Instructions: Please review carefully the instructions given for Homework 1. They apply to this assignment, too.

Please hand in your answers to the following problems. Problem numbers, where indicated, are from the seventh edition of the Rosen text.

1. (5 points) p. 397, #42. (DNA sequences are strings consisting of letters (i.e., bases) drawn from the set \{A, G, C, T\}.) Show your work. Merely writing down a numerical answer is not enough.

2. (4 points) p. 397, #46. Show your work. Merely writing down a numerical answer is not enough.

3. (4 points) p. 398, #48. Show your work. Merely writing down a numerical answer is not enough.

4. (4 points) p. 398, #70. Show your work

5. (5 points) p. 405, #12. In addition, redo the problem for the case where “two” in the problem statement is replaced by “four”.

   Note: \(x \mod y\) denotes the remainder when \(x\) is divided by \(y\).

   Show your work. Use the Pigeonhole Principle (generalized or otherwise). In particular, be sure to specify what the objects and boxes are.

6. (4 points) p. 406, #44. Same requirements as in Problem 5 above.

Name (print): 

Student ID #: 

Homework #: 

Discussion Section registered for (check one):

- Sec. 11 (4:40–5:30 p.m.)
- Sec. 12 (5:45–6:35 p.m.)