Name _____ Date _____ Period _____

Understanding Concepts

In the space to the left, write the letter of the answer to each question.

1. ____ An electric field is equal to
   a. force per unit mass b. force per unit charge
   c. force per unit time d. force times direction.

2. ____ The force on a test charge in an electric field is
   a. directly proportional to the magnitude of the field
   b. inversely proportional to the magnitude of the field
   c. inversely proportional to the square of the magnitude of the field
   d. unrelated to the magnitude of the field.

3. ____ The strength of the force on a charge in an electric field depends on
   a. the direction of the field b. the magnitude of the field
   c. the size of the charge d. both b and c.

4. ____ As an electric field becomes stronger the field lines should be drawn
   a. thicker b. thinner c. closer together d. farther apart.

5. ____ The difference between an electric field and field lines is that
   a. electric fields do not really exist
   b. field lines are a method for measuring the force on a charge
   c. field lines are produced by more than one charge
   d. field lines are only a model of an electric field.

6. ____ The work done moving a test charge from one point to another is
   a. potential energy b. kinetic energy
   c. electric potential d. electric potential difference.

7. ____ In a uniform electric field, the potential difference between two points is found using the equation
   a. $V = Ed$ b. $E = Vd$ c. $V = E/d$ d. $E = V/d$

8. ____ Robert A. Millikan determined that
   a. each electron always carries the same charge b. charges are quantized
   c. changes in charges are caused by one or more electrons being added or removed
   d. all of the above are true.

9. ____ Touching an object to Earth to eliminate excess charge is
   a. conduction b. induction c. grounding d. friction.

10. ____ The charges on a hollow conductor are found
    a. on the outer surface b. on the inner surface
    c. at the ends d. on both the outer and inner surfaces.

11. ____ A capacitor is
    a. a device that stores a charge
    b. made up of two conductors separated by an insulator
    c. a device that measures electric potential differences d. both a and b.