12-15-18  C. 3-6-9-12-15-      D. 3-6-9-12-15-18-  E. 6-6-12-15-</p>	<pre> int x = 3; do {     if ( x % 3 == 2 ) {         x += 4;     }     out.print( x + "-" ); } while ( x-- &lt; 15 ); </pre>
<p><b>QUESTION 29</b></p> <p>What is output by the code to the right?</p> <p>A. aaeeio  B. aeiou  C. iaoeia  D. iaaoee  E. hitherebobandralph</p>	<pre> class E implements Comparable&lt;E&gt; {     private String e;     public E( String e ) {         this.e = e.replaceAll(             "[^aeiou]", "" );     }     public int compareTo( E o ) {         return e.length() - o.e.length();     }     public String toString() {         return e;     } }  // Client Code String[] w = { "hi", "there", "bob", "and", "ralph" }; PriorityQueue&lt;E&gt; pq = new PriorityQueue&lt;&gt;() { {     for ( String s : w )         add( new E( s ) ); }}; while ( !pq.isEmpty() )     out.print( pq.poll() ); </pre>

[illegible]

<p><b>QUESTION 38</b></p> <p>What is output by the code to the right?</p> <p>A. anotherhithiswhatever  B. elseonemethere  C. theremeoneelse  D. hithisanotherwhatever  E. thereonemeelse</p>	<pre>Map&lt;String, String&gt; m = new LinkedHashMap&lt;&gt;(); m.put("hi", "there"); m.put("this", "me"); m.put("another", "one"); m.put("whatever", "else"); for (String s: m.keySet())     out.print(m.get(s));</pre>
<p><b>QUESTION 39</b></p> <p><i>OPEN ENDED QUESTION – Solve the problem below and write your answer on your answer sheet <b>correctly labeled</b>, or if using a ScanTron form, out to the side of the bubbles, also <b>correctly labeled</b></i></p> <p>What is the post-order traversal of the binary tree to the right?</p>	 <pre> graph TD     97((97)) --&gt; 72((72))     97 --&gt; 185((185))     72 --&gt; 114((114))     185 --&gt; 26((26))     </pre>
<p><b>QUESTION 40</b></p> <p><i>OPEN ENDED QUESTION – Solve the problem below and write your answer on your answer sheet <b>correctly labeled</b>, or if using a ScanTron form, out to the side of the bubbles, also <b>correctly labeled</b></i></p> <p>What is the 2s complement of -27?</p>	