SE1011: Exam 1   Name:

This is a closed-book, closed-computer, etc. exam. You may use one 8.5"x11" sheet of notes, which you will turn in with your exam. Review all questions before you get started. Use the page at the end of the exam for extra work. The exam is printed double-sided.

1. (10 points (pts.)) For each item, write "yes" if the code compiles. If it does not compile, fix it. The type and contents of each variable should be the same as the broken code.

   a. int x = 5;
      long y = x;

   b. double d = 5.3;
      float f = d;

   c. long l = 100000000000000;

   d. float f = 9.6;

2. (10 pts.) Fill in the result in the following truth table that will be produced by the expression. The variables a and b are `boolean`s, and d is a `double`.

   a || b && 14 > d

a	b	d	result
F	F	15	
F	F	14	
F	T	13	
F	T	14	
T	F	15	
T	F	14	
T	T	13	
T	T	14	

3. (5 pts.) Write what will be displayed if the following line is run:

System.out.println(3.5 + 7/3 + 1.0);

4. (10 pts.) Why is the java-byte code stored in a .class file different from the binary code in an .exe file?

5. (15 pts.) [GUI Input/Output (IO)] Complete the following program so that it displays "Starts with a star" if the input string starts with the star symbol (*), and "Doesn't start with a star" otherwise. Display the result using JOptionPane.showMessageDialog(…); You may assume that the user actually enters something and that "word" actually has a first character.

```java
import javax.swing.JOptionPane;

class Exam {
    public static void main(String[] ignored) {
        String word = JOptionPane.showInputDialog(null,"Enter a word:");





    }
}
```
You may use this space for flowchart, pseudocode, example input output, etc.

6. (15 pts.) [Console input/output (IO)] Complete the following program that asks a user to enter an integer and then prints a statement that the number is either even or odd. For example, if the number is five (5), the output should be "5 is odd." Use System.out.println(…) for printing output.

```java
import java.io.Scanner;
public class Exam {
    public static void main(String[] ignored) {
        Scanner in = new Scanner(System.in);




















    }
}
```
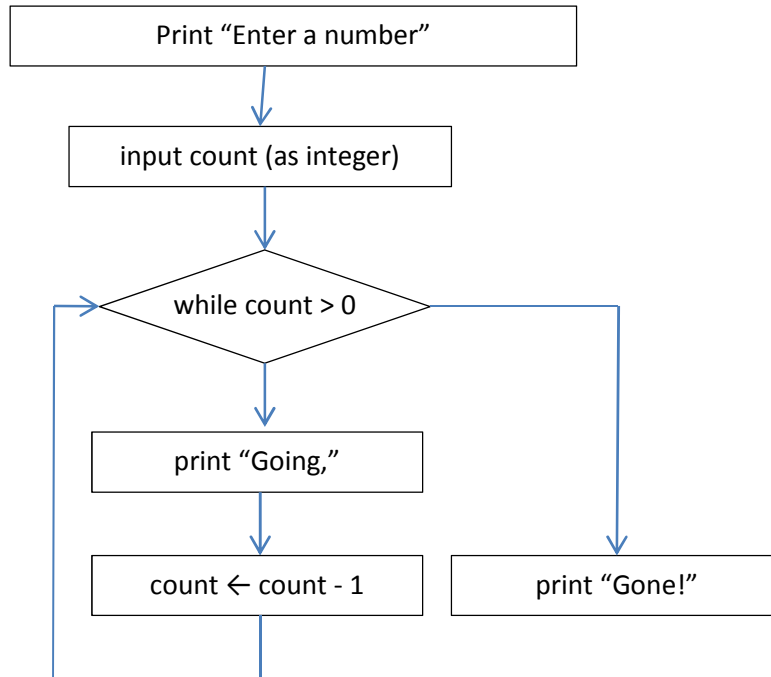You may use this space for flowchart, pseudocode, example input output, etc.

7. (15 points) Write **low-level pseudocode** that asks a user to enter the number of items to be shipped, and then prints the total cost to ship the items. Unlike Lab 3, there are only two box sizes. Large boxes hold five (5) items, and small boxes hold one (1). Boxes must be completely filled. Each item costs $10.00 It costs $1.50 to ship a large box, and $0.75 to ship a small box. Report the total cost to the user. (You do **not** need to print other details, format the dollar amount nicely, or use named constants.)

8. (15 pts.) [GUI Input/Output(IO)] Translate the following flow chart to Java code. Use JOptionPane.showMessageDialog(…) for the output instead of printing to the console. Use Integer.parseInt(…) to convert from a String to an integer.

```
┌─────────────────────────────┐
│    Print "Enter a number"    │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│   input count (as integer)   │
└─────────────────────────────┘
              │
              ▼
        ╱─────────────╲
       ╱ while count > 0 ╲ ──────────────┐
       ╲               ╱                  │
        ╲─────────────╱                   │
              │                           │
              ▼                           │
┌─────────────────────────────┐          │
│       print "Going,"          │          │
└─────────────────────────────┘          │
              │                           │
              ▼                           ▼
┌─────────────────────────┐   ┌─────────────────────────┐
│    count ← count - 1     │   │     print "Gone!"        │
└─────────────────────────┘   └─────────────────────────┘
```

```java
import javax.swing.JOptionPane;

class Exam {
    public static void main(String[] ignored) {
        String countString = JOptionPane.showInputDialog(null,
                            "Enter a number.");



    }
}
```

You may use this space for extra work. Indicate the problem you are working on.

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