Natural Phenomenone

- 1. Which of the following cannot be charged easily by friction?
- (a) A plastic scale
- (b) A copper rod
- (c) An inflated balloon
- (d) A woollen cloth
- Answer: (b) A copper rod
- 2. When a glass rod is rubbed with a piece of silk cloth the rod
- (a) and the cloth both acquire positive charge.
- (b) becomes positively charged while the cloth has a negative charge.
- (c) and the cloth both acquire negative charge.
- (d) becomes negatively charged while the cloth has a positive charge.

Answer:

- (b) The rod becomes positively charged, while the cloth has a negative charge.
- 3. Write T against true and F against false in the following statements.
- (a) Like charges attract each other. (T / F)
- (b) A charged glass rod attracts a charged plastic straw. (T / F)
- (c) Lightning conductor cannot protect a building from lightning. (T/F)
- (d) Earthquakes can be predicted in advance. (T / F)

Answer:

- (a) Like charges attract each other. (F)
- (b) A charged glass rod attracts a charged plastic straw. (F)
- (c) Lightning conductor cannot protect a building from lightning. (F)



(d) Earthquakes can be predicted in advance.

4. Sometimes, a crackling sound is heard while taking off a sweater during winters. Explain.

Answer:

When a sweater is taken off, the woollen sweater gets charged because of the friction between the sweater and the body. Hence, one can hear a crackling sound during the given process.

5. Explain why a charged body loses its charge if we touch it with our hand.

When we touch a charged object, our body conducts its charges to the earth. That is why a charged body loses its charge, if we touch it with our hand. This phenomenon is known as electric discharge.

6. Name the scale on which the destructive energy of an earthquake is measured. An earthquake measures 3 on this scale. Would it be recorded by a seismograph? Is it likely to cause much damage?

Answer:

An earthquake is measured by the Richter scale. This scale has the readings from 1 to 10.

Generally, earthquake of magnitudes higher than 5 is considered destructive in nature.

The reading of magnitude 3 on the Richter scale would be recorded by a seismograph.

If the Richter scale gives a reading of magnitude 3, then the earthquake is not likely to cause much damage.

7. Suggest three measures to protect ourselves from lightning.

Answer:

Safety outside the House

- Do not take shelters under trees.
- Do not stand near metalllic objects as they are good conductor of electricity.
- Do not keep sitting on open vehicles.
- It is safe to sit inside a closed car or bus.



• Do not lie on the ground.

Safety inside the house:

- Stay away from telphone cords, electric wires and metal pipes as they are good conductor of electricity.
- Avoid contact with running water as it is also a good conductor of electricity. So even bathing should be avoided.
- Unplug all the electric appliances like computers, T.V. etc.

8. Explain why a charged balloon is repelled by another charged balloon whereas an uncharged balloon is attracted by another charged balloon?

Answer:

The nature of charges present on the surface of charged balloons are similar. Since like charges repel each other, two charged balloons repel each other. When a charged body is brought near an uncharged body, the uncharged body acquires charges on its surface caused by the induction of charges. The charges are of opposite nature in relation to the charged body. Since unlike charges attract each other, a charged body always attracts an uncharged body. Hence, an uncharged balloon is attracted by another charged balloon.

9. Describe with the help of a diagram an instrument which can be used to detect a charged body.

Answer:

Take an empty glass jar and cover its mouth with a cardboard. Pierce a hole in the cardboard. Take a long piece of copper wire. Bend it from one end and insert the bent end inside the glass jar. Now lift the cardboard up and hang two thin strips of aluminium foil on the bent end of the copper wire. Ensure that the foils do not touch each other. Put the cardboard back to its position now. Now rub a refill with polythene. Touch the charged refill to the copper wire above the cardboard. What do we observe? The aluminium foil strips receive the same charge from the charged refill through the paper clip. The strips carrying similar charges repel each other and they become wide open. Such a device can be used to test whether an object is carrying charge or not. This device is known as electroscope. Thus, we find that electrical charge can be transferred from a charged object to another through a metal conductor.





10. List three states in India where earthquakes are more likely to strike.

The three states in India where earthquakes are more likely to strike are Gujrat (Bhuj) Jammu and Kashmir and Assam.

11. Suppose you are outside your home and an earthquake strikes. What precaution would you take to protect yourself?

Some of the precautions are as follows:

(i) Try to find an open field and stay away from tall buildings, installations, tall trees, and electric wires and poles.

(ii) If travelling in a bus or a car, then do not come out when an earthquake strikes. Ask the driver to drive in an open field.

12. The weather department has predicted that a thunderstorm is likely to occur on a certain day. Suppose you have to go out on that day. Would you carry an umbrella? Explain.

No. We should not carry an umbrella in a thunderstorm. During thunderstorms, which are accompanied with lightning, electric discharge from the clouds can travel through the metallic rod of the umbrella. This may give an electric shock to the person who is carrying it. Hence, it is not safe to carry an umbrella during lightning.

