HW8 ECE2100 Autumn 2014

Lectures Covered: Lecture54 - Lecture58

HW should be turned in by Monday, Nov. 17, before 4:30pm

Solve all the problems. All problems will not be graded, only a selection of HW problems will be graded.

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

Late HWs will not be accepted. HW with lowest grade will be dropped. 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________________

3. Your Lab Section/Group_________________________________________
Problem 1: Determine $v_o/v_s$. The op amp is ideal.
Problem 2: Determine $v_o/i_s$ and $i_y/i_s$. The op amp is ideal.
Problem 3: Determine $i_x$ and $i_y$. The op amp is ideal.
Problem 4: Determine $v_o/v_s$ and $v_2/v_s$. The op amp is ideal.
Problem 5: Determine $v_o/v_s$. The op amps are ideal.
Problem 6: Use mesh analysis to determine the differential equation that relates $i_c$ to $i_{in}$ for $t > 0$. 
Problem 7: Determine steady state $v_o(t)$. The op amp is ideal.

$$v_{in} = 10 \cos (1000t + 45^\circ) \ V$$
Problem 8: Draw the Thevenin's equivalent in Phasor Domain for the circuit given below. The op amp is ideal.
Problem 9: Use mesh analysis to determine $i_c$ in steady state.

\[ i(t) = \cos(1000t) \, A \]