

Name: _____ (please print)

Signature: _____

ECE 2201 – Quiz #3
June 18, 2021
Online

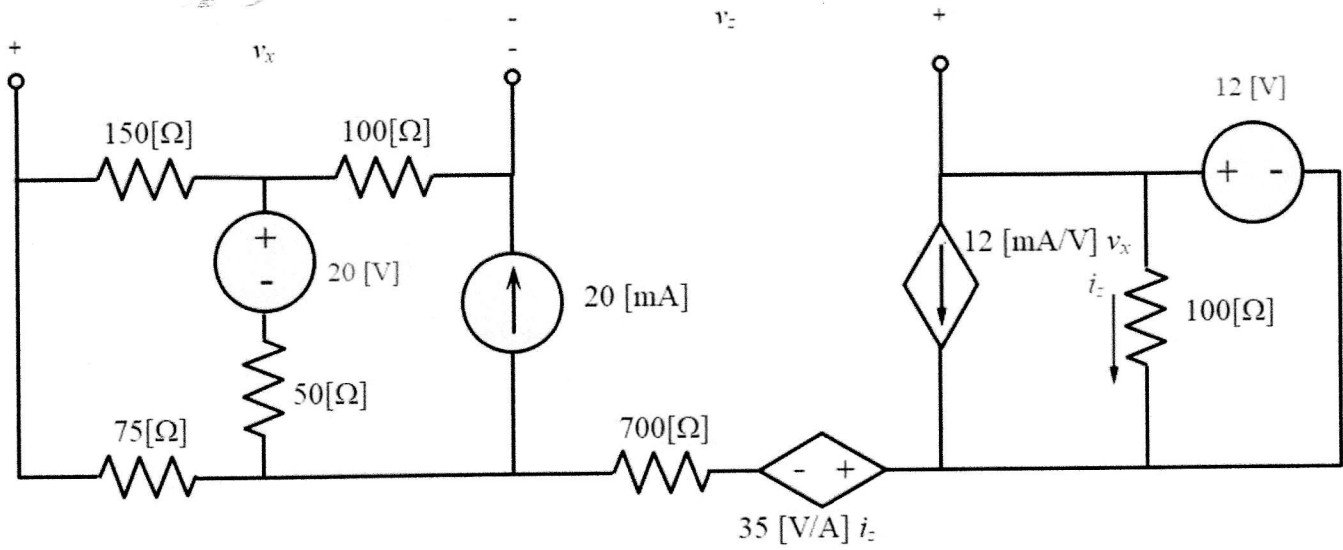
1. This quiz is open book, open notes. You may not work with another person or try to obtain the answer to the quiz online.
2. Show all work on these pages. Show all work necessary to complete the problem. A solution without the appropriate work shown will receive no credit. A solution which is not given in a reasonable order will lose credit.
3. Show all units in solutions, intermediate results, and figures. Units in the quiz 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 30 minutes to work on this quiz.

_____ /25

Room for extra work

Use the circuit below to do the following.

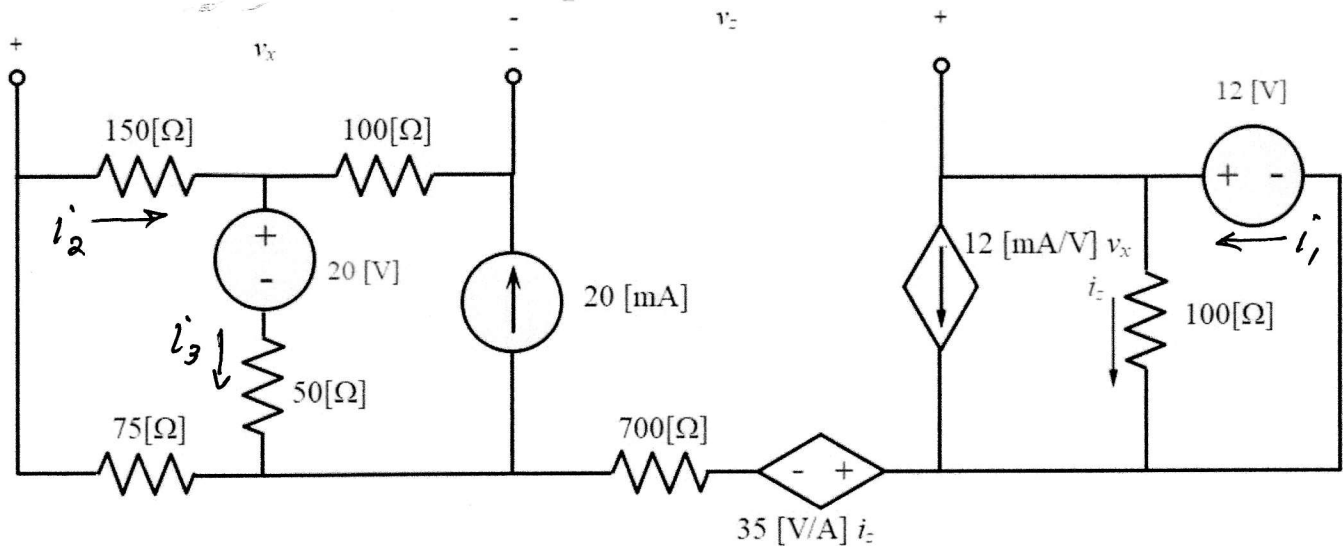
- Find v_z .
- Find the power delivered by the 12 [V] source.



Room for extra work

Use the circuit below to do the following.

- Find v_z .
- Find the power delivered by the 12 [V] source.



$$a) \quad -v_z + 12 + 35i_1 + 75i_2 + v_x = 0$$

$$v_x + 0.02(100) - 150i_2 = 0$$

$$i_2 = \frac{12}{100} = 0.12 \text{ [A]}$$

We need to solve for the currents i_2, i_3 in the 2-mesh circuit on the left.

$$i_2 + 0.02 = i_3$$

$$150i_2 + 20 + 50i_3 + 75i_2 = 0$$

$$\left. \begin{array}{l} i_2 = -76.36 \text{ [mA]} \\ i_3 = -56.36 \text{ [mA]} \end{array} \right\}$$

Note that in writing the KVL for v_z and that for i_2, i_3 , we did not use a path through the current source. Since we do not need to know the voltage across the current source, we can avoid a KVL through it.

Room for extra work

$$\text{Solving for } v_x : \quad v_x = -13.45 \text{ [V]}$$

$$\text{Solving for } v_3 : \quad v_2 = -2.977 \text{ [V]}$$

$$b) \quad i_1' = i_2' + 0.012 v_x = -41.40 \text{ [mA]}$$

$$P_{del \text{ by } 12V} = 12 \cdot i_1' = -0.497 \text{ [W]}$$