

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.

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| QUESTION 1 | |
| $1111_2 + 10100_2 = ?$ A. 110010_2 B. 101101_2 C. 111111_2 D. 111000_2 E. 100011_2 | |
| QUESTION 2 | |
| What is output by the code to the right? A. i B. t C. it D. ti E. tt | <code>out.println("it");</code> |
| QUESTION 3 | |
| What is output by the code to the right? A. 9 B. 10 C. 11 D. intOne E. One | <code>int frodo=9;</code> <code>out.println(frodo);</code> |
| QUESTION 4 | |
| What is output by the code to the right? A. 5 B. 3 C. 8 D. 2 E. error | <code>int intOne=5;</code> <code>byte byteOne=3;</code> <code>intOne=byteOne;</code> <code>out.println(intOne);</code> |
| QUESTION 5 | |
| What is output by the code to the right? A. 0 B. 65 C. 48 D. 97 E. 122 | <code>int sam='0';</code> <code>out.println(sam);</code> |
| QUESTION 6 | |
| What is output by the code to the right? A. 9 B. 24 C. 14 D. 8 E. 11 | <code>int ben=3*3+5;</code> <code>out.println(ben);</code> |
| QUESTION 7 | |
| What is output by the code to the right? A. p B. l C. u D. s E. c | <code>String best="aplusccompsci";</code> <code>out.println(best.charAt(4));</code> |
| QUESTION 8 | |
| What is output by the code to the right? A. 5 B. 6 C. 10 D. 11 E. -1 | <code>String champs="aplusccompsci";</code> <code>out.println(champs.lastIndexOf('c'));</code> |
| QUESTION 9 | |
| What is output by the code to the right? A. 32 B. 32.0 C. 33 D. 33.0 E. 32.5 | <code>double decOne=(double)'A'/2;</code> <code>out.println(decOne);</code> |
| QUESTION 10 | |
| What is output by the code to the right? A. if B. go C. goif D. ifgo E. gogo | <code>String word="aplusccompsci";</code> <code>if(word.length()>12)</code> <code>out.print("if");</code> <code>out.print("go");</code> |
| QUESTION 11 | |
| What is returned by the call <code>fun(4)</code> ? A. 4 B. 3 C. x3 D. 12 E. 16 | <code>public static int fun(int x)</code> <code>{</code> <code>return x*3;</code> <code>}</code> |

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| <p>QUESTION 12</p> <p>What is output by the code to the right?</p> <p>A. 10 B. 11 C. 12 D. 20 E. 21</p> | <pre>byte b=10; switch(b) { case 10 : b=20; case 11 : b=21; break; case 12 : b=22; } out.println(b);</pre> |
| <p>QUESTION 13</p> <p>What is output by the code to the right?</p> <p>A. 9 B. 8 C. 72 D. 1 E. 0</p> | <pre>int cat=9; int dog=8; if(cat>5) if(dog>5) out.println(cat*dog); else if(dog>0) out.println(cat); else out.println(dog); else out.println(cat/dog);</pre> |
| <p>QUESTION 14</p> <p>How many methods does class Test contain?</p> <p>A. 0 B. 1 C. 2 D. 3 E. 4</p> | <pre>class Test{ public void out() { out.println("fun"); } }</pre> |
| <p>QUESTION 15</p> <p>How many constructor methods does class Run contain?</p> <p>A. 0 B. 1 C. 2 D. 3 E. 4</p> | <pre>class Run{ public Run() { } public void out() { out.println("fun"); } }</pre> |
| <p>QUESTION 16</p> <p>How many local variables does class Vars contain?</p> <p>A. 0 B. 1 C. 2 D. 3 E. 4</p> | <pre>class Vars{ private int num; public Vars() { num=0; } public void out() { out.println("fun"); } }</pre> |
| <p>QUESTION 17</p> <p>What is the value of i when the loop at right terminates?</p> <p>A. 8 B. 9 C. 10 D. 11 E. 12</p> | <pre>for(int i=0; i<10; i++){ out.print(i); }</pre> |
| <p>QUESTION 18</p> <p>What is output by the code to the right?</p> <p>A. 67 B. 79 C. 72 D. 87 E. 81</p> | <pre>int sum=0; for(int j=0; j<7; j++){ for(int k=0; k<7; k++){ sum+=k; } if(j%2==1) sum-=20; } out.println(sum);</pre> |
| <p>QUESTION 19</p> <p>How many times does this loop iterate?</p> <p>A. 1 B. 2 C. 3 D. 4 E. 5</p> | <pre>int z=0; do{ z=z-1; }while(z>-5);</pre> |

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| QUESTION 20 What is output by the code to the right? A. 54 B. 54.0 C. 45 D. 45.0 E. 30.0 | <pre>out.println(Math.round(5.4) * Math.pow(3,2));</pre> |
| QUESTION 21 Which of the following reserved words is used to access a parent member? A. extends B. implements C. parent D. super E. 100011 | |
| QUESTION 22 Which of the following operators multiplies by 2? A. >> B. << C. & D. E. ^ | |
| QUESTION 23 Which of the following could fill <*1>? A. Char B. Bool C. Byte D. Int E. exactly two of these | <pre>Set< <*1> > set; set = new TreeSet< <*1> >();</pre> |
| QUESTION 24 What is output by the code to the right? A. 5 B. 10 C. 3 D. 3.0 E. 3.33 | <pre>int[] intList; intList = new int[4]; intList[0]=5; intList[1]=intList[0]*2; intList[2]=intList[1]/3; out.println(intList[2]);</pre> |
| QUESTION 25 What is returned by the call whoot (7) ? A. 5040 B. 720 C. 720.0 D. 24 E. 5040.0 | <pre>static double whoot(double x){ double ans=1.0; for(double r=1; r<=x; r++) ans=ans*r; return ans; }</pre> |
| QUESTION 26 Which of the following could fill <*1>? A. public B. static C. final D. A and B E. A, B, and C | <pre>public interface Inter{ <*1> int x = 1024; }</pre> |
| QUESTION 27 What is output by line 1 ? A. X B. Y C. Z D. 0 E. U | <pre>Stack<Character> s; s=new Stack<Character>(); s.add('X'); s.add('Y'); s.add('U'); s.add('Z'); s.add('0'); out.println(s.pop()); //line 1 out.println(s); //line 2</pre> |
| QUESTION 28 What is output by line 2 ? A. [X, Y, U, Z] B. [X, Y, U] C. [0] D. [Z, U, Y, Z] E. [X, Y, U, Z, 0] | |
| QUESTION 29 What is output by the code to the right? A. 1024 B. 512 C. 256 D. 128 E. 64 | <pre>out.println(2048>>5);</pre> |

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| <p>QUESTION 30</p> <p>Which of the following could fill <*1> ?</p> <p>A. new Double(45.56); B. 524.54 C. 234 D. A and B E. A, B, and C</p> | <pre>ArrayList<Double> dList; dList = new ArrayList<Double>(); dList.add(<*1>);</pre> |
| <p>QUESTION 31</p> <p>What is output by line 1?</p> <p>A. \$ B. 7 C. W D. 6 E. &</p> | <pre>ArrayList<Character> cList; cList = new ArrayList<Character>(); cList.add('\$'); cList.add('&'); cList.add('7'); cList.add('W'); cList.add('4'); ListIterator iter; iter = cList.listIterator(); iter.next();</pre> |
| <p>QUESTION 32</p> <p>What is output by line 2?</p> <p>A. \$ B. 7 C. W D. 6 E. &</p> | <pre>iter.next(); iter.next(); iter.remove(); iter.add('6'); iter.previous(); out.println(iter.next()); //line 1 iter.set('5'); iter.next(); iter.previous(); out.println(iter.next()); //line 2</pre> |
| <p>QUESTION 33</p> <p>What is output by the code to the right?</p> <p>A. 13 B. 12 C. 11 D. 10 E. 9</p> | <pre>int quick = 9; quick++; ++quick; quick=quick++; out.println(++quick);</pre> |
| <p>QUESTION 34</p> <p>Which algorithm best describes method what?</p> <p>A. binary search B. quick sort C. linear search D. selection sort E. merge sort</p> | <pre>static int what(double[] dRay, double y) { int spot = -1, x = 0; while(x < dRay.length) { if(dRay[x++] == y) spot = x; } return spot; }</pre> |
| <p>QUESTION 35</p> <p>What is the best case run time for method what?</p> <p>A. O(N) B. O(N/2) C. O(1) D. O(log₂N) E. O(N²)</p> | |

QUESTION 36

What is returned by the call `speed(21)`?

- A. 144
- B. 120.0
- C. 121.0
- D. 144.0
- E. 121

```
static double speed(int x){
    if(x<4)
        return Math.pow(x,3);
    else
        return speed(x-2)+x;
}
```

QUESTION 37

Which of the following could fill `<*1>`?

- A. `super.getOne()`;
- B. `super.one`;
- C. `one`;
- D. A and B
- E. A, B, and C

```
class First {
    private int one;
    public First(int param)
    {
        one = param;
    }
    public int getOne()
    {
        return one;
    }
    public String toString()
    {
        return "" + one;
    }
}
```

QUESTION 38

Which of the following could fill `<*2>`?

- A. `toString()`;
- B. `""+one`;
- C. `super.toString()`;
- D. `""+one+toString()`;
- E. more than one of these

```
class Next extends First {
    public Next(int in)
    {
        super(in);
    }
    public int getOne()
    {
        return <*1>
    }
    public String toString()
    {
        return <*2>
    }
}
```

QUESTION 39

If the following numbers are added to a binary search tree in the following order, how many levels would the tree have?

10 20 30 40 50 60 70 80

- A. 4
- B. 7
- C. 6
- D. 5
- E. 8

QUESTION 40

What is output by the code to the right?

- A. true
- B. false
- C. yes
- D. no
- E. error

```
boolean w = false;
boolean y = true;
boolean u = false;
u = (! (w||y) || ((w&&! (w&&y)))));
out.println(u==true?"yes":"no");
```