ELT 101: Basic Electricity: AC/DC

Unit 8 Exam: Parallel Circuits

NAME_____

DATE _____

Circle the most correct answer (2 points each for a total of 20 points)

1) In a parallel circuit, _____ path(s) exist for current flow.
   A. one
   B. two or more
   C. at least three
   D. none of the above

2) A parallel circuit is often referred to as a:
   A. current divider
   B. voltage divider
   C. both A & B
   D. none of the above

3) In a parallel circuit, voltage is:
   A. common
   B. that same across all the parts of the circuit
   C. equal to the sum of the individual voltages
   D. both A & B

4) In a parallel circuit, current is:
   A. common
   B. the same in all parts of the circuit
   C. the sum of the branch currents
   D. none of the above

5) The amount of current through a resistor in a parallel circuit is inversely proportional to:

A. the value of the resistor
B. the voltage across in the resistor
C. both A & B
D. none of the above

6) A node has 6.5 amps and 3 amps coming into it, what is the current out?

A. 3A
B. 3.5 A
C. 9.5 A
D. 6.5 A

7) A small branch resistance will result in a _____ branch current.

A. small
B. medium
C. large
D. infinite

8) If two resistors are in parallel, their total resistance equals::

A. the sum of the resistors
B. three times the value of one resistor
C. the product over the sum
D. the sum over the product

9) Four 1k ohm resistors are in parallel, the total resistance equals:

A. 200 ohms
B. 250 ohms
C. 500 ohms
D. 1k ohms
E. 4k ohms

10) Total power in a parallel circuit equals:

A. total current times the applied voltage

B. total current divided by the applied voltage

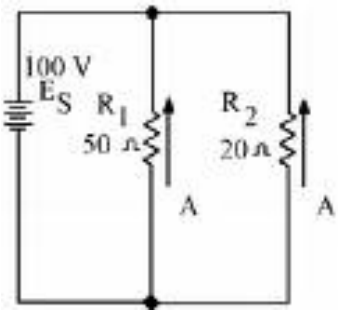
C. current times the total resistance squared

D. none of the above

Solve the following (points for each problem are shown, for a total of 30 points)

Make sure to show your work!

1) In the circuit below, solve for I_T, I_{R1} and I_{R2} (6 points)

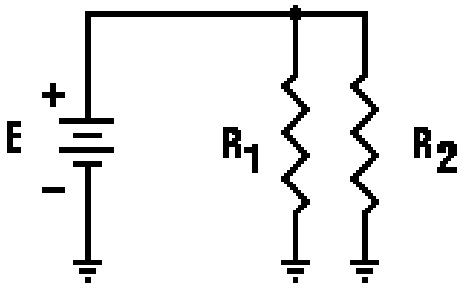


I_T = _____

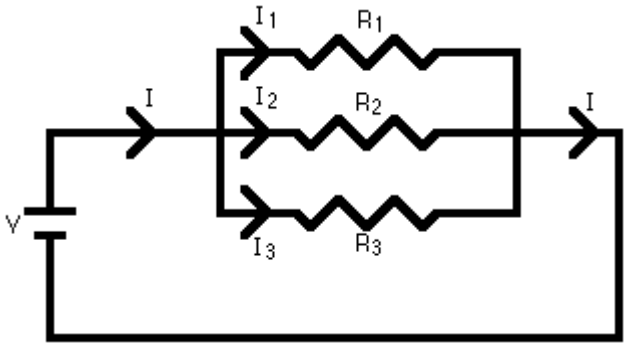
I_{R1} = _____

I_{R2} = _____

2) In the circuit below, I_{R1} = 20mA, I_{R2} = 40mA, R_2= 1k; solve for V_S and R_1. (4 points)



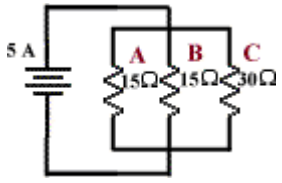
3) For the circuit shown, calculate the following: I_{R1}, I_{R2}, I_{R3}, I_T, R_T given that V_S = 24V, R_1 = 1K, R_2 = 470 ohms and R_3 = 10k (10 points)



I_{R1} = _____ I_{R2} = _____ I_{R3} = _____

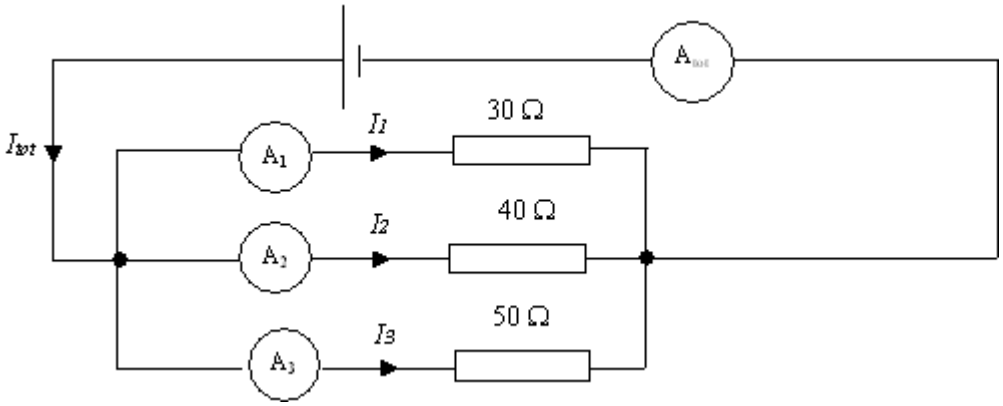
I_T = _____ R_T = _____

4)) Given the circuit below, what is the applied voltage? (4 points).



V_S = _____

5) Identify the fault in the circuit below when V_S = 24V and I_T = 1.08A (6 points).



Faulty component is _____

Why ?

_____

_____

_____

Points possible:

Multiple choice:	20
Problems:	30
	50

***** end of unit 8 exam *****