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 1111_2 plus 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. `vote` B. `vo\\te`

C. `vo\\` D. `vo\te`

E. `vo\\\\te`

```
out.println("vo\\te");
```

QUESTION 3

What is output by the code to the right?

A. `5` B. `6`

C. `7` D. `35`

E. `75`

```
int hippo = 5 % 7;
out.println( hippo );
```

QUESTION 4

What is output by the code to the right?

A. `5` B. `15`

C. `8` D. `9`

E. There is no output due to a syntax error.

```
int a = 5;
byte b = 3;
a = b * a;
out.println( a );
```

QUESTION 5

What is output by the code to the right?

A. `3` B. `55`

C. `48` D. `03`

E. `51`

```
int wil = '0';
wil += 3;
out.println( wil );
```

QUESTION 6

What is output by the code to the right?

A. `9` B. `5`

C. `7` D. `8`

E. `11`

```
int cat = 3 + 7 % 5 * 2;
out.println( cat );
```

QUESTION 7

What is output by the code to the right?

A. `C` B. `A`

C. `o` D. `+`

E. `m`

```
String rocks = "A+ComputerScience";
out.println( rocks.charAt(1) );
```

QUESTION 8

What is output by the code to the right?

A. `5` B. `6` C. `10` D. `11` E. `-1`

```
String s = "electioneve";
out.println( s.lastIndexOf('e') );
```

QUESTION 9

What is output by the code to the right?

A. 32 B. 32.0 C. 33 D. 33.0 E. 32.5

```
double d = (double)'A'/2;
out.println( d );
```

QUESTION 10

What is output by the code to the right?

A. booover
B. yeahover
C. booyeah
D. yeahboo
E. over

```
String hw = "halloweenisover:(";
if( hw.length() > 31 )
  out.print("boo");
else
  out.print("yeah");
out.print("over");
```

QUESTION 11

What is returned by the call `turkey(4)`?

A. 4 B. 3 C. x3 D. 12 E. 16

```
public static int turkey(int x)
{
  return x*3;
}
```

QUESTION 12

What is output by the code to the right?

A. 10 B. 11 C. 12 D. 20 E. 21

```
byte b = 10;
switch(b)
{
   case 10 : b=20;
   case 11 : b=21; break;
   case 12 : b=22;
}
out.println(b);
```

QUESTION 13

What is output by the code to the right?

A. 9
B. 8
C. 72
D. 1
E. 0

```
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);
```

QUESTION 14

What is output by the code to the right?

A. false 2
B. false 3
C. true 2
D. true 3
E. There is no output due to a syntax error.

```
boolean b = false;
int x = 2;
b = b && ((++x) == 3);
System.out.println( b + " " + x);
```

QUESTION 15

What is output by the code to the right?

A. 1 B. 2 C. 3 D. 5 E. 10

```
int[] v = new int[5];
for(int i = 0; i < 10; i++)
{
  v[i % v.length]++;
}
System.out.println(v[3]);
```

QUESTION 16

What is output by the code to the right?

A. 0
B. 1
C. 2
D. 3
E. 4

```
int x = 0;
if(x <= 0)
{
  x++;
}
else if(x >= 1)
{
  x*=2;
}
System.out.println(x);
```

QUESTION 17

What is the value of i when the loop at right terminates?

A. 8 B. 9
C. 10 D. 11
E. 12

```
for(int i=0; i<11; i++)
{
  out.print(i);
}
```

QUESTION 18

What is output by the code to the right?

A. 130
B. 199
C. 140
D. 152
E. 165

```
int sum=0;
for(int j=0; j<5; j++)
{
  for(int k=0; k<9; k++)
  {
    sum+=k;
  }
  if(j%2==1)
     sum-=20;
}
out.println(sum);
```

QUESTION 19

How many times does this loop iterate?

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

```
int z=0;
do
{
  z=z-1;
}while(z>-5);
```

QUESTION 20

What is output by the code to the right?

A. 54 B. 54.0
C. 45 D. 45.0
E. 30.0

```
out.println(Math.round(5.4)*
              Math.pow(3,2));
```

QUESTION 21

Which of the following reserved words is used when one class is a child of another class?

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. `Boolean`

C. `Byte` D. `Int`

E. exactly two of these

```
Set< <*1> > set;
set = new TreeSet< <*1> >();
```

QUESTION 24

What is output by the code to the right?

A. `7.0` B. `20`

C. `6` D. `6.0`

E. `6.66`

```
int[] intList;
intList = new int[40];
intList[0]=5;
intList[1]=intList[0]*4;
intList[2]=intList[1]/3;
out.println(intList[2]);
```

QUESTION 25

What is returned by the call `xkcd(7)`?

A. `5040` B. `720`

C. `720.0` D. `24`

E. `5040.0`

```
public static double xkcd(double x){
   double ans=1.0;
   for(double r=1; r<=x; r++)
      ans=ans*r;
   return ans;
}
```

QUESTION 26

What is output by the code to the right?

A. `true` B. `false`

C. `todd` D. `joe`

E. There is no output due to a syntax error.

```
String a = "$todd$joe$cat$$$$";
String p = "$+.+$";
System.out.println(a.matches(p));
```

QUESTION 27

What is output by **`line 1`**?

A. `S` B. `L`

C. `P` D. `A`

E. `U`

QUESTION 28

What is output by **`line 2`**?

A. `[A, L, U, S]` B. `[A, P, L]`

C. `[P, L, U, S]` D. `[A, P, S]`

E. `[A, P, L, U]`

```
Stack<Character> s;
s=new Stack<Character>();
s.add('A');
s.add('P');
s.add('L');
s.add('U');
s.add('S');
out.println(s.pop());        //line 1
out.println(s);              //line 2
```

QUESTION 29

What is output by the code to the right?

A. `1024` B. `512`

C. `256` D. `128`

E. `64`

```
out.println( 4096 >> 5 );
```

QUESTION 30

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

A. `new Double(45.56);` B. `524.54`

C. `234` D. A and B

E. A, B, and C

```
ArrayList<Double> dList;
dList = new ArrayList<Double>();
dList.add( <*1> );
```

QUESTION 31

What is output by **`line 1`**?

A. `@`

B. `K`

C. `W`

D. `6`

E. `&`

QUESTION 32

What is output by **`line 2`**?

A. `@`

B. `K`

C. `W`

D. `6`

E. `&`

```
ArrayList<Character> cList;
cList = new ArrayList<Character>();
cList.add('@');
cList.add('&');
cList.add('K');
cList.add('W');
cList.add('4');
ListIterator iter;
iter = cList.listIterator();
iter.next();
iter.next();
iter.next();
iter.remove();
iter.add('6');
iter.previous();
out.println(iter.next());    //line 1
iter.set('3');
iter.next();
iter.previous();
out.println(iter.next());    //line 2
```

QUESTION 33

What is output by the code to the right?

A. `39`

B. `42`

C. `43`

D. `45`

E. There is no output due to a runtime error.

```
int[][] m = {{5,3,1},{3,2,7},
             {1,2,8},{7,1,10}};

int[][] n = new int[4][3];
for(int i = 0; i < 4; i++){
  for(int k = 0; k < 3; k++){
    n[3-i][k] = m[k][i%3];
  }
}

int sigma = 0;
for(int i = 0; i < 4; i++) {
  sigma += n[i][i%3];
  sigma += n[3-i][i%3];
}
System.out.println(sigma);
```

QUESTION 34

Which algorithm best describes method `zoo`?

A. binary search

B. quick sort

C. linear search

D. selection sort

E. merge sort

QUESTION 35

What is the best case run time for method `zoo`?

A. O(N)

B. O(N/2)

C. O(1)

D. $O(\log_2 N)$

E. $O(N^2)$

```
public static int zoo(double[] vote,
                              double y)
{
   int spot = -1, x = 0;
   while( x < vote.length )
   {
      if( vote[x++] == y )
        spot = x;
   }
   return spot;
}
```

QUESTION 36

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

A. `144`

B. `120.0`

C. `121.0`

D. `144.0`

E. `121`

```
public static double vote(int x)
{
   if(x<4)
     return Math.pow(x,3);
   else
     return vote(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

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

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 int 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");
```