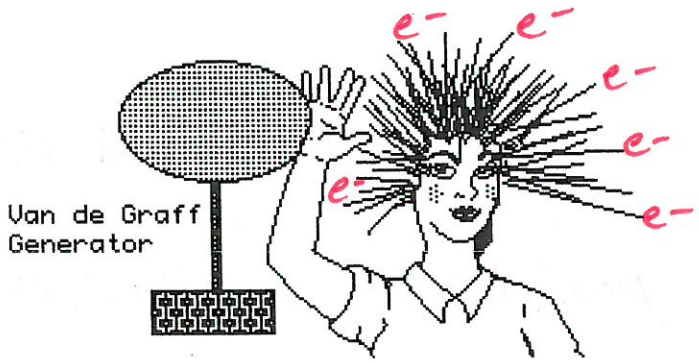
Name: KEY.

Science 9 - Chapter 9: Static Electricity Test

Part A: Short Answer

1. What is meant by a static charge? Charges that do not move.

2. Use the following diagram to answer the questions below:



a) Explain why the girl's hair sticks out when she touches the charged Van de Graff generator. e- transfer to her body & hair repels

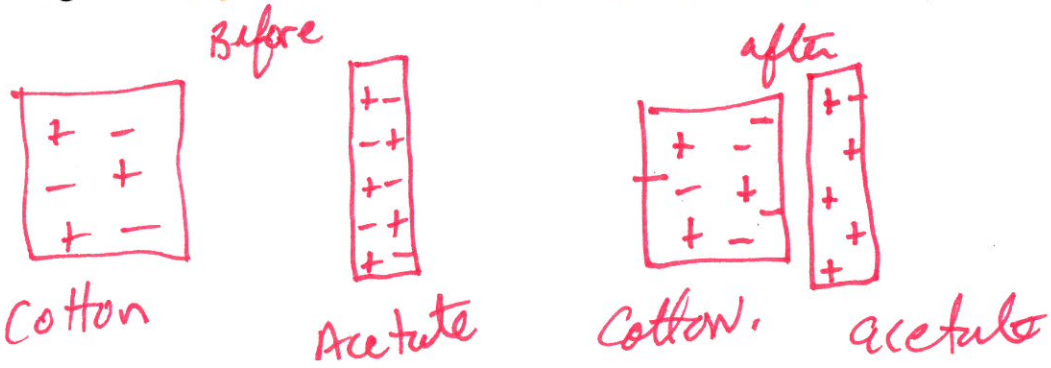
b) Why is the girl probably standing on a plastic box rather than right on the floor? to avoid Grounding so charge can Build up.

c) What might happen if the girl got her left hand close to a water tap or another grounded object? SPARK.

Explain why this would happen? Charged objects can get rid of excess charge into the ground.

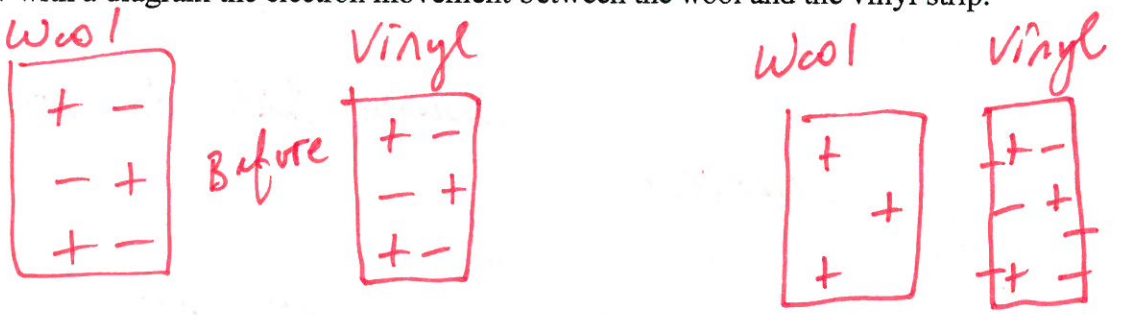
3. An *acetate* strip rubbed with *cotton* is said to have a positive charge.

Show with a diagram the electron movement between the cotton and the acetate strip.



4. A *vinyl* strip rubbed with *wool* is said to have a Negative charge.

Show with a diagram the electron movement between the wool and the vinyl strip.



5. An object is attracted to a charged **acetate** strip. This tells us that the object is Negative or neutral.

6. An object is attracted to a charged vinyl strip. This tells us that the object is positive or neutral.

7. Something which has a **negative** charge is said to have more electrons than protons.

8. Something which has a **positive** charge is said to have fewer electrons than protons.

9. Opposite charges Attract, like charges repel, and charged objects Attract neutral objects.

Part B: Multiple Choice
Circle the letter beside the answer that best answers the question or completes the statement.

1. Why does an acetate strip rubbed with a paper towel acquire a positive charge?

A. The acetate strip loses positive charge to the paper towel.
B. The acetate strip loses negative charge to the paper towel.
C. The acetate strip gains positive charge from the paper towel.
D. The acetate strip gains negative charge from the paper towel.

2. A device used to detect static electrical charges is called a/an

A. electroscope B. ammeter C. electromagnet D. oscilloscope

3. A sub-atomic particle without an electrical charge is called

A. a positron B. an electron C. a proton D. a neutron

4. A positive charge develops on what?

A. on cotton that has been used to rub acetate plastic
B. on acetate plastic when it is rubbed with cotton
C. on tissue paper when it is rubbed with your body
D. on a wooden stick when it is rubbed with a sheet of iron

5. When an object is positively charged, it has

A. lost electrons B. lost protons
C. gained electrons D. gained protons

6. Which of the following is neutral?

A. proton
B. neutron
C. nucleus
D. electron

7. A hydrochloric acid solution will conduct electricity. omit.

A. True
B. False

8. Which of the following best explains why an object is neutral?

A. The object has an excess of protons.
B. The object has an excess of electrons.
C. The object has the same number of protons as electrons.
D. The object has an excess of protons, electrons and neutrons.

9. Two neutral objects will repel each other.

A. True
B. False

10. The electric force depends on the amount of charge and the distance between the charges. Which of the following pair of changes will always increase the force?

	Amount of Charge on Objects	**Distance Between Charged Objects**
(a)	decreases	decreases
(b)	decreases	increases
(c)	increases	decreases
(d)	increases	increases

11. Electrostatic precipitators are used to

A. remove ash particles from smoke
B. generate sparks to ignite barbecues
C. encourage rain to fall in desert areas
D. settle sediments in liquids containing impurities

12. Neutral objects are attracted to charged objects because

A. there are an equal number of positive and negative charges
B. of an induced separation of charges
C. neutral objects are conductors
D. neutral objects are insulators

13. Which of the following are units of charge?

A. coulombs
B. newtons
C. electrons
D. protons

14. A positively charged object and a negatively charged object will be attracted to each other.

A. True
B. False

15. Which of the following is an example of induced charge separation?
A. charged balloon stuck to the wall
B. cat's fur becoming charged when rubbed
C. balloon becoming charged when rubbed on hair
D. two charged objects moving apart

16. Which of the following explains why the charge on an atom is neutral?
A. an atom contains neutrons
B. an atom has protons and neutrons
C. an atom has equal numbers of protons and neutrons in the nucleus
D. an atom has equal numbers of protons and electrons

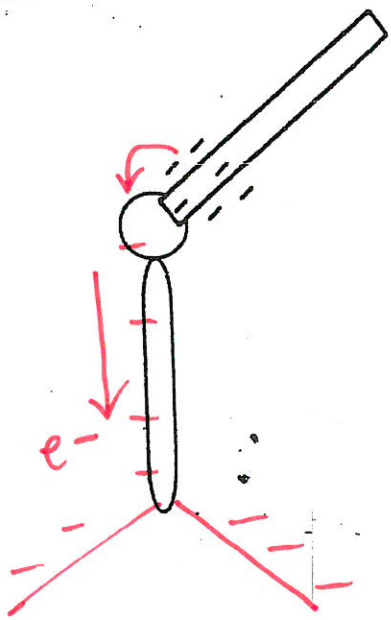
17. Which of the following best describes the use of an electroscope?
A. measures electric charge
B. indicates the presence of charge
C. measures the amount of induced charge
D. indicates neutral charge

18. In which of the following would electrons be allowed to move freely?
A. fur
B. glass
C. iron – it's a conductor.
D. oil

19. Which of the following describes a conductor?
A. electrons move freely
B. electrons do not move freely
C. protons move freely
D. protons do not move freely

20. Which of the following can be described as a transfer of charge to produce a charged object?
A. charging by friction
B. charging by conduction
C. charging by induced charge separation
D. both (a) and (b)

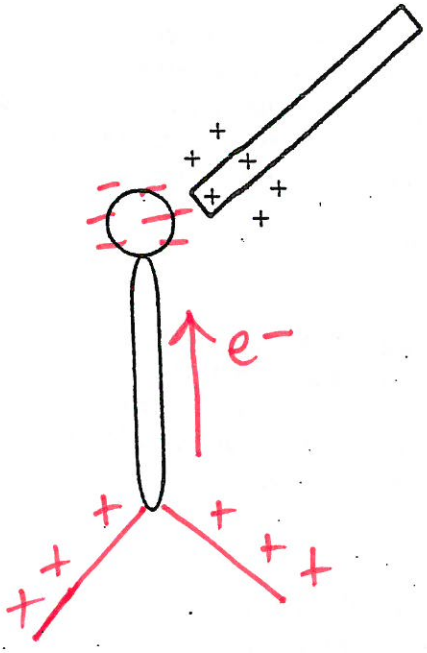
1. Show the movement of charge in the electroscope, and draw the leaves. Label the charge on the leaves



This kind of charging is called charging by

Conduction

2. Show the movement of charge in the electroscope, and draw the leaves. Label the charge on the leaves



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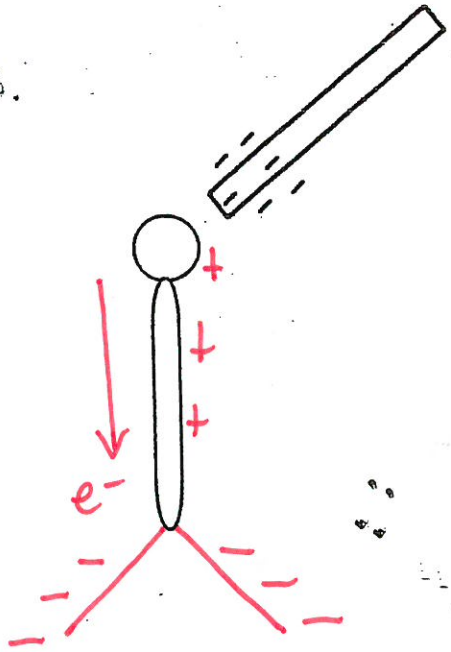
3.



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