ELT 101: Basic Electricity: AC/DC

Unit 7 Exam: Series Circuits

NAME_____

DATE _____

Circle the most correct answer (2 points each for a total of 30 points)

1) In a series circuit, only ____ path(s) exist for current flow.
   A. one
   B. two
   C. three
   D. four

2) A series 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 series circuit, current is:
   A. common
   B. the same in all parts of the circuit
   C. equal to the sum of the individual currents
   D. both A & B

4) In a series circuit, voltage is:
   A. common
   B. the same in all parts of the circuit
   C. the sum of the individual voltages
   D. the same as the source voltage
   E. none of the above

5) The amount of voltage dropped across a resistor is directly proportional to:

A. the value of the resistor

B. the physical size of the resistor

C. both A & B

D. none of the above

6) A short is evident in a series circuit because:

A. current stops flowing

B. the voltage across the shorted resistor equals zero

C. the voltage across the shorted resistor equals the source voltage

D. current decreases

8) An open is evident in a series circuit because:

A. current stops flowing

B. the voltage across the open resistor equals zero

C. the voltage across the open resistor equals the source voltage

D. both A and C

9) You can calculate power in a series circuit by:

A. multiplying the applied voltage by the total current

B. adding together the power dissipation of the individual resistors

C. multiplying the square of the circuit current by the total resistance

D. all of the above

10) If three resistors have voltage drops of 10, 20 and 50 volts, what is the source voltage?

A. 20 volts

B. 30 volts

C. 50 volts

D. 80 volts

11) A 1K ohm, 6K ohm and 3.3K ohm resistor are connected in series. What is their total resistance?

A. 10.003K ohms

B. 10.03K ohms

C. 10.3K ohms

D. 4K ohms

12) A 200 ohm resistor is connected in series with a 100 ohms resistor and a 15V supply. What resistance does the source voltage see?

A. 50 ohms

B. 300 ohms

C. 75 ohms

D. 100 ohms

13) A 200 ohm resistor is connected in series with a 100 ohms resistor and a 15V supply. What is the total circuit current?

A. 5A

B. 500mA

C. 50mA

D. 5mA

14) A 200 ohm resistor is connected in series with a 100 ohms resistor and a 15V supply. What is the voltage drop across the 200 ohm resistor?

A. 2 volts

B. 10 volts

C. 5 volts

D. 15 volts

15) A 200 ohm resistor is connected in series with a 100 ohms resistor and a 15V supply. What is the power used by the 100 ohm resistor?

A. 250mW

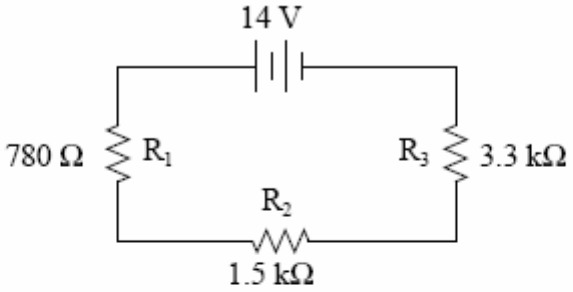
B. 2.5mW

C. 500 mW

D. 25mW

Solve the following (points for each problem are shown, for a total of 20 points)
Make sure to show your work!

1) Solve for the unknown values in the chart below **(10 points).**



	R_1	R_2	R_3	Total
V				
I				
R	780 Ω	1.5 kΩ	3.3 kΩ	
P				

2) For the circuit below, solve for: **(5 points)**

RT = _____

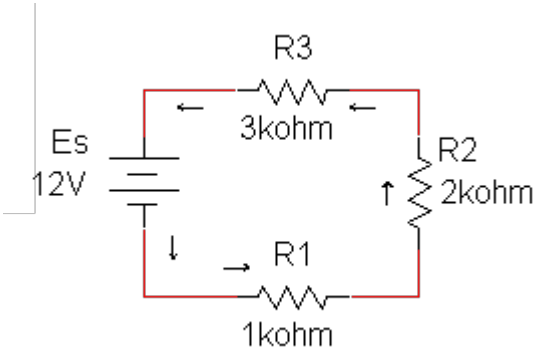
IT = _____

PT = _____

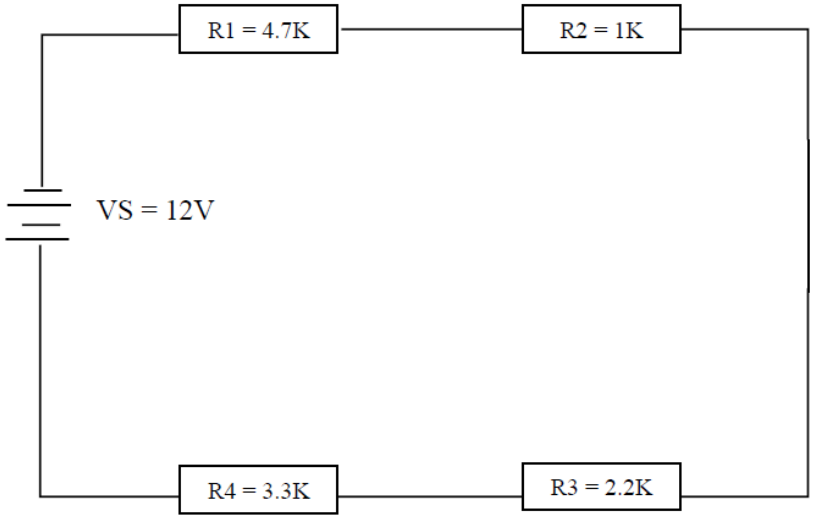
Vr1 = _____

Vr2 = _____

Vr3 = _____



3) For the circuit shown below, one of the resistors is either open or shorted. An ammeter inserted into the faulted circuit current displays 1.33 mA. Identify the fault in the circuit. **(5 points)**



Faulty component is: _____

Open or Shorted? _____

Points possible:

Multiple choice: 30

Problems: 20

50

***** end of unit 7 exam *****