

UNCC, Department of Electrical and Computer Engineering

ECGR 2181, Spring 2006, Homework #3, Due: 2/2/06, at the beginning of class (20 points)

YOU MUST SHOW YOUR WORK FOR ALL PROBLEMS (therefore, don't just use a calculator. You can use a calculator to check your work.)

1. How much time did this homework take you? (1 point)
2. Perform the following division problems in binary. Represent the answer in binary and hexadecimal. Each number below is a 16-bit two's complement number. Hint: you may need to convert a negative number to a positive number first.
 - a. Binary 0000 0000 0101 1100 divided by 0000 0000 0000 1100 = ? (3 points)
 - b. Binary 0100 1111 0101 1100 divided by 0000 0000 0010 1100 = ? (4 points)
 - c. Binary 1000 1111 0101 1100 divided by 0000 0000 0010 1100 = ? (4 points)
3. Consider the logical equation: $((x \text{ AND } y) \text{ OR } (y \text{ AND } z) \text{ OR } (x \text{ AND } z)) = f$
 - a. Draw the circuits with all four of the logic gates (similar to the course notes) (4 points)
 - b. Complete a truth table (similar to the course notes) (4 points)