

S.2 PHYSICS | REVISION QUESTIONS

TOPIC: Electrostatics

Attempt the Questions and submit Work for Marking on the eLearning Platform [Q & A Forum](#) or to Mr. Ssendawula (WhatsApp : 0700 37 7992)

- The laws of electrostatic induction state that
 - like poles repel and unlike poles attract.
 - like poles attract and unlike poles repel.
 - like charges repel and unlike charges attract.
 - like charges attract and unlike charges repel.
- When polythene and wool are rubbed against each other and then separated, they acquire
 - no charge.
 - equal amount of same type of charge.
 - equal and opposite charges.
 - both acquire positive and negative charges.
- A metal rod gains a positive charge when rubbed with fabric. The fabric acquire.
 - no charge.
 - a negative charge equal to that on the rod.
 - a positive charge equal to that on the rod.
 - a positive charge greater than that on the rod.
- A brass rod is rubbed with silk and then brought near a positively charged gold leaf electroscope. The divergence of the leaf will
 - increase.
 - decrease.
 - not change.
 - increase slightly and fall back.
- The result of rubbing a glass rod with silk and separating them is
 - a negative charge on the rod and an equal positive charge on the silk.
 - equal amounts of negative charge on both.
 - a positive charge on the rod and an equal negative charge on the silk.
 - no charge on both the rod and the silk.
- When a negatively charged body is brought near the cap of a positively charged electroscope, the gold leaf
 - remains unchanged.
 - increases in divergence.

- B.** decreases in divergence. **D.** gains a positive charge.

7. It is easier to charge insulators than conductors because
- A.** the insulators don't allow the charge to flow away but the conductors allow it to flow away.
 - B.** the conductors retain the charge by conduction but the insulators release it to the atmosphere.
 - C.** it is impossible to charge conductors under any condition.
 - D.** insulators just receive the charge from the atmosphere without being rubbed.

8. When a rod is brought close to the cap of a negatively charged gold leaf electroscope and its leaf diverges, it shows that the rod is

- A.** negatively charged.
- B.** positively charged.
- C.** neutral.
- D.** partially charged.

9. When a charged body is brought near a cap of a negatively charged gold leaf electroscope, the

- A.** divergence of the leaf does not change
- B.** leaf falls if the body is negatively charged.
- C.** leaf diverges if the body is positively charged.
- D.** leaf diverges if the body is negatively charged.

10. Which one of the following materials can be electrified by friction?

- A.** Plastic pen.
- B.** Silver rod.
- C.** Copper rod.
- D.** Wet wood.

11. The leaf of a charged electroscope gradually collapses with time due to

A.	leakage to the surroundings	C.	pressure variation in the surroundings
B.	surrounding magnetic field	D.	similar charges from the surroundings

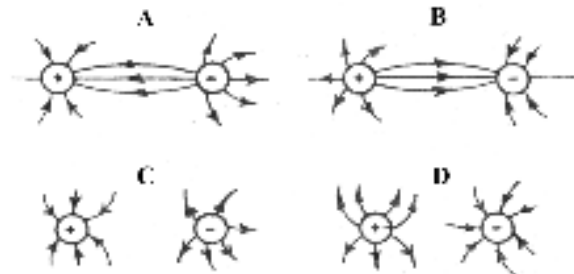
12. When a plastic rod is brought near a charged electroscope, the gold leaf is seen to diverge more. The possible charge on the rod and the electroscope are.

- | Electroscope | Plastic rod | Electroscope | Plastic rod |
|---------------------|--------------------|---------------------|--------------------|
| A. positive. | negative. | C. negative. | negative. |
| B. negative. | positive. | D. positive. | uncharged. |

13. A body can only be confirmed to be electrically charged when

- A.** another charged body attracts it.
- B.** it does not affect the leaf of a charged electroscope.
- C.** it is repelled by another charged body.
- D.** it is found to have less protons than electrons.

14. Which of the following shows a correct electric field pattern due to two charges?



15. If a body gains electrons, it becomes;

- A.** an atom
- B.** positively charged
- C.** an isotope
- D.** negatively charged

16. It is recommended that buildings should have earthed conductors in order to

- A.** reduce heat intensity on hot days.
- B.** remove excess electrons from the building.
- C.** stabilise the current electricity to the building.
- D.** provide more charges to electric appliances in the building.

17.

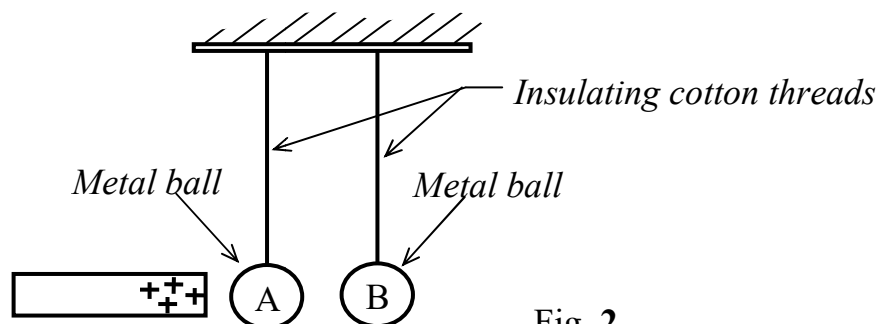


Fig. 2

The diagram in figure 2 shows two metal balls A and B suspended on insulating cotton threads. State what is observed when a positively charged rod is brought close to A.

- A. The metal balls A and B move towards each other.
 - B. A moves towards the rod which B moves away from the rod.
 - C. A moves towards the rod and B moves towards A.
 - D. A is attracted towards the rod but B is not affected.
18. When an uncharged conductor is brought near the cap of a positively charged electroscope, the gold leaf
- A. gains a positive charge
 - B. increases the divergence
 - C. decreases in divergence
 - D. remains uncharged
19. Why does a charged electroscope lose its charge when a flame is brought near its cap?
- A. Point action takes place at the cap
 - B. The flame blows the charges off the cap
 - C. Charges of the opposite sign from the flame are attracted to the cap.
 - D. The flame ionizes nearby air molecules and those of opposite sign are attracted on the cap.

ESSAY.

1. (i) state the law of electrostatics.
(ii) Explain how the nature of charge on a body may be determined using a gold leaf electroscope.
2. A gold leaf electroscope is positively charged. State what happens when each of the following is brought near the cap:
 - (a) a neutral metal,
 - (b) a positively charged body.
3. A negatively charged cloud passes over a building with a lightning conductor during a thunderstorm. Explain how the building is protected against lightning. (4 marks)

4.
 - (a) Explain why a pen rubbed with a piece of cloth attracts pieces of paper.
 - (b) Describe how a gold leaf electroscope can be positively charged by electrostatic induction.

5.
 - (a) Explain how thunder is produced during a rainstorm.
 - (b) Explain why it is not advisable to touch the copper strip of a lightning conductor when it is raining.