

## CBSE NCERT Solutions for Class 8 Science Chapter 15

### Back of Chapter Questions

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

**Solution:** (b)

Usually, non-conducting materials can be charged by friction easily. Copper, which is a highly conducting material, cannot be charged easily by friction.

2. When a glass rod is rubbed with a piece of silk cloth, the rod

- (a) and the cloth both acquire a positive charge.
- (b) becomes positively charged while the cloth has a negative charge.
- (c) and the cloth both acquire a negative charge.
- (d) becomes negatively charged while the cloth has a positive charge.

**Solution:** (b)

When a glass rod is rubbed with a piece of silk cloth, the charge will flow from rod to the cloth. The rod becomes positively charged while the cloth becomes 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) The lightning conductor cannot protect a building from lightning (T/F)
- (d) Earthquakes can be predicted in advance (T/F)

**Solution:**

- (a) False  
Like charges repel each other and Unlike charges attract each other.
- (b) True

A charged plastic straw contains negative charge on its surface while the glass rod contains positive charges on its surface. They are Unlike in nature, so; they both attract each other.

(c) False

When lightning occurs, the atmospheric charges are transferred to the earth directly by a lightning conductor. Therefore, the building is protected from lightning.

(d) False

Even though the cause of the earthquake is known, there are no instruments that are invented to detect them in advance. Therefore, earthquakes cannot be predicted in advance.

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

**Solution:**

Our sweater is made of wool, and our shirts usually are made of cotton blended with some synthetic fibres. Due to the friction between the sweater and the body when it is taken off, the woollen sweater gets charged, and while taking off the sweater, transfer of electrons takes place. So, the crackling sound is heard in this process.

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

**Solution:**

When we touch a charged body with our hand, the excess of static charges gets transfer to ground through our body. Thus, the charged body loses its charge and becomes neutral.

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?

**Solution:**

The destructive energy of an earthquake is measured on the Richter Scale. The scale has a reading from 1 to 10. 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 produce more damage. Generally, an earthquake of magnitudes higher than 5 is considered destructive in nature.

7. Suggest three measures to protect ourselves from lightning.

**Solution:**

Various ways to protect ourselves from lightning are:

- i. Move to a safer place and after hearing the last thunder, wait for some time before coming out of the safe place.
  - ii. If no shelter is available and you are in an open field, stay far away from all trees.
  - iii. Stay away from poles or other metal objects and do not lie on the ground.
  - iv. Bathing should be avoided during thunderstorms to avoid contact with running water
8. Explain why a charged balloon is repelled by another charged balloon whereas an uncharged balloon is attracted by another charged balloon?

**Solution:**

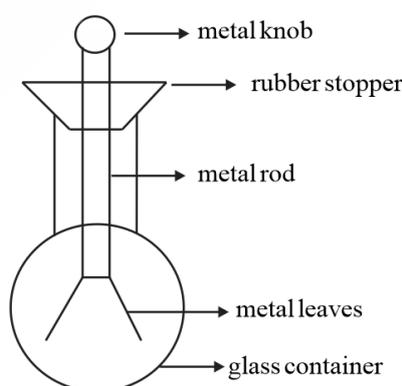
The surface charge on the balloons are of the same nature, and since like charges repel each other, the two charged balloons are repelled.

When a charged balloon is brought near an uncharged balloon then due to the induction of there will be opposite charge will be induced. As unlike charges attract each other, the uncharged balloon gets attracted by the charged balloon.

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

**Solution:**

The instrument used to detect the charged body is an electroscope.



It consists of a metal rod on which two leaves of aluminium foil are fixed to one end and a metal disc at the other end. The leaves are kept inside a conical flask, and it is corked to isolate it from the atmospheric air. When a charged body

touches this conductor, its charges gets transferred to the metal foil, and they move apart due to like charges. This shows that an electroscope detects charges.

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

**Solution:**

Gujarat, Assam, and Jammu & Kashmir are the three states where an earthquake is more likely to strike.

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

**Solution:**

We need to take these precautions to protect ourselves from an earthquake strike

- (a) We need to move in an open space and stay away from buildings, trees, electric wire, and poles.
- (b) If we are in the car, then drive to an open field and do not come out of your car.

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.

**Solution:**

No, we should not carry an umbrella during a thunderstorm. The thunderstorm is accompanied by lighting, and the charges might travel from the cloud to the metal rod on the umbrella and might cause an electric shock to the person carrying it. So, it is not safe to carry an umbrella during lighting.