

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 132_{10} plus 1111_2 ?	
A. 149_{10} B. 1243_{16} C. 10010011_2 D. 10010101_2 E. 95_{16}	
QUESTION 2	
What is output by the code to the right?	<pre>int x = 0b111, y = 0b101101; y = x * y + y / x; out.println(y);</pre>
A. 54 B. 0b101000001 C. 0b110111110 D. 321 E. 446	
QUESTION 3	
What is output by the code to the right?	<pre>int x = 29, y = 13; y %= x / 4; out.println(y);</pre>
A. 7 B. 1 C. 6 D. 3 E. 11	
QUESTION 4	
What is output by the code to the right?	<pre>int k = 35, total = 0; while(k > 0) { total += k; k -= 8; } System.out.println(k);</pre>
A. 0 B. 3 C. -5 D. 95 E. 94	
QUESTION 5	
What is output by the code to the right?	<pre>String song = "School of Rock"; song = song.substring(4,12); System.out.println(song);</pre>
A. hol of Roc B. ol of Ro C. ol of Roc D. hol of Ro E. hol of R	
QUESTION 6	
What is output by the code to the right?	<pre>int n[] = {2,5,4,0,4,8,1,3}; out.println(n[n[n[n[n[n[1]]]]]]);</pre>
A. 0 B. 8 C. 1 D. 3 E. There is no output due to runtime error	
QUESTION 7	
When is the variable d true?	<pre>boolean x,y,z,d; d = x && z z && (!x x && y); out.println(d);</pre>
A. only when x is true and z is false B. only when all values are true C. only when x is false D. only when z is true E. d is never true	

QUESTION 8

What is output by the code to the right?

- A. A++!BA B. B++ (BA
C. BA+!+BAAB D. A+!AB
E. B+!BA

```
String str = "";
int list[] = {4,2,0,1,8,9};
for(int x:list)
    switch(x)
    {
        case 0: str+="!";
        case 1: break;
        case 2: str+=" "; break;
        case 3: str+="("; break;
        default: str+=(x%2==0)?"A":"B";
    }
out.println(str);
```

QUESTION 9

Which array would print (A!B ?

- A. [5, 1, 40, 101]
B. [5, 40, 1, 101]
C. [3, 6, 0, 7]
D. [5, 2, 2, 3]
E. [3, 7, 1, 6]

QUESTION 10

Which line of code will return the number of hits?

- A. nimitz.artillary()
B. nimitz.battleClass()
C. nimitz.getHits()
D. nimitz.hits
E. nimitz.battleClass()-nimitz.artillary()

```
class Ship
{
    private int size;
    private int hits;

    public Ship(int s)
    {
        size = s;
        hits = 0;
    }

    public void damage(int x)
    { hits+=x; }

    public int artillary()
    { return size-hits; }

    public int battleClass()
    { return size; }
}

////////////////////////////////////
//////////CLIENT CODE//////////
Ship nimitz = new Ship(500);
```

QUESTION 11

What is a possible output by the code to the right?

- A. 42 B. 99 C. 0 D. 12 E. 55

```
int x = (int) (Math.random()*42)+13;
out.println(x);
```

QUESTION 12

What is output by the code to the right? (- is a space)

- A. %5.4f--5--5
B. %5.4f--5
C. 5.4023-5
D. 5.4025.402
E. There is no output due to a syntax error

```
String str = "%5.4f";
double k = 5.402326;
out.printf("%s%3.0f",str,k,k);
```

QUESTION 13

What is output by the code to the right?

- A. ATE2
- B. ATE0
- C. ATE3
- D. ATE5
- E. There is no output due to a run-time error

```
out.println("ATE" + '5' % 5);
```

QUESTION 14

What is output by the code to the right?

- A. 0
- B. 16
- C. 2
- D. 22
- E. 20

```
int k = 0;
int x[][] = new int[5][5];
for(int i=1; i<6; i++)
    for(int j=38; j<43; j++)
        x[j%5][i%5] = k++;
out.println(x[0][0]);
```

QUESTION 15

Which of the following lines of code does NOT return the value 0?

- A. stuff(5,4);
- B. stuff(1,1);
- C. stuff(1,5);
- D. stuff(5,1);
- E. stuff(4,-5);

```
public static int stuff(int x, int y)
{
    int total = 0;
    for (int i=y; i>x; i--)
        total += i;
    return total;
}
```

QUESTION 16

What is output by the code to the right?

- A. 43.61043.610hbp
- B. 43.610hbp
- C. 43.610
- D. bp
- E. bp43.610hbp

```
String str = "43.610hbp";
double x;
try{
    x = Double.parseDouble(str);
    out.print(x);
}
catch(Exception e){
    out.print(str.substring(7));
}
finally{
    out.print(str);
}
```

QUESTION 17

What is output by the code to the right?

- A. 12
- B. 3
- C. 44
- D. 60
- E. 47

```
out.println(35^15);
```

QUESTION 18

When would d be false?

- A. a = true; b = false; c = true;
- B. a = true; b = true; c = true;
- C. a = false; b = false; c = true;
- D. a = false; b = true; c = false;
- E. d is never false

```
boolean a,b,c,d;
d = (a | b) & !c | c & (!c | a | b);
```

<p>QUESTION 19</p> <p>What is output by the code to the right?</p> <p>A. [-5, -4, -2, -1, 1, 2, 3, 4, 5, 0] B. [-3, -1, -1, 1, 2, 3, 4, 5, 0, -5] C. [-4, -3, -1, -1, 1, 2, 3, 4, 5, 0, -5] D. [-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5] E. [-4, -2, -2, 0, 1, 2, 3, 4, 5, -1]</p>	<pre>ArrayList<Integer> x; x = new ArrayList<>(); for(int i=-5; i<=5; i++) x.add(i); x.set(3,x.get(4)); x.add(x.remove(5)); x.add(-5); x.remove(0); out.println(x);</pre>
<p>QUESTION 20</p> <p>What is output by the code to the right?</p> <p>A. 1029 B. 1209 C. 2 D. 0 E. 4</p>	<pre>int abbot = 4836; int costello = abbot % 4; out.println(costello);</pre>
<p>QUESTION 21</p> <p>What is output by the code to the right?</p> <p>A. 4 B. 5 C. 7 D. 6 E. 3</p>	<pre>String line = "Does it really stop?"; int size = 1; int count = 0; while(line.charAt(size)!='t') { line = line.substring(size); count++; } out.println(count);</pre>
<p>QUESTION 22</p> <p>What is returned by the method call <code>myst("Trigun", 2)</code>?</p> <p>A. TrBBBn B. aaigua C. Trigun D. AAiguA E. Trbbbn</p>	<pre>public static String myst(String str, int x) { String temp = ""; for(int i=0; i<str.length(); i++) { int num = str.charAt(i)%x; if(num!=0) temp+=(char)(num+'A'); else temp+=str.charAt(i); } return temp; }</pre>
<p>QUESTION 23</p> <p>What is returned by the method call <code>myst("Bebop", 7)</code>?</p> <p>A. Bebop B. BeAoA C. beaoa D. DDbGp E. ddbgp</p>	<pre>public static String myst(String str, int x) { String temp = ""; for(int i=0; i<str.length(); i++) { int num = str.charAt(i)%x; if(num!=0) temp+=(char)(num+'A'); else temp+=str.charAt(i); } return temp; }</pre>

QUESTION 24

Which of the following correctly replaces <*1> in the code to the right such that mana is returned?

- A. mana
- B. getMana()
- C. super.getMana()
- D. super.mana
- E. dose

QUESTION 25

Which of the following correctly replaces <*2> in the code in order to use the getDose() method?

- A. x instanceof Kit
- B. Kit == true
- C. x instanceof Energy
- D. x is a Kit
- E. Energy == true

QUESTION 26

What is output by line <*3> in the code on the right?

- A. 75.8
- B. 0.0
- C. 29.0
- D. 19.2
- E. 67.2

```
class Energy
{
    private double mana;
    public Energy(double x)
    {    mana = x;    }

    public double getMana()
    {    return mana;    }
}

class Kit extends Energy
{
    private int dose;
    public Kit(double x, int y)
    {
        super(x);
        dose = y;
    }
    public double getMana()
    {
        if(dose>0)
        {
            dose--;
            return <*1>;
        }
        else
            return 0;
    }
    public int getDose()
    {
        return dose;
    }
}

////////////////////////////////////
///CLIENT CODE////////////////////////////////////
ArrayList<Energy> pack;
pack = new ArrayList<Energy>();
pack.add(new Energy(3.6));
pack.add(new Kit(3.3,3));
pack.add(new Kit(5,10));
pack.add(new Energy(12.3));
double sum = 0;
while(!pack.isEmpty())
{
    Energy x = pack.get(0);
    sum+=x.getMana();
    if(<*2>)
    {
        if (((Kit)x).getDose()==0)
            pack.remove(0);
    }
    else
        pack.remove(0);
}
System.out.println(sum); <*3>
```

QUESTION 27

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

- A. 26
- B. 0
- C. 3
- D. 6
- E. 1

```
String x = "fuzzywuzzybuzzy";
int[] count = new int[26];

for(int i=0; i<x.length(); i++)
    count[x.charAt(i)-'a']++;
out.println(count[25]);    //line 1

ArrayList<Character> list;
list = new ArrayList<>();
```

QUESTION 28

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

- A. [B, F, U, W, Y, Z]
- B. [f, u, z, y, w, b]
- C. [b, f, w, u, y, z]
- D. [b, f, u, w, y, z]
- E. [F, U, Z, Y, W, B]

```
for(int k=0; k<count.length; k++)
    if(count[k]!=0)
        list.add((char)('A'+k));
out.println(list);    //line 2
```

QUESTION 29

What is returned by the method call `mystery("2545")`?

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

```
public static int mystery(String x)
{
    String str1, str2;
    if(x.length()<=1)
        return 1;
    int num = x.length()/2;
    if(x.charAt(x.length()/2)=='5')
        return 2;
    str1 = x.substring(0,num-1);
    str2 = x.substring(num);
    return mystery(str1)+mystery(str2);
}
```

QUESTION 30

What is returned by the method call `mystery("12354765789")`?

- A. 8 B. 11 C. 5 D. 13
- E. 10

QUESTION 31

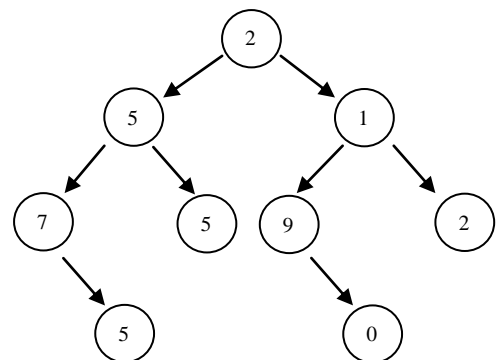
Given that a method has a running time of $O(n^2)$, where n is equal to the size of data being used. The method took 5 seconds when it was run with $n = 20,000$. What is the expected time for the method to run when $n = 80,000$.

- A. 25 seconds
- B. 80 seconds
- C. 8 seconds
- D. 20 seconds
- E. 2 seconds

QUESTION 32

What would be printed out if a pre-order traversal is used?

- A. 7 5 5 5 2 9 0 1 2
- B. 2 5 1 7 5 9 2 5 0
- C. 0 1 2 2 5 5 5 7 9
- D. 5 7 5 5 0 9 2 1 2
- E. 2 5 7 5 5 1 9 0 2



QUESTION 33

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

- A. [Mustangs, Tigers, Bears, Longhorns, Aggies]
- B. [Aggies, Tigers, Bears, Mustangs, Longhorns]
- C. [Aggies, Bears, Longhorns, Mustangs, Tigers]
- D. [Tigers, Mustangs, Longhorns, Bears, Aggies]
- E. [Aggies, Longhorns, Bears, Tigers, Mustangs]

```
Stack<String> st;
st = new Stack<String>();
st.add("Aggies");
st.add("Longhorns");
st.add("Bears");
st.add("Tigers");
st.add("Mustangs");
out.println(st);           //line 1
```

QUESTION 34

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

- A. [Aggies, Bears, Frogs, Longhorns]
- B. [Bears, Tigers, Mustangs, Frogs]
- C. [Aggies, Longhorns, Bears, Frogs]
- D. [Frogs, Bears, Longhorns, Aggies]
- E. [Frogs, Mustangs, Tigers, Bears]

```
st.pop();
st.pop();
st.push(st.pop());
st.push("Frogs");
out.println(st);           //line 2
```

QUESTION 35

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

- A. noa
- B. an empty string
- C. agso
- D. oan
- E. There is no error due to a run-time error

```
String str = "";
while(!st.peek().equals("Aggies"))
    str += st.pop().charAt(2);
out.println(str);           //line 3
```

QUESTION 36

Consider the code to the right. What is the output by //line 1?

- A. [abcd, cdba, acbd, adcb, abba]
- B. [abcd, abba, acbd, cdba, adcb]
- C. [abba, adcb, acbb, cdba, abcd]
- D. [abba, abcd, acbd, cdba, adcb]
- E. [abba, adcb, cdba, acbd, abcd]

```
PriorityQueue<String> q;
q = new PriorityQueue<>();
```

```
q.add("abcd");
q.add("cdba");
q.add("acbd");
q.add("adcb");
q.add("abba");
out.println(q);           //line 1
```

QUESTION 37

Consider the code to the right. What is the output by //line 2?

- A. cdab
- B. abad
- C. abba
- D. aaaa
- E. abcd

```
q.add("cdab");
q.remove();
q.add("aaaa");
q.remove();
q.add("abad");
q.remove();
out.println(q.remove()); //line 2
```

QUESTION 38

What is output by the code to the right?

- A. 2555
- B. 40
- C. 16
- D. 100111
- E. 408920000

```
out.println(40892 >> 4);
```

QUESTION 39

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

- A. 5
- B. 1
- C. 4
- D. 6
- E. 3

```
String x = "welcometotallyhall";
String[] st = x.split("l");
```

```
out.println(st.length);    //line 1
```

QUESTION 40

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

- A. we
- B. welcometotallyhall
- C. yha
- D. cometota
- E. an empty string

```
int z = st.length-2;
out.println(st[ z ]);      //line 2
```