

**UNCA CSCI 202
Early Exam 2013
28 February, 2013**

This is a closed book and closed notes exam. It is a 45-minute exam to be given within the regular class meeting time. Calculators, PDA's, cell phones, and any other electronic or communication devices may not be used during this exam.

Name: _____

If you want partial credit for imperfect answers, explain the reason for your answer!

Problem 1 (15 points)

Complete the `manyMe` method so that it creates and returns a `String` array of 2013 elements. Your name should be stored in all 2013 elements of the array.

```
public static String[] manyMe () {  
  
  
  
  
  
  
  
  
  
}
```

Problem 2 (15 points)

Suppose there is a class `Match4Exam` with methods with the following headers:

```
public          int    fancyOpA (int x, String y) ;  
public          double fancyOpB (int x, double y) ;  
public static double fancyOpC (int x, int y) ;
```

and that `fancyX` and `fancyY` are objects of type `Match4Exam`.

Write Java statements to do each of the following:

| |
|------------------------------|
| Invoke <code>fancyOpA</code> |
| Invoke <code>fancyOpB</code> |
| Invoke <code>fancyOpC</code> |

Problem 3 (20 points)

The table below contains two columns. The leftmost column is a Java expression. In the rightmost column write the value of the expression as a Java literal. If the value is a double or a boolean or a String be sure to use the Java syntax for writing doubles or booleans or Strings. Some of these are tricky, but none require complex arithmetic.

| | |
|------------------------------------|--|
| <code>2 + 3 * 4</code> | |
| <code>13 % 10</code> | |
| <code>3 * 5 / 10</code> | |
| <code>3 * (5 / 10)</code> | |
| <code>3 * 5 / 10</code> | |
| <code>3 * (5 / 10)</code> | |
| <code>("a" + 5) + 5</code> | |
| <code>"a" + (5 + 5)</code> | |
| <code>5 < 10</code> | |
| <code>0 < 5 5 < 10</code> | |

Problem 4 (20 points)

Write a static recursive method `square` to compute n^2 , where n is a positive integer, using the following inefficient recursive formula:

$$0^2 = 0$$

$$n^2 = (n-1)^2 + 2n - 1, \quad \text{if } n > 0$$

Start with the following method header

```
public static int square (int n) {
```

Problem 5 (30 points)

In this problem you are going to explore the creation and use of a class called `OneHorseTown`. The definition of the class begins as follows:

```
public class OneHorseTown {  
    private String horse ;  
    private String town ;
```

Subproblem 5A (10 points)

Write a constructor that takes two arguments, a horse and a town, and returns a `OneHorseTown` object where the value of both members `horse` and `town` are appropriately set according to the parameters passed to the constructor.

Subproblem 5B (5 points)

Use the constructor you defined in Subproblem 5A to create a `OneHorseTown` variable named `superHorse` with the horse name "Comet" and the town name "Smallville".

Subproblem 5C (10 points)

Write appropriate mutator (set) and accessor (get) methods for the member variable `town` of `OneHorseTown`.

Subproblem 5D (5 points)

Write a single Java statement that calls the mutator method you defined in Subproblem 4C to set the town of `superHorse` to "Metropolis".