CECS 211 - LAB 3
Series and Parallel, Equivalent Resistances

NAME: POSSIBLE POINTS: 10

STUDENT ID:

COURSE DATE & TIME:

DIRECTIONS:

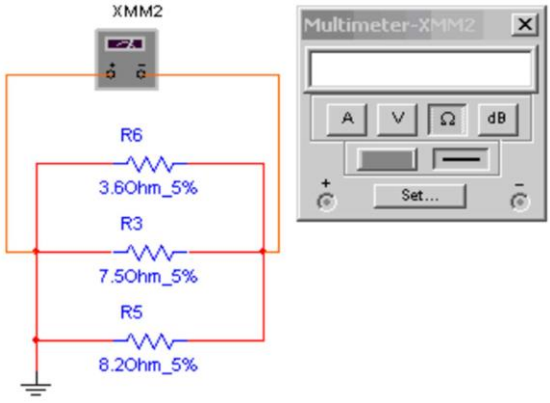
Using Multisim, schematic capture and simulate each circuit. Use the Multi-meter of Multisim's test instruments (multimeter in this case) to measure the circuit quantities asked for.

1) Find the reading on the DMM when the circuit is simulated in Multisim. Note that the Ω button must be selected to read RESISTANCE. Also note that in order to measure Resistance we do not have a power supply attached to our circuit (there is no Supply Voltage (Vs)). In a real circuit under test the same would be true, power would have to be disconnected.

Find:

a) Equivalent Resistance (in Multisim from Digital Multimeter (DMM)): _____

b) Write the equation and solve for Rt (Equivalent Total Resistance): _____



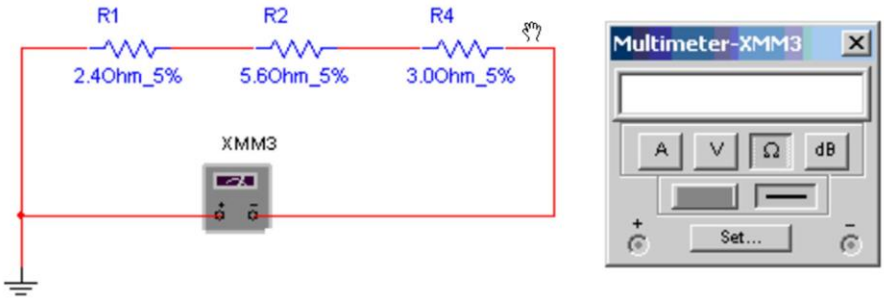
CECS 211 - LAB 3
Series and Parallel, Equivalent Resistances

2) Find the reading on the DMM when this circuit is simulated in Multisim.

Find:

Equivalent Resistance (in Multisim from Digital Multimeter (DMM)): _____

Write the equation and solve for Rt (Equivalent Total Resistance): _____



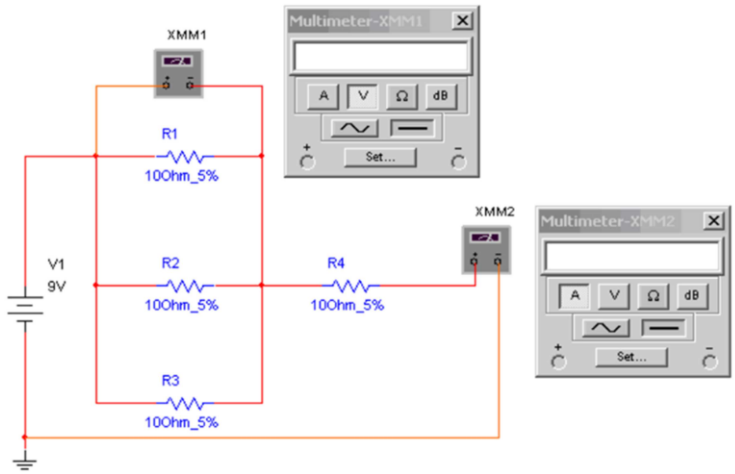
3) Find the readings on the two Digital Multimeters when this circuit is simulated.

Find:

a) Voltage:_____ b) Current:_____

c) Draw the equivalent series circuit of the circuit below which would contain only 2 resistors.

d) Calculate Voltage and Current by hand for the new equivalent circuit and show the calculations.



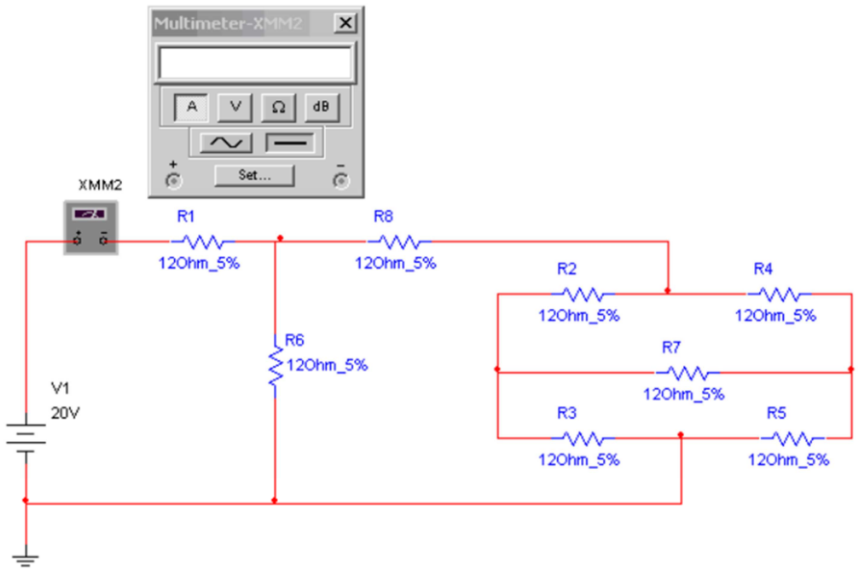
CECS 211 - LAB 3
Series and Parallel, Equivalent Resistances

4) Using Multisim, find the equivalent resistance of this combination of resistors. V1 = 20V is the voltage applied across the resistors, and I1 is the current measured by XMM2 that flows out of the voltage source into the resistor combination.

Once you have current and voltage for the entire network. Use Ohm's Law to find the equivalent resistance. This is an indirect way to find the equivalent resistance of a resistor network.

a) Current:_____

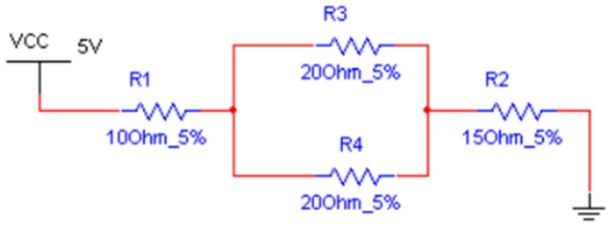
b) Ohm's law calculation for Equivalent Resistance: _____



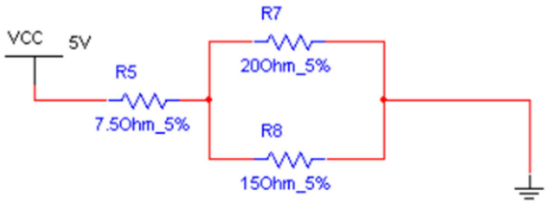
CECS 211 - LAB 3
Series and Parallel, Equivalent Resistances

For the following problems, solve these by hand.

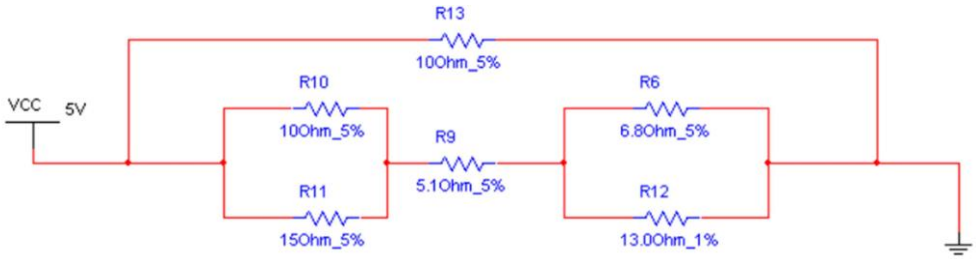
1) R_t = _____



2) R_t = _____



3) R_t = _____



4) R_t = _____