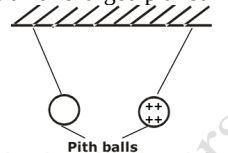


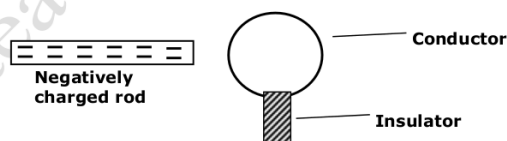
9. Electrostatics

1. State the law of electrostatic charge.
2. A small chain is often seen hanging at the back of a petrol carrying lorry. State and explain its significance.
3. Explain why a dressing table mirror may become dusty if wiped with a cloth on a warm day.
4. A polythene rod may be charged by rubbing it with a cloth while being held in the hand but a metal rod cannot be charged in a similar way. **Explain** why.
5. Explain why a rubber balloon, if rubbed will often stick to the wall where it has been rubbed.
6. On a dusty day, clean polished shoes attract a lot of dust. Explain this.
7. State the precaution that is taken when charging a metal object.
8. The figure below shows an uncharged pith ball under the attraction of a charged ball.

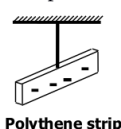
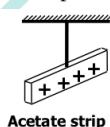


State and explain what would be observed after the two pith ball touch.

9. The figure below shows a negatively charged rod placed near an uncharged conductor resting on an insulation support.

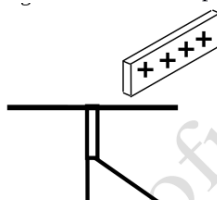


- a) Show the charge distribution on the conductor.
- b) State the effect
 - I) Of momentarily touching the conductor with a finger while the charged rod is still near the conductor.
 - II) On the charge distribution of withdrawing the negatively charged rod after momentarily touching the conductor
10. A sharp point of a pin is held in the bare hands and brought near the cap of a positive charged electroscope. **State and explain** the observation made on the electroscope.
11. State two uses of a gold leaf electroscope
12. A plastic rod is rubbed with cotton and it is observed that the rod acquires a negative charge. The same cotton is brought near the cap of positively charged electroscope.
 - (i) State the observation made on the leaf of the electroscope.
 - (ii) Explain the observation
13. State the observation on the leaf of a positively charged electroscope when a negative charge is brought near it.
14. You are provided with a polythene rod, an Electroscope, two bars; one a conductor and another one an insulator. **Briefly describe** how you will use the electroscope to determine which one is an insulator.
15. You are provided with a charged electroscope, an insulator and a conductor. Describe how you would use these apparatus to distinguish the insulator from the conductor.
16. Why is it safer to carry explosive fuels in metal cans instead of plastic can?
17. An uncharged metal rod brought close to but not touching the cap of a charged electroscope caused decrease in the divergence of the leaf. Explain this observation.
18. A positively charged rod is brought near the cap of a lightly charged electroscope. The leaf divergence first reduces and as the rod comes nearer, it diverges more. State and explain the charge on the electroscope.
19. A negatively charged rod is brought near the cap of a lightly charged electroscope. The leaf divergence first reduces but as the rod comes nearer, it diverges more.
 - (i) State the charge of the electroscope.
 - (ii) Explain the behaviour of the leaf above.
20. The diagram shows a positively charged acetate strip and a negatively charged polythene strip that are freely suspended.



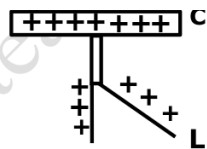
Two rods X and Y are brought up in turn to these two strips. Rod X attracts the acetate strip but repels the polythene strip. Rod Y does not repel either the acetate strip or the polythene strip. State the type of charge is on each rod.

21. The figure below shows a charged rod held close to the cap of an uncharged leaf electroscope.

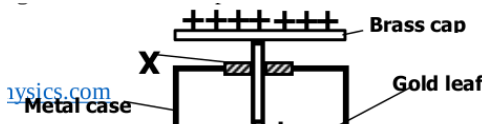


If the cap is momentarily earthed before removing the charged rod, what charge is left on the electroscope?

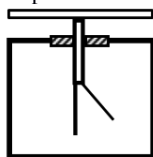
22. A gold leaf electroscope is positively charged as shown in the figure below where **C** is the cap and **L** is the gold leaf. State and explain what happens to **L** when a negatively charged rod is brought near **C** without touching it.



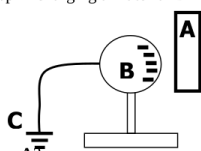
23. The diagram below shows a gold leaf electroscope which is positively charged. A charged polythene rod is brought near the brass cap.



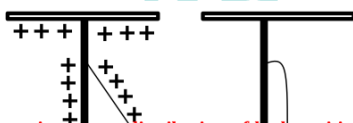
- Explain briefly how the electroscope was charged using negatively charged rod.
 - Suggest a suitable material of the part labeled **A**
 - What is the function of part **Y**
 - Why does the electroscope fall when the polythene rod is brought near it.
 - How could you make the leaf fall and stay down.
24. Figure below shows a charged leaf electroscope



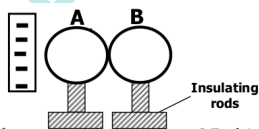
- Given a dry glass rod and a silk cloth, **explain** how you would determine the type of charge on the electroscope
 - An identical but uncharged electroscope is brought near the electroscope shown above and the two connected with a conducting wire. **State and explain** what is observed on the leaves of the two electroscopes.
25. Figure represents a step in charging a material **B** negatively by induction.



- What is the charge on **A**?
 - Explain what happens at **C**.
26. The figure below shows two identical electroscopes. The one on the left is charged but the one on the right is not. On the space besides the diagram, show the charge distribution after the caps of the two electroscopes are connected by a thin conducting wire

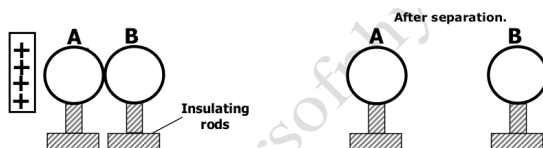


27. Two identical spheres **A** and **B** each standing on an insulating base are in contact. A negatively charged rod is brought near sphere **A** as shown below.



In what way will **A** differ from **B** if separated while the rod is near? Explain.

28. Two metallic spheres **A**, **B** stand in contact as shown. A positively charged rod is held near sphere **A**.



- Show the charge on each sphere when the metallic balls are separated and the rod is removed.
 - Why are the balls supported on insulated stands?
29. The figure below shows a positively charged metal plate with an earthing connection. Using an arrow, show the direction of charges through the earth connection and explain the final charge of the plate.

