UNC Charlotte, Department of Electrical and Computer Engineering
ECGR 2181, Fall 2009, Homework #4
Due: 9/23/09 or 9/24/09, at the beginning of class (100 points)

Show all of your work!!!!!

1. How long did this assignment take you? (Answer truthfully!) (5 points)
2. Express the following as a canonical sum, then minimize:

   a) $F(a,b,c,d) = \sum m(0,1,2,3,12,13,14,15)$ (15 points)
   b) $F(a,b,c,d) = \sum m(1,3,5,7,13,15)$ (20 points)

3. Consider the 7 segment display on page 66 in your book. This circuit does not include the hexadecimal characters A, b, C, d, E, F (the caps/lower case is used to best replicate the segments that will be displayed). We offer a suggestion in the notes.

   a) Write the Boolean equation for segment f. (10 points)
   b) Minimize the equation from part a. (25 points)
   c) Create a minimal circuit of logic gates to solve the equation from part b. (25 points)