ECSE-200 Electric Circuits 1 - Quiz #11 (April 5, 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***

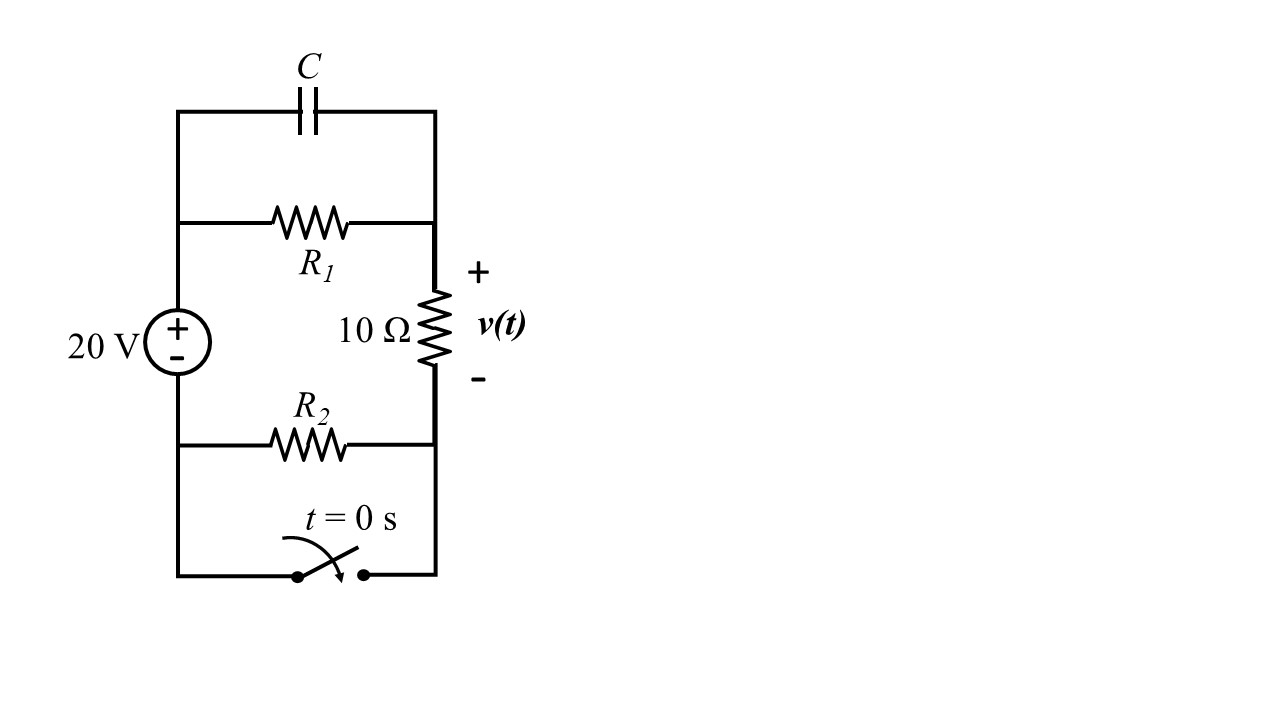
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**Question 1:** Consider the circuit shown. The switch opens the connection at . The circuit reaches steady state before the switch changes its connection state. Answer the following questions.

1. **A screenshot of a cell phone

   Description automatically generated**Find the solution of the current for . [3 pt]
2. Plot the current with respect to time *t* indicating the time constant, the initial and final current values. [2 pt]
3. Find the voltage for . [2 pt]

Extra Working Space

**Question 2:** Consider the circuit shown. The switch closes and makes the connection at time *t* = 0 s. The circuit reaches steady state before the switch changes its connection.

The voltage across the 10 Ω resistor as shown in the circuit is

Answer the following questions.

1. Determine the time constant of this circuit. [1 pt]
2. Find *R1*, *R2*, and C. [3 pt]
3. Determine the energy stored in the capacitor at *t* = 0s. [2 pt]

Extra Working Space