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

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

ECE 2201 – Midsemester Exam

June 16, 2020

1. You may use one 8.5” x 11” crib sheet, or its equivalent. Do not communicate with anyone except Dr. Dave Shattuck while you are taking this quiz.

2. Show all work necessary to complete the problem. Use additional sheets of paper as needed. A solution without the appropriate work shown will receive no credit. A solution which is not given in a reasonable order will lose credit. Include this page with your printed name and signature, or include a different, separate page with your printed name and signature. Failure to do this will result in points being deducted.

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

4. Do not use red ink. Do not use red pencil.

5. You will have 90 minutes to work on this exam, plus additional time to print, scan and email your work. Email your completed quiz to [Shattuck@uh.edu](mailto:Shattuck@uh.edu).

1. Use the circuit shown in Figure 1 to solve. The plot of the current *iB(t)* is given in Figure 2. The expressions for the two voltages are given below.
2. Find the power absorbed by Device 1 at *t* = 2[s].
3. Find the number of charges that moved though Device 4 in the three [seconds] after *t* = 2[s].
4. Which side of Device 4 is at the higher potential at *t* = 3[s]? Briefly explain how you got your answer.





2. Use the circuit shown below to solve. The resistances are all given  
 in [kOhms].

1. Find *iX.*
2. Find the power absorbed by the current source.



3. Use the circuit shown below to solve. Assume that the currents are made up of electrons. The resistances are all given in [Ohms]. The coefficient of the current-dependent voltage source has units of [Ohms].

1. Find *vX.*
2. Find the direction that the electrons are moving through the 13[V] voltage source. Your answer should be either “from A to B” or “from B to A”. Briefly explain how you got your answer.
3. Are the electrons that are moving through the 13[V] voltage source gaining or losing energy as they move through that source? Briefly explain how you got your answer.

















