Very Short Answer Questions

Q. 1. Is it possible to predict the occurrence of an earthquake? [NCERT Exemplar]

Ans. No

Q. 2. If charged plastic straw is brought near another uncharged plastic straw, what will happen? [NCERT Exemplar]

Ans. The two will attract each other.

Q. 3. The aluminium strips in an electroscope as shown in figure below are replaced by plastic strips and a charged body is brought in contact with the metal clip. What will happen? [NCERT Exemplar]

Ans. No divergence of strips will take place.

Q. 4. Plastic straws A and B are rubbed with dry cotton cloth. What will happen if they are brought near each other? [NCERT Exemplar]

Ans. They will repel each other.

Q. 5. What charge does a glass rod acquire on being rubbed with silk cloth?

Ans. The glass rod acquires a positive charge by rubbing it with silk cloth.

Q. 6. How do you measure the earthquake wave?

Ans. By an instrument called seismograph.

Short Answer Questions

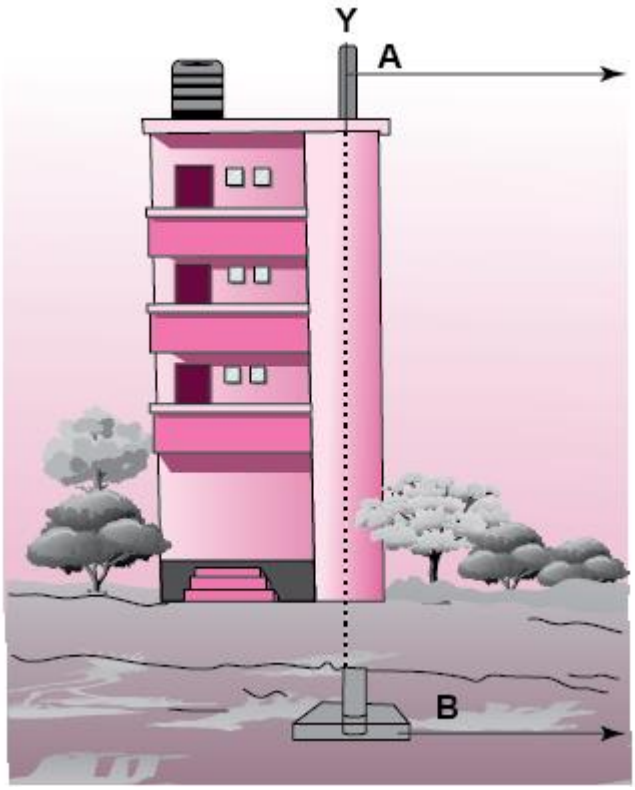
Q. 1. During the construction of a building the lightning conductor was left hanging in the air by mistake. Would the lightning conductor be still effective? Explain.

Ans. No, it will not be effective. Since lightning conductor was not connected properly to the earth, therefore, the charge will not pass through to the earth.

Q. 2. If air and cloud were good conductors of electricity, do you think lightning could occur? Explain. [NCERT Exemplar]

Ans. No, it will not occur. The charge separation cannot take place in conductors. Therefore, charges will not accumulate on clouds and so lightning cannot take place.

Q. 3. Identify the lightning conductor and the copper plate in the figure given below.
[NCERT Exemplar]



Ans. A is the lightning conductor and B is the copper plate.

Q. 4. If the materials used for constructing a building were good conductors, do you think lightning will strike the building? Will the lightning conductor be still required to be installed in the building? [NCERT Exemplar]

Ans. No. There is no need to install lightning conductor in the building.

Q. 5. You might have observed on a dry day that when you touch the screen of a television or computer monitor (with picture tube), you get a slight shock. Why does it happen? [NCERT Exemplar]

Ans. Electric charge gets accumulated on the screen. On touching the screen the charge discharges through our body. Thus, we get a slight shock.

Q. 6. Explain how does lightning conductor protects a building from getting struck by lightning. [NCERT Exemplar]

Ans. Lightning conductor does not allow the charge to accumulate on a building as it conducts the charge to the earth, protecting building from being struck by lightning.

Q. 7. In an electroscope if a negatively charged body is brought in contact with the metal clip, the strips of the electroscope diverge. If now another charged object carrying equal amount of positive charge is brought in contact with the clip, what will happen? [NCERT Exemplar]

Ans. If a positively charged object is brought in contact with the clip of an electroscope, the negative charge given earlier will be neutralised and the strips will collapse.

Q. 8. The strips of an electroscope diverge when a charged body is brought in contact with the metal clip. Now the clip is touched gently by our hand. What will happen to the strips? Explain. [NCERT Exemplar]

Ans. The charge that was in the electroscope strips will get discharged through our hand. The strips will come back to the original state.

Q. 9. Explain why it is safer to use a wireless telephone instead of a landline telephone during lightning. [NCERT Exemplar]

Ans. Lightning is an electrical discharge. During lightning atmospheric electric charge may discharge through landline telephone wires and may become dangerous. Therefore it is safer to use a wireless telephone instead of a landline telephone during lightning.

Long Answer Questions

Q. 1. Explain how lightning takes place. [NCERT Exemplar]

Ans. During the development of a thunderstorm, the air currents move upwards while the water droplets move downwards. These vigorous movements of air currents cause separation of charges. The positive charges collect near the upper edges of the clouds and the negative charges accumulate near the lower edges. There is accumulation of positive charges near the ground also. When the magnitude of the accumulated charges become large, the air cannot resist their flow. As a result negative and positive charges meet producing a streak of bright light and sound, called lightning.

Q. 2. What should you do during an earthquake?

Ans. During an earthquake, we should

(a) Try to get out of the high-rise building. If you cannot get out safely, hide under a desk or a study table.

(b) Get into an open area, away from trees, buildings and power lines. In a hilly terrain, it is advisable to stay away from slopes.

(c) Not run outside blindly, one may get killed by falling bricks and debris just outside the buildings. We should not use lifts during an earthquake.

(d) Ask the driver to take the vehicle on a side of the road. If you are in a moving vehicle, keep away from the bridges, trees, buildings and power lines. Stay inside the vehicle and wait for the shaking to stop.

(e) Not rush to the roof of the house. Never enter a cracked or partially damaged house. The slightest movement may lead to its collapse. If you are in bed, protect your head with a pillow.

Q. 3. What precautions would you take if lightning occurs while you are outside the house? [NCERT Exemplar]

Ans. (a) Seek for a shelter. Buildings are best for shelter.

(b) Stay away from poles or other metallic objects.

(c) Stay away from tall trees.

(d) Stay away from open vehicles like motorbikes, tractors, construction machinery, etc.

Hots (Higher Order Thinking Skills)

Q. 1. If the metal clip used in the electroscope is replaced by an ebonite rod and a charged body is brought in contact with it, will there be any effect on the aluminium strips? Explain. [NCERT Exemplar]

Ans. The aluminium strips will not show any repulsion. The charged body will not transfer any charge to the ebonite rod as ebonite rod is an insulator. As a result there will be no charge on the aluminium strips and no repulsion will occur.

Q. 2. What would happen if two balloons rubbed with wool are brought together?

Ans. The two balloons will repel each other because when they are rubbed with wool, negative charges move from wool to balloons. Both balloons become negatively charged and therefore repel each other.