HW3 Solutions ECE2000 Au 2015

Lectures Covered: Lesson 12

Show all relevant steps. Don’t just write down the answers.

Late HWs will not be accepted. Lecture Students: turn in your HW in class. Recitation students: turn in your HW at the ECE Office Front Desk. HWs turned-in anywhere else will not be accepted.

Show your work on these pages, attach additional pages if necessary.

• Be sure to organize the pages in order and staple them all together, otherwise you will lose one point

• Fill out the following section. You will lose an additional point if you fail to provide these details

Your Last Name_____________________________ Your First Name_____________________________

1. Lecture Student __________ or Recitation Student__________ (check one)
2. If Recitation then fill out the following
   Name of recitation instruction________________________ Date/time of recitation________________

Problems start from next page. Each problem is worth 2 points.
The problem numbers are from your textbook (both the 6th and 7th edition will work)

1) Simplified Problem 7.35 (a-i): Realize the following function using only two-input NAND gates.

\[ F = B(A'C' + D) + (A + B'D')C \]

Note: Solution also shown for NOR gates
The problem numbers are from your text book (both the 6th and 7th edition will work)

2) Simplified Problem 7.35 (a-ii): Repeat the previous problem by using only two-input NOR gates.

See solution for NOR gates on previous page
The problem numbers are from your text book (both the 6th and 7th edition will work)

3) Simplified Problem 7.36 (b): Realize the following function using only two-input NAND gates. Add inverters where necessary

\[ F = (B + (A' + C')D)(A(B' + D') + C) \]

Note: Solution also shown for NOR gates
The problem numbers are from your text book (both the 6th and 7th edition will work)

4) Simplified Problem 7.36 (c): Repeat the previous problem by using only two-input NOR gates.

See solution for NOR gates on previous page
The problem numbers are from your text book (both the 6th and 7th edition will work)

5) Problem 7.37: Realize the following function using NOR gates. Add inverters where necessary

\[ Z = A[BC' + D + E(F' + GH)] \]