ECSE-200 Electric Circuits 1

Quiz #6 (Feb. 22, 2019)

**LAST NAME** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **MCGILL ID#** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**FIRST NAME­­­­­­­­­**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**SIGNATURE**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* ***Only Faculty standard calculator accepted***
* ***No cellphone allowed***
* ***Show all your work***
* ***Clearly indicate your final answer with the SI unit and multiplier***
* ***You have 45 minutes to complete this quiz***

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**Question 1:** Consider the circuit shown. Answer the following questions.

1. Find and draw the Norton equivalent circuit of the circuit. [2 pt]
2. Draw the diagram indicating the open-circuit voltage () and the short-circuit current (). [2 pt]
3. What is the value of the power delivered by the independent current supply of the circuit shown (i.e., the 3 A supply) if a short-circuit connects terminals A and B? [1 pt]
4. What is the current value at the terminals A and B if a load resistance equal to the Thévenin resistance is connected across terminals A and B? [1 pt]

A screenshot of a cell phone

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**Question 2**: Consider the circuit shown below. Answer the following questions.

1. As shown, a load resistance is connected across the terminals A and B. What is the voltage value if the load resistance is replaced with an open-circuit (i.e., )? [2 pt]
2. What is the current value if the load resistance is replaced by a short-circuit (i.e., )? [2 pt]
3. Replace and redraw the part of the circuit to the left of terminals A and B by its Thévenin equivalent circuit. Clearly indicate the open-circuit voltage () value and the Thévenin resistance value (). [2 pt]
4. What should the resistance value be for the current at the terminal be -2 mA ()? [2 pt]

A close up of a clock

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