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

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

ECE 2201 – Final Exam

May 1, 2024

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 100 minutes to work on this exam.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/10

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/30

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

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/30

Total = 100

Room for extra work

1. (10 points) Use the circuit given below to solve. The charge carriers are electrons. Find the energy absorbed by the 3.3[W] resistor during the time after *t* = 0.



Room for extra work

2. (30 points) Use either the node-voltage method or the mesh-current method to write a complete set of equations that could be used to solve this circuit. Do not use both methods. Do not simplify the circuit. Do not attempt to solve or simplify your equations. Define all variables appropriately.



Room for extra work

3. (30 points) Use the circuit given below to solve.

a) Find the Norton equivalent with respect to the 3.2[A] current source. Draw the Norton equivalent, showing numerical values for all components, with the 3.2[A] current source attached.

b) Find the power delivered to the 3.2[A] current source.



Room for extra work

Room for extra work

4. (30 points) Use the circuit given below to solve. Find the Thevenin equivalent resistance as seen by terminals A and B.



















