Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (please print)

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ECE 3455 -- Quiz #1

June 18, 2009

Keep this quiz closed and face up until you are told to begin.

1. This quiz is closed book, closed notes. You may use one 8.5” x 11” crib sheet, or its equivalent.

2. Show all work on these pages. Show all work necessary to complete the problem. A solution without the appropriate work shown will receive no credit. A solution which is not given in a reasonable order will lose credit.

3. It is assumed that your work will begin on the same page as the problem statement. If you choose to begin your work on another page, you must indicate this on the page with the problem statement, with a clear indication of where the work can be found. **If your work continues on to another page, indicate clearly where your work can be found. Failure to indicate this clearly will result in a loss of credit.**

4. Show all units in solutions, intermediate results, and figures. Units in the quiz will be included between square brackets.

5. Do not use red ink. Do not use red pencil.

6. You will have 35 minutes to work on this quiz.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/20

Room for extra work

Two identical amplifiers are connected in the circuit shown in Figure 1. The equivalent circuit for these identical amplifiers is given in Figure 2. Note that the terminal numbers show the positions of each of the devices in Figure 1. Find the output resistance as seen by the load, *RL*.

As you work, please note that the voltage labeled *vx* in Figure 2 can be different for each of the amplifiers in Figure 1. Use appropriate notation to indicate that the voltages at the two inputs can be different.





Room for extra work

ECE 3455 -- Quiz #1 – June 18, 2009 – Solution

Two identical amplifiers are connected in the circuit shown in Figure 1. The equivalent circuit for these identical amplifiers is given in Figure 2. Note that the terminal numbers show the positions of each of the devices in Figure 1. Find the output resistance as seen by the load, *RL*.

As you work, please note that the voltage labeled *vx* in Figure 2 can be different for each of the amplifiers in Figure 1. Use appropriate notation to indicate that the voltages at the two inputs can be different.





