This quiz is to be taken by yourself with closed books, closed notes, no calculators.

(Partial) Operator Precedence Table

<table>
<thead>
<tr>
<th>Operators</th>
<th>Associativity</th>
</tr>
</thead>
<tbody>
<tr>
<td>! ++ --</td>
<td>right to left</td>
</tr>
<tr>
<td>* / %</td>
<td>left to right</td>
</tr>
<tr>
<td>+ -</td>
<td>left to right</td>
</tr>
<tr>
<td>&lt; &lt;= &gt; &gt;=</td>
<td>left to right</td>
</tr>
<tr>
<td>== !=</td>
<td>left to right</td>
</tr>
<tr>
<td>&amp;&amp;</td>
<td>left to right</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>=</td>
<td>right to left</td>
</tr>
</tbody>
</table>

1) Which of the following are not valid Java identifiers? (Circle your answer(s).)

- this&that
- thisRthat
- This2That
- integer
- This-That
- this_R_that
- 2_This_That
- this1+that1

2) Using the operator precedence table above, evaluate each expression and state what gets printed. Remember short-circuit evaluation with && and ||.

```java
int a = 5;
int b = 2;
int c = -2;
boolean exp1 = a + b * c <= a + c * b;  _________  (value of exp1)
boolean exp2 = !(c + a > b);  _________  (value of exp2)
boolean exp3 = b - a >= c;  _________  (value of exp3)
boolean z = exp1 && exp2 || exp3;
System.out.print( "z = " + z );  ____________________
z = !exp3 || exp2 && exp1;
System.out.print( "z = " + z );  ____________________
b = --b + ++a % 4 * c++ * 2;
System.out.print( "a = " + a );  ____________________
System.out.print( "b = " + b );  ____________________
System.out.print( "c = " + c );  ____________________
```

3) In general, you should define instance variables to be (Circle the letter of the correct answer):

A. public
B. private
C. primitive data types
D. reference data types

(Continued on other side)
4) Which of the following Java constructs would most likely be considered a mutator? (Circle correct letter)
   A. canvas.getWidth()
   B. sun = new FilledOval( 50, 150, 100, 100, canvas )
   C. greeting.setText( "Hello" )
   D. sun.moveTo( 50, 150 )

5) What gets printed with each of the following statements?

```java
int a = 1;
int b = 2;
int c = 5;
System.out.println( a + (b + c) + " = " + (a + b) + c );

System.out.println( (a + b + c) + " = " + a + b + c );

System.out.println( (a + b) + c + " = " + a + (b + c) );
```

6) What values of \(a\) and \(b\) would result in the following code printing "D"?

```java
int a = ______;
int b = ______;

if ( (a > 0) || (b > 0) )
{
   if ( a > b )
   {
      System.out.println( "A" );
   }
   else
   {
      System.out.println( "B" );
   }
}
else if ( (a < 0) || (b < 0) )
{
   System.out.println( "C" );
}
else
{
   System.out.println( "D" );
}
```