

## CS1316 Spring 2008 Quiz 3 Version 1 Solution

NAME: \_\_\_\_\_ PRISM ID: \_\_\_\_\_

*Please write your answers legibly in print. Spelling counts!*

### Part I: Grading TA [5pts]

Who is your grading TA? (Circle one)

Brian	Joel	Ricardo	Tyler
Daniel	John	Sean	Victoria

### Part II: Abstract Classes [30pts]

```
public abstract class Animal{
    public abstract void attack();
    public void speak(){System.out.println("Animal speak.");}
}

public class KillerRabbit extends Animal{
    public void attack(){System.out.println("Go for the neck!");}
    public void speak(){
        super.speak();
        System.out.println("Ni");
    }
}
```

Consider the code provided below and answer the following questions:

- Which of the following lines of code are valid (no errors or exceptions will occur)? Select all that apply [12pts].
  - `KillerRabbit boneCrusher = new Animal();`
  - `Animal killer = new KillerRabbit();`
  - `KillerRabbit psycho = new KillerRabbit();`
  - `Animal monster = new Animal();`
- Given that `KillerRabbit steve = new KillerRabbit()` what would be the output to the interactions pane as a result of the following lines [12pts]:
  - `steve.attack();`  
**Go for the neck!**
  - `steve.speak();`  
**Animal speak.**  
**Ni.**

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3. What is the proper way to call the static method `bunnyHop` somewhere other than `KillerRabbit` class (such as another method in another class)? Your solution cannot include a call to `KillerRabbit`'s constructor [6pts].

```
KillerRabbit.bunnyHop();
```

### Part III: True/False [25pts]

- F   1. A good real life example of a stack is a line of people.
- F   2. In a stack, insertion occurs at one end of the list and the removal occurs at the other.
- T   3. Enqueue and dequeue are the insertion and removal methods for a queue.
- T   4. Discrete event simulations are advanced from event time to event time.
- F   5. A simulation can only represent systems in the real world and none from the fantasy world.

### Part IV: Using random number generators [40pts]

Write a method that will return `String` representing a randomly chosen colored marble from a bag of marbles. There are 5 red marbles, 7 green marbles and 3 blue marbles. If the marble is green, return "Green". If red, then "Red". If blue, then "Blue".

```
import java.util.Random;
//Using the Random class
public String randomMarble(){
    Random gen = new Random();
    int randomNumber = gen.nextInt(15);
    if (randomNumber < 5)
        return "Red";
    else if (randomNumber < 12)
        return "Green";
    else
        return "Blue";
}

//Using Math.random()
public String randomMarble(){
    double randomNumber = Math.random() * 15.0;
    if (randomNumber < 5.0)
        return "Red";
    else if (randomNumber < 12.0)
        return "Green";
    else
        return "Blue";
}
```