

**UNC Charlotte, Department of Electrical and Computer Engineering
ECGR 2181, Fall 2009, Homework #6
Due: 10/14/09 or 10/15/09, at the beginning of class (100 points)**

Show all of your work!!!! Also, use ONE side of the paper and do not staple.

1. How long did this assignment take you? (Answer truthfully!) (5 points)
2. Minimize using KMAPS: $F(a,b,c,d,e) = \sum m(0,2,4,5,8,10,11,14,15,16,18,20,21,24,26)$ (20 points)
3. Make a 12 to 1 MUX using only 4 to 1 MUXes. Label all parts. (20 points)
4. Using only 2to1 MUXes, make an AND gate such that $F = A \text{ AND } B$. Label all parts. (10 points)
5. Using only a single 4 to 1 MUX and NOT gates, make a circuit that solves the sum of products problem $F(a,b,c) = \sum m(0,2,4,6)$. (10 points)
6. Solve the sum of products problem $F(a,b,c) = \sum m(0,2,4,6)$ using the simplest circuit. (10 points)
7. Using only 3 to 8 decoders, make a 5 to 24 decoder. Label all parts. (25 points)