

Ch1 Electricity Review **Name** _____ **Per#** _____

Written page by page, from front of the chapter to the back. Feb 23, 2006 by Bonaparte Gunpowder

Section 1

1. Electrical charges come in two types: _____ & _____.
2. Opposite charges _____, which causes a “pulling” force.
3. Like charges _____, which causes a “pushing” force.
4. The two questions above are parts of the “Law of _____”.
5. The region where the electric forces act is called the _____.

6. Objects become more negative charged when they gain _____.
7. Objects become more positively charged when they lose _____.
8. The 3 ways to charge an object: _____, _____, _____.
9. Charges can be moved, but charges are not created or destroyed.
 This is called _____.
10. A simple device used to indicate if something is charged: _____.

11. (From notes) A device that can be used to store a charge (film canister, nail, water, aluminum) _____.
12. Material that lets charges flow: _____. Material that doesn't: _____.
13. Charges that are at rest: _____.
14. The release of stored charges: _____.
15. A storm cloud is usually charged _____ at the top, & _____ at bottom.

16. If standing outside and your hairs start standing up, what should you do?
17. (From class) Lightning & sparks go the path of _____.
18. When something allows charges to flow to the earth we say it is _____.
19. List two places at home where charges can flow into the earth:
20. Be able to explain how & why a plastic balloon can stick to a wall.

Section 2

1. The flow of charges is called an _____.
2. The unit of current is equal to 6.25×10^{18} charges per second. _____
3. The symbol for current is “I”, the symbol for an ampere is: _____.
4. True or False: **Charges** pass through a conductor much faster than electrons move.
5. Be able to explain the difference between DC and AC movement of charges.

6. Standard American wall outlets are _____ V, _____ A, and _____ Hz (AC cycles/sec).
7. (Class notes) A common car battery works at _____ V and _____ A (DC).
8. Electrical pressure depends on the potential difference between the + and – sides of a circuit. Such pressure is measured in _____, which has the symbol ____.
9. T or F: when voltage doubles, the electrical energy doubles.
10. Why won't eight 1.5 V (12 V total) flashlight batteries start a 12V car?

11. How come a 600V electric eel can kill a horse, but 18,000V “Sparky” just tingles?
12. The opposition to the flow of charges is called _____.
13. “Electrical friction” of a conductor depends on 4 things:
14. T/F: The element tungsten has the highest melting point (T) so is used in light bulbs.
15. A material that when cooled has ZERO ohms of resistance: _____.

16. A device that converts mechanical energy (motion) into electricity: _____.
17. A mixture of chemicals (often liquid or paste-like) that allows charges to flow:
18. The part of the cell or battery where charges may enter (*cathode*-) or leave (*anode*+):
19. Type of cell that has liquid electrolyte, such as car batteries w/ sulfuric acid): _____
20. A device that can convert heat into electricity: _____

21. A device that can change light energy into electrical energy: _____.

Section 3

1. Write down the Ohm's Law formula (like Mr. W's cheer).
2. Now write it down using the Physics symbols R and I.

3. As resistance goes UP current goes _____. When R goes **down** current goes _____.
4. What is the current when a 9V battery runs a 2 ohm light bulb?
5. What's the resistance of a 120V motor that takes in 10 amps of current?
6. Write down the electrical power formula (p21).
 - a. How many amps does a 120V, 650W bread maker draw?
 - b. How many amps does a 120V, 3W turntable draw?
 - c. A car headlight draws 3A at 12V. What is its power (W)?
7. One horsepower equals 746 watts. At 120V, how many Amps will = 2 horsepower?
8. For the homes locally, what is a common cost per day for electricity?
9. Electrical energy is usually measured in 1000W/hr which equals 1 kWh.
How much energy does a 200W TV use if left on for 2 full days?

Section 4

1. A pathway that starts and returns to the same place is called a _____.
2. A continuous pathway for charges is called an _____.
3. All circuits have 3 basic parts: _____, _____, _____.
4. What is used to open (break/turn off) or close (turn on) a circuit? _____.
5. A "single file" (loop) circuit, where the current is the same throughout: _____.
Draw an example of such a circuit with a battery, 2 light bulbs, and a fan.
6. A branched circuit arranged so the Voltage for each part is the same: _____.
Draw an example of such a circuit using a battery and 2 light bulbs.
7. A safety device with a thin conductor that melts when current gets too high: _____.
8. A safety device that flips OFF if current gets too high: _____.
9. A safety device with test/reset buttons that stops current if a current leak is detected:
_____ or (initials) _____.

10. A warm or hot extension cord is a warning sign that too much _____ is going through the wire, and a thicker gage wire should be used.

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