ECSE-200 Electric Circuits 1 - Quiz #7 (Mar. 1, 2019)

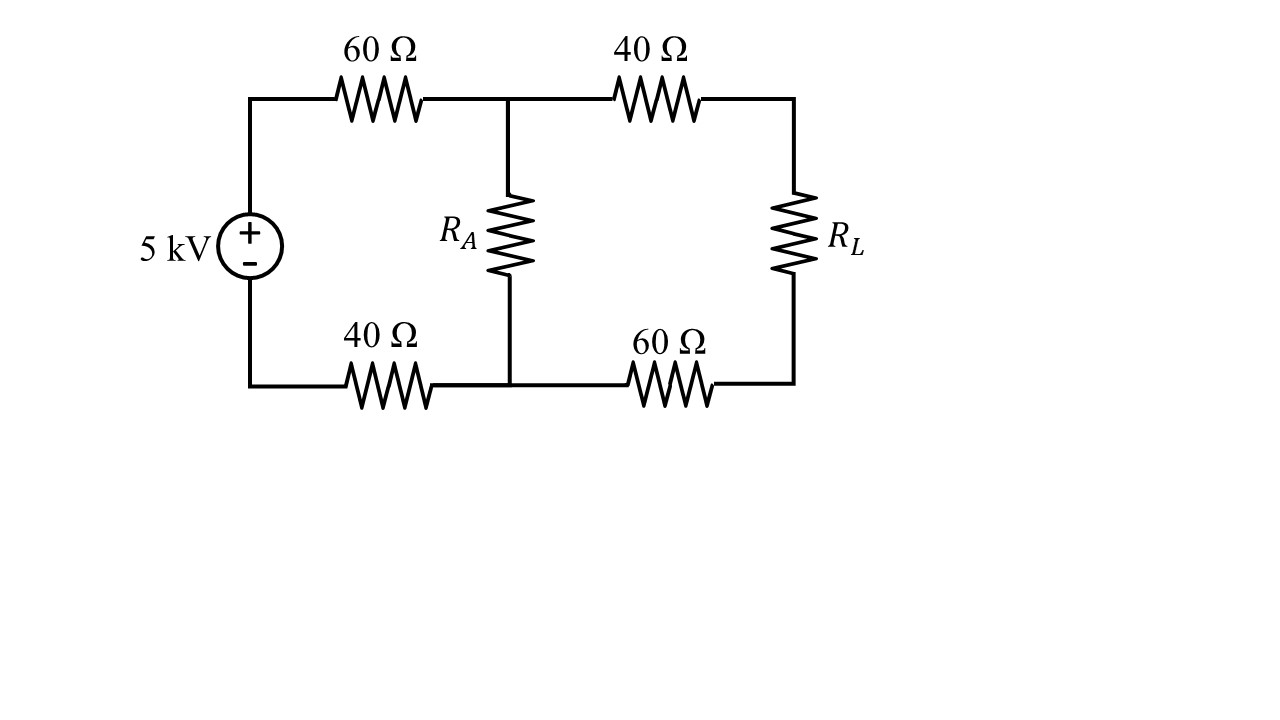
**LAST NAME** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **MCGILL ID#** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**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 below. Answer the following questions.



1. Under the condition where , what resistance value should be to maximize the power delivered to and what is the maximum power value that can be delivered to ? [2 pt]
2. Under the condition where , what resistance value should be to maximize the power delivered to and what is the maximum power value that can be delivered to ? [2 pt]
3. Under the same condition where , but with the constraint that the current through must be at least 15 A, what resistance value should be to maximize the power delivered to and what is the maximum power value that can be delivered to ? [3 pt]

Extra Working Space

**Question 2**: Consider the circuit shown below. Assume an ideal op-amp behavior. Answer the following questions.

A close up of a clock

Description automatically generated

1. Under the condition where , what is the voltage value ? [2 pt]
2. Under the condition where , what is the current value ? [2 pt]
3. Under the condition where , what is the current value ? [2 pt]
4. Under the same condition as in part c) where , what is the power delivered by the current source? [1 pt]

Extra Working Space