1. Do **Lab Exercise 4 on page 61** of *Rapid Prototyping of Digital Systems, Second Edition*, using the FLEX chip on the UP1 board. Turn in:

   a) a document that describes your design and any design decisions that you made in your implementation (10 points)

   b) a readable (not microscopic) printout of the schematic (5 points)

   c) a printout of the test inputs and simulation output that shows that the circuit works as expected, annotated to explain the operation of the circuit (15 points)

   d) a signature on the statement below by Prof. Walker, by the TA (Hong Wang), by one of Prof. Walker’s research students listed on the door of the lab, or by two other students in the class (20 points):

     I certify that ______________________________________ has successfully downloaded this design to a UP1 board and the design works correctly.

     _____________________________  Name       ____________  Date

     _____________________________  Name       ____________  Date

2. Review the design of the 3-bit counter using D flip-flops in the attached handout. Implement this counter using the FLEX chip on the UP1 board, with the output of the counter displayed on a 7-segment LED at a speed such that the count can be easily read. Turn in:

   a) items (a) through (c) similar to those in problem 1 above (30 points)

   b) a signature on the statement below by Prof. Walker, by the TA (Hong Wang), by one of Prof. Walker’s research students listed on the door of the lab, or by two other students in the class (20 points):

     I certify that ______________________________________ has successfully downloaded this design to a UP1 board and the design works correctly.

     _____________________________  Name       ____________  Date

     _____________________________  Name       ____________  Date