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 12_8 times 14_8 ?

A. 132_8 B. 175_8 C. 171_8 D. 231_7 E. AB_{11}

QUESTION 2

What is output by the code to the right?

A. 0 B. 13
C. 1 D. 2
E. 12

```
String s = "Twirkeys and Birds";
out.println( s.indexOf( "ir" ) );
```

QUESTION 3

What is output by the code to the right?

A. ANX B. T
C. HN D. NX
E. N

```
int x = 3;
switch( x % 5 ) {
   case 0 : out.print("T");
   case 1 : out.print("H"); break;
   case 2 : out.print("A");
   case 3 : out.print("N"); break;
   case 4 : out.print("X");
}
```

QUESTION 4

What is output by the code to the right?

A. 56 B. 28 C. 26 D. 27 E. 105

```
int x = 5 + 3 * 7;
out.println(x);
```

QUESTION 5

What is output by the code to the right?

A. twarkaasbardas
B. twrksbrds
C. twrksbirds
D. twerkiesbirdys
E. There is not output due to a syntax error.

```
String s = "twerkiesbirdys";
s = s.replaceAll("[eiy]" ,"a");
s = s.replaceAll("[a]" ,"");
out.println(s);
```

QUESTION 6

What is output by the code to the right?

A. 15.0 B. 81.0
C. 8.0 D. 243.0
E. There is not output due to a syntax error.

```
out.println( Math.pow(3,5) );
```

QUESTION 7

What of the following statements would correctly fill **<*1>** ?

A. new ArrayList<Byte>()
B. new LinkedList<Long>()
C. new HashSet<Short>()
D. new TreeSet<Integer>()
E. more than one of these

```
List<Byte> x = <*1>;
```

QUESTION 8

Which of the following data types could be assigned the value `'e'` ?

A. `char` B. `int` C. `float` D. `double` E. all of these

QUESTION 9

Which of the following methods is used to sort all of the values in a List?

A. `store()` B. `sift()` C. `arrange()` D. `sort()` E. `merge()`

QUESTION 10

What is output by the code to the right?

A. `1`
B. `0.0`
C. `0`
D. `0.667`
E. There is no output due to a syntax error.

```
Double x = 2 / 3;
out.println(x);
```

QUESTION 11

What does the method `fun( )` at right return?

A. It returns num times bob.
B. It returns num plus bob.
C. It returns num divided by bob.
D. It returns num raised to the power of bob.
E. It returns bob raised to the power of num.

```
public static int fun(
                    int num, int bob )
{
 int ans = 1;

 for( int i = 1; i <= bob; i++ )
 {
    ans = ans * num;
 }
 return ans;
}
```

QUESTION 12

What is output by the code to the right?

A. `56`
B. `52`
C. `2`
D. `51`
E. `4`

```
char x = (char)((5<<3)+10);
out.println(x);
```

QUESTION 13

What is output by the code to the right?

A. `twirkey`
B. `twirkeyburdee`
C. `burdee`
D. `null`
E. There is no output due to a syntax error.

```
String s = "twirkey";
String t = s;
t = "burdee";
out.println(s);
```

QUESTION 14

What is output by the code to the right?

A. `null`
B. `3`
C. `2`
D. `5`
E. `0`

```
Integer[][] mat = new Integer[4][4];

mat[0] = new Integer[6];
mat[2] = new Integer[2];

for( int r=0; r<mat[2].length; r++ )
   Arrays.fill(mat[r], 5);

out.println(mat[3][3]);
```

QUESTION 15

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

A. `[11, 15]` B. `[15, 11]`

C. `[17, 13]` D. `[15, 5]`

E. `[11]`

QUESTION 16

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

A. `[11, 15]` B. `[15, 11]`

C. `[17, 13]` D. `[15, 5]`

E. `[11]`

```
Queue<Integer> q;
q =  new LinkedList<Integer>();
q.add(15);
q.add(11);
out.println(q);            //line 1

q.add(17);
q.remove();
q.add(13);
q.remove();
out.println(q);             //line 2
```

QUESTION 17

What is output by the code to the right?

A. `twerky`

B. `bird`

C. `turkey`

D. `null`

E. `s`

```
String[] s =
        {"turkey","bird","twerky"};
for( String e : s )
{
  s[2]=s[0];
  s[0]=s[2];
  s[1]=s[0];
}
out.println(s[0]);
```

QUESTION 18

Which of the following types could be used in **`<*1>`** without causing syntax error?

A. `short`

B. `int`

C. `String`

D. A and B only

E. A, B, and C

```
switch(  <*1> )
{
 // code not shown
}
```

QUESTION 19

Which of the following best describes the sort algorithm that is used by `Arrays.sort()` to sort primitive values?

A. quicksort B. mergesort C. selection sort D. A and B only E. A, B, and C

QUESTION 20

Which of the following interfaces does `HashMap` implement?

A. `Map` B. `Collection` C. `SortedMap` D. A and B only E. A, B, and C

QUESTION 21

What is output by the code to the right?

A. `21` B. `26` C. `24` D. `23` E. `25`

```
out.println( 0b1001  + 0x11 );
```

QUESTION 22

What is output by the code to the right?

A. `-6` B. `1` C. `-5` D. `3` E. `-1`

```
int[] a = {-5,0,3,6,10,13,45,51};
int pos;
pos = Arrays.binarySearch(a,11);
out.println(pos);
```

QUESTION 23

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

A. `1`
B. `2`
C. `4`
D. `88`
E. `99`

QUESTION 24

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

A. `1`
B. `2`
C. `4`
D. `88`
E. `99`

```
public static void Turkee(
         int[] list, int x, int v)
{
     list[x]=v;
}

public static void Dressing(
                      int[] list)
{
     list=new int[2];
     list[0]=99;
     list[1]=88;
}

////////////////////////////
//client code /////////////////
int[] ray = {1,2,3,4,5};
Turkee(ray,0,4);
out.println(ray[0]);   //line 1
Dressing(ray);
out.println(ray[1]);   //line 2
```

QUESTION 25

What is output by the code to the right?

A. `18`
B. `26`
C. `22`
D. `19`
E. There is no output due to a syntax error.

```
Integer x = 0;
for(int i=1;i<12;i+=3)
   x += i;
out.println( x );
```

QUESTION 26

What is output by the code to the right?

A. `1`
B. `1.00`
C. `0.00`
D. `1.20`
E. There is no output due to a syntax error.

```
double x = 18.0 % 2.4;
out.printf("%.2f", x);
```

QUESTION 27

What is output by the code to the right?

A. `TW-RK--S`
B. `TWERKEES`
C. `-T-W--R-K--S-`
D. `TWRKE`
E. `TWERKEEES`

```
String s = "TWERKEES";
s = s.replaceAll("[AEIOU]*","-");
out.println(s);
```

QUESTION 28

What is output by the code to the right?

A. `20`
B. `23`
C. `28`
D. `45`
E. `25`

```
int x[] = {3,6,9,10,11,16,4,8,-4};
int sum = 0;
for(Integer i : x)
 if(i%2 != 0)
      sum += i;
out.println(sum);
```

QUESTION 29

What is output by the code to the right?

A. `true 7`
B. `true 9`
C. `true 8`
D. `false 9`
E. `false 8`

```
int x = 6;
boolean t = ( x++>6 | ++x>7 ^ x++>7 );
out.println( t + " " + x );
```

QUESTION 30

What is output by the code to the right?

A. `6.78`
B. `6.784`
C. `6.785`
D. `6.783`
E. There is no output due to a syntax error.

```
out.printf("%.3f\n",6.7842356);
```

QUESTION 31

What is returned by `fun(3,4)`?

A. `10`
B. `8`
C. `7`
D. `11`
E. `9`

QUESTION 32

What is returned by `fun(5,7)`?

A. `32`
B. `25`
C. `16`
D. `28`
E. `64`

```
public static int fun(int x, int y)
{
  if(y < 1)
    return x;
  else
    return fun( x, y - 2) + x;
}
```

QUESTION 33

Which of the following statements replaces **<*1 >** so that `Turkee` can be compared to other `Turkee`s without a cast?

A. `Comparable<Turkee>`
B. `Comparable<Object>`
C. `<Turkee>Comparable`
D. `Comparable<String>`
E. more than one of these

QUESTION 34

Assume **<*1>** is filled correctly. Which of the following statements would fill **<*2>** so that the `size` instance variables of two `Turkee`s could be compared?

A. `return size>obj.size;`
B. `return obj.size>size;`
C. `return size.compareTo(obj.size);`
D. `return obj.size.compareTo(size);`
E. `return obj.size.compareTo(obj.size);`

```
class Turkee implements <*1>
{
   public Turkee()
   {
   }

   public int compareTo(Turkee obj)
   {
     <*2>
   }

   private Integer size;
}
```

QUESTION 35

What is the expected average case Big O of the method `test`? Choose the most restrictive answer?

A. $O(n^2)$ B. $O(n)$

C. $O(\log n)$ D. $O(n-1)$

E. $O(1)$

```
public static void test(int[] x)
{
   for(int i=0; i<x.length-1; i++)
      x[i] = x[i] + x.length;
}
```

QUESTION 36

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

A. 0 B. 1

C. 2 D. 3

E. 5

QUESTION 37

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

A. 0 B. 1

C. 2 D. 3

E. 5

QUESTION 38

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

A. 1 2

B. 1 5

C. 5 5

D. 3 3

E. 3 5

QUESTION 39

What is output by `//line 4` in the code to the right?

A. 1 2

B. 1 5

C. 2 5

D. 3 3

E. 3 5

QUESTION 40

What is output by `//line 5` in the code to the right?

A. 1 2

B. 1 5

C. 2 5

D. 3 3

E. 3 5

```
class A {
  private int one;

  public A(){
    one=1;
  }
  public A(int num){
    one=num;
  }
  public void set() {
    one=3;
  }
  public String toString(){
      return "" + one;
  }
}

class B extends A {
  private int one;
  public B() {
    one=2;
  }
  public B(int num){
    one=num;
  }
  public void setEm(){
    one=5;
    set();
  }
  public String toString() {
    return super.toString() + " " + one;
  }
}

//////////////////////////////////////////
//client code/////////////////////////////
A test = new A();
out.println(test);                  //line 1
test.set();
out.println(test);                  //line 2
test = new B();
out.println(test);                  //line 3
((B)test).setEm();
out.println(test);                  //line 4
test.set();
out.println(test);                  //line 5
```