

**ECE 300**  
**Spring Semester, 2005**  
**HW Set #3**

Due: February 3, 2005

Name \_\_\_\_\_

Wlg                      AM                      PM                      Print(last, first)

Use Engineering Paper. Work only on one side of the paper. Use this sheet as your cover sheet, placed on top of your work and stapled in the top left-hand corner. Number the problems at the top of the page, in the center of the sheet. **Do neat work. Underline your answers. Show how you got your equations. Be sure to show how you got your answers. Each problem counts 5 points.**

*The material in this chapter is extremely important. You should master nodal and mesh analysis in preparation for ECE courses you will be taking in the future. The problems in this homework set are a minimum for you to work. I recommend you work at least 10 additional problems on your own.*

3.2  $v_1 = 0 \text{ V}, v_2 = 12 \text{ V}$

3.5  $v_o = 20 \text{ V}$

3.8  $v_o = 1.111 \text{ V}$

3.15  $P_{65} = 144.6 \text{ W}, P_{55} = 129.6 \text{ W}, P_{35} = 12 \text{ W}$

3.21  $v_1 = 1 \text{ V}, v_2 = 3 \text{ V}$

3.37  $v_o = 1.111 \text{ V}$

3.41. You are on your own for this problem. Maybe you can work it first by nodal analysis and then by mesh to check your work.

3.44  $I_o = -1.733 \text{ A}$

3.52  $i_1 = 3.5 \text{ A}, i_2 = -0.5 \text{ A}, i_3 = 2.5 \text{ A}$

3.61  $1_o/i_8 = -0.3$

3.68  $v_1 = 2.33 \text{ V}, v_2 = 3.225 \text{ V}, v_3 = 2.745 \text{ V}$

3.72 The equation for the first mesh is:

$$7i_1 - 2i_2 = 8$$

The equation for the forth mesh is:

$$-i_3 + 5i_4 = -4$$