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

$11011_2$  plus  $10101_2$ = ?

A. $299_4$      B. $119_6$      C. $61_8$      D. $47_{10}$      E. $40_{12}$

### QUESTION 2

What is output by the code to the right?

A. 3it15      B. 3it

C. 378      D. 3it78

E. 315

```
out.println(3 + "it" + 7 + 8);
```

### QUESTION 3

What is output by the code to the right?

A. 95      B. 99

C. 94      D. fr

E. 99 - 5

```
int fr = 99 - 5;
out.println( fr );
```

### QUESTION 4

What is output by the code to the right?

A. 10    B. 6    C. 16    D. 5

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

```
int iOne = 5;
byte bOne = 3;
iOne = bOne * 2;
out.println( iOne );
```

### QUESTION 5

What is output by the code to the right?

A. 0    B. 1    C. 48    D. 49    E. 50

```
int sam = '1';
out.println(sam);
```

### QUESTION 6

What is output by the code to the right?

A. 18    B. 5    C. 3    D. 0    E. 3.33

```
int ben[] = {3 + 3 * 5, 5, 9 / 3, 0};
out.println(ben[2]);
```

### QUESTION 7

What is output by the code to the right?

A. 12    B. 11    C. -1    D. 14    E. 13

```
String best = "aplusccompsci.com";
out.println( best.indexOf('.') );
```

### QUESTION 8

What is output by the code to the right?

A. 15    B. 14    C. 19    D. 13    E. 20

```
int cnt = 0;
for( int i = 0; i < 20; i++){
   if( i % 3 == 0 )
      cnt = cnt + 2;
}
out.println( cnt );
```

### QUESTION 9

What is output by the code to the right?

A. 52    B. 52.0    C. 53    D. 53.0    E. 52.5

```
double decOne = (long)'j' / 2;
out.println(decOne);
```

## QUESTION 10

What is output by the code to the right?

A. `ifgo`                 B. `go`

C. `goif`                 D. `if`

E. `gogo`

```
String word = "aplusccompscirocks";
if( word.length() % 2 == 0 )
  out.print("if");
out.print("go");
```

## QUESTION 11

What is returned by the call `fun(5)`?

A. `20`     B. `17`     C. `14`     D. `12`     E. `16`

```
public static int fun(int x)
{
  return x * 3 + x * 2 / 4;
}
```

## QUESTION 12

What is returned by the call `x(10)`?

A. `10`

B. `21`

C. `22`

D. `20`

E.  Nothing is returned due to a syntax error.

```
public static void x( byte b )
{
  switch(b){
    case 10 : b=20;
    case 11 : b=21;
    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 red = 2;
int dog = 5;
if(red > 5)
  if(dog > 5)
    out.println(red * dog);
  else if(dog > 0)
    out.println(red);
  else
    out.println(dog);
else
  out.println(red / dog);
```

## QUESTION 14

How many methods does class `Test` contain?

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

```
class Test{
  public void out() {
    out.println("fun");
  }
}
```

## QUESTION 15

How many constructors does class `Run` contain?

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

```
class Run{
  private int ix;
  public Run() { ix = 0; }
  public Run( int x ) { ix = x; }
  public void out() {
    out.println("" + ix);
  }
}
```

## QUESTION 16

What is the output of the code at right?

A. `null`                 B. `0.00`

C. `nu`                   D. `nul`

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

```
Double d = null;
System.out.printf("%.2f", d);
```

| QUESTION 17 | |
|---|---|
| What is output by the code to the right?<br><br>A. 5　　　B. 1　　　C. 0　　　D. 2　　　E. 6 | ```java<br>System.out.println( 1 % 5 );<br>``` |

| QUESTION 18 | |
|---|---|
| What is output by the code to the right?<br><br>A. 11　　　B. 14　　　C. 19<br>D. 27　　　E. 20 | ```java<br>int sum=0;<br>for(int j=0; j < 6; j++){<br>  for(int k=0; k < j; k++){<br>    sum+=k;<br>  }<br>  if(j%2==1)<br>    sum-=3;<br>}<br>out.println(sum);<br>``` |

| QUESTION 19 | |
|---|---|
| How many times does this loop iterate?<br><br>A. 7　　　B. 8　　　C. 6　　　D. 9　　　E. 5 | ```java<br>int z = 07;<br>do{<br>  z = z - 1;<br>}while(z > 1);<br>``` |

| QUESTION 20 | |
|---|---|
| What is output by the code to the right?<br><br>A. 25.0　　B. 36.0　　C. 25　　　D. 36<br>E.  There is not output due to a syntax error. | ```java<br>float x;<br>x = Math.pow(Math.round(5.5),2);<br>out.println(x);<br>``` |

| QUESTION 21 | |
|---|---|
| Which of the following reserved words is used to access a member of a parent class?<br><br>A. extends　　　B. implements　　C. parent　　　D. super　　　E. 100011 | |

| QUESTION 22 | |
|---|---|
| Which of the following operators divides by 2?<br><br>A. >>　　　B. <<　　　C. &　　　D. |　　　E. ^ | |

| QUESTION 23 | |
|---|---|
| Which of the following could fill **<*1>**?<br><br>A. Char　　　B. Bool　　　C. Byte<br>D. Int　　　E.  more than one of these | ```java<br>Set< <*1> > set;<br>set = new TreeSet< <*1> >();<br>``` |

| QUESTION 24 | |
|---|---|
| What is output by the code to the right?<br><br>A. 5　　　B. 10　　　C. 3　　　D. 3.0　　　E. 3.33 | ```java<br>int[] ray;<br>ray = new int[4];<br>ray[0]=5;<br>ray[1]=ray[0]*2;<br>ray[2]=ray[1]/3;<br>out.println(ray[2]);<br>``` |

| QUESTION 25 | |
|---|---|
| What is returned by the call whoot(7)?<br><br>A. 5040　　B. 720　　C. 720.0　　D. 24　　E. 5040.0 | ```java<br>static double whoot(double x){<br>    double ans=1.0;<br>    for(double r=x; r>=1; r--)<br>        ans=ans*r;<br>    return ans;<br>}<br>``` |

### QUESTION 26

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

A. public          B. static

C. final           D. A and B only

E. A, B, and C

```
public interface Inter{
   <*1> int x = 1024;
}
```

### QUESTION 27

What is output by the line marked **//1**?

A. [T, P, 0, P]          B. [P, 0, P, T]

C. [T, I, P, 0, P]       D. [0, P, P]

E. [P, 0, P, I, T]

### QUESTION 28

What is output by the line marked **//2**?

A. [I, P, 0, P]          B. [P, 0, P, T]

C. [P, 0, P, I]          D. [0, P, P]

E. [P, 0, P]

```
Stack<Character> s;
s = new Stack<Character>();
s.add('P');
s.add('0');
s.add('P');
s.add('I');
s.add('T');
out.println(s);              //1
out.println(s.pop());
out.println(s);              //2
```

### QUESTION 29

What is output by the code to the right?

A. 64     B. 32     C. 256     D. 128     E. 64

```
out.println(4096 >> 7);
```

### QUESTION 30

What is output by the code to the right?

A. true 0              B. false 0

C. null 0              D. false 1

E. There is no output due to syntax error.

```
int[] a = new int[7];
boolean[] b = new boolean[7];
for(int i = 0; i < 7; i++){
   a[i] = a[i] + 1;
}
System.out.println(b[5] +" "+ a[5]);
```

### QUESTION 31

What is output by the line marked **//1**?

A. $              B. 7

C. W              D. 6

E. 5

### QUESTION 32

What is output by the line marked **//2**?

A. $              B. 7

C. W              D. 6

E. 5

```
ArrayList<Character> cList;
cList = new ArrayList<Character>();
cList.add('$');
cList.add('&');
cList.add('7');
cList.add('4');
cList.add('W');
ListIterator iter;
iter = cList.listIterator();
iter.next();
iter.next();
iter.remove();
iter.add('6');
iter.previous();
out.println(iter.next());      //1
iter.set('5');
iter.next();
iter.previous();
iter.previous();
out.println(iter.next());      //2
```

## QUESTION 33

What is output by the code to the right?

A. 23

B. 21

C. 20

D. 25

E. 19

```
int trick = 19;
trick++;
trick++;
++trick;
trick=trick++;
trick=trick++;
out.println(++trick);
```

## QUESTION 34

Which algorithm best describes method `what`?

A. binary search

B. quick sort

C. linear search

D. selection sort

E. merge sort

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

## QUESTION 35

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

A. O(N)

B. O(N/2)

C. O(1)

D. $O(\log_2 N)$

E. $O(N^2)$

## QUESTION 36

What is output by the code to the right?

A. 26 7

B. 25 8

C. 30 9

D. 25 5

E. 26 5

```
int s = Short.MAX_VALUE, x = s;
int y = 0;

for(s = 0; x > 0; y++)
{
  s += x % 10;
  x /= 10;
}

System.out.println(s + " " + y);
```

## QUESTION 37

Which of the following would correctly fill **<*1>** ?

A. super();

B. super(in);

C. super.one = in;

D. A and B only

E. A, B, and C

## QUESTION 38

Which of the following would correctly fill **<*2>** ?

A. super.getOne();

B. getOne();

C. one;

D. A and B only

E. A, B, and C

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

public class End extends Start
{
    public End(int in)
    {
        <*1>
    }
    public int getOne()
    {
        return <*2>
    }
}
```

## QUESTION 39

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

        10 50 70 40 20 80 30 60

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

## QUESTION 40

What is output by the code to the right?

A. true true

B. false true

C. true false

D. false false

E. There is no output due to runtime error.

```java
String s = ".+abc.+";
String s2 = "def";
String p = ".*[a-z]+.*";
System.out.print(s.matches(p));
System.out.print(" ");
System.out.print(s2.matches(p));
```