

**2017 EOU E&M Quiz****Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

- \_\_\_\_ 1. Atomic nuclei of almost all elements consist of
- only neutrons.
  - protons and electrons.
  - neutrons and electrons.
  - only protons.
  - protons and neutrons.
- \_\_\_\_ 2. Two like charges
- neutralize each other.
  - repel each other.
  - must be neutrons.
  - attract each other.
  - have no effect on each other.
- \_\_\_\_ 3. Two charged particles held near each other are released. As they move, the acceleration of each decreases. Therefore, the particles have
- opposite signs.
  - the same sign.
  - charges that can not be determined.
- \_\_\_\_ 4. In order for there to be a flow of charge from one place to another, there must be a
- conductor, such as a wire, connecting the two places.
  - potential difference between the two places.
  - Both A and B above
- \_\_\_\_ 5. An ampere is a
- unit of resistance.
  - unit of current.
  - type of charge.
  - voltage.
  - current.
- \_\_\_\_ 6. Electrical resistance is measured in
- volts.
  - joules.
  - watts.
  - amperes.
  - none of the above
- \_\_\_\_ 7. When two light bulbs are connected in series, the
- current through each light bulb is proportional to the resistance of the bulb.
  - same amount of current always flows through each bulb.
  - neither A nor B
- \_\_\_\_ 8. When resistors are put in parallel with each other their overall resistance is
- smaller than the resistance of any of the resistors.
  - larger than the resistance of any other resistor.
  - the same as the resistance of one of the resistors.

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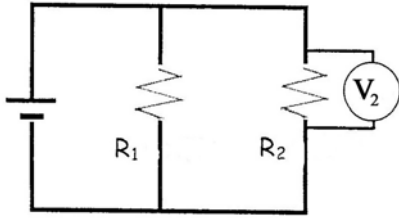
**Circuit Problem Solving**

Solve the problem using the scratch paper provided and then identify the choice that best answers the question.

Use the following diagram and data for questions 9 – 12

	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><math>V_T = 30\text{v}</math></td> <td style="padding: 5px;"><math>R_1 = 15\ \Omega</math></td> </tr> <tr> <td style="padding: 5px;"><math>R_2 = 25\ \Omega</math></td> <td style="padding: 5px;"><math>R_3 = 20\ \Omega</math></td> </tr> </table>	$V_T = 30\text{v}$	$R_1 = 15\ \Omega$	$R_2 = 25\ \Omega$	$R_3 = 20\ \Omega$
$V_T = 30\text{v}$	$R_1 = 15\ \Omega$				
$R_2 = 25\ \Omega$	$R_3 = 20\ \Omega$				

9. What Kind of Circuit is this?
  - a. Parallel
  - b. Combo Parallel-Series
  - c. Combo Series-Parallel
  - d. Series
  - e. None of these
  
10. What is the Total Current in this circuit?
  - a. 5 amps
  - b. 2 amps
  - c. .5 amps
  - d. 3 amps
  - e. 6 amps
  
11. What is the Voltage drop across Resister #1?
  - a. 30 V
  - b. 15 V
  - c. 15 V
  - d. 7.5 V
  - e. 30 V
  
12. What is the Voltage drop across Resister #2?
  - a. 15 V
  - b. 12.5 V
  - c. 7.5 V
  - d. 10 V
  - e. 30 V
  
13. What is the Voltage drop across Resister #2?
  - a. 10 V
  - b. 15 V
  - c. 30 V
  - d. 7.5 V
  - e. 30 V



$V_2 = 50\text{v}$	
$R_1 = 20\ \Omega$	$R_2 = 25\ \Omega$

14. What Kind of Circuit is this?

- a. Parallel
- d. Series

- b. Combo Parallel-Series
- e. None of these

c. Combo Series-Parallel

15. What is the Total Current in this circuit?

- a. 7.5 amps
- d. 4.5 amps

- b. 2 amps
- e. .3 amps

c. 2.5 amps

16. What is the Current through Resistor #1?

- a. 7.5 amps
- d. 4.5 amps

- b. 2 amps
- e. .3 amps

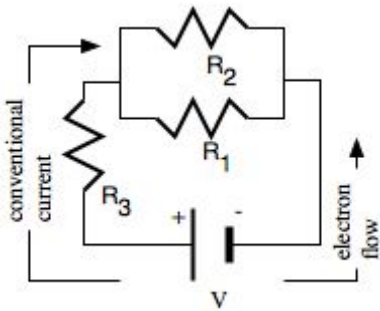
c. 2.5 amps

17. What is the Current through Resistor #2?

- a. 7.5 amps
- d. 4.5 amps

- b. 2 amps
- e. .3 amps

c. 2.5 amps



$V_T = 70\text{v}$	$R_1 = 10\ \Omega$
$R_2 = 20\ \Omega$	$R_3 = 25\ \Omega$

18. What is the Total Current in this circuit?

- a. .7 amps
- d. 3 amps

- b. 2 amps
- e. .3 amps

c. 2.2 amps

19. What is the Current across Resistor #2?

- a. .7 amps
- d. 3 amps

- b. 2 amps
- e. 1.5 amps

c. 2.5 amps

20. What is the Voltage drop across Resistor #3?

- a. 14.7 V
- d. 10 V

- b. 25 V
- e. 53.3 V

c. 70 V