

**COE/EE 243**  
**Homework Assignment #5**  
**Due Wednesday March 12 by 5:00pm**

Show your work on all of the problems below. If you want to see sample problems with solutions go to <http://www.ddpp.com/student/student.html> or the examples on the course web page.

1. Problem 5.19 parts (b), (c) and (d)
2. Problem 5.19 parts (e) and (f)
3. Problem 5.48 (hint, look at solution for 5.47 in notes)
4. (a) Write the logic equation for the output of an 8-to-1 MUX with control inputs A,B,C  
(b) Design an 8-to-1 multiplexer using only 4-to-1 multiplexer modules without enable lines or additional gates.
5. Use an 8-to-1 multiplexer to realize the function in Problem 5.19 part (c) with B,C,D as the control inputs.
6. Complete the design of the 4-to-1 Mux realization of the function  $F(A, B, C, D) = \sum(3, 4, 6, 11, 12, 13, 14, 15)$  with no added gates