8th Science Some Natural Phenomenon

Lightning Earthquakes Safety Measure

Q1. Why does a plastic comb rubbed with dry hair attract tiny pieces of paper?

Ans: Plastic comb gets electrically charged due to rubbing & therefore it attracts tiny pieces of paper (which are neutral). As charged body can attracts an uncharged body.

Q2. Which of the following cannot be charged by friction, if held by hand?
a) a plastic scale b) a copper rod c) an inflated balloon d) a woolen cloth. and Why?

Ans: Copper rod.
Except copper, the other three are insulators whereas copper is a conducting object. As soon as it gets charged by rubbing with another material, the electric charge produced on its surface flow through our hand & body into the earth. And it remains uncharged.

Q3. What kind of electric charge is acquired?
a) by a glass rod rubbed with silk cloth? b) by a plastic comb rubbed with dry hair?

Ans: a) positive charge. b) Negative charge.

Q4. A negatively charged object attracts another charged object kept close to it. What is the nature of charge on the other object?

Ans: Positive Or Neutral (uncharged).

Q5. A negatively charged object repels another charged object kept close to it. What is the nature of charge on the other object?

Ans: Negative charge.

Q6. Mention three ways by which a body can be charged.

Ans: Three ways are:
a) Charging by rubbing: Charging of an object by rubbing it with another object is calledcharging by rubbing.
NOTE: i) When two bodies are charged by rubbing, they acquire equal & opposite charges.
ii) The body which loses electrons acquires positive charge whereas the body which gains electrons acquires negative charge.

b) Charging by conduction: Charging a neutral body by bringing it in contact with a charged body is called charging by conduction.

c) Charging by induction: Charging a neutral body by bringing it near a charged body is called charging by induction.

Q7. What is an electroscope? Explain its construction.

Ans: An electroscope is a device for detecting, measuring & finding the nature of a charge.An electroscope consists of a large jar. A metal rod is fitted into the mouth of the jar with the help of the cork. At the lower end of the metal rod a pair of thin leaves of gold or aluminium is suspended.

Q8. What are the uses of an electroscope?

Ans: An electroscope can be used for following purposes:

a) To detect & measure the charge on a body.

b) To determine the nature of charge on a body.

Q9. How would you use an electroscope to find out whether an object is charged or not?

Ans: Touch the body to be tested with the metal disc of an electroscope. If the leaves of an electroscope open up (diverge), the body is charged. If the leaves remain unaffected, the body has no charge.

Note: The extent of divergence (opening apart) of the leaves is a measure of the charge on the body. A body carrying higher charge will cause greater opening up of the leaves.

Q10. How would you use an electroscope to determine the nature of charge of a charged body?

Ans: Charge the electroscope with a known charge, say with negative charge, by touching a negatively charged ebonite rod to the metal disc of the electroscope. The leaves of the electroscope open up (diverge).

Now touch the body to be tested with the metal disc of the charged electroscope.

If the divergence of the leaves increases, the body has similar charge that is the given body is also negatively charged.

If the divergence of the leaves decreases, the body has unlike charge that is the given body is positively charged.

Q11. What will you observe when the metal cap of an electroscope is touched with a plastic comb rubbed in dry hair? Give reason for your answer.

Ans: After rubbing, plastic comb acquires negative charge. Now when it is touched with the metal cap of an electroscope then both the metal cap & the leaves acquire negative charge due to conduction. Because of negative charge on both the leaves, divergence of leaves takes place.

Q12. What happens when we touch the metal cap of a charged electroscope with our finger? What is this process known as?

Ans: The leaves of an electroscope collapse as soon as we touch the metal cap with hand because the leaves of the

charged electroscope lose charge to the earththrough our body (in other words leaves are discharged). This process is known as EARTHING.

NOTE: The process of transferring of charge from a charged object to the earth is called Earthing.

Q13. What is the nature of charge a) on the metal cap b) on the leaves of an uncharged electroscope when a negatively charged body is brought in contact with its metal cap?Ans: a) Negative b) Negative

Q14. What is the nature of charge a) on the metal cap b) on the leaves of an uncharged electroscope when a negatively charged body is brought near its metal cap (not in contact withmetal cap).

Ans: a) Positive b) Negative

Q15. Touch the disc of an electroscope first with glass rod rubbed with silk & then with ebonite rod rubbed with fur. What do you observe & why?

Ans: After rubbing, glass rod acquires positive charge. Now when it is touched with the metal cap of an electroscope then both the metal cap & the leaves acquire positive charge due to conduction. Because of positive charge on both the leaves, divergence of leaves takes place. Electroscope is now positively charged.
After rubbing with fur, ebonite rod acquire negative charge & when this negative rod is touched with the metal cap of the above positively charged electroscope then collapsing of leaves takes place as this negative charge starts neutralizing the positive charge already present on the leaves.

Q16. Touch the disc of electroscope with an ebonite rod rubbed with fur. Now bring aglass rod rubbed with silk close to the disc of this electroscope. What do you observe?

Ans: After rubbing, ebonite rod acquires negative charge. Now when it is touched with the metal cap of an electroscope then both the metal cap & the leaves acquire negative charge due to conduction. Because of negative charge on both the leaves, divergence of leaves takes place. After rubbing with silk, glass rod acquire positive charge & when this positive rod is brought near the metal cap of the above negatively charged electroscope then due to induction positive charge gets induced in the leaves as a result collapsing of leaves takes place.

18. What is seismograph?

Ans:Tremors or vibrations caused by the earthquakes which travel in the form of waves within the earth or along the earth's surface, are called seismic waves. Seismograph is an instrument which records these waves.

19. List two places in India which are most threatened by earthquake.

Ans: Two places in India which are most threatened by earthquake are 1. Kashmir 2. Rann of kutch.

20. What are tectonic plates?

Ans: The earth's lithosphere is fragmented into many pieces. Each fragment is called a plate, also called tectonic plate. These plates are in continuous motion i.e. they float over hot magma.

21. What is a lightning conductor?

Ans: Lightning conductor is a device used to protect buildings from the damaging effects of lightning. It runs from the top to the bottom, along the outer wall of the buildings or any other object, which is to be protected. If lightning strikes the buildings or any other objects, then the lightning conductor provides an easy and direct path for the lighning bolt to pass to the ground without effecting them.

22. What is earthing?

Ans: The process of transferring of charge from a charged object to the earth is called earthing. For our safety, most of the electrical appliances and the mains of the house are connected to earth, so that we can be prevented from getting an electric shock.

23. We can easily charge non-metals like rubber, woollen clothes, plastics, etc. whereas we cannot charge a copper rod by rubbing easily. Why?

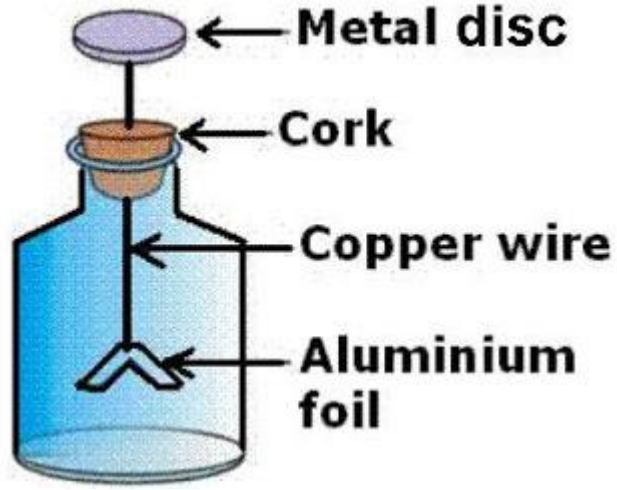
Ans: When the metallic rods like copper rod are rubbed, charges does not build on their surface because charges can escape through metals as they are conductors whereas when non-metals like rubber, woollen clothes, plastics, etc. are rubbed, charges will build up on their surface because charges are not conducted through them as they are insulators.

24. Explain the process of an electric discharge?

Ans: During the development of thunderstorm, air currents move in the upward direction and the water droplets move in the downward direction. These movements causes the seperation of charges. Usually, the negative charges accumulate at the lower part of the clouds and the positive charges are accumulated at its upper part. The positive charges are also accumulated at the ground also. When the accumulation of charges becomes large, a high potential difference is set up between lower part of clouds and earth, which is sufficient to break the insulation of air. As a result, negative and positive charges meet, producing streaks of bright light and sound. This process is called an electric discharge.

25. Draw the diagram of an instrument, which can be used to detect the charge on a body. How it can be charged through conduction?

Ans: An electroscope is used to detect the charge on a body. A plastic comp is taken and it is rubbed on hair. Now, the plastic comb gets charged. The comb is touched with the electroscope plate. The static charges which are developed on the comb travels down the conducting wire and reach the two leaves of aluminium foil. Similar charges are acquired by both the leaves and as a result, they repel each other. Thus, the method of charging an uncharged body by bringing another charged body directly in contact is called charging by conduction. Hence, by this way, an electroscope can be charged through conduction.



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

Ans: The following precautions should be taken :-

1. Find a clear spot, away from buildings, trees, poles and electric poles, signboards and overhead power lines anddrop to the ground.
2. Do not use elevators if they are available at some place outside your house.
3. If you are in a car or a bus, do not come out anddrive slowly to a clear spot. Stay inside a cartill the tremors stop.

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

Ans: The precautions that should be taken are :-

1. Take shelter under a table and stay there only, till the shaking stops.
2. Stay away from the objects which are tall and heavy, that may fall on you.
3. If you are on bed, do not get up and remain there only andprotect your head with pillow.

28. What is earthing? Why earthing is provided in buildings?

Ans: The process of transferring of charge from a charged object to the earth is called earthing. Earthing is provided in buildings to protect them from electrical shocks due to any leakage of electrical current. For our safety, most of the electrical appliances and the mains of the house are connected to earth, so that we can be prevented from getting an electric shock.

29. A crackling sound is heard while taking off sweater during winters. Explain ?

Ans: As we know that electrical charges that are generated through friction are static, i.e they do not move by themselves and Motion of charges constitutes an electric current. When we take off our sweater there is a motion between the charges on the sweater and our body that produces electric current, which produces a crackling sound. Infact we can see a spark if we take off the sweater in the dark.

30. What is lightning. Explain the experiment conducted by Benjamin Franklin that showed sparks shared some similarity with lightning ?

Ans: Lightning is an atmospheric discharge of electricity, which typically occurs during thunderstorms, and sometimes during volcanic eruptions or dust storms. In June 1752, Benjamin Franklin raised a kite, accompanied by his son williams as an assistant. On his end of the string he attached a key, and he tied it to a post with a silk thread . After some time he noticed that small pieces of strings were beginning to stand apart like the hair on the back of a scared dog. He then brought his hand close to the key and received a tingle of an electric shock from the key.As the rain came down an the string became soaked the electricity began to conduct freely throug the key.

[Source: http://physicsadda.blogspot.in/2011/11/viii-physics-some-natural-phenomena.html]

8th Science Chapter Earthquake: Some natural Phenomenon

Q. What is an Earthquake?

Ans: An earthquake is a sudden shaking or trembling of the earth lasting for a very short time.

Q. What Causes an Earthquake?

Ans: Earthquake is caused by a disturbance deep inside the earth's crust created by motion of tectonic plate.

Q. What could cause a disturbance inside the earth?

Ans: Some time moving tectonic plate goes under another due to collision and cause a disturbance inside the earth.

Q. What are seismic waves?

Ans: Waves produce by earth quake on the surface of earth is called seismic waves.

Q. Where does the greatest number of earthquakes occur?

Ans: The boundaries of the tectonic plates are the weak zones where earthquakes are more likely to occur. The weak zones are also known as seismic or fault zones.

Q. What are different cases of tremors?

Ans: Tremors on the earth can be caused when a volcano erupts, or a meteor hits the earth, or an underground nuclear explosion is carried out. However, most earthquakes are caused by the movement of earth's tectonic plates.

Q. What is the scale used to measure magnitude of the intensity of earthquake?

Ans: Richter scale

Q. What is the instrument used to measure seismic wave?

Ans: Seismograph.

The instrument is simply a vibrating rod, or a pendulum, which starts vibrating when tremors occur. A pen is attached to the vibrating system. The pen records the seismic waves on a paper which moves under it. By studying these waves, scientists can construct a complete map of the earthquake

Q. Define: hypocenter, epicenter, Seismic waves

Ans: The place below earth surface from where the earthquake originates is called the **hypocenter** or the **focus** of an earthquake. It is often several kilometers below the earth's surface.

The spot on the earth's surface exactly above the hypocenter of an earthquake is the **epicenter**.

The collision of plates gives rise to vibration of earth surface called **Seismic waves** this through the earth.

Q. What safety measured you taken during an earthquake If you are traveling in a motor vehicle?

Ans: Drive slowly and do not come out till the tremors stop.

Q. What safety measured you taken during an earthquake If you are inside house?

Ans: Take shelter under a table and protect your head by wrapping your arms around it and curling into a ball

[Source: http://cbseadda.blogspot.in/2012/11/8th-science-chapter-earthquake-solved.html?spref=bl]

Q. What are tectonic plates?

Ans: The earth's lithosphere (crust) is fragmented into many pieces of stabs or plate of rocks called tectonic plates. These plates are in continuous motion i.e. they float over hot magma.

Q. What is the term used to describe the fraction along earth crust?

Ans: Faults

Q. What do you call the point where an earthquake originates?

Ans: Focus or hypocenter

Q. Where is the intensity of tremor (vibrations) highest?

Ans: At the boundaries of the tectonic plates along fault.

Q. What do you call point on the earth surface that lies directly above the focus of an earthquake?

Ans: Epicenter

Q. Name the three layer of earth.

Ans: Crust, Mental and Core

Q. List two places in India which are most threatened by earthquake.

Ans: Two places in India which are most threatened by earthquake are

1. Kashmir 2. Rann of Kutch.

Q. What are the scientists who study about Earthquake called?

Ans: Seismologists

Q. Explain focus and Epicenter with respect to Earthquake?

Ans: The place below earth surface from where the earthquake originates is called the **hypocenter** or the **focus** of an earthquake. It is often several kilometers below the earth's surface.

The spot on the earth's surface exactly above the hypocenter of an earthquake is the **epicenter**.

Q. Define these terms.

Ans: (a) Seismograph: A type of instrument used to measure earthquake.

(b) Seismic wave: The shock wave produced by earthquake.

(c) Seismology: The branch of science deeling with earthquake and related problem is called Seismology.

(d) Tectonic plate: The crust layer of earth is made up of a number of rocky slabs called tectonic plates.

Q. What do you do in following situation during earthquake

Ans: (a) You are sitting in film theatre --->stay on seat and cover your head with arm

(b) You are at home watching TV-> Do not go to another room. Take shelter under a table and protect your head by wrapping your arms around it

(c) You are travelling in car: --> Drive slowly and do not come out till the tremors stop.

(d) You are in the basement of a building--> Take shelter under a table and protect your head by wrapping your arms around it

Q. What is earthquake? How it is caused?

Ans: Ans: An earthquake is a sudden shaking or trembling of the earth lasting for a very short time.

Earthquake is caused due to the movement of tectonic plates that float over molten magma. As the plate moves collide, moves apart or slide over one another cause vibration that reach over surface of the earth and felt as earthquake.

Q. Describe the scale commonly used to measure the magnitude of earthquake?

Ans: The magnitude of most earthquakes is measured on the Richter scale. The Richter magnitudes are based on a logarithmic scale (base 10). Each whole number you go up on the Richter scale, the amplitude of the ground motion recorded by a seismograph goes up ten times.

Q. What preventive steps should be taken to minimize the effects of earthquakesin future?

Ans: (a) We should build earthquake resistance building

(b)In earthquake prone area, light –weighted materials are used to build building

(c) Always take care to make sure ceiling fan, air conditioner etc fixed firmly.

Q. What are the after effects of earthquakes?

Ans: (a) Huge loss of life and property

(b) Fire may cause by inflammable material

(c) Sewer system may burst open

(d) Dams and embankments develop cracks

(d)In hilly are land slides

(e) Under ocean generate huge surface wave called Tsunami

Q. Fill in the blanks

(a) The intensity of an earthquake is measure on the ---------- ----------

Ans: Richter scale

(b)---------- is a huge wave due to an earthquake occurring under the sea floor.

Ans: Tsunami

(c) earthquake are cause because of the motion of the ------- plates in the outer crust of the earth.

Ans: Tectonic

(d) Shock wave of earthquake are called ----------

Ans Seismic wave

(e) An earthquake of magnitude 2-4 on Richter scale is a ---------- one

Ans: weaker

(f) An earthquake of magnitude 8 or more on Richter scale is a ---------- one

Ans: stronger

(g)The instrument used to measure earthquake wave is called ----------.

Ans: seismograph

(i)The intensity of tremors is highest near the ----------

Ans: fault zone or epicenter

(j) The intensity of tremors ---------- with distance from the epicenter.

Ans: Spread