

## I. Multiple Choice Questions (MCQs)

1. What happens when a charged object is brought near a neutral object?
  - a) The neutral object becomes positively charged.
  - b) The neutral object becomes negatively charged.
  - c) The neutral object acquires an opposite charge.
  - d) Nothing happens.
2. Which of the following is responsible for lightning?
  - a) Static charge
  - b) Magnetic force
  - c) Electromagnetic waves
  - d) Gravitational force
3. Which of the following devices detects electric charges?
  - a) Thermometer
  - b) Barometer
  - c) Electroscope
  - d) Voltmeter
4. When a glass rod is rubbed with silk, it becomes:
  - a) Negatively charged
  - b) Positively charged
  - c) Neutral
  - d) Chargeless
5. In the case of lightning, which of the following is a safety measure?
  - a) Standing under a tree
  - b) Running on an open field
  - c) Staying inside a building
  - d) Touching metallic objects
6. What is the name of the process in which charges move through the atmosphere during lightning?
  - a) Conduction
  - b) Induction
  - c) Polarization
  - d) Discharge
7. Which of the following materials is used for making an electroscope?
  - a) Rubber
  - b) Glass
  - c) Metal (e.g., gold)
  - d) Paper
8. Which of the following does not cause the phenomenon of static electricity?
  - a) Rubbing a comb with dry hair
  - b) Rubbing a balloon on clothes
  - c) Turning on a light bulb
  - d) Walking on a carpet in woolen socks
9. Which type of charge is transferred from a glass rod when rubbed with a silk cloth?
  - a) Positive charge
  - b) Negative charge
  - c) No charge
  - d) Both positive and negative charge
10. The thunderstorm occurs due to:
  - a) Static charge accumulation in clouds
  - b) Air pressure differences
  - c) Wind movement
  - d) Earth's magnetic field

## II. Assertion and Reasoning -

- a) Both Assertion and Reason are correct, and Reason is the correct explanation of Assertion.
- b) Both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.
- c) Assertion is correct, but Reason is incorrect.
- d) Both Assertion and Reason are incorrect.

1. Assertion (A): Lightning is a discharge of static electricity.  
Reason (R): Thunder is the sound produced due to rapid expansion of air heated by the lightning.
2. Assertion (A): Like charges repel each other.  
Reason (R): When two like charges are brought together, the force of attraction increases.

## III. Case-Based Questions

## Case 1:

During a thunderstorm, you observe that the sky suddenly becomes bright, followed by a loud sound. This happens in a few seconds. What is happening in this case?

What causes the bright flash of light?

1. What causes the loud sound?
2. Why is there a time delay between the light and sound?

## Case 2:

You are holding a charged glass rod near a leaf electroscope. The leaves of the electroscope move apart when the rod is brought close to it.

1. Why do the leaves of the electroscope move apart?
2. What kind of charge does the glass rod have?
3. What happens if a negatively charged object is brought near the electroscope?