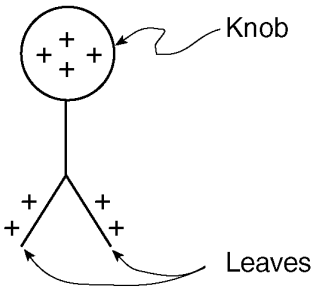
Name: **The Electroscope** **Period:**

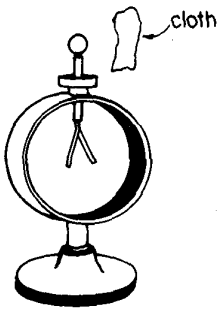
1. Base your answer to the following question on An electroscope is a device with a metal knob, a metal stem, and freely hanging metal leaves used to detect charges. The diagram below shows a positively charged leaf electroscope.



As a positively charged glass rod is brought near the knob of the electroscope, the separation of the electroscope leaves will

A) decrease B) increase
C) remain the same

2. In the diagram below, a cloth is brought near, but does not touch a neutral electroscope. The electroscope leaves separate. What charge, if any, does the cloth have?



A) a positive charge B) a negative charge
C) an unknown charge D) no charge

3. A charged electroscope can detect

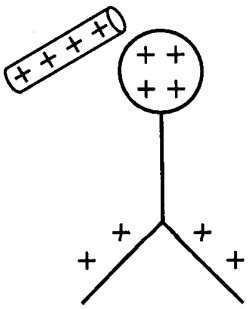
A) positive charge, only
B) negative charge, only
C) either positive or negative charge
D) neither positive nor negative charge

4. When a neutral metal sphere is charged by contact with a positively charged glass rod, the sphere

A) loses electrons B) gains electrons
C) loses protons D) gains protons

5. A positively charged rod is held near the knob of a neutral electroscope. Which diagram best represents the distribution of charge on the electroscope?

A)



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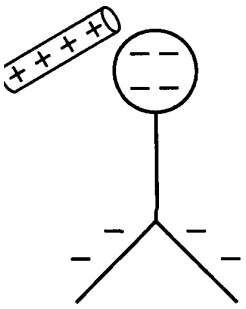

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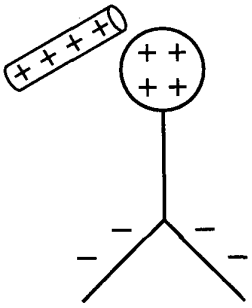

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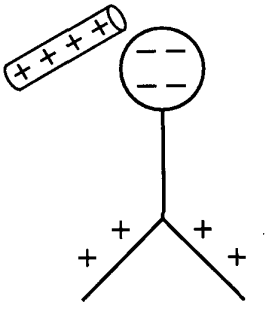

6. If a positively charged rod is brought near the knob of a positively charged electroscope, the leaves of the electroscope will

A) converge, only
B) diverge, only
C) first diverge, then converge
D) first converge, then diverge

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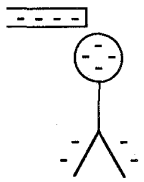
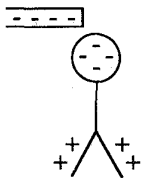
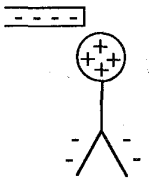
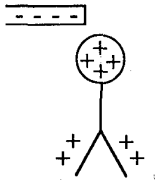
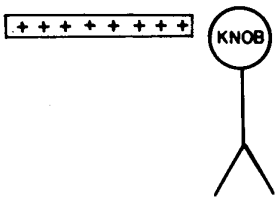
7. When a rod is brought near a neutral electroscope, the leaves diverge. Which statement best describes the charge on the rod?

   A) It must be positive.
   B) It must be negative.
   C) It may be neutral.
   D) It may be positive or negative.

8. Which diagram best represents the charge distribution on a neutral electroscope when a negatively charged rod is held near it?

   A) 
   B) 
   C) 
   D) 

9. Base your answer to the following question on As shown in the diagram below, a charged rod is held near, but not touching, a neutral electroscope.



   The charge on the knob is

   A) positive and the leaves are positive
   B) positive and the leaves are negative
   C) negative and the leaves are positive
   D) negative and the leaves are negative

10. When an object is brought near the knob of a positively charged electroscope, the leaves of the electroscope initially diverge. The charge on the object

    A) must be zero
    B) must be positive
    C) must be negative
    D) cannot be determined

11. When an object is placed near a negatively charged electroscope, the leaves of the electroscope diverge farther. Which statement about the object is true?

    A) It must be neutral.
    B) It must be positively charged.
    C) It must be negatively charged.
    D) It may be either positively or negatively charged.

12. As a positively charged rod is brought near to but not allowed to touch the knob of an uncharged electroscope, the leaves will diverge because

    A) negative charges are transferred from the electroscope to the rod
    B) negative charges are attracted to the knob of the electroscope
    C) positive charges are repelled to the leaves of the electroscope
    D) positive charges are transferred from the rod to the electroscope

13. A glass rod becomes positively charged when it is rubbed with silk. This net positive charge accumulates because the glass rod

    A) gains electrons B) gains protons
    C) loses electrons D) loses protons

14. Which diagram shows an electroscope that has been charged by induction using a positive charging object?

    A) 
    B) 
    C) 
    D) 

15. A device commonly used to detect the presence of a static electric charge is

    A) a galvanometer B) a voltmeter
    C) a compass D) an electroscope

16. If an uncharged electroscope is touched with a neutral object, the separation of the leaves of the electroscope will

    A) decrease B) increase
    C) remain the same

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17. When an electroscope is charged by contact, the charging body always gives the electroscope

A) a charge opposite that of the charging body
B) the same charge as the charging body
C) a negative charge
D) a positive charge

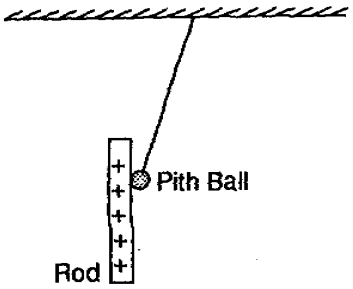
18. Which procedure will give an electroscope a positive charge?

A) touching the electroscope with a neutral object
B) bringing a positively charged object near the electroscope
C) touching the electroscope with a negatively charged object
D) touching the electroscope with a positively charged object

19. A positively charged object was used to give an electroscope a negative charge. The electroscope was charged by

A) contact B) conduction
C) induction D) reduction

20. Base your answer to the following question on As shown in the diagram below, a neutral pith ball suspended on a string is attracted to a positively charged rod.



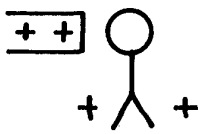
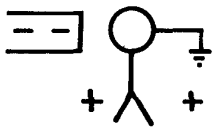
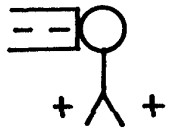
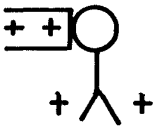
During contact with the rod, the pith ball

A) loses electrons B) gains electrons
C) loses protons D) gains protons

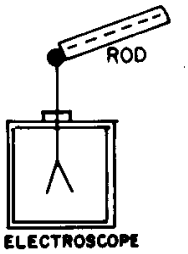
21. When a positively charged body touches a neutral body, the neutral body will

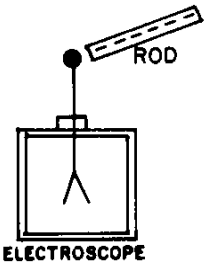
A) gain protons B) lose protons
C) gain electrons D) lose electrons

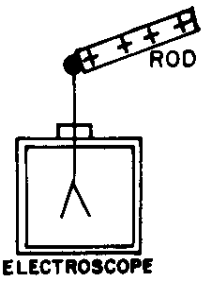
22. Which diagram best illustrates a neutral electroscope being charged by conduction?

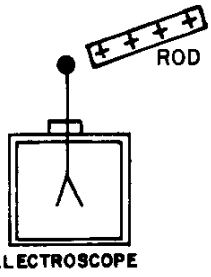
A) 
B) 
C) 
D) 

23. Which diagram shows the leaves of the electroscope charged negatively by induction?

A) 

B) 

C) 

D) 

24. Negatively charged rod *A* is used to charge rod *B* by induction. Object *C* is then charged by direct contact with rod *B*. The charge on object *C* is

    A) neutral
    B) positive
    C) negative
    D) not be able to be determined