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

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

ECE 2201 – Exam #1

July 1, 2024

Do not open this quiz 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 quiz.
3. Show all work on these pages, and 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. You may separate the pages as you work.
4. Show all units in solutions, intermediate results, and figures. Units in the exam will be included between square brackets.
5. Do not use red ink. Do not use red pencil.
6. You will have 100 minutes to work on this exam.
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/35
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/35
9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/30

Room for extra work

1. {35 Points} Use the circuit shown below to solve. The charge carriers are electrons.
2. Find a numerical expression for the power absorbed by Device 2, as a function of time, *t*. Show units in your answer.
3. Find the power delivered to Device 2 at *t* = 3[s].
4. Find the energy absorbed by the 15[V] voltage source during the fourth [second], counting [seconds] starting at *t* = 3[s].
5. Which way are the electrons moving through the 15[V] voltage source at   
   *t* = 3[s]? Explain your answer using complete sentences.





Room for extra work

1. {35 Points} Use the circuit shown below to solve. The charge carriers are electrons.
2. Find *iA*.
3. Find *vB*.
4. Find the power delivered by the voltage-dependent voltage source.
5. Find the power absorbed by the current-dependent current source.



Room for extra work

1. {30 Points} It is given that the power delivered by the current source in this circuit is equal to 194[nW]. Find the value of the voltage source *vA*.













