Spring ‘11 CIS 212 Final Review

You may bring one page of notes, front and back.

You may bring a calculator but shouldn't need one.

Questions will be in short-answer format with partial credit for partial answers.

Questions will require you to read Java and assembly code and read/write Turing machine programs.

You will not be asked to write Java or assembly code, but may be asked to write pseudocode (i.e., code that unambiguously describes your solution but is not required to compile).

Topics:

- All midterm topics
- Assembly language: translating to/from machine language, the Chapter 6 instruction set
- Turing machines: instruction format, reading/writing programs, unsolvable problems
- Encryption: XOR, stream versus block ciphers, symmetric/asymmetric keys, RSA

Sample questions:

1. [10] Consider the following assembly code:

   ```
   LOAD X
   SUBTRACT Y
   OUT X
   X: .DATA 21
   Y: .DATA 2
   ```

   What value is printed when the code is executed?

2. [10] Given p = 5 and q = 7, find the RSA keys (e, n) and (d, n):

3. [10] Write pseudocode for a recursive algorithm which prints all integer values between 1 and n (inclusive) for some input number n. What is the Big-Theta complexity of this algorithm?