

**UNC Charlotte, Department of Electrical and Computer Engineering
ECGR 2181, Fall 2015, Homework #2**

Due: Section 002: 9/22/2015; Section 001: 9/23/2015, at the beginning of class (20 points)

Show all of your work!!!!

1. Book problem 1.6 (b and c). Note: there is a space before the \$ (2 points)
2. Book problem 1.11 (b and c). (2 points)
3. Book problem 1.23 (c and d). (2 points)
4. Book problem 1.24 (c and d). (2 points)
5. Book problem 1.31. (4 points)
6. A popular microprocessor from the late 1970's, the Motorola 68000, is reported to have 68000 transistors. How big would the microprocessor be if the chip used vacuum tubes instead of transistors, assuming a vacuum tube has a volume of 3 cubic centimeters? Express your answer in cubic meters. (4 points)
7. Assume a logical function $f = (a \text{ AND } b) \text{ OR } (c \text{ AND } d)$. Write the truth table showing all 16 different combinations of a, b, c, and d. (4 points)
8. Assume a logical function $f = ((\text{NOT } a) \text{ OR } (\text{NOT } b)) \text{ AND } ((\text{NOT } c) \text{ AND } (\text{NOT } d))$. Write the truth table showing all 16 different combinations of a, b, c, and d. (4 points)