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

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

ECE 2201 – Exam 1

October 1, 2022

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

1. This exam is closed book, closed notes. You may use any calculator. You may **not** use a cell phone, tablet computer, nor laptop computer. You may have a crib sheet in the form of one 8 ½” x 11” piece of paper, with material written on both sides.
2. Print your name, and provide your signature above.
3. 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. 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. If the grader has difficulty following your work because it is messy or disorganized, you will lose credit.
6. Do not use red ink. Do not use red pencil.
7. You will have 90 minutes to work on this exam.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/30

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/40

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/30

Total = 100

Room for extra work

1. (30 points) In the circuit shown, the charge carriers are positively charged sodium ions.



1. Find the power consumed by Device B at t = 3.3[s].
2. Find the power delivered to Device A at t = 3.3[s].
3. Find the energy absorbed by Device D during the fourth [second], counting [seconds] starting at t = 3[s].
4. Which direction are the charges moving through Device A at t = 1.2[s]? Explain your answer briefly using complete sentences.



Room for extra work

2. (40 points) Use the circuit below to solve.

* 1. Find *iA*.
  2. Find *vB*.
  3. Find the power absorbed by the 15[V] voltage source.
  4. Find *vD*.



Room for extra work

1. (30 points) Find the power delivered by the current source. Hint: You may wish to look for delta or wye configurations that could be transformed.



Room for extra work















