Electricity Unit Review Answers

1. The electrons move when charge is transferred from one atom to another.

2. Which of the following is not part of the electrical nature of matter (circle the incorrect answer)

a. All matter is made up of subatomic particles called atoms

b. At the center of the atom is the nucleus in the center are the (+) and (0) charges, around the orbit are the (-) charges.

c. If atoms gain electrons they become positively (+) charged

3. a. A cotton sweater (-) and a pair of wool pants (+)

b. Your hair (+) and a plastic comb (-)

c. Your silk pj's (+) and your cotton sheets (-)

4. There is less moisture in the air in the winter so there are fewer water molecules to remove charges from charged surfaces.

5. Static wicks - electrons flow off the tip of the rod into the air.
Grounding - the earth absorbs the built up charges

6. Source – cell or battery (provides the energy)
Load – toaster, light bulb (is given the energy)
Connecting wires – copper, aluminum (connect the various parts of the circuit
Control device – switch, thermostat (controls if the load is on or off

7. A closed circuit is one in which electricity is flowing. An open circuit is one in which there is a break in the flow of electricity.

8. Static electricity stays in one place on an object and current electricity is an electric charge that is moving in one or more paths.

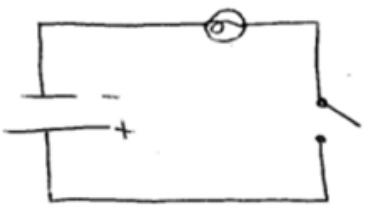
9. The electric charge flows from the negative terminal of the dry cell, through the switch, the bulb and back to the positive terminal of the dry cell. Negative charges are released at the negative terminal are attracted to the positive terminal.

10. A series circuit is when the parts of the circuit are wired to one another in a single path. A parallel circuit is when the parts of the circuit are each on their own separate branch. The parallel circuit would have the least amount of resistance, there are multiple paths through which current can flow, so the resistance of the overall circuit is lower than it would be if only one path was available.

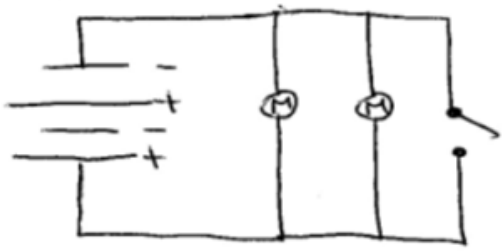
11. a. This is an example of a series circuit

b. If R1 stopped working neither R2 nor R3 would work. This is a series circuit and if there is a break anywhere in the path it will not work.

12. a) 1 battery
1 lightbulb
switch
series

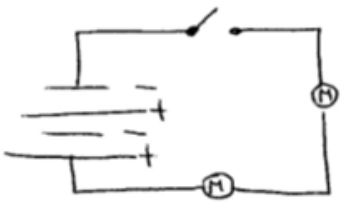


b) 2 batteries
2 loads
1 control
parallel

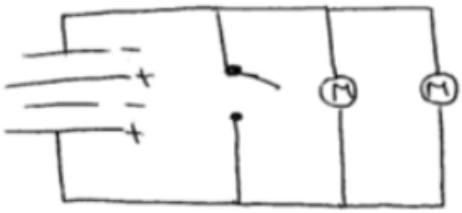


c)

2 batteries
switch
2 motors
series



d) 2 batteries
switch
2 motors



14. a. electrical potential/voltage V , volts

b. electric current I , amps

c. electric resistance R, Ω

15.

	Voltage	Current	Resistance
a)	110V	2A	55 Ω
b)	110V	1.1A	100Ω
c)	16V	2A	8 Ω
d)	220V	0.44A	500 Ω
e)	12V	0.03A	400 Ω