## Exam 2 Computer Programming 230 Dr. St. John Lehman College City University of New York Thursday, 5 November 2009

NAME (Printed)	
NAME (Signed)	
E-mail	

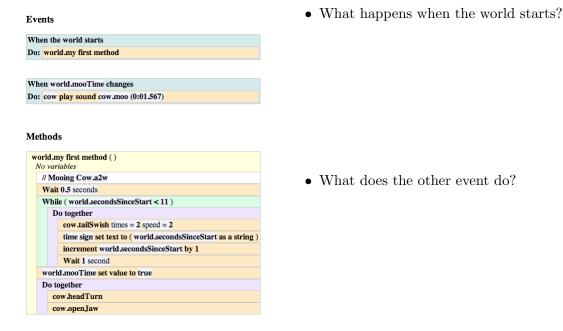
## Exam Rules

- Show all your work. Your grade will be based on the work shown.
- The exam is closed book and closed notes.
- $\bullet$  When taking the exam, you may have with you pens or pencils, and an 8 1/2" x 11" piece of paper filled with notes, programs, etc.
- You may not use a computer or calculator.
- All books and bags must be left at the front of the classroom during this exam.
- Do not open this exams until instructed to do so.

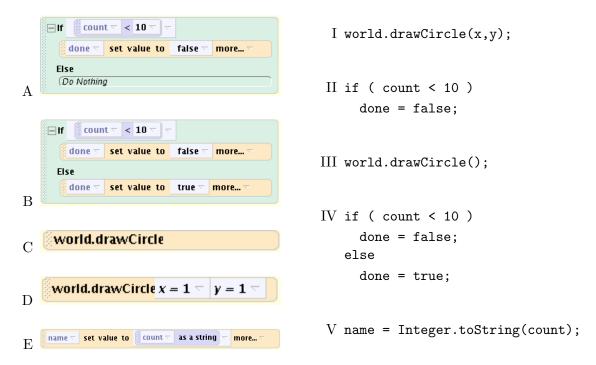
Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
Question 6	
Question 7	
Question 8	
Question 9	
Question 10	
TOTAL	

1.	True or False:			
(a) In Alice, there is an event that is processed as long as the world is run				
	(b) In Alice, an event can execute its statements only once.			
	(c) An array is the only data structure available in Alice.			
	(d) In Alice, it is not possible to have lists of objects.			
	(e) A constructor is a method that creates a new object.			
	(f) A new class can be derived from an existing one.			
	(g) In Java, a variable can be used before it is declared.			
	(h) In Java, GUI components cannot contain other components.			
	(i) To generate a keyboard event, a component must have the keyboard focus.			
	(j) In Java, every event has a related listener interface.			
2.	(a) What is an event? Give an example.			
	(b) What is a listener in Java? Give an example.			
3.	Write the Alice code that would make the items in a list, called ${\tt Ballerinas}$ , turn in place 3 times and jump, in unison:			

4. Answer the questions below, based on the following code:



5. Line up the Alice statements with the corresponding statement in Java:



- 6. To the right of each line of code, indicate the values stored in the variables immediately after those lines have been executed. If a variable is uninitialized, enter? in the box for that variable.
  - (a) int x, y, z; String a, b;

x = 5;

х	у	z	a	b

(b) y = x/5;

x y z a b

(c) a = "Hi";

x y z a b

(d) b = a+a;

x y z a b

(e) z = x\*x+1;

x y z a b

(f) a = "23";

x y z a b

(g) y = Integer.parseInt(a);

x y z a b

(h) x = y--;

x y z a b

(i) a = z % x;

x y z a b

(j) x--;

x y z a b

7. Fill in the missing methods below:

```
// Circle.java
            Programming with Alice and Java
//
// Represents a circle with a particular size, color, and location. The
// circle can be drawn filled or unfilled.
import java.awt.*;
public class Circle
{
 private int radius;
 private Color color;
 private int x, y; // the circle's center point
 //-----
 // Sets up the circle with the specified location, size, and color.
 //-----
 public Circle(int xCenter, int yCenter, int size, Color circleColor)
 {
 }
 //-----
 // Draws the circle, filled, in the specified graphics context.
 //-----
 public void drawFilled(Graphics gc)
 {
```

```
}
```

8. Write the constructor for the PushCounterPanel. The count should be initialized to 0, the button should have the title, Push me!, and should have an associated listener from the class, ButtonListener. Also, add the button and label so they appear on the panel and set the background color for the panel.

9.	Write a complete Alice program that has 5 bugs moving in random directions. Vis clicked with the mouse, it disappears from view.					
	world.my first method:	Events:				
10.	Write a complete Java program that prints Hello World to the	ne console:				