



Chapter 4 – Some Natural Phenomena

HOTS Questions:

1. Why are taller buildings in greater danger of being struck by lightning?

Ans: Taller buildings are in greater danger of being struck by lightning because they are closer to clouds.

2. when a positively-charged body is brought near an uncharged metal rod, the part of the rod near the charged body acquires negative charge and the far side a positively charge. Can you say why this happens? Remember that in a body, negative charges are mobile whereas positive charges are fixed.

Ans: When a positively charged body is brought near one end of an uncharged metal rod, the negatively charged free electrons in the metal rod are attracted to the positively charged body and gather at the end of the rod. Thus the near end of the rod becomes negatively charged due to excess of electrons. The far end becomes positively charged due to deficit of electrons.

3. If you hold a plastic comb in your hand and rub it in your hair it will get charged. Why? But if the metal comb has a plastic handle and you hold it from the handle it will also get charged. Why?

Ans: Both plastic and metal comb will get charged when rubbed in the hair. However, since metal is a conductor the charges will flow to earth through the body and it will lose its charge. If the metal charge has an insulating plastic handle it will retain its charge.

4. Why do you think charging by rubbing happens best in dry weather?

Ans: In humid conditions when air holds a lot of moisture, it becomes conducting and the charges leak into the air. Therefore, charging by rubbing happens best in dry weather.

5. The rod of a lightning conductor accidentally broke into two from the middle. What danger will this pose if lightning strikes the building? Why?

Ans: The building will be damaged and may even catch fire as the charges will flow through the building instead of directly to the earth through the conductor.