Note: Correct responses are based on Java, **J2sdk v 1.7.25**, 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. **For all output statements, assume that the System class has been statically imported…** ***import static java.lang.System.*;***

QUESTION 1

Which of these is **NOT** equivalent to $204_8 + 100010_2$?

A. 10101110_2 B. 166_{10} C. 246_8 D. $A6_{16}$ E. more than one

QUESTION 2

What is output by the code to the right?

A. 2 B. q2 C. 6 D. 6.4 E. 6.6

```
Double q = 3.2;
q = q * 2;
out.println(q);
```

QUESTION 3

What is output by the code to the right?

A. 6 B. 33 C. 3 D. 9.0 E. 9

```
int p = 3;
p *= 3;
out.println(p);
```

QUESTION 4

What is output by the code to the right?

A. 0.6 0.2 -0.2

B. 1.0 0.6 0.2

C. 1.0 0.6 0.2 -0.2

D. 0.6 0.2

E. 1.0 0.4

```
Double p = 1.0;
while (p >= 0.2) {
  out.printf("%.1f ", p);
  p -= 0.4;
}
```

QUESTION 5

What is output by the code to the right?

A. 2 B. 3 C. -1 D. 0 E. 5

```
String s = "Howdy Bob!";
out.println( s.indexOf("wd") );
```

QUESTION 6

What is output by the code to the right?

A. [6]

B. [1, 2, 3, 4, 5, 6]

C. [6, 6, 6, 6, 6, 6]

D. [0, 0, 0, 0, 0, 0]

E. [0, 0, 0, 0, 0, 0, 0]

```
int[] ray = new int[6];
out.println( Arrays.toString(ray) );
```

QUESTION 7

What is output by the code to the right?

A. true true

B. true false

C. false true

D. false false

E. There is no output due to syntax error.

```
boolean p = true;
boolean q = false;
out.println((p&&q||p) + " " +
                          (p||q&&p));
```

QUESTION 8

What is output by the code to the right?

A. `Chicken`

B. `Hi`

C. `Ranch`

D. `Chicken Bob`

E. `Chicken Bob Ranch`

```
int x = 15;
switch(x) {
  case 14: out.print("Hi ");
  case 15: out.print("Chicken ");
  case 16: out.print("Bob ");
  default: out.print("Ranch ");
}
```

QUESTION 9

What is output by the code to the right?

A. `6` B. `5.5`

C. `4` D. `6.0`

E. `41.5`

```
out.println(4 * 1.5);
```

QUESTION 10

Which of the following would NOT be correct to create a new instance of the Chicken class defined to the right?

A. `Chicken c = new Chicken(1);`

B. `Chicken c = new Chicken(2.0);`

C. `Chicken c = new Chicken(2.0, 1);`

D. `Chicken c = new Chicken(1, 2.0);`

E. More than one of these.

```
public class Chicken
{
  public Chicken(int a) {}
  public Chicken(double b) {}
  public Chicken(int a, double b){}
}
```

QUESTION 11

What is output by the code to the right?

A. `7` B. `6.0`

C. `7.0` D. `7.5`

E. `5.5`

```
int x = 3;
double y = 2.5;
out.println( Math.floor(x * y) );
```

QUESTION 12

What is output by the code to the right?

A. `7`

B. `3`

C. `9`

D. `20`

E. `4`

```
int[][] mat = {{1,2,3},
               {4,5,6},
               {7,8,9}};
int cnt = 0;
for (int r=0; r<mat.length; ++r) {
    for (int c=0; c<3; ++c) {
        if (mat[r][c] % 2 == 0)
            ++cnt;
    }
}
out.println(cnt);
```

QUESTION 13

What is output by the code to the right?

A. `H\\e\b\"\\b\t\'`

B. `H\"\b     '`

C. `H\\e"   '`

D. `Hebbt`

E. `Hbt`

```
out.println("H\\e\b\"\\b\t\'");
```

QUESTION 14

What is output by the code to the right?

A. `0003.142`
B. `000000003.142`
C. `3.1415926`
D. `3.142`
E. `25.132`

```
out.printf("%08.3f%n", Math.PI);
```

QUESTION 15

What is output by the code to the right?

A. `2 16 256`
B. `2 4 16`
C. `2 4 16 256 512`
D. `2 4 16 256`
E. `2 16`

```
for (int i=2; i <= 256; i *= i)
{
  out.print(i + " ");
}
```

QUESTION 16

What is output by the code to the right?

A. `Hello`
B. `Bob`
C. `boB olleH`
D. `Hello Bob`
E. There is no output.

```
String s = "Hello Bob";
String o = "";
int i;
for(i=s.length() - 1; i >= 0; --i)
{
     o += s.charAt(i);
}
out.println(o);
```

QUESTION 17

What is output from the code to the right?

A. `18` B. `9` C. `72` D. `64` E. `144`

```
out.println(36 << 2);
```

QUESTION 18

What is output from the code to the right?

A. `true`
B. `false`
C. `truefalsefalse`
D. `bq`
E. There is no output.

```
boolean b = true;
boolean q = false;
out.println(b && q || q);
```

QUESTION 19

What is output from the the code to the right?

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

```
ArrayList lst = new ArrayList();
lst.add(1);
lst.add(2);
lst.add(3);
out.println(lst.remove(2));
```

QUESTION 20

What is the output from the code to the right?

A. `9`
B. `3`
C. `false`
D. `9.75`
E. `10`

```
out.println(39 / 4);
```

QUESTION 21

What is the output from the code to the right?

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

```
public static boolean x( boolean b )
{
  return b || false && b;
}

////////////////////////////////////
// client code  ////////////////////
out.println( x(true) );
```

QUESTION 22

What is output from the code to the right?

A. `truetruetruetrue`
B. `truefalsetruetrue`
C. `truetruefalsetrue`
D. `falsetruetruefalse`
E. `falsefalsetruetrue`

```
public static boolean y( boolean b )
{
 if (b || !b)
    return true;
 else if (b && !b)
    return false;
 return true;
}

////////////////////////////////////////
// client code  ////////////////////////
out.print( y(true) );
out.print( y(false) );
out.print( y(true || false) );
out.print( y(false && true) );
```

QUESTION 23

What is output from the code to the right?

A. `HowdyMooHowdy`
B. `MooHowdyHowdy`
C. `HowdyMooMoo`
D. `HowdyHowdyMoo`
E. There is no output due to a syntax error.

```
class Mammal {
  public void talk() {
     out.print("Howdy");
  }
}
class Cow extends Mammal {
  public void talk() {
     out.print("Moo");
  }
}

////////////////////////////////////
// client code  ////////////////////
(new Mammal()).talk();
(new Cow()).talk();
((Mammal)new Cow()).talk();
```

QUESTION 24

What is output from the code to the right?

A. `tweet`
B. `Chicken`
C. `Bird`
D. `cluck`
E. There is no output due to a runtime error.

```
class Bird {
  public void talk() {
     out.println("tweet");
  }
}
class Chicken extends Bird {
  public void talk() {
     out.println("cluck");
  }
}

////////////////////////////////////////
// client code  ////////////////////////
Bird b = new Chicken();
b.talk();
```

QUESTION 25

What is output from the code to the right?

A. `110`

B. `104`

C. `106`

D. `108`

E. `102`

```
public static int funFour(int i) {
  return funFive(i + 5);
}

public static int funFive(int i) {
  if (i < 100)
     return funFour(++i);
  return i;
}

////////////////////////////////////
// client code  ////////////////////
out.println(funFour(3));
```

QUESTION 26

What is output from the code to the right?

A. `2147483648`

B. `Integer.MAX_VALUE`

C. `2147483647`

D. `-2147483648`

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

```
int x = Integer.MIN_VALUE;
out.println( Math.abs(x) );
```

QUESTION 27

What is output from the code to the right?

A. `[1, 2, 3, 5, 7, 9, 10]`

B. `[1, 7, 2, 5, 9, 10, 3]`

C. `[10, 9, 7, 5, 3, 2, 1]`

D. `[1, 7, 10, 9, 5, 2, 3]`

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

```
int[] ray = {1, 7, 2, 5, 9, 10, 3};
Arrays.sort(ray, 2, 5);
out.println(Arrays.toString(ray));
```

QUESTION 28

The `sumEm` method defined to the right returns the sum of all ints in array `lst` that are multiples of 6.

Which of the following could replace **`<item1>`** for the method to function as required?

I. `it % 6 == 0`

II. `it / 6 == 0`

III. `it % 6 != 0`

IV. `it % 6 < 1`

V. `it % 2 == 0 && it % 3 == 0`

A. I & IV

B. I only

C. II only

D. I, IV, & V

E. I & V

```
public int sumEm(int[] lst) {
  int sum = 0;
  for (int it : lst) {
     if ( <item1> )
        <item2>;
  }
  return sum;
}
```

QUESTION 29

Assume that **`<item1>`** is correct in the `sumEm` method to the right. Which of the following could be used to fill in **`<item2>`** ?

A. `sum += it`

B. `it += sum`

C. `sum++`

D. `++it`

E. `++it++`

QUESTION 30

What is output from the code to the right?

A. `[0, 4, 12, 24]`

B. `[0, 16, 6, 8]`

C. `[0, 16, 72, 192]`

D. `[4, 20, 48, 88]`

E. There is no output due to runtime error.

```
int[] ray = {2,4,6,8};
for (int i=0; i<ray.length; i++)
{
  ray[i] *= i * ray[i];
}
out.println(Arrays.toString(ray));
```

QUESTION 31

What is the output from the code to the right?

A. `15` B. `21` C. `16` D. `010101` E. `12`

```
int i = 0b010101;
out.println(Integer.toString(i, 16));
```

QUESTION 32

What is the output from the code to the right?

A. `105.0`

B. `115.0`

C. `116.0`

D. `120.0`

E. There is no output due to infinite recursion.

```
public static double z(int i) {
  if (i < 100)
     return z(i + 10);
  return i + 15;
}

////////////////////////////////
// client code ////////////////
out.println( z(1) );
```

QUESTION 33

What is output from the code to the right?

A. 3

B. `4`

C. `2`

D. `7`

E. `1`

```
HashSet s = new HashSet();
s.add(1);
s.add(7);
s.add(3);
s.add(1);
out.println(s.size());
```

QUESTION 34

What is output from the code to the right?

A. `Howdy`

B. `2`

C. `Chicken`

D. `Doody`

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

```
Stack s = new Stack();
s.push("Howdy");
s.push("Doody");
s.peek();
s.push(2);
s.push("Chicken");
s.pop();
out.println(s.pop());
```

QUESTION 35

What is output from the code to the right?

A. `Chicken Dog Cat dog`

B. `Cat Chicken Dog dog`

C. `Cat Chicken dog Dog`

D. `dog Cat Dog Chicken`

E. There is no output due to an infinite loop.

```
PriorityQueue pq;
pq = new PriorityQueue();
pq.add("Chicken");
pq.add("Dog");
pq.add("Cat");
pq.add("dog");
while (!pq.isEmpty())
  out.print(pq.poll() + " ");
```

QUESTION 36

What is output from the code to the right?

A. `1` B. `2` C. `3` D. `!`

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

```
HashMap<String, Integer> mp;
mp = new HashMap();
mp.put("H", 1);
mp.put("I", 2);
mp.put("!", 3);
out.println(mp.get("!"));
```

QUESTION 37

What is the output from the code to the right?

A. `7` B. `2` C. `null` D. `true` E. `3`

```
PriorityQueue pq;
pq = new PriorityQueue();
pq.add(3);
pq.add(7);
pq.add(2);
pq.poll();
out.println(pq.peek());
```

QUESTION 38

What is output from the code to the right?

A. `37` B. `64`

C. `32` D. `36`

E. `128`

```
int n = 37;
--n;
n |= n >> 1;
n |= n >> 2;
n |= n >> 4;
n |= n >> 8;
n |= n >> 16;
++n;
out.println(n);
```

QUESTION 39

What is output from the code to the right?

A. `true` B. `b`

C. `10` D. `false`

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

```
int w = 1;
int x = 2;
int y = 3;
int z = 4;
boolean b = (w == 1) ? (x <= 2) ?
     (y != 3) : (z == 4) : false;
out.println(b);
```

QUESTION 40

Which of the following could NOT replace **`<item1>`** to result in output of `true`?

A. `http://(.*)$`

B. `https?://(.*)`

C. `http(s)+://(.*)`

D. `http\\://(.*)`

E. `h{1}t{2}p{1}s{0,1}://(.*)`

```
String url = "http://bob.com";
out.println(url.matches( "<item1>" );
```