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

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

ECE 3355 – Exam #2

April 15, 2025

Keep this quiz closed until you are told to begin.

1. Print your name, and sign your name, at the top of this page.
2. This exam is closed book, closed notes. You may use one 8.5” x 11” crib sheet, or its equivalent. You may use a calculator. You should **not** use a cell phone, tablet computer, or laptop computer, as you work on this exam.
3. Show all work on these pages. You may use both sides of each page. 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.
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 75 minutes to work on this exam.
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/40
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/40
9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/20

Room for extra work

1. {40 Points} Assume ideal op amps. Use the circuit diagram below to solve.
2. Find *vA*.
3. Find *iB*.



Room for extra work

1. {40 Points} Assume that the diodes in the circuit below can be modeled with a piecewise-linear diode model, where *Vf* = 1[V], *rd* = 1[kW] or 1[kOhm], and *Is* = 1[mA]. In your solution, do the following. State your guesses. State your tests explicitly. State the conclusion after testing each set of guesses. You are expected to be able to complete at least two sets of guesses in the time period allotted. However, if your first set of guesses is valid, you may only have one set of guesses.

Find *vA*.



Room for extra work

1. {20 Points} Assume an ideal op amp. Assume that the diode in the circuit below can be modeled with a piecewise-linear diode model, where *Vf* = 1[V], *rd* = 1[kW] or 1[kOhm], and *Is* = 500[mA] or 500[microAmps]. Use the circuit diagram below to solve.
2. If *vA* = 4.3[V], then find *vB*.
3. If *vA* = -4.3[V], then find *vB*.













