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

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

ECE 2201 – Midsemester Exam

July 13, 2022

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

1. This exam is closed book, closed notes. You may have a crib sheet in the form of one 8 ½” x 11” piece of paper written on both sides. Print your name, and provide your signature above.

2. 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.

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

4. If the grader has difficulty following your work because it is messy or disorganized, you will lose credit.

5. Do not use red ink. Do not use red pencil.

6. You will have 105 minutes to work on this exam.

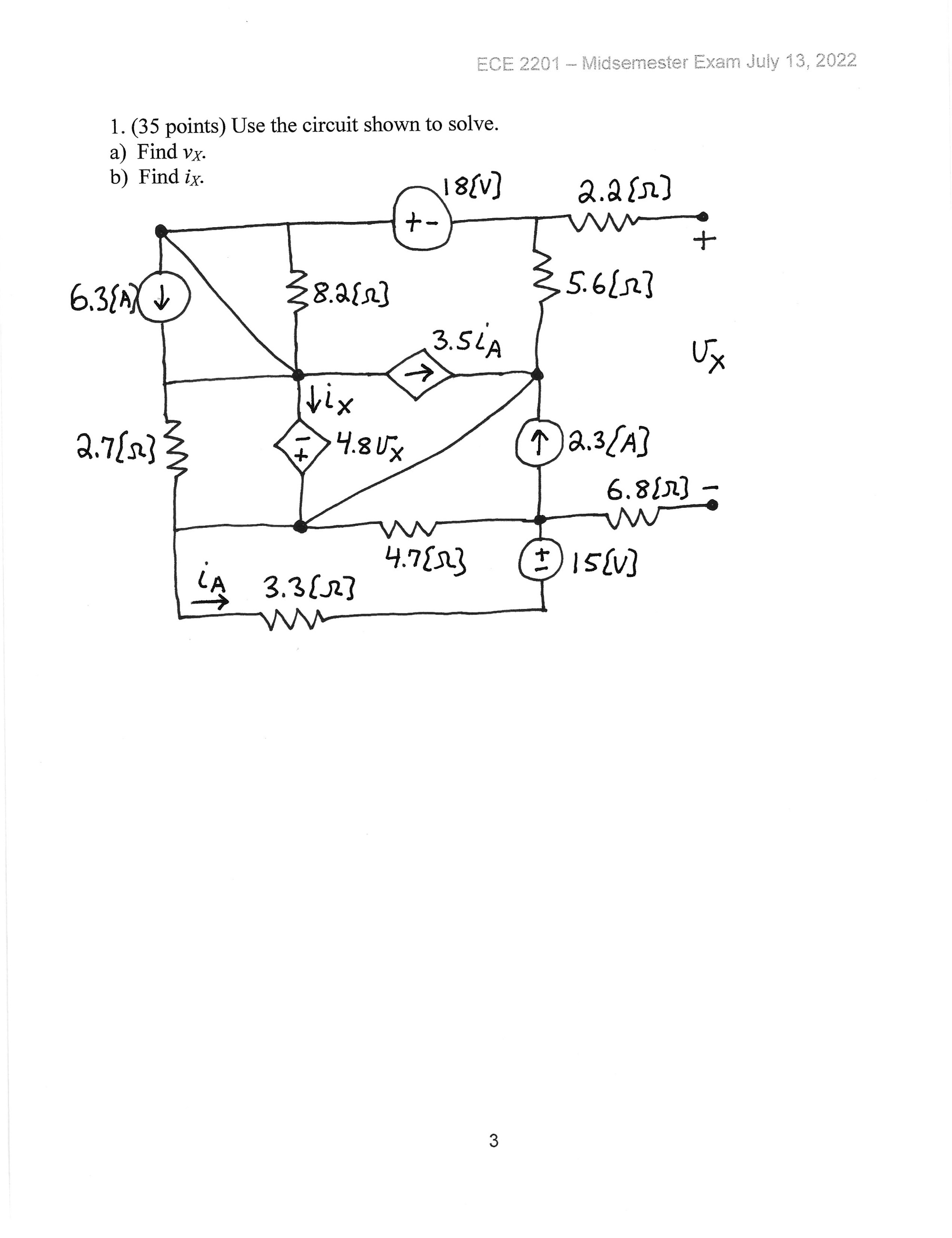
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/35

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

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

Total = 100

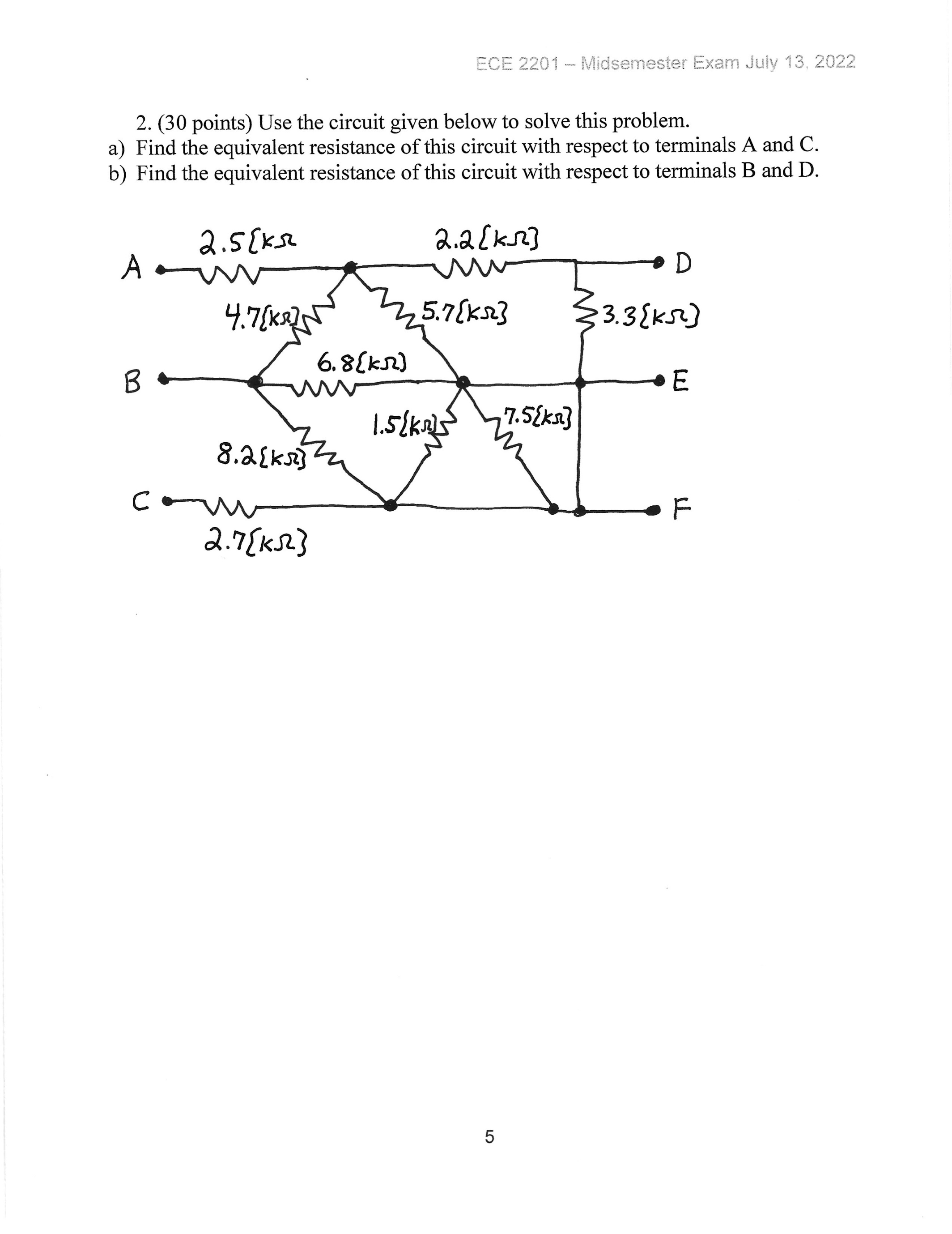
Room for extra work



Room for Extra Work

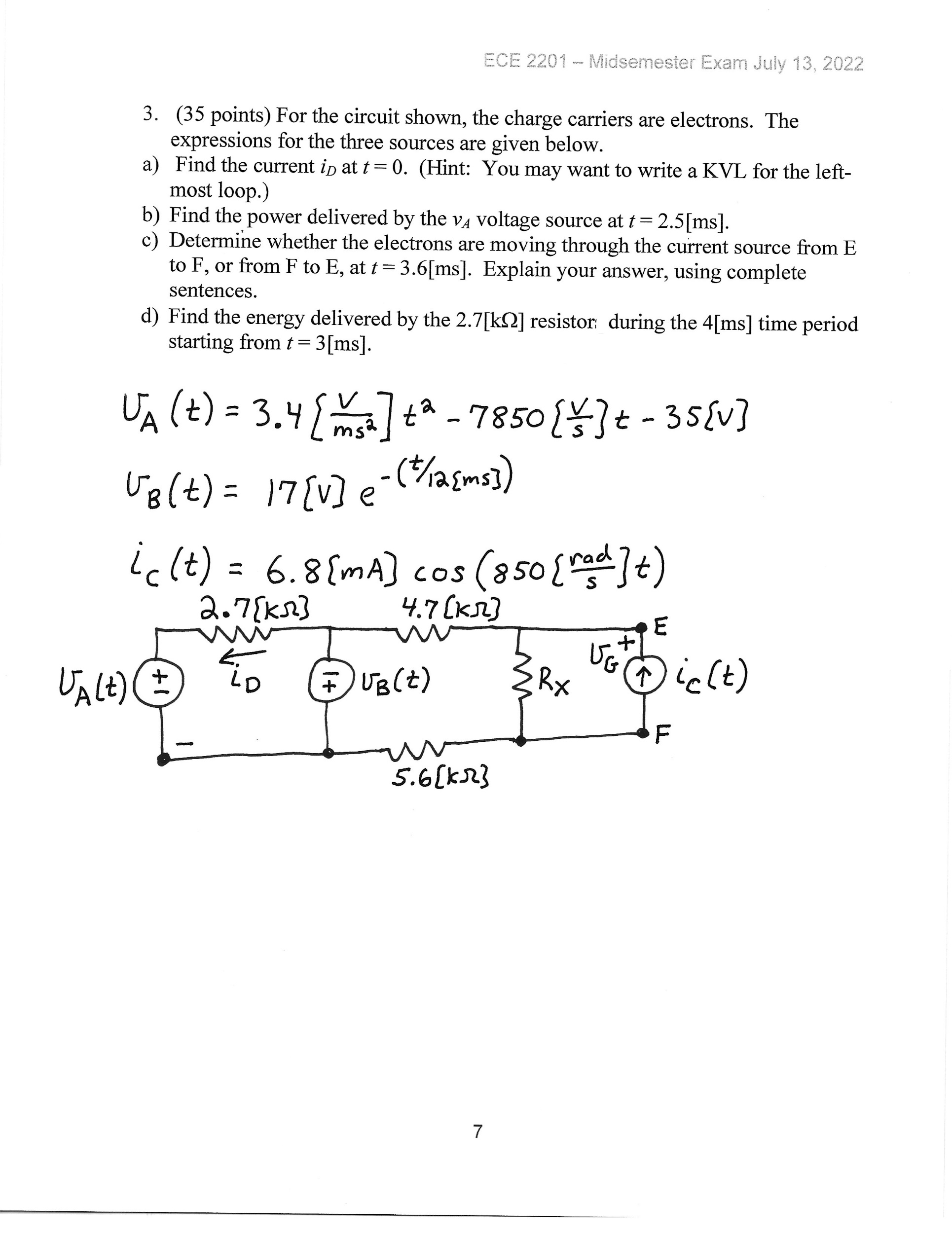
2. (30 points) Use the circuit given below to solve this problem.

1. Find the equivalent resistance of this circuit with respect to terminals A and C.
2. Find the equivalent resistance of this circuit with respect to terminals B and D.



Room For Extra Work

1. (35 points) For the circuit shown, the charge carriers are electrons. The expressions for the three sources are given below.
2. Find the current *iD* at *t* = 0. (Hint: You may want to write a KVL for the left-most loop.)
3. Find the power delivered by the *vA* voltage source at *t* = 2.5[ms].
4. Determine whether the electrons are moving through the current source from E to F, or from F to E, at *t* = 3.6[ms]. Explain your answer, using complete sentences.
5. Find the energy delivered by the 2.7[k] resistor during the 4[ms] time period starting from *t* = 3[ms].



Room For Extra Work

