

UNCC, Department of Electrical and Computer Engineering

ECGR 2181, Spring 2006, Homework #2, Due: 1/24/06, at the beginning of class (20 points)

YOU MUST SHOW YOUR WORK FOR ALL PROBLEMS (therefore, don't use a calculator)

Changes in Bold, below (1/20/06).

1. How much time did this homework take you?
2. Convert the following eight-bit **2's complement** numbers into decimal:
  - a. 01010101
  - b. 10101011
  - c. 01111111
  - d. 10000000
  - e. 10000001
3. Convert the following decimal numbers into twelve-bit **2's complement** binary numbers:
  - a. 345
  - b. -345
  - c. 1023
  - d. -1
4. Perform the following arithmetic operation. **Represent the answer in hexadecimal.**
  - a. Decimal 894 + hexadecimal 5AE =
  - b. Binary 011101001 – decimal 98 =
  - c. Octal 673 + binary 0101010101 =
5. What is the range of a 15-bit two's complement number? **(express the range as a formula AND in decimal).**
6. Problem 2.18a