Answer the following in the space provided.

1. A material that allows electrons to move freely through it is a \_\_\_\_conductor\_\_\_\_\_\_\_\_.

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1. What three factors are required to create an electrical circuit?
2. Name the unit used to measure each of the following:  
     
   Current Amps  
   Voltage Volts  
   Resistance Ohms
3. What type of fire extinguisher should be used to fight an electrical fire? Type C
4. What type of meter can be used to measure voltage, resistance and current? multimeter
5. What is done to the handles of pliers to help prevent electrical shock? Insulated/coated
6. What are the best type of plier for bending loops in the end of wires? Needle nose
7. A material that allows some electron movement is a \_\_\_\_\_\_semiconductor\_\_\_\_\_\_.
8. If a device has no tubes, but has various other electrical components in it, it is often referred to as being \_\_\_\_\_\_solid state\_\_\_\_\_\_\_\_\_\_\_\_.
9. Power(P) is measured in Watts (w). The formula for power is Power=Voltage x Current (P=VI) solve the following:  
   a) V=6v, I=24A, P=\_\_\_144w\_\_\_\_\_ b)V=115v, I=15A, P=\_\_\_\_1725w\_\_\_\_\_\_  
     
   c) V=\_1200v\_\_\_\_, I=0.5A, P=600w d) V=1.5v, I=\_\_\_16A\_\_\_\_\_, P=24w
10. In an electrical circuit, what is the purpose of having a protection device?  
    to protect against too much power in a circuit which may cause fire or circuit failure
11. What is the load in the circuit in a hand held flashlight? bulb

1. Ohm’s law says that Current equals Voltage divided by Resistance. Use this formula to solve the following:  
     
   a) Current = 15 amps, Resistance = 1200 ohms, and Voltage = \_\_\_\_\_18000v\_\_\_\_\_\_  
     
   b) Current = \_\_.003 A (3mA)\_\_\_\_\_\_, Resistance = 4000 ohms, and Voltage = 12 volts  
     
   c) Current = 5mA, Resistance = \_\_\_\_300Ω\_\_\_\_\_\_\_, Voltage = 1.5 volts
2. Name two mechanical connectors. Terminal screw, twist-on, mechanical lug, butt type crimp on, set screw connector, lug cable connector – any two

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1. How are most household wires connected? Twist-on
2. What is the purpose of flux and where is it generally found in electronic solder?  
   prevents oxidization, cleans, supports solder flow – any two
3. \_\_\_\_Tinning\_\_ is the process of heating a soldering iron, applying solder and wiping it smooth.
4. Draw a circuit which has two bulbs and a switch wired in parallel.  
   1 mark each for: bulb, bulb, power, switch, parallel
5. Draw a circuit with three bulbs wired in series with a switch.

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1 mark each for: bulb, bulb, bulb, power, switch, series