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 51_6 plus 37_8 ?

A. 60_{10} B. 221_5 C. 57_{10} D. 142_6 E. 63_{10}

QUESTION 2

What is output by the code to the right?

A. 22 B. 1111 C. 20 D. 22.0

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

```
int a = 11 + 11;
System.out.println(a);
```

QUESTION 3

What is output by the code to the right?

A. 33 B. 33.0 C. 3 D. 3.3

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

```
Double b = 33;
System.out.println(b);
```

QUESTION 4

What is output by the code to the right?

A. 14 B. 10

C. 9 D. 12

E. 8

```
int c = 0;
for(c = -8; c<8; c=c+2)
{
   c=c+1;
}
System.out.print(c);
```

QUESTION 5

What is output by the code to the right?

A. 5\\\\6 B. 5\6

C. 5\\6 D. 56

E. 0

```
String d = "5\\\\6";
System.out.print(d);
```

QUESTION 6

What is output by the code to the right?

A. 10 B. 11 C. 14 D. 20 E. 13

```
long[] ray = {1,5,6,3,2,8,9,0};
ray[1] = ray[1] * ray[ray.length/2];
System.out.println(ray[1]);
```

QUESTION 7

What is output by the code to the right?

A. yes B. no

C. maybe D. true

E. false

```
boolean sam = false;
boolean ben = true && sam;
ben = !ben;
ben = !!ben || !sam;
System.out.println(ben);
```

QUESTION 8

What is output by the code to the right?

A. rstu

B. rst

C. rs

D. rt

E. ru

```
int theNum = 5;
if(theNum>4)
  System.out.print("r");
else
  System.out.print("s");
if(theNum<4)
  System.out.print("t");
else
  System.out.print("u");
```

QUESTION 9

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

A. `70.0`
B. `50.0`
C. `80.0`
D. `60.0`
E. There is no output due to a syntax error.

QUESTION 10

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

A. `70.0`
B. `50.0`
C. `80.0`
D. `60.0`
E. There is no output due to a syntax error.

```
public class Printer
{
  private double printSpeed;

  public Printer(double spd){
    printSpeed = spd;
  }

  public void faster(){
    printSpeed = printSpeed + 10;
  }

  public void slower(){
    printSpeed = printSpeed - 10;
  }

  public double getSpeed(){
    return printSpeed;
  }
}

//////////////////////////////////////////
//client code
Printer pr = new Printer(50);
pr.faster();
pr.faster();
System.out.println(pr.getSpeed());   //1
pr.slower();
System.out.println(pr.getSpeed());   //2
```

QUESTION 11

Assuming the second number in the answer choices below is inclusive, which range of values could the code at right generate?

A. 20-30 B. 10-29 C. 0-30 D. 0-29 E. 0-19

```
(int)(Math.random()*20)+10
```

QUESTION 12

What is output by the code to the right?

A. `7` B. `7.0`
C. `7.00` D. `7.29`
E. There is no output due to a syntax error.

```
System.out.printf("%.0f",7.29);
```

QUESTION 13

What is returned by method `getIt`?

A. the top left spot from the matrix
B. the bottom right spot from the matrix
C. the bottom left spot from the matrix
D. the top right spot from the matrix
E. There is no output due to an `IndexOutOfBoundsException`.

```
  //iMat will always be a square matrix
public static int getIt(int[][] iMat)
{
  int end = iMat.length-1;
  end = iMat[end][end];
  return end;
}
```

QUESTION 14

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

A. `6` B. `5`
C. `9` D. `11`
E. `10`

```
public static int doIt(String word)
{
  return word.lastIndexOf("9");
}

//////////////////////////////////////////
//client code
out.println(doIt("d3a35a98dsf97"));   //1
```

QUESTION 15

What is output by the code to the right?

A. yond B. sea C. the D. beyon E. yondt

```
String j = "beyondthesea";
System.out.print(j.substring(2,6));
```

QUESTION 16

What is output by the code to the right?

A. 6

B. 4

C. 0

D. 3

E. 8

```
int bug = 3;
switch(bug){
  case 2 : bug = 4;
  case 3 : bug = 6; break;
  case 4 : bug = 8; break;
  case 5 : bug = 0;
}
System.out.println(bug);
```

QUESTION 17

Based on the code to the right, which value below is closest to the most typical output?

A. -50 B. 50 C. -100 D. 100 E. 0

```
int trap = 0;
for(int z=1; z<=100; z++)
{
  int sur = //input random int value
  trap = sur%2==0?trap+1:trap-1;
}
System.out.println(trap);
```

QUESTION 18

What is output by the code to the right?

A. false B. true C. stop D. 0 E. 1

```
boolean k=true, m=true, p=false;
System.out.println(k ^ !(m || p));
```

QUESTION 19

What is output by the code to the right?

A. [1, 7, 8]

B. [8, 7, 1]

C. [7, 1, 8]

D. [8, 1, 7]

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

```
ArrayList<Integer> bunch;
bunch = new ArrayList<Integer>();
bunch.add(7);
bunch.add(1);
bunch.add(8);
Collections.sort(bunch);
Collections.reverse(bunch);
Collections.rotate(bunch, -1);
System.out.println(bunch);
```

QUESTION 20

What is output by the code to the right?

A. 5.0 B. 4.0 C. 4 D. 5 E. 4.89

```
double dbl = Math.floor(4.89);
System.out.print(dbl);
```

QUESTION 21

What is output by the code to the right?

A. 2 B. 4 C. 9 D. 5 E. 7

```
System.out.println(9 | 8 & 11);
```

QUESTION 22

What is returned by the method call `what(new int[]{3,1,2,5,-3,0,1,0})` ?

A. 8 B. -10 C. -6 D. -14 E. 12

QUESTION 23

What is returned by the method call `what(new int[]{0,1,-1,0,-1,2,1})` ?

A. 8 B. -10 C. -6 D. -14 E. 12

```
public static int what(int[] x)
{
  int back=0;
  for(int it : x)
  {
    for(int h=0; h<=it; h++)
      back=back-2;
    for(int h=0; h<it; h++)
      back=back+2;
  }
  return back;
}
```

QUESTION 24

Method `go` is which standard sorting algorithm?

A. bubble sort
B. quick sort
C. merge sort
D. selection sort
E. insertion sort

QUESTION 25

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

A. `1`
B. `6`
C. `8`
D. `2`
E. `5`

QUESTION 26

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

A. `1`
B. `6`
C. `8`
D. `2`
E. `5`

```
public class FunHouse
{
   public static void go(int[] a, int x)
   {
     for (int i=1; i<x; ++i)
     {
       int val = a[i];
       int j = i;
       while(j>0 && val<a[j-1]){
         a[j] = a[j-1];
         j--;
       }
       a[j] = val;
     }
   }
}

//////////////////////////////////////////
//client code
int[] br = {3,5,6,1,2,8,9,4};


FunHouse.go(br,3);
out.println(br[br.length/2]);    //1

FunHouse.go(br,6);
out.println(br[br.length/2]);    //2
```

QUESTION 27

What is output by the code to the right?

A. `itatbo`
B. `itat`
C. `atbojo`
D. `atbojogo`
E. There is no output due to a runtime error.

```
String junk = "it at bo jo go";
Scanner chop;
chop = new Scanner(junk);

System.out.print(chop.next());
System.out.print(chop.next());
System.out.print(chop.next());
```

QUESTION 28

What is returned by the method call `OL.ooh(3)` ?

A. `9`
B. `6`
C. `6.0`
D. `9.0`
E. There is no output due to a runtime error.

```
public class OL
{
  public static double ooh(int x){
    return 3*x;
  }
  public static double ooh(double x){
    return 2*x;
  }
}
```

QUESTION 29

What is returned by the method call `wow(21)` ?

A. `22`
B. `70`
C. `81`
D. `63`
E. `15`

QUESTION 30

What is returned by the method call `wow(13)` ?

A. `22`
B. `70`
C. `81`
D. `63`
E. `15`

```
public static int wow(int x)
{
  if(x<2)
    return 1;
  else
    return wow(x-4) + wow(x-3);
}
```

QUESTION 31

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

A. `null`

B. `fun`

C. `sun`

D. `bun`

E. `gun`

QUESTION 32

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

A. `null`

B. `fun`

C. `sun`

D. `bun`

E. `gun`

```
//ListNode is a class that contains
//      the following two methods
//getValue() - returns node's value
//getNext() - returns node's next reference

ListNode aNode;
aNode = new ListNode("fun", null);
ListNode bNode;
bNode = new ListNode("sun", aNode);
ListNode cNode;
cNode = new ListNode("bun", bNode);
ListNode dNode;
dNode = new ListNode("gun", cNode);

out.println(dNode.getValue());      //1

ListNode nxt = dNode.getNext().getNext();
nxt = nxt.getNext();
System.out.println(nxt.getValue());   //2
```

QUESTION 33

Which of the following could replace **<*1>** in the code to the right so that `iter` would refer to an iterator of the keys in the map?

A. `map.iterator();`

B. `map.keySet();`

C. `map.keySet().iterator();`

D. `map.setKey();`

E. more than one of these

QUESTION 34

Assuming that **<*1>** is filled correctly, what is output by the line marked `//1` in the code to the right?

A. 8 B. 7 C. 4 D. 2 E. 6

QUESTION 35

Assuming that **<*1>** is filled correctly, what is output by the line marked `//2` in the code to the right?

A. 8 B. 7 C. 4 D. 2 E. 6

```
Map<String, Integer> map;
map = new TreeMap<String, Integer>();

Stack<Integer> stack;
stack = new Stack<Integer>();

map.put("q", 4);
map.put("w", 7);
map.put("e", 8);
map.put("e", 3);
map.put("y", 6);

Iterator<String> iter;
iter = <*1>
while(iter.hasNext())
  if("wer".indexOf(iter.next())>-1)
     stack.push(map.get(iter.next()));

out.println(stack.pop());              //1
out.println(stack.peek());             //2
```

QUESTION 36

What is the minimum number of methods that class `BlueBox` could contain?

A. 0

B. 1

C. 2

D. 3

E. There is not enough information to determine.

QUESTION 37

Which of the following could replace **<*1>** in the client code to the right?

A. `Box big = new BlueBox();`

B. `Box med = new Box();`

C. `BlueBox tiny = new Box();`

D. `Box huge = new Box(44);`

E. more than one of these

```
public interface Box{
   public int getHeight();
   public int getWidth();

}

public class BlueBox implements Box{
   private int width;
   private int height;

   //methods not shown
}

//////////////////////////////////////////
//client code
<*1>
```

QUESTION 38

Assume that method `superSort(Object[] objs)` is $O(N^2)$ where N = `obj.length`. When method `superSort` is passed an Object array of length 10000 it takes 0.50 seconds for method `superSort` to complete. If method `superSort` is passed an Object array of length 20000, how many seconds would it take `superSort` to complete?

A. 0.100

B. 0.50

C. 0.80

D. 1.00

E. 2.00

QUESTION 39

Which of the following replaces **<*1>** in class `What` so that method `build` would be defined to return an `ArrayList` of integers and `list` would be defined as an `ArrayList` of integers?

A. `ArrayList<int>`

B. `ArrayList<Int>`

C. `ArrayList<Integer>`

D. `List<int>`

E. more than one of these

QUESTION 40

Which of the following replaces **<*2>** in the `build` code to the right so that each value found that exists in both arrays would be added to `list`?

A. `list.add(check);`

B. `list.add(x[j]);`

C. `list.add(y[i]);`

D. A and B only

E. A, B, and C only

```
public class What
{

  //method build will return an ArrayList
  //that contains all values that exist
  //both in array x and in array y

  public <*1>  build(int[] x, int[] y)
  {
    <*1>  list = new  <*1>  ();

    for(int i=0; i<x.length; i++)
    {
      int check = x[i];
      for(int j=0; j<y.length; j++)
      {
        if(check == y[j]){
          <*2>
          break;
        }
      }
    }
    return list;
  }

}
```