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 the result of 100100100_2 minus 101_8 ?

A. 101100111_2 B. 11100011_2 C. $E1_{16}$ D. 545_8 E. 555_8

QUESTION 2

What is output by the code to the right?

A. `0.0`
B. `6.35`
C. `6.0`
D. `0`
E. `6`

```
int x = 51;
int y = 8;
System.out.println(x / y);
```

QUESTION 3

What is output by the code to the right?

A. `12`
B. `8.0`
C. `7`
D. `9.0`
E. `6`

```
int x=10;
for(int i=4;i<25;i+=x)
   x++;
System.out.println(x);
```

QUESTION 4

What is output by the code to the right?

A. `C`
B. `CAR`
C. `ARA`
D. `CARA`
E. `RACE`

```
String s = new String("RACECAR");
s = s.substring(4);
s += s.substring(1,2);
System.out.print(s);
```

QUESTION 5

What is output by the code to the right?

A. `A`
B. `B`
C. `0`
D. `-65`
E. `65`

```
char[] a = new char[9];
System.out.println(a[2/8]+65);
```

QUESTION 6

What is output by the code to the right?

A. `false`
B. `true`
C. `0`
D. `1`
E. `16`

```
System.out.println(Math.pow(4,2)>1);
```

QUESTION 7

What is output by the code to the right?

A. `p`

B. `op`

C. `Top`

D. `s`

E. `nothing`

```
char x = 's';
switch(x){
  case 0: System.out.println("T");
  case 65: System.out.println("o");
  case 115: System.out.println("p");
}
```

QUESTION 8

What is output by the code to the right?

A. `31`

B. `48`

C. `32`

D. `128`

E. `272`

```
System.out.print( (short) 34 << 3 );
```

QUESTION 9

Which of the following produces the same results as a call to the code to the right for all values of x and y?

A. `x << y`

B. `(int) x / y`

C. `x % y`

D. `y - x`

E. `x * y`

QUESTION 10

What is returned by the method call `my(4,12)` ?

A. `0`

B. `48`

C. `3`

D. `-8`

E. `4`

QUESTION 11

What is returned by the method call `my(37,3)` ?

A. `0`

B. `1`

C. `12`

D. `34`

E. `111`

```
public class My
{
   public int my(int x, int y)
   {
      if (x - y < 0)
        return x;
      else
        return my(x - y , y );
   }
}
```

QUESTION 12

What is output by the code to the right ?

A. `xo67ox`

B. `xo147x`

C. `xo0x67ox`

D. `xo147ox`

E. `x67x`

```
System.out.printf("xo%ox\n",0x67);
```

QUESTION 13

What is returned by the method call `pow(2,4)` ?

A. `6` B. `16.0` C. `4` D. `4.0` E. `9`

```
public double pow(int x, int y){
   return x*x;
}
```

QUESTION 14

What is output by the code to the right ?

A. `0` B. `4` C. `true` D. `false` E. `a`

```
int x = 32;
int y = 3;
if ( x >> y < y)
   System.out.print(true);
else
   System.out.print(false);
```

QUESTION 15

What is output by the code to the right ?

A. `WMC` B. `WRA` C. `WMSD` D. `10` E. `1432`

```
for(char a='W'; a>='A'; a-=10)
   System.out.print(a);
```

QUESTION 16

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

A. `true` B. `false` C. `4` D. `8` E. `2`

QUESTION 17

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

A. `true` B. `false` C. `4` D. `8` E. `2`

QUESTION 18

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

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

```
Map< String, Integer > map;
map = new TreeMap< String, Integer >();
map.put("one",2);
map.put("two",4);
map.put("three",8);
map.put("four",16);
out.print(map.containsKey("two"));    //1
out.print(map.entrySet().remove(2));  //2
out.print(map.keySet().size());       //3
```

QUESTION 19

What is the output?

A. `30`

B. `43`

C. `34`

D. `40`

E. `400`

```
int a = 34, x, y, z;
x = a * 10 % 10;
y = a % 10 * 10;
z = a / 10 % 10;
System.out.println(x + y + z);
```

QUESTION 20

What is the value of `m[8][5]` when the code to the right is executed ?

A. `1` B. `3` C. `12` D. `5` E. `9`

QUESTION 21

What is the value of `m[2][4]` when the code to the right is executed ?

A. `5` B. `3` C. `12` D. `0` E. `9`

```
int[][] m = new int [18][8];
for(int c=1; c<m[0].length; c+=2)
  for(int r=0; r<m.length; r+=4)
    m[r][c] = r / c;
```

QUESTION 22

What is output by the code to the right ?

A. `-3` B. `-2` C. `-1` D. `true` E. `false`

```
ArrayList <Integer> m;
m = new ArrayList <Integer>();
m.add(6);
m.add(9);
m.add(14);
int a=Collections.binarySearch(m,3);
System.out.println(a);
```

QUESTION 23

What is output by the code to the right ?

A. `20` B. `6` C. `22` D. `8` E. `10`

```
System.out.println(20 | 6);
```

QUESTION 24

What is output by the method call `call(2)` ?

A. `1234` B. `4321` C. `2314` D. `2222` E. `3412`

QUESTION 25

What is output by the method call `call(4)` ?

A. `1234` B. `4321` C. `2314` D. `8888` E. `3412`

QUESTION 26

What does the code to the right do when method `call` is called?

A. replaces all the elements of m with x
B. reverses the array
C. rotates the array right x places
D. rotates the array left x places
E. the code does nothing

```
public void rep(int[] data, int a){
  int t;
  int len = data.length-1;
  for(int j = 0; j < a; j++){
    t=data[0];
    for(int i = 0; i < len; i++){
      data[i] = data[i+1];
    }
    data[len]=t;
  }
}

public void call(int x){
  int[] m = {1, 2, 3, 4};
  rep(m,x);
  for(int i : m)
    System.out.print( i );
}
```

QUESTION 27

Which of the following correctly converts `String str` to its `int` equivalent if `str = "345"`?

A. `num = Integer.valueOf(str);` B. `num = Integer.parseInt(str);`
C. `num = new Integer(str);` D. `num = Integer.getInteger(str);`
E. more than one of these

QUESTION 28

What is output by the code to the right ?

A. `48` B. `51` C. `52` D. `53` E. `54`

```
int x = (16 + 016 + 0x16);
System.out.println(x);
```

QUESTION 29

What is output by the code to the right ?

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

```
String s="Now is the time";
String[] t =s.split("[\\!Wi]");
System.out.print( t.length );
```

QUESTION 30

What is output by the code to the right ?

A. State
B. UIL
C. UILState
D. UILwinners
E. UILStatewinners

```
String f = "UIL";
String b = "State";
f = b;
b += "winners";
System.out.println(f);
```

QUESTION 31

What is returned by the method call `add(5)`?

A. 25
B. 4
C. 15
D. 5
E. 0

QUESTION 32

What is returned by the method call `add(16)`?

A. 256
B. 32
C. 24
D. 16
E. 0

QUESTION 33

What is the running time of `add(n)`?

A. $O(N^2)$
B. O(N logN)
C. O(logN)
D. $O(N^2 \log N)$
E. O(N)

```
public static int add(int n) {
  int i = 0;
  for (int j=1;j<=n;j+=3)
    for (int k=2;k<=n;k*=2)
      i++;
  return i;
}
```

QUESTION 34

What is output by the code to the right ?

A. 23
B. 9
C. 3
D. 2
E. 0

```
System.out.println(255 & 1 ^ 8);
```

QUESTION 35

Which of the following is **NOT** a benefit of using linked lists rather than arrays in Java?

A. Linked Lists do not waste space for unused array elements.
B. Linked Lists do not require contiguous memory.
C. Linked Lists can insert without copying the entire list.
D. Linked Lists allow you to remove an element more quickly than with arrays.
E. Linked Lists have improved average access time over arrays.

QUESTION 36

What values of x and y will make the expression to the right true ;

A. `x=true y=true`
B. `x=true y=false`
C. `x=false y=true`
D. `x=false y=false`
E. all of these

```
boolean x, y, z;
z = (x && y) || !(x && y);
```

QUESTION 37

Which reserved word could replace **<*1>** in the code to the right so that method `CNum` would compile as intended?

A. `double`
B. `int`
C. `String`
D. `void`
E. `real`

QUESTION 38

Which of the code segments below could replace **<*2>** so that the `assign` method would correctly assign the values of `c` to the calling object?

```
 I.  this = c;

II.  real = c.real;
     img = c.img;

III. this.real = c.real;
     this.img = c.img;
```

A. `I` only
B. `II only`
C. `I and III`
D. `II and III`
E. `I, II and III`

```
class CNum
{
  private double real, img;

  public CNum()
  {
    real = 0;
    img = 0;
  }

  public CNum(double r, double i)
  {
    real = r;
    img = i;
  }

  public <*1> add(CNum c)
  {
    real += c.real;
    img += c.img;
  }

  public void assign(CNum c)
  {
    <*2>
  }
}
```

QUESTION 39

What is output by the code to the right ?

A. `[time, is, the]`
B. `[Now, is, the]`
C. `[Now, time, the]`
D. `[Now, is, time]`
E. `[Now, is, the, time]`

QUESTION 40

What is the expected running time of the `remove` method in this code segment? Choose the smallest correct answer.

A. O(N)
B. $O(N^2)$
C. O(N log N)
D. O(log N)
E. O(1)

```
LinkedList<String> c;
c= new LinkedList<String>();
ListIterator i = c.listIterator();
i.add("Now");
i.add("is");
i.add("the");
i = c.listIterator();
i.next();
i.remove();
i.add("time");
System.out.println(c);
```