

Note: Correct responses are based on Java, J2sdk v 6.0, 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 111110_2 minus 111_2 ?

- A. 111001_2 B. 101010_2 C. 110111_2 D. 110110_2 E. 101100_2

QUESTION 2

What is output by the code to the right?

- A. 26 B. 14+12 C. 26.0 D. 10
E. There is no output due to a syntax error.

```
System.out.println(+ 14 + 12);
```

QUESTION 3

What is output by the code to the right?

- A. 3 B. 3.0 C. 3.5 D. 4 E. 4.0

```
System.out.println(18.5 % 5);
```

QUESTION 4

What is output by the code to the right?

- A. 20 B. 21.0 C. 21.5 D. 21.0 E. 21

```
int x3 = 5;
x3 *= 4.3;
System.out.println(x3);
```

QUESTION 5

What is output by the code to the right?

- A. 1 B. 2
C. 3 D. 0
E. There is no output due to a syntax error.

```
int[] list4 = {1,2,3};
System.out.println(list4[1]);
```

QUESTION 6

What is output by the code to the right?

- A. 8 B. 7
C. 9 D. 6
E. There is no output due to a syntax error.

```
System.out.println("elephant".length());
```

QUESTION 7

What is output by the code to the right?

- A. true B. false
C. 1 D. 0
E. There is no output due to a syntax error.

```
boolean b = false;
boolean c = false;
System.out.println(b == c);
```

QUESTION 8

What is output by the code to the right?

- A. 0 B. 20
C. 40 D. 10485760000000000000000000000000
E. There is no output due to a syntax error.

```
System.out.println(20 ^ 20);
```

QUESTION 9

What is output by the code to the right?

- A. -34 B. 33 C. 34 D. -33 E. 35

```
System.out.println(Math.abs(-34));
```

QUESTION 10

What is output by the code to the right?

("-" indicates a blank space)

- A. \$-----54.20
- B. \$---54.20
- C. \$---54.2
- D. \$54.20
- E. \$--54.20

```
System.out.printf("$%7.2f", 54.2);
```

QUESTION 11

What is output by the code to the right?

- A. 0-1-2-3-4-5-6-7-8-9
- B. 0-1-2-3-4-5-6-7-8-9-
- C. 0 1 2 3 4 5 6 7 8 9
- D. 0123456789
- E. There is no output due to a syntax error.

```
for(int x = 0; x<10; x++)
    System.out.print(x+"-");
```

QUESTION 12

Examine the statement to the right and select the answer below that best completes the sentence, "This statement..."

- A. compiles and runs error-free.
- B. compiles and runs, but causes a logic error.
- C. compiles error-free but causes a run-time error.
- D. causes a incompatible types syntax error.
- E. causes a possible loss of precision syntax error.

```
int d = 5.4;
```

QUESTION 13

What is output by the code to the right?

- A. a 4
- B. e 5
- C. f 5
- D. There is no output due to a runtime error.
- E. There is no output due to a syntax error.

```
char[][] letters = {{ 'a', 'b', 'c', 'd' },
                    { 'e', 'f', 'g', 'h', 'i' }};

System.out.print(letters[1][1] + " "
                + letters[1].length);
```

QUESTION 14

What is output by the code to the right?

- A. o
- B. Object
- C. The memory address of the object is printed.
- D. There is no output due to a runtime error.
- E. There is no output due to a syntax error.

```
Object o = new Object();
System.out.println(o);
```

QUESTION 15

What is output by the code to the right?

- A. ****.****.****.
Hello Hello
- B. ****.****.****.
Hello Hello
- C. ****.****.****.
Hello
Hello
- D. ****.****.****.
Hello Hello
- E. There is no output due to a syntax error.

```
System.out.print("****.****.****.");
System.out.print("\nHello\tHello");
```

QUESTION 16

What is output by the code to the right?

- A. 32
- B. 16
- C. 8
- D. 4
- E. 2

```
System.out.println(Integer.SIZE);
```

QUESTION 17

What is output by the code to the right?

- A. 45
- B. 45 false
- C. 45 true
- D. num true
- E. There is no output due to a syntax error.

```
Object num = new Integer(45);
Boolean bb = num instanceof Integer;

System.out.println(num + " " + bb);
```

QUESTION 18

What is output by the code to the right?

- A. 333
- B. 33
- C. 6
- D. 7
- E. 8

```
int y=1000,zz=0;
while(y > 0)
{
    y /= 3;
    zz++;
}
System.out.println(zz);
```

QUESTION 19

What is output by the code to the right?

- A. false
- B. true
- C. -1
- D. 1
- E. There is no output due to a syntax error.

```
String ss = "cup";
System.out.println(ss == "cup");
```

<p>QUESTION 20</p> <p>What is output by the code to the right?</p> <p>A. 101:10110 B. 5:22 C. 41:1642 D. 3:7 E. There is no output due to a syntax error.</p>	<pre>int part1 = Integer.parseInt("101",2); int part2 = Integer.parseInt("10110",2); System.out.println(part1 + ":" + part2);</pre>
<p>QUESTION 21</p> <p>What is output by the code to the right?</p> <p>A. truefalse B. falsefalse C. falsetrue D. truetrue E. There is no output due to a syntax error.</p>	<pre>boolean p = "Hello".matches(".*"); boolean q = "Hello".matches("\\w+"); System.out.println("" + p + q);</pre>
<p>QUESTION 22</p> <p>What is output by the code to the right?</p> <p>A. 3 B. 2 C. 1 D. 0 E. There is no output due to an <code>ArrayOutOfBoundsException</code>.</p>	<pre>ArrayList<Integer> list; list = new ArrayList<Integer>(); list.add(1); list.add(2); list.add(3); System.out.println(list.get(3));</pre>
<p>QUESTION 23</p> <p>What is output by the code to the right?</p> <p>A. 2 B. 98 C. 66 D. The value cannot be determined. E. There is no output due to a syntax error.</p>	<pre>String sss = "B"; System.out.println(sss.hashCode());</pre>
<p>QUESTION 24</p> <p>What is output by the code to the right?</p> <p>A. 5 B. 625 C. 625.0 D. 5.0 E. 0</p>	<pre>System.out.println(Math.sqrt(25));</pre>
<p>QUESTION 25</p> <p>What is output by the code to the right?</p> <p>A. 103 B. 1003 C. true D. false E. There is no output due to a syntax error.</p>	<pre>Integer go = new Integer("100"); System.out.println(go + 3);</pre>

QUESTION 26

What is output by the code to the right?

- A. 101101
- B. 2e
- C. 45
- D. 99
- E. 2d

```
out.println(Integer.toHexString(45));
```

QUESTION 27

What replaces **<*1>** in the code to the right to correctly and successfully complete the statement?

- A. int
- B. Integer
- C. Long
- D. long
- E. double

```
Object z = new <*1> (Math.round(25.4));
```

QUESTION 28

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

- A. -null-0-0.0- -false-
- B. --0-0.0--false-
- C. -null-0-0.0- -true-
- D. -null-0-0- -true-
- E. -null-0-0.0--true-

//Use the class definitions below for questions 28 – 30

```
public class Sample{
    private String str;
    public int i;
    private double dec;
    private char c;
    private boolean boo;

    public String toString(){
        return "-" + str + "-" + i + "-"
            + dec + "-" + c + "-" + boo + "-";
    }
}
```

QUESTION 29

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

- A. -null-4-0.0- -false-
- B. --4-0.0--false
- C. -null-4-0.0- -true-99-12
- D. -null-4-0- -true-
- E. -null-4-0.0- -false-99-12

```
public class Sample2 extends Sample{
    private int i2,i3;

    public Sample2(){
        i2=99;
    }

    public Sample2(int n){
        this();
        super.i=4;
        i3=n;
    }
}
```

QUESTION 30

When placed in with the client code at right, which of the statements below would not compile ?

- A. Object o1 = new Sample();
- B. Object o2 = new Sample2();
- C. Sample sa1 = new Sample();
- D. Sample2 sa2 = new Sample();
- E. Sample2 sa3 = new Sample2('A');

```
public String toString(){
    return super.toString() +
        i2 + "-" + i3;
}

////////////////////////////////////
//client code
Sample s = new Sample();
System.out.println(s);    //1
s = new Sample2(12);
System.out.println(s);    //2
```

QUESTION 31

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

- A. 10 B. 100 C. 11 D. 55 E. 45

QUESTION 32

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

- A. 9 B. 10 C. 11 D. 0
E. There is no output due to a syntax error.

QUESTION 33

Assuming that `println()` has a runtime of $O(1)$, what is the expected runtime of the code to the right?

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

QUESTION 34

What is the output of the client code to the right?

- A. 4 2 7 5 1 :0
7 5 4 2 1 :22
B. 4 2 7 5 1 :0
7 5 4 2 1 :12
C. 4 2 7 5 1 :0
1 2 4 5 7 :10
D. 4 2 7 5 1 :0
4 2 7 5 1 :0
E. 4 2 7 5 1 :0
1 2 4 5 7 :22

QUESTION 35

What standard sorting routine is method `sort` in class `Sort` to the right?

- A. bubble B. selection
C. insertion D. quick
E. merge

QUESTION 36

What is the expected runtime of method `sort` in class `Sort` to the right?

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

```
int x,total=0;
for(x=1; x<=10; x++)
    total += x;
System.out.println(total);    //1
System.out.println(x);        //2
```

```
public class Sort
{
    private int [] ray = {4,2,7,5,1};
    private int count;

    public void sort()
    {
        int index;
        count=0;
        for(int x=0;x<ray.length-1;x++)
        {
            index=x;
            for(int y=x+1;y<ray.length;y++)
            {
                count++;
                if(ray[y] < ray[index])
                    index=y;
            }
            count+=3;
            int temp=ray[x];
            ray[x]=ray[index];
            ray[index]=temp;
        }
    }

    public void display()
    {
        for(int i:ray)
            out.print(i+" ");
        out.println(": " + count);
    }
}
```

```
////////////////////////////////////
//client code
Sort test = new Sort();
test.display();
test.sort();
test.display();
```

QUESTION 37

What is output by the code to the right?

- A. true true true
- B. true false false
- C. false true true
- D. false false false
- E. There is no output due to a syntax error.

```
boolean b;
b = new Double(3.4) instanceof Object;

boolean c;
c = true && !( true | false );

System.out.println("" + b + c + (b != !c));
```

QUESTION 38

What is output by the code to the right?

- A. 15
- B. 15.0
- C. 16
- D. 16.0
- E. There is no output due to a syntax error.

```
int n=3;
n=n*5.4;
System.out.println(n);
```

QUESTION 39

What is output by the code to the right?

- A. 48
- B. 97
- C. 56
- D. a
- E. There is no output due to a syntax error.

```
System.out.println( +'a' );
```

QUESTION 40

What is output by the code to the right?

- A. 0
- B. 1
- C. There is no output due to a syntax error.
- D. There is no output due to a NullPointerException.
- E. There is no output due to an
 ArrayIndexOutOfBoundsException.

```
int [] list40 = null;
System.out.println(list40[0]);
```