

Electrostatics Study Guide

Name _____

Period _____

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1. List and differentiate among the 3 subatomic particles that make up the atom. e.g. location, charge, interaction with each other.
 2. What creates an electrical charge? SI unit of charge?
 3. Explain interactions between like charges and opposite charges.
 4. What causes an electrical force? What surrounds an electrical force? Where are the forces strongest?
 5. What does an electrical field lines show?
 6. Explain Coulomb's law with an equation and words. What is the relationship between charge and force; between distance and force?
 7. In Coulomb's law, when distance between two charges doubles, the electrical force between the two charges
 8. What does Conservation of Charge mean?
 9. What are the 3 ways to charge an object? Give an example of each using charges to explain the method to charge the object.
 10. Differentiate between F_e and F_g .
 11. Explain how a (+) test charge gains electrical potential energy. If (+) test charge is released, how would its kinetic energy compare?
 12. What is potential difference? SI unit?

13. Define electrical resistance, current, and voltage. State SI unit of each.
14. State Ohm's law and the relationships among the variables.
15. The rate of electrical work done per unit of time is called? SI unit?
16. Power outlets in our home have a potential difference of
17. What does electrical energy used in a household depends upon? Unit for electrical energy used in our electrical bills?
18. What are the necessary parts of an electrical circuit? Draw a proper schematic diagram of a simple circuit utilizing a 3 V battery and a single lamp of 6 ohms. Find the current and incorporate in diagram with ammeter.
19. When plugged into a 120-V wall outlet, how much current flows through a 600 W coffee maker?
20. The resistance of a 40 W light bulb plugged into a 120-V outlet would be
21. An electrical stove has a resistance of 12 ohms. If it is plugged into a 240-V outlet, what is the cost to operate it for 3 hours if the cost per kilowatt-hour is 9 cents?
22. If an electrical meter reading at the beginning of February is 4950 kWh and at the end of the month the meter read 5266 kWh, what was the electrical bill during this one month period if the cost per kilowatt-hour is \$0.10?
23. Jackson's 850W toaster is plugged into a 120-V outlet. Calculate the amount of charge moving through Jackson's toaster in 1 minute.
24. Suppose two charges, each 4×10^{-6} C, are located 0.2 m apart. How much force is exerted on each charge?