**Section 2 Questions**

1. The three components of electricity are:
   1. Voltage, Energy, and Power
   2. Voltage, Current, and Energy
   3. Resistance, Current, and Voltage
   4. Resistance, Power, and Voltage
   5. Current, Resistance, and Energy
   6. Current, Power, and Resistance
2. What is voltage?
   1. Potential difference between the strength of the electron supply and the electron shortage
   2. A measure of a material’s opposition to the passage of electric current
   3. Net flow of electrons through a material
   4. Difference between the strength of the proton supply and the proton shortage
   5. Net flow of protons through a material
   6. The capacity to do work
3. What is current?
   1. Net flow of protons through a material
   2. Difference between the strength of the proton supply and the proton shortage
   3. A measure of a material’s opposition to the passage of electric current
   4. Net flow of electrons through a material
   5. The capacity to do work
   6. Potential difference between the strength of the electron supply and the electron shortage
4. What is resistance?
   1. Difference between the strength of the proton supply and the proton shortage
   2. A measure of a material’s opposition to the passage of electric current
   3. Net flow of protons through a material
   4. Net flow of electrons through a material
   5. Potential difference between the strength of the electron supply and the electron shortage
   6. The capacity to do work
5. What are the units for electric current:
   1. Coulomb
   2. Amperes
   3. Coulomb per second
   4. Joules
   5. Ohms
   6. b and c
6. What does one coulomb equal?
   1. 7.25 x 10^18
   2. 7.25 x 10^19
   3. 7.24 x 10^19
   4. 6.25 x 10^18
   5. 6.25 x 10^19
   6. 6.24 x 10^19
7. The electric current, I, is the amount of charge passing a point per unit time.
   1. True
   2. False
8. The electric current, I, is the amount of charge passing a point per coulomb.
   1. True
   2. False
9. Voltage is the measure of the amount of potential energy per electric charge or coulomb.
   1. True
   2. False
10. Voltage is the measure of the amount of potential power per electric charge or coulomb.
    1. True
    2. False
11. Voltage is the measure of the amount of potential energy per electric charge or joule.
    1. True
    2. False
12. Energy is the measure of work.
    1. True
    2. False
13. Energy is the measure of voltage.
    1. True
    2. False

The image below is for questions 14-17





1. What happens when you add a second battery to the system?
   1. Voltage is halved
   2. Voltage is doubled
   3. Work is halved
   4. Work is doubled
   5. Bulb gives off the same amount of light
   6. Bulb gives off more light
   7. a , c, and e
   8. b, d, and f
   9. b, c, and f
2. The work done when two batteries are used is twice as much as the work done when one battery is used.
   1. True
   2. False
3. More electrons flow through each bulb when a second battery is added.
   1. True
   2. False
4. The same number of electrons flow through each bulb when a second battery is added.
   1. True
   2. False
5. Which of the following statements are true about voltage and water pressure?

|  |
| --- |
| i. Voltage and pressure are both measures of a potential difference  ii. The work done per gallon of water passing through a turbine will double when the water pressure is doubled  iii. The work done per gallon of water passing through a turbine will stay the same when the water pressure is doubled  iv. The work done per coulomb of charge passing through a resistor will double when the voltage is doubled  v. The work done per coulomb of charge passing through a resistor will stay the same when the voltage is doubled |

* 1. i, ii, and iii
  2. i and iv
  3. Ii and iii
  4. I, ii, and iv
  5. i, ii, and iv
  6. i, ii, iii, and iv

1. Which of the following statements is true about voltage and water pressure? (circle all that apply)
   1. Voltage and pressure are both measures of a potential difference
   2. The work done per gallon of water passing through a turbine will double when the water pressure is doubled
   3. The work done per gallon of water passing through a turbine will stay the same when the water pressure is doubled
   4. The work done per Coulomb of charge passing through a resistor will double when the voltage is doubled
   5. The work done per coulomb of charge passing through a resistor will stay the same when the voltage is doubled
   6. None of the above
2. What is voltage?
   1. The net flow of electrons through a material
   2. The potential difference between the strength of the electron supply and the electron shortage
   3. A measure of a material’s opposition to the passage of electric current
   4. The supply of mechanical or electrical energy
   5. It is the measure of work
   6. Is the total amount of resistance
3. \_\_\_\_\_\_\_\_\_\_\_is the measure of the amount of potential energy per electric charge or coulomb.
   1. Work
   2. Charge
   3. Energy
   4. Voltage
   5. Current
   6. Resistance
4. What is current?
   1. The supply of mechanical or electrical energy
   2. It is the measure of work
   3. It is the total amount of resistance
   4. The net flow of electrons through a material
   5. The potential difference between the strength of the electron supply and the electron shortage
   6. A measure of a material’s opposition to the passage of electric current.
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_is the net flow of electrons through a material.
   1. Work
   2. Charge
   3. Energy
   4. Voltage
   5. Current
   6. Resistance
6. What is resistance?
   1. The net flow of electrons through a material
   2. The potential difference between the strength of the electron supply and the electron shortage
   3. A measure of a material’s opposition to the passage of electric current.
   4. The supply of mechanical or electrical energy
   5. It is the measure of work
   6. Is the total amount of resistance
7. \_\_\_\_\_\_\_\_\_\_\_ is a measure of a material’s opposition to the passage of electric current.
   1. Work
   2. Charge
   3. Energy
   4. Voltage
   5. Current
   6. Resistance
8. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the amount of charge passing a point per unit time.
   1. Electric current
   2. Electric resistance
   3. Electric potential
   4. Electrical energy
   5. Electric voltage
   6. Electric power
9. An ampere is equal to:
   1. electrons
   2. A joule per coulomb
   3. A volt per second
   4. A coulomb
   5. A coulomb per second
   6. An ohm
10. A volt is equal to:
    1. electrons
    2. A joule per coulomb
    3. An ampere per second
    4. A coulomb
    5. A coulomb per second
    6. An ohm
11. Energy can be best described as:
    1. The net flow of electrons through a material
    2. The potential difference between the strength of the electron supply and the electron shortage
    3. A measure of a material’s opposition to the passage of electric current.
    4. The supply of mechanical or electrical energy
    5. The measure of work
    6. The total amount of resistance
12. Energy has units of:
    1. Electrons
    2. Joules per coulomb
    3. Volts per second
    4. Coulombs
    5. Coulombs per second
    6. Ohms
13. Voltage is analogous to:
    1. Bread in a toaster
    2. Getting sunburnt
    3. Water pressure
    4. Fire spreading
    5. Driving a car
    6. Turning on a computer
14. What are the units for resistance?
    1. Ohms
    2. Joules
    3. Coulombs
    4. Electrons
    5. Amperes
    6. Farads
15. What is the measure of frictional resistance encountered by electrons as they attempt to pass through a material?
    1. Work
    2. Charge
    3. Energy
    4. Voltage
    5. Current
    6. Resistance
16. Current has units of:
    1. Electrons
    2. Joules per coulomb
    3. Volts per second
    4. Coulombs
    5. Coulombs per second
    6. Ohms
17. To activate current flow you must give it a \_\_\_\_\_\_\_\_\_\_\_\_\_.
    1. Strong wire
    2. Closed-circuit
    3. A resistor
    4. Plenty of room
    5. An LED
    6. A cold wire
18. Creating a closed circuit:
    * 1. Causes an LED to burn out
      2. Causes the voltage to push electrons to move
      3. Tells electrons where to go
19. i
20. ii
21. iii
22. i and ii
23. ii and iii
24. i, ii, and iii

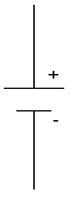
36. What do incandescent bulbs act as:

1. Capacitors
2. Resistors
3. Batteries
4. Relays
5. Diodes
6. Transistors

37. A simple circuit contains a/an:

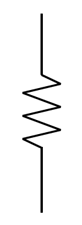
1. Power source, switch, and conductive material
2. Power source, LED, and switch
3. Power source, LED, and conductive material
4. Power source, resistive element, and conductive material
5. Power source, switch, and resistive element
6. Power source, LED, and resistive element

38. In a circuit diagram, what does the image below symbolize?



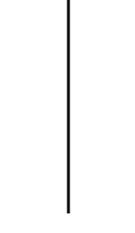
1. Resistor
2. Conductive material
3. LED
4. Conductor
5. Relay
6. Power source

39. In a circuit diagram, what does the image below symbolize?



1. Resistor
2. Conductive material
3. LED
4. Conductor
5. Relay
6. Power source

40. In a circuit diagram, what does the image below symbolize?

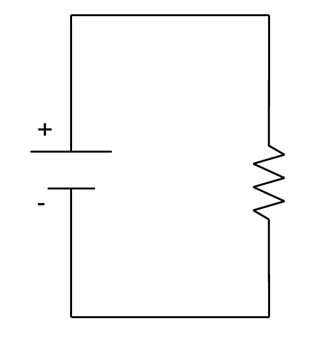


1. Resistor
2. Conductive material
3. LED
4. Conductor
5. Relay
6. Power source

41. Ohm’s Law relates\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_ to each other.

1. Voltage, current, resistance
2. Voltage, current, power
3. Voltage, resistance, power
4. Current, resistance, power
5. Current, energy, power
6. Current, resistance, energy

42. Given the following circuit, what is the voltage of the power source?



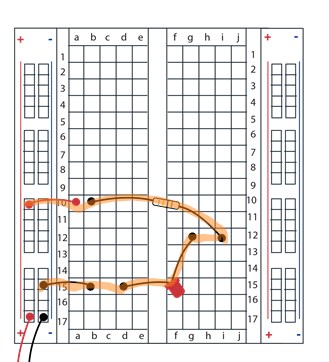
1. 78.33V
2. 28.2V
3. 12.766V
4. 7.833V
5. 6V
6. 1V

Use Ohm’s law V=IR

V=(0.06A)(470Ω)

V= 28.2V

1. The rows on a breadboard are numbered.
   1. True
   2. False
2. The columns on a breadboard are lettered.
   1. True
   2. False
3. The rows on a breadboard are lettered.
   1. True
   2. False
4. The columns on a breadboard are numbered.
   1. True
   2. False
5. Is the circuit below built correctly?
   1. Yes
   2. No



1. A 470Ω resistor has a color code of:
   1. Brown, black, red
   2. Brown, black, orange
   3. Yellow, black, red
   4. Yellow, violet, red
   5. Brown, violet, orange
   6. Yellow, violet, brown

1. A 10000Ω resistor has a color code of:
   1. Brown, black, red
   2. Brown, black, orange
   3. Yellow, black, red
   4. Yellow, violet, red
   5. Brown, violet, orange
   6. Yellow, violet, brown
2. What does LED stand for?
   1. Light Emitting Device
   2. Light Emitting Diode
   3. Light Electrical Diode
   4. Light Electrical Device
   5. Luminous Electrical Device
   6. Luminous Electrical Diode
3. The flat edge (or short leg) of the LED lens must be connected to ground.
   1. True
   2. False
4. A 1000Ω resistor has a color code of:
   1. Brown, violet, orange
   2. Brown, black, orange
   3. Yellow, black, red
   4. Yellow, violet, red
   5. Brown, black, red
   6. Yellow, violet, brown
5. The LED’s brightness can also change as a function of voltage.
   1. True
   2. False
6. LED will be brighter as the voltage value \_\_\_\_\_\_\_\_\_.
   1. Increases
   2. Decreases
   3. Stays the same
   4. A and B
   5. A and C
   6. Not enough information
7. LED brightness can change as a function of resistance.
   1. True
   2. False
8. An LED will be brighter as the resistance of the resistor \_\_\_\_\_\_\_\_.
   1. Increases
   2. Decreases
   3. Stays the same
   4. A and B
   5. A and C
   6. Not enough information
9. What color stripes does a 220Ω resistor have?
   1. Yellow, black, red
   2. Brown, black, orange
   3. Red, red, brown
   4. Yellow, violet, red
   5. Brown, violet, orange
   6. Yellow, violet, brown