Introduction to Computer Science I

SAMPLE MID-TERM EXAM

1. Provide short answers (one to three sentences) to each of the following questions:

   (a) If a Java program compiles with no errors, is it then guaranteed to run correctly? Justify your answer.

   (b) Consider the following declaration: int[] x;

       What, specifically, is in the space named x?

   (c) What, in Java, is an expression?

2. Complete this truth table of Java’s Boolean logic operators:

   |   |   | a & b | a || b | a == b | a != b |
   |---|---|-------|-------|--------|--------|
   | F | F |   F   |   F   |        |        |
   | F | T |   F   |   T   |        |        |
   | T | F |   F   |   T   |        |        |
   | T | T |   T   |   T   |        |        |

3. Write a method named printBigV that, when passed a size (in this example, 5), prints the following pattern:

   \ /  \\
   \ /  \\
   \ /  \\
   \ /  \\
   \ /

4. Complete the following method such that it changes the given array of char by changing all lowercase letters into uppercase ones. [Hint: Recall that each character is really a number, internally, and that the characters A to Z are represented with 26 values in a row, as are characters a to z by a different 26 contiguous numbers. You do not need to know what those specific numeric values are.]

   public static void toUpperCase (char[] msg)
5. What is the output of this program, `Conditionals`, when it is run?

```java
public class Conditionals {

    public static void main (String[] args) {
        foo(-5);
        bar(-5);
    }

    public static void foo (int x) {
        if (x < 0) {
            System.out.println("Message 1: "+ x);
            x = -x;
        }
        if (x >= 0) {
            System.out.println("Message 2:"+ x);
            x = -x;
        }
        System.out.println("Message 3: "+ x);
    }

    public static void bar (int x) {
        if (x < 0) {
            System.out.println("Message A: "+ x);
            x = -x;
        } else {
            System.out.println("Message B: "+ x);
            x = -x;
        }
        System.out.println("Message C:" + x);
    }

}
```