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 100011_2 plus 1111_2 ?

A. 110100_2 B. 32_{10} C. 32_{16} D. 34_{10} E. 34_{16}

QUESTION 2

What is output by the code to the right?

A. 26 B. -12 C. -22 D. 24 E. 36

```
int x = -4;
int y = 2 - x * 6;
System.out.println(y);
```

QUESTION 3

What is output by the code to the right?

A. 1.0 B. 5.0 C. 4.0 D. 3.0 E. 2.0

```
double x = 5;
x -= 3;
System.out.println(x);
```

QUESTION 4

What is output by the code to the right?

A. 8 B. 12 C. 6 D. 7 E. 0

```
int x = 0;
for(int k = -3; k <= 3; k++)
   x++;
System.out.println(x);
```

QUESTION 5

What is output by the code to the right?

A. w B. n C. i D. space E. e

```
String quote = "Now is the winter";
System.out.println(quote.charAt(10));
```

QUESTION 6

What is output by the code to the right?

A. Zack B. Eric C. Sara D. Ben E. Ashley

```
String[] names = {"Paul", "Ben",
   "Sara", "Zack", "Eric", "Ashley"};
System.out.println(names[3]);
```

QUESTION 7

What is output by the code to the right?

A. true B. false || true

C. !a || !b D. false

E. !true || !false

```
boolean a = true;
boolean b = false;
System.out.println(!a || !b);
```

QUESTION 8

What is output by the code to the right?

A. yesmaybe B. yes

C. no D. nomaybe

E. yesno

```
int x = 5;
if(x > 0)
   System.out.print("yes");
if(x < 10)
   System.out.print("no");
else
   System.out.print("maybe");
```

QUESTION 9

What is output by the code to the right?

A. 25 B. 251312

C. 1312 D. 13 12

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

```
int x = 13, y = 12;
System.out.println(x + y);
```

QUESTION 10

Which of the following correctly instantiates an object from the class to the right?

A. `String pen = new Pen("Green");`

B. `Pen pen = new Pen();`

C. `Pen pen = new Pen("Green");`

D. A and B only.

E. B and C only.

```
public class Pen{

   private String myColor;

   public Pen(String col){
      myColor = col;
   }

   public String toString(){
      return myColor;
   }
}
```

QUESTION 11

What is output by the code to the right?

A. `6` B. `5` C. `6.0` D. `5.26` E. `5.0`

```
System.out.println(Math.ceil(5.26));
```

QUESTION 12

Assuming "-" indicates a space, what is output by the code to the right?

A. `O-h-i-o---` B. `---O-h-i-o`

C. `------Ohio` D. `Ohio------`

E. `---Ohio---`

```
System.out.printf("%10s","Ohio");
```

QUESTION 13

What is output by the code to the right?

A. `College122` B. `12College9416`

C. `College` D. `12College110`

E. `129`

```
out.println(12 +"College" + 94 + 16);
```

QUESTION 14

What is output by the code to the right?

A. `2` B. `4` C. `1` D. `5` E. `0`

```
int[][] x = {{1,2,3},
             {4,5,6},
             {7,8,9}};
System.out.println(x[0][1]);
```

QUESTION 15

How many lines of output does the code to the right produce?

A. `0` B. `5` C. `3` D. `6` E. `1`

```
for(double c = 2.5; c < 3; c += 0.1)
   System.out.println("Ouch");
```

QUESTION 16

What is output by the code to the right?

A. `ticket` B. `t` C. `i`

D. `icket`

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

```
String x = "theticket";
System.out.print(x.substring(4));
```

QUESTION 17

What is output by the code to the right?

A. `42` B. `29` C. `63` D. `71` E. `8`

```
System.out.println(29 & 42);
```

QUESTION 18

What is output by the code to the right?

A. `true` B. `false`

C. `isReady`

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

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

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

QUESTION 19

What is output by the code to the right?

A. `3` B. `4`

C. `1` D. `2`

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

```
ArrayList<Integer> list;
list = new ArrayList<Integer>();
list.add(4);
list.add(3);
list.add(new Integer(2));
out.println(list.get(3));
```

QUESTION 20

What is the value of x?

A. `14.5` B. `14` C. `1` D. `4` E. `1.45`

```
int x = 102 / 7 % 10;
```

QUESTION 21

What is output by the code to the right?

A. `12 6 5 -2 8 -3 2`

B. `4 4 4 -2 8 -3 2`

C. `12 6 5 -2 8 -3 4`

D. `12 6 5 -2 8 -3 196`

E. `2 4 16 -2 8 -3 2`

```
int[] list = {12,6,5,-2,8,-3,2};
int x = 0;
while(list[x] > 0)
  list[x++]=(int)Math.pow(list[6],2);
for(int y : list)
  out.print(y + " ");
```

QUESTION 22

What is returned by the method call `mystery("real",2)`?

A. `a` B. `*` C. `!` D. `?` E. `u`

QUESTION 23

What is returned by the method call `mystery("beautiful",3)`?

A. `?`

B. `x`

C. `t`

D. `d`

E. `!`

```
public char mystery(String s, int i)
{
   int x = s.charAt(i);
   if(x == 'a')
      return '!';
   else if(x == 'e')
      return '?';
   else if(x == 'i')
      return '*';
   else
      return (char)((x+10)%26+'a');
}
```

QUESTION 24

Which of the following correctly replaces **<*1>** in the code to the right?

A. `int x`

B. `new A(int x, int y)`

C. `int x, int y`

D. `no code is necessary`

E. `12, 17`

QUESTION 25

Which of the following correctly replaces **<*2>** in the code to the right?

A. `new A(x, y);`

B. `no code is necessary`

C. `super();`

D. `new A();`

E. `super(x, y);`

QUESTION 26

Which of the following correctly replaces **<*3>** in the code to the right without error?

A. `apple.stuff()`

B. `boy.stuff()`

C. `boy`

D. A and B only.

E. A, B, and C only.

```
public class A
{
   private int a, b;

   public A(int x, int y)
   {
      a = x;
      b = y;
   }

   public int stuff()
   {
      return a * b;
   }
}

public class B extends A
{
   public B( <*1> )
   {
      <*2>
   }
}

//////////////////////////////////////
//client code
A apple = new A(5,3);
B boy   = new B(12,17);
out.println( <*3> );
```

QUESTION 27

What sorting algorithm does the code to the right implement?

A. selection sort

B. insertion sort

C. bubble sort

D. quick sort

E. merge sort

QUESTION 28

What would the ArrayList `y` look like after 3 passes through the sort at the right?

A. `[E, U, Q, S, T, I, O, N]`

B. `[E, I, N, S, T, U, O, Q]`

C. `[E, Q, S, U, T, I, O, N]`

D. `[E, I, N, U, T, S, Q, O]`

E. `[E, I, N, O, Q, S, T, U]`

```
ArrayList<Character> y;
y = new ArrayList<Character>();
String x = "QUESTION";

for(int i = 0; i<x.length(); i++)
   y.add(x.charAt(i));

int i = 1;
while(i < y.size())
{
   int j = i;
   char temp = y.get(j);
   while(j > 0 && temp < y.get(j-1))
   {
      y.set(j,y.get(j-1));
      j--;
   }
   y.set(j,temp);
   i++;
   //A pass is completed each
   //time this comment is reached.
}
```

QUESTION 29

What is returned by the method call `myst(2, 6)`?

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

QUESTION 30

What is returned by the method call
`myst(myst(2,6),myst(-5,7))`?

A. `4` B. `0` C. `10` D. `6` E. `8`

```
public static int myst(int a, int b)
{
   if(a < b)
      return 1 + myst(a + 1, b);
   return 0;
}
```

QUESTION 31

What is AB_{16} minus 15_{16}?

A. 10010110_2 B. $9A_{16}$ C. 149_{10} D. 216_8 E. 94_{16}

QUESTION 32

What would be printed out if an in order traversal is used?

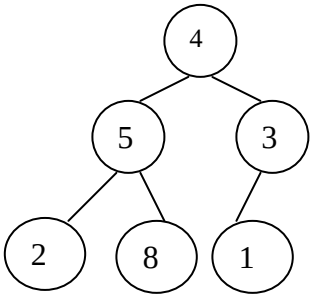
A. `2 8 5 1 3 4`

B. `2 5 8 4 1 3`

C. `4 5 2 8 3 1`

D. `1 2 3 4 5 8`

E. `4 5 3 2 8 1`



QUESTION 33

Which of the following correctly replaces **<*1>** in the code to the right?

A. `new Stack<Integer>();`

B. `new ArrayList<Integer>();`

C. `new LinkedList<Integer>();`

D. B and C only.

E. A, B, and C.

QUESTION 34

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

A. `44` B. `64` C. `168` D. `84` E. `126`

QUESTION 35

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

A. `128` B. `67` C. `99` D. `98` E. `211`

```
Stack<Integer> x = <*1>;
x.push(22);
x.push(42);
x.push(84);
out.print(x.peek()+x.peek());     //2
x.push(12);
x.push(14);
x.pop();
x.pop();
out.println(x.pop() + x.peek() +
                        x.size()); //3
```

QUESTION 36

How does the priority queue to the right behave like?

A. binary search tree
B. min heap tree
C. max heap tree
D. a queue
E. a linked list

```
PriorityQueue<Integer> pq;
pq = new PriorityQueue<Integer>();

Integer[] x = {17, 38, 2, 22, 30, 10};

for(Integer i : x)
   pq.add(i);

System.out.println(pq);
```

QUESTION 37

What is output by the code to the right?

A. `[2, 10, 17, 22, 30, 38]`
B. `[17, 2, 38, 10, 22, 30]`
C. `[38, 30, 10, 17, 22, 2]`
D. `[2, 22, 10, 38, 30, 17]`
E. `[17, 38, 2, 22, 30, 10]`

QUESTION 38

What is output by the code to the right?

A. `24` B. `16` C. `8` D. `32` E. `29`

```
System.out.println(16 >> 3 << 4);
```

QUESTION 39

What is the size of list after the code to the right is run?

A. `1` B. `5` C. `2` D. `3` E. `4`

```
String s = "ohtheplacesyouwillgo";
String[] list = s.split("e");
```

QUESTION 40

Which of the following values of `s` will make the code to the right print `true`?

A. `buses`
B. `tests`
C. `estates`
D. A and C only.
E. A, B, and C only.

```
System.out.print(s.matches(".+es"));
```