

Note: Correct responses are based on Java, J2sdk v 7.0, 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

What is 123_8 minus 22_{16} ?

- A. 110001_2 B. 110000_2 C. 11001_2 D. 101001_2 E. 110101_2

QUESTION 2

What is output by the code to the right?

- A. 22 B. 12 C. 10 D. 24 E. 20

```
int x = 5;
int y = x + 5;
x = y + 2;
System.out.println(x+y);
```

QUESTION 3

What is output by the code to the right?

- A. 13 B. 25 C. 23 D. 24 E. 20

```
int x = 12;
x += x++;
System.out.println(x);
```

QUESTION 4

What is output by the code to the right?

- A. 6 B. 5 C. 4 D. 7 E. 0

```
int num = 1;
for(int i=0; i<5; i++) {
    num += 1;
}
System.out.println(num);
```

QUESTION 5

What is output by the code to the right?

- A. 0 B. 6 C. 5 D. 3 E. 4

```
String str = "stuff stuff";
int num = str.lastIndexOf("st");
System.out.println(num);
```

QUESTION 6

What is output by the code to the right?

- A. 0 B. 3 C. 8 D. 5
E. There is no output due to a syntax error.

```
int[] nums = new int[5];
int val = nums[0]+nums[nums.length-2];
val += nums.length;
System.out.println(val);
```

QUESTION 7

What is output by the code to the right?

- A. res B. false C. 1 D. 0 E. true

```
boolean val = false;
boolean val2 = false;
boolean val3 = true;
boolean res = val | val2 ^ val3;
System.out.println(res);
```

QUESTION 8

What is output by the code to the right?

- A. two B. four C. one D. three
E. There is no output due to a syntax error.

```
PrintStream o = System.out;
int num = 2;
if(num > 2)
    if(num < 1)
        o.print("two");
    else
        o.print("three");
else
    o.print("four");
```

<p>QUESTION 9</p> <p>What is output by the code to the right?</p> <p>A. 12.5 B. 12.0 C. 13.5 D. 13 E. 12</p>	<pre>double num = 5 * 2.5; System.out.println(num);</pre>
<p>QUESTION 10</p> <p>What is output by the code to the right?</p> <p>A. hello B. 0x2343532 C. The output cannot be determined at this time. D. There is no output due to a syntax error. E. There is no output due to a runtime error.</p>	<pre>Object thing = "hello"; System.out.println(""+thing);</pre>
<p>QUESTION 11</p> <p>What is output by the code to the right?</p> <p>A. -2 B. -1 C. 2 D. 1 E. 0</p>	<pre>int num = (int)Math.floor(-1.3); System.out.println(num);</pre>
<p>QUESTION 12</p> <p>What is output by the code to the right?</p> <p>A. (25.30) B. -25.30 C. 25.304 D. -25.304 E. There is no output due to a runtime error.</p>	<pre>System.out.printf("%.2f\n", -25.304);</pre>
<p>QUESTION 13</p> <p>What is output by the code to the right?</p> <p>A. thin\ng B. thin g C. thi g D. thin\ng E. There is no output due to a syntax error.</p>	<pre>System.out.println("thin\\ng");</pre>
<p>QUESTION 14</p> <p>What is output by the code to the right?</p> <p>A. 1 B. 2 C. 3 D. There is no output due to a syntax error. E. There is no output due to a runtime error.</p>	<pre>int[][] things; things = new int[][]{{1},{2,3}}; System.out.println(things.length);</pre>
<p>QUESTION 15</p> <p>What is output by the code to the right?</p> <p>A. -1012345 B. -101234 C. 012345 D. 01234 E. -10123</p>	<pre>for(int i=-1; i<=5; i++) { System.out.print(i); }</pre>

<p>QUESTION 16</p> <p>What is output by the code to the right?</p> <p>A. o B. 1 C. hel D. e</p> <p>E. There is no output due to a runtime error.</p>	<pre>String str = "hello"; int in = str.indexOf("l"); str = str.substring(in+2, in+3); System.out.println(str);</pre>
<p>QUESTION 17</p> <p>What is output by the code to the right?</p> <p>A. 0.0 B. 0 C. 5.0</p> <p>D. There is no output due to a syntax error.</p> <p>E. There is no output due to a runtime error.</p>	<pre>double num = 5 & 2.0; System.out.println(num);</pre>
<p>QUESTION 18</p> <p>What is output by the code to the right?</p> <p>A. false B. true C. 1 D. 0</p> <p>E. There is no output due to a runtime error.</p>	<pre>boolean tr = true; boolean fa = false; boolean trfa = tr fa; boolean trfafa = trfa && fa; System.out.println(trfafa);</pre>
<p>QUESTION 19</p> <p>What is output by the code to the right?</p> <p>A. [2, 1] B. [1, 1] C. [2, 1, 1]</p> <p>D. There is no output due to a syntax error.</p> <p>E. There is no output due to a runtime error.</p>	<pre>Integer four = 4; ArrayList<Integer> list; list = new ArrayList<Integer>(); list.add(2); list.add(1); list.add(1); list.remove(2); list.remove(four); System.out.println(list);</pre>
<p>QUESTION 20</p> <p>What is output by the code to the right?</p> <p>A. 2 B. 0 C. 12 D. 122 E. 22</p>	<pre>int num = 122; int num2 = num % 10 int num3 = num2 % 2; System.out.println(num2+num3);</pre>
<p>QUESTION 21</p> <p>What is output by the code to the right?</p> <p>A. 30272421</p> <p>B. 300270240210180</p> <p>C. 270240210</p> <p>D. 270240210180</p> <p>E. 300270240210</p>	<pre>int num = 300; while(num/10>20) { System.out.print(num); num -= 30; }</pre>

QUESTION 22

What is returned by the method call `method("234")`?

- A. 34 B. 234 C. 0
 D. There is no output due to a syntax error.
 E. There is no output due to a runtime error.

```
public int method(String par)
{
    if(par.matches("\\d+")) {
        return Integer.parseInt(par);
    } else {
        return -2;
    }
}
```

QUESTION 23

What is returned by the method call `method("-3")`?

- A. -3 B. -2 C. 0
 D. There is no output due to a syntax error.
 E. There is no output due to a runtime error.

QUESTION 24

What is output by the line marked `//1` in the client code to the right?

- A. 5 B. 0 C. ""5 D. 6 E. -1

```
class A {
    private int a;
    public A() {
        a = 0;
    }
    public A(int n) {
        a = n+1;
    }
    public String toString() {
        return ""+a;
    }
}
```

QUESTION 25

What is output by the line marked `//2` in the client code to the right?

- A. 48 B. 38 C. 58 D. 25 E. 94

```
class B extends A {
    private int b;
    public B() {
        super(1);
        b = 1;
    }
    public B(int n) {
        super(n*2);
        b = n;
    }
    public String toString() {
        return super.toString()+b;
    }
}
```

QUESTION 26

What is output by the line marked `//3` in the client code to the right?

- A. 2346 B. 4723 C. 4623
 D. There is no output due to a syntax error.
 E. There is no output due to a runtime error.

```
////////////////////////////////////
//client code
A a = new A(5);
System.out.println(a); //1

B b = new B(4);
System.out.println(b); //2

a = new B(23);
System.out.println(a); //3
```

QUESTION 27

What is output by the line marked **//1** in the client code to the right?

- A. 39 B. 20 C. 10 D. 16
E. There is no output due to a runtime error.

```
int[][] nums;
nums = new int[][] {
    {1,2,3},{3,4,5},
    {6,7,8}
};
int thing = 0;
int c = 0;
for(int i=0; i<nums.length; i++) {
    for(int j=2; j>i; j--) {
        thing += nums[j][i];
        c += 2;
    }
}
System.out.println(thing); //1
System.out.println(c); //2
```

QUESTION 28

What is output by the line marked **//2** in the client code to the right?

- A. 3 B. 6 C. 4 D. 8
E. There is no output due to a runtime error.

```
public int rec(String s) {
    if(s.matches("\\d+")) {
        return Integer.parseInt(s);
    }
    if(s.matches("\\d+\\+\\d+")) {
        int p = s.indexOf("+");
        return rec(s.substring(0,p))+
            rec(s.substring(p+1));
    }
    return -rec(s.substring(1));
}
```

QUESTION 29

What is returned by the method call `rec("-56")`?

- A. -56 B. 56 C. 0 D. -5
E. There is no output due to a runtime error.

QUESTION 30

What is returned by the method call `rec("-1+12")`?

- A. 11 B. -11 C. 12 D. -12 E. -13

QUESTION 31

What is output by the code to the right?

- A. -17 B. 22 C. 16
D. There is no output due to a syntax error.
E. There is no output due to a runtime error.

```
int ne1 = Integer.parseInt("2e1", 15);
int cha = Integer.parseInt("101", 2);
int lah = Integer.parseInt("7", 20);
int gah = Integer.parseInt("33", 4);
System.out.println(cha-lah-gah);
```

QUESTION 32

The preorder traversal of a binary search tree is shown below:

1 2 3 4 5 6

Which of the following would the postorder traversal of this binary search tree be?

- A. 2 1 3 5 4 6
B. 6 5 4 3 2 1
C. 6 5 4 2 3 1
D. 5 6 4 3 2 1
E. 4 5 6 1 2 3

QUESTION 33

What is output by the line marked **//1** in the client code to the right?

- A. [three, two, one]
- B. [three,two,one]
- C. [one, two, three]
- D. []
- E. There is no visible output.

```
Stack<String> st;
st = new Stack<String>();
Queue<String> q;
q = new LinkedList<String>();
st.push("one");
st.push("two");
st.push("three");
String str = "";
String str2 = "";
while(!st.isEmpty()) {
    str += ""+q.add(st.pop());
}
while(!q.isEmpty()) {
    str2 += ""+q.remove();
}
System.out.println(st);    //1
System.out.println(str);  //2
System.out.println(str2); //3
```

QUESTION 34

What is output by the line marked **//2** in the client code to the right?

- A. threetwoone
- B. onetwothree
- C. true>true>true
- D. onetwo
- E. There is no visible output.

```
System.out.println(st);    //1
System.out.println(str);  //2
System.out.println(str2); //3
```

QUESTION 35

What is output by the line marked **//3** in the client code to the right?

- A. onetwothree
- B. one
- C. twothree
- D. threetwoone
- E. oneoneone

QUESTION 36

What is output by the line marked **//1** in the client code to the right?

- A. onetwothree
- B. 123
- C. oneoneone
- D. threetwoone
- E. threethreethree

```
Map<Integer, String> map;
map = new TreeMap<Integer, String>();
map.put(1,"one");
map.put(2,"two");
map.put(3,"three");
int num = 123;
String str = "";
while(num>0) {
    str += map.get(num%10);
    num /= 10;
}
System.out.println(str); //1
num = 1234;
str = "";
while(num>0) {
    str += map.get(num%10);
    num /= 10;
}
System.out.println(str); //2
```

QUESTION 37

What is output by the line marked **//2** in the client code to the right?

- A. onetwothree
- B. threetwoone
- C. nullthreetwoone
- D. onetwothreenull
- E. There is no output due to a runtime error.

<p>QUESTION 38</p> <p>What is output by the code to the right?</p> <p>A. 0 B. 20 C. 4 D. 12</p> <p>E. There is no output due to a syntax error.</p>	<pre>System.out.println(5&4 3<<2);</pre>
<p>QUESTION 39</p> <p>What is output by the line marked //1 in the client code to the right?</p> <p>A. abcddeffghijkl</p> <p>B. aaaaaaaaaaaaaa</p> <p>C. acdfgik</p> <p>D. abcaeaghiijkl</p> <p>E. aaaaaaa</p>	<pre>String str = "abcddeffghijkl"; String str2 = str.replaceAll("[a-z]{2,2}", "a"); String str3 = str.replaceAll("(dd a f)", "b");</pre>
<p>QUESTION 40</p> <p>What is output by the line marked //2 in the client code to the right?</p> <p>A. abcddeffghijkl</p> <p>B. acdfgik</p> <p>C. abcaeaghiijkl</p> <p>D. bcdebghijkl</p> <p>E. bbcbebbghijkl</p>	<pre>System.out.println(str2); //1 System.out.println(str3); //2</pre>