

Chapter 32 Test Electrostatics

True or False Questions*Circle the correct answer.*

- T** **F** 1. Electrons and protons have the same charge and therefore attract each other.
- T** **F** 2. Electric charge is neither created nor destroyed, but can be rearranged.
- T** **F** 3. A material is a good insulator if outer electrons of atoms in the material are free to roam around.
- T** **F** 4. When an object is charged by induction, electrons flow from the ground onto the object, or from the object onto the ground.
- T** **F** 5. An atom that is electrically polarized vibrates in only one direction.

Multiple Choice Questions*Choose the best answer to each question and write the appropriate letter in the space provided.*

- _____ 6. Atomic nuclei of almost all atoms consist of
a. only protons.
b. protons and neutrons.
c. protons and electrons.
d. neutrons and electrons.
- _____ 7. The net charge of a nonionized atom
a. depends only on the number of protons it has.
b. depends only on the number of electrons it has.
c. is zero.
d. usually cannot be determined.
- _____ 8. A positive ion has
a. one proton.
b. more electrons than protons.
c. more protons than electrons.
d. a +1 charge always.
- _____ 9. Coulomb's law says that the force between any two charges depends
a. directly on the magnitude of the charges.
b. inversely on the square of the distance between the charges.
c. both of the above
d. neither of the above
- _____ 10. The common hydrogen atom consists of
a. one proton.
b. one proton and one electron.
c. two protons, one neutron, and two electrons.
d. one neutron and one electron.

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- _____ 11. The electrostatic force between two charges located 2 meters apart is 0.10 N. What will the force be between these charges when they are located 1 meter apart?
- 0.40 N
 - 0.20 N
 - 0.10 N
 - 0.05 N
- _____ 12. A 2-C charge and a 4-C charge attract each other with 10 N of force. How much will a 2-C charge and an 8-C charge attract each other when placed the same distance apart?
- 40 N
 - 20 N
 - 10 N
 - 8 N
- _____ 13. In a good insulator, electrons are usually
- free to move around.
 - free to move around after an impurity has been added.
 - semi-free to move around.
 - tightly bound in place.
- _____ 14. The reason a charged balloon will stick to a wall is that
- the charge is slightly sticky and acts like glue.
 - electrons transfer back and forth between the wall and the balloon.
 - induced opposite charges in the wall are closer than other wall charges.
 - balloon material simply sticks to walls.
- _____ 15. The charge distribution in some molecules is permanently separated in two regions. Such molecules are called
- ionized molecules.
 - electric dipoles.
 - insulators.
 - coulomb molecules.

Essay Question

On a separate sheet of paper, answer the following question.

16. What is the difference between an insulator and a conductor? Use copper, wood, and distilled water as examples.