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

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

ECE 2202 – Midsemester Exam

June 22, 2023

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 105 minutes to work on this exam.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/35

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

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/35

Total = 100

Room for extra work

1. (35 points) Use the circuit below to solve.

1. Find the Norton equivalent as seen by the 12[A] current source. Draw your equivalent circuit, labeling the components with numerical values. Attach the 12[A] current source to your equivalent.
2. Find the power delivered by the 12[A] current source.



Room for extra work

2. (30 points) The voltage across the inductor in Figure 1 is given in the plot shown in Figure 2. It is given that *iL*(8[ms]) = 220[A].

a) Find *iL* (12[ms]).

b) Find the energy stored in the inductor at t = 14[ms].

 

Room for extra work

3. (35 points) In the circuit shown, both switches were open for a long time, and then both switches closed at *t* = 0.

a) Find *iB*(2[s]).

b) Find the energy stored in the 5.6[H] inductor at *t* = 4[s].



Room for extra work

















