

**ELT 101: Basic Electricity: AC/DC****Unit 6 Exam: Ohm's Law**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

**Circle the most correct answer (2 points each for a total of 26 points)**

1) You know a circuit's voltage and you need to calculate power using Ohm's Law. The only thing else you need to know is: (select all that are correct):

- A. the current
- B. nothing else
- C. the capacitance
- D. the resistance

2) A 3K ohms load is connected in series with a 12V supply. The current flowing is:

- A. 40mA
- B. 400mA
- C. 250mA
- D. 4mA

3) A 3K ohms load is connected in series with a 12V supply. The power used by the circuit is:

- A. 4.8W
- B. 480mW
- C. 4.8mW
- D. 48mW

4) A 10K ohm resistor is in series with a 10V supply. The current flowing is:

- A 100A
- B. 1mA
- C. 100mA
- D. 10A

- 5) A circuit's voltage is 100V and the current flowing is 20mA. What is the circuit's resistance?
- A. 5K ohms
  - B. 500 ohms
  - C. 2K ohms
  - D. 5 ohms
- 6) A circuit has 20 ohms of resistance with 100mA flowing. What is the applied voltage?
- A. 2 volts
  - B. 200 volts
  - C. 200mV
  - D. 20 volts
- 7) A circuit with 1K ohm resistance and 100V applied uses how much power?
- A. 100mW
  - B. 100W
  - C. 10W
  - D. 1W
- 8) In a circuit the voltage is doubled. What will the current do in the circuit assuming the resistance stays the same.
- A. double
  - B. stay the same
  - C. triple
  - D. halve

- 9) In a circuit the current suddenly doubles. The resistance stays the same. What has happened to the circuit?
- A. the voltage has tripled
  - B. the voltage was doubled
  - C. the voltage was reduced by one half
  - D. the circuit has opened
- 10) Doubling the resistance in a circuit will:
- A. increase the power by 2
  - B. increase the voltage by a factor of 2
  - C. double the current
  - D. reduce the current by one half
- 11) The power used in a circuit just increased. What could have changed in the circuit?  
(select all that apply.)
- A the resistance decreased
  - B. the current increased
  - C. the voltage increased
  - D. the resistance increased
  - E. the voltage decreased
  - F. the current decreased
- 12) You measure the resistance of a fuse with your ohmmeter. Its value is very low. The fuse is:
- A. probably good
  - B. probably open
- 13) Watt's Law is current in directly proportional to voltage and inversely proportional to resistance.
- A. true
  - B. false

Solve the following problems; make sure to show your work! (3 points each)

1)  $I = 250\text{mA}$ ,  $R = 47\text{K}$ , solve for E.

2)  $R = 100\text{K}$ ,  $E = 120\text{V}$ , solve for I

3)  $P = 250\text{mW}$ ,  $E = 48\text{V}$ , solve for I

4)  $E = 12\text{V}$ ,  $I = 500\text{mA}$ , solve for P

5)  $R = 2\text{K}2$ ,  $I = 400\text{mA}$ , solve for P

6)  $E = 48\text{V}$ ,  $R = 1\text{K}$ , solve for P

7)  $V = 12\text{V}$ ,  $P = 1\text{W}$ , solve for R

8)  $R = 4\text{K}7$ ,  $P = 2\text{W}$ , solve for I

**Points possible:**

Multiple choice: 26

Problems 24

50

\*\*\*\*\* end of unit 6 exam \*\*\*\*\*