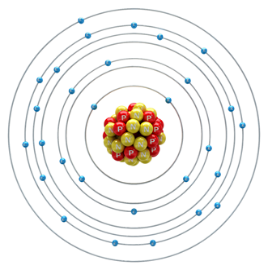
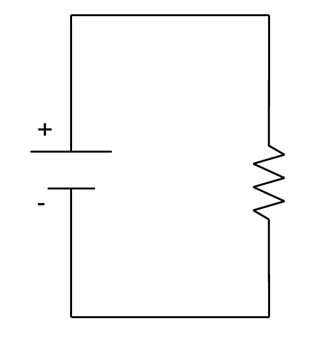
Circle the letter of the correct answer.

1. What are the colored bands on a 470Ω resistor?
2. Red, Red, Brown
3. Blue, Red, Red
4. Yellow, Violet, Brown
5. Brown, Black, Red
6. Orange, Red, Brown
7. What is electricity?
   1. The flow of electric charge
   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
8. Electricity moves best through which material?
9. Silicon
10. Plastic
11. Glass
12. Rubber
13. Aluminum
14. Electricity is prohibited from flowing easily in which kind of material?
15. Conductors
16. Semiconductors
17. Transistors
18. Insulators
19. Diodes
20. Electricity can easily flow in which kind of material?
    1. Conductors
    2. Inductors
    3. Semiconductors
    4. Transistors
    5. Insulators
21. Electricity can flow easily under certain conditions in which kind of material?
    1. Conductors
    2. Inductors
    3. Semiconductors
    4. Transistors
    5. Insulators
22. How many valence electrons does copper have?
    1. 1
    2. 2
    3. 3
    4. 4
    5. 6
23. What is always true about conductive materials?
    1. They have a lot of valence electrons
    2. They have few valence electrons
    3. They are shiny
    4. They produce heat
24. How do electrons move?
    1. From the positive terminal to the negative terminal of the battery
    2. From voltage shortage to supply
    3. From the left to the right
    4. From the negative terminal to the positive terminal of the battery
25. Conventional current travels from\_\_\_\_\_\_\_\_to\_\_\_\_\_\_\_\_.
26. High, low
27. Negative, positive
28. Positive, negative
29. Electron, proton
30. Electrical resistance is best described as:
31. The sum of the electron supply and shortage
32. The net flow of electrons
33. The measure of a material’s opposition of electric current
34. The measure of a material’s strength of electric current
35. Voltage is best described as:
36. The potential difference between the strength of the electron supply and the electron shortage
37. The sum of the electron supply and shortage
38. The net flow of electrons
39. The measure of a material’s opposition of electric current
40. The potential difference between the strength of the electron supply and the electron shortage is the:
41. Current
42. Voltage
43. Temperature
44. Equivalent Resistance
45. What are the units for electric current:
    1. Coulomb
    2. Amperes
    3. Coulomb per second
    4. Joules
    5. Ohms
    6. b and c
46. The electric current, I, is the amount of charge passing a point per unit time.
    1. True
    2. False
47. 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
48. Given the following circuit, what is the voltage of the power source?

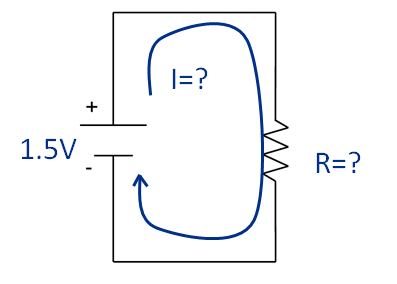


Given:

I= 0.06A

R= 470Ω

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

1. What is power?
   1. work performed per unit coulomb
   2. resistance to change
   3. work performed per unit time
   4. how much force you can apply on an object
   5. work done over a net distance
   6. None of the above
2. Arlo does 1500 J of work in climbing a set of stairs. If he does the work in 5 seconds, what is his power output?
3. A crane lifts a load of steel, that weighs 570 N, a distance of 120 m. It takes 6 minutes to complete the task. How much work is done by the crane? How much power does the crane produce?
   1. Work = 58500 W Power = 670 J
   2. Work = 68400 W Power = 190 J
   3. Work = 48800 W Power = 400 J
   4. Work = 58500 J Power = 670 W
   5. Work = 68400 J Power = 190 W
   6. Work =48800 Power = 400 J
4. If a D-Cell battery (1.5V) supplies 6W of power to a small bulb, find:
   1. The current through the bulb

P = I \* V => I = P / V = 6W / 1.5V = 4 A or 4 Amps

* 1. The resistance of the bulb

V = I \* R => R = V / I = 1.5V / 4A = 0.375 Ω

1. A light bulb is powered using an AA battery (1.5 V) which has a current of 56.8 mA. The battery lasts for 150 hours before the light bulb ceases to emit light. What is the resistance of the light bulb?

V = I \* R => R = V / I = 1.5V / .0568A = 26.408 Ω

1. A toaster oven is plugged into an outlet that provides 150 V. What power does the oven use if the current is 25A?

P = I \* V = 25A \* 150V = 3750 W

1. Charlett’s laptop consumes 47 Watts of electricity. How much voltage is used, if the current is 22A?

P = I \* V => V = P / I = 47W / 22A = 2.136 V

1. Match the names of the components with their respective pictures. Write the matching letter on each picture.

D

1. Potentiometer

J

1. Slide switch

C

L

1. Push-button switch
2. Inductor
3. ****Photoresistor
4. Transistor

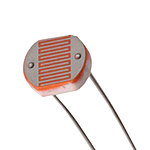
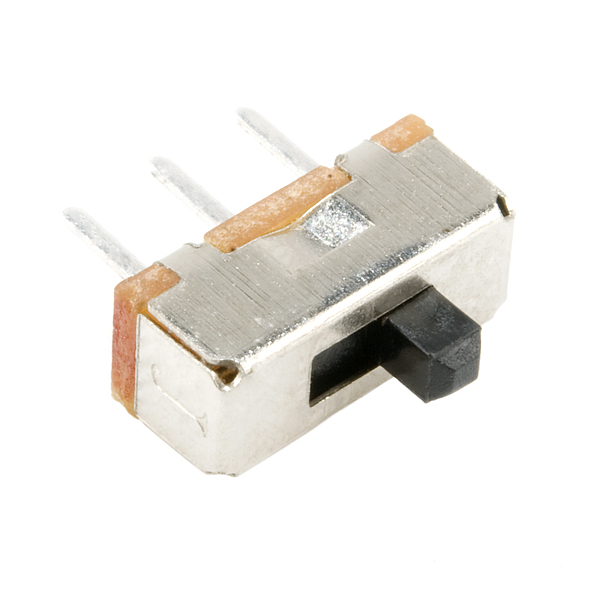
I

H

1. Thermistor

M

F

1. Relay
2. Diode
3. ********Capacitor

G

1. Resistor

E

1. LED

A

1. RGB LED

K

B