

CS1316 Summer 2007 Pre-Quiz 2

1. Consider the following code

```
public abstract class Animal {
    public abstract boolean isExtinct();
    public String toString() { return "An animal";}
}

public class Dinosaur extends Animal {
    public static final Dinosaur BARNEY = new Dinosaur();
    public boolean isExtinct() {
        return true;
    }
}
```

a. Which of the following declarations are valid? Check all that apply.

- i. `Animal dino = new Dinosaur();`
- ii. `Dinosaur dino = new Dinosaur();`
- iii. `Animal anne = new Animal();`
- iv. `Dinosaur anne = new Animal();`

b. Given a `Dinosaur dave`, what do the following commands return when typed in the Dr. Java interactions pane?

- i. `dave.toString();`
- ii. `dave.isExtinct();`
- iii. `dave;`

c. How would you refer to `BARNEY` in the following?

_____.toString()

2. Suppose we have a linked list of books in a library and the books are defined as follows:

```
public class BookElement {
    private String bookDetails = "";
    private BookElement next = null;

    public String getDetails() {return this.bookDetails;}
    public BookElement getNext() {return this.next;}
    public void setDetails(String details) {this.bookDetails =
details;}
    public void setNext(BookElement be) {this.next = be;}
}
```

Write a method `length()` that returns the length of the list that starts at this by filling in the code template below.

```
public int length() {  
    // Hint: Initialize number here.  
    // Also, you need a current element, starting at this.  
  
    // Hint: Then comes the standard while loop for the traversal  
    while ( _____ ) {  
        // Hint: do something inside the loop that helps you count.  
  
        // Hint: do something so that the loop doesn't repeat for  
        ever.  
  
    }  
    return number  
}
```

3. A model is not the same as reality, but always simplifies some aspects of reality. JMusic is a powerful way to model music computationally, but it is still a model. Give ONE way in which JMusic seems to simplify music.