**Science 9 – Electricity Test Review**

**Topics covered:** Static (including lightning) 3 ways of charging: friction, contact, induction Insulators & Conductors The electrostatic series

4 parts of a circuit Electric potential (voltage)

Cells (batteries) Series and Parallel circuits

Ohm’s law (V = I x R) Electrical energy (E = V x I x t) and Power (P = I x V)

**Answer each question on looseleaf:**

1) Explain the difference between static electricity and current electricity. Use an example of each to support your answer.

2) Define each in your own words: charging by a) Friction b) Contact, and c) Induction.

Also include an example of each.

3) Explain the difference between conductors and insulators.

4) Define the four parts of a circuit, providing examples for each.

5) Compare/contrast series circuits and parallel circuits. A T-chart may help.

6) Explain, using a diagram, how lightning works.

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7) Fill in the following table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Formula** | **List of variables and units** | **Formulas rearranged to find each factor** | | | |
| **Ohm’s Law**  V = I x R | V: | I = | | R = | |
| I: |
| R: |
| **Electrical Energy**  E = V x I x t | E: | V = | I = | | t = |
| V: |
| I: |
| t: |
| **Power**  P = V x I | P: | V = | | I = | |
| V: |
| I: |

8) A stereo with 40 Ω of resistance draws 3.0 A. Determine the electrical potential (Voltage) of this circuit.

9) A 100 watt guitar amp is plugged into a 120V socket. How much current does it draw?

10) Mr. Glenwright plays nintendo, drawing 4.5 A from a 120V socket, for 2.5 hours. How much energy does he use?

11) Two 9V batteries in series provide 6A for a flashlight. Draw a schematic diagram of this flashlight in the “off” position. Is this an open or closed circuit? Also, determine the resistance of the flashlight.

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