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

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

ECE 3355 -- Quiz #1

September 22, 2015

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 30 minutes to work on this quiz.

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

Room for extra work

For the circuit shown in Figure 1, there are two identical transconductance amplifiers which are inserted into the circuit. The equivalent circuit for the transconductance amplifiers is shown in Figure 2. The terminal numbers for the amplifier in Figure 2 are also shown in Figure 1 so that the amplifiers are each connected with the correct polarity. The load and the source are shown in Figure 1. The source current is known to be a signal source with an rms value which is below 500[mArms]. Find the output resistance seen by the load.

The following values are given:

*Ri* = 2.5[k]; *Gm* = 3[mS]; *Rs* = 4.7[k]; *RF* = 680[]; *RA* = 2.2[k];
*RB* = 3.3[k]; *RL* = 390[].





Room for extra work

ECE 3355 -- Quiz #1 – September 22, 2015 – Solution

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