Class 8 –Science Ch – 14 - Some Natural Phenomena

Short Question and Answers

II. Very short answer type questions

Q.1 What is charging by friction?

Ans: Charging by friction is the process of transferring electric charge between two objects by rubbing them together.

Q.2 What is earthing?

Ans: Earthing is the process of transferring electric charge from a charged object to the ground to make it neutral.

Q.3 What is the outer covering of Earth called?

Ans: The outer covering of Earth is called the crust.

Q.4 Why is it unsafe to hold an umbrella during a thunderstorm?

Ans: It is unsafe because the metal parts of the umbrella can attract lightning, which may cause electric shock.

Q.5 What is seismology?

Ans: Seismology is the branch of science that studies earthquakes and the movements of Earth's crust.

III. Short answer type questions

1. Why is earthing important to us?

Ans: Earthing is important because it provides a safe path for excess electric charges to flow into the ground, preventing electric shocks and protecting electrical appliances and people from damage or injury.

2. Under normal circumstances, is air a conductor or insulator of electric current?

Ans: Under normal circumstances, air is an insulator of electric current.

3. Name the broad regions into which the internal structure of the Earth can be classified.

Ans: The internal structure of the Earth is classified into three broad regions: crust, mantle, and core.

4. What is plate tectonics?

Ans: Plate tectonics is the scientific theory that explains the movement of large plates that make up Earth's surface and how their interactions cause earthquakes, volcanic activity, and the formation of mountains.

5. What are seismic waves?

Ans: Seismic waves are vibrations or shock waves generated during an earthquake that travel through the Earth's surface and interior.

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Long Question and Answers

IV: Long Question and answers

Q.1 Explain with examples how an object can be charged by friction.

Ans: When we rub two objects together, they can become electrically charged. This happens because tiny particles called electrons move from one object to the other. The object that loses electrons becomes positively charged, and the one that gains electrons becomes negatively charged. This process is called charging by friction.

Examples:

a) If you rub a glass rod with a silk cloth, the glass rod loses electrons and becomes positively charged. The silk gains electrons and becomes negatively charged.

b) When you comb your dry hair with a plastic comb, the comb gets charged and can attract small paper bits.

So, charging by friction happens because of rubbing and transfer of charges between objects.

Q.2 What is an electroscope? Draw a neat labelled diagram and explain how it works.

Ans: An electroscope is a device used to detect electric charge on an object.

It has a metal rod with a metal disc or knob at the top and two thin metal leaves (usually gold or aluminium) at the bottom, kept inside a glass container.

How it works:

a) When a charged object touches the metal knob, the electric charge travels down to the metal leaves.

b) Since both leaves get the same charge, they repel each other and move apart.

c) If there is no charge, the leaves remain together.

A gold leaf electroscope measures potential difference between the leaf and the base (or earth).

Q.3 With the help of a simple diagram, explain how a lightning conductor can protect a building from a lightning strike.

Ans: A lightning conductor is a metal rod placed at the highest point of a building. It is connected to a thick wire that runs down the building and goes deep into the ground.

How it works:

a) When lightning strikes, the conductor gives the electric charge a safe path to travel from the top of the building into the ground.

b) This prevents the lightning from damaging the building or causing a fire.

It’s like giving lightning a shortcut to the Earth so that it doesn’t harm anything.

Q.4 List three steps that we can take to protect ourselves from being struck by lightning during a thunderstorm.

Ans: Here are three easy and important safety steps:

a) Stay indoors – Don't go outside when you hear thunder or see lightning.

b) Stay away from metal – Don't touch anything made of metal, like bicycles or wires.

c) Avoid water and electrical devices – Don't take a bath or use mobile phones or TVs during a storm, because lightning can travel through wires and water.

These simple steps can keep you safe during a thunderstorm.

Q.5 Draw a diagram and explain the internal structure of the Earth.

Ans: The Earth is made of three main layers:

a) Crust – The thin outer layer where we live. It is made of solid rocks.

b) Mantle – The thick layer below the crust. It is made of hot, flowing rock.

c) Core – The deepest part of the Earth. It has two parts:

d) Outer core – Made of liquid metal.

e) Inner core – Made of solid metal, mostly iron and nickel.

Q.6 Give a simple diagrammatic representation of how an earthquake occurs.

Ans: An earthquake happens when there is a sudden movement in the Earth's crust. This usually happens at fault lines where two plates of the Earth move against each other.

a) The place inside the Earth where it starts is called the focus.

b) The point directly above the focus on the Earth's surface is called the epicentre.

c) The shock waves that come out from the focus are called seismic waves.

These waves shake the ground and cause the earthquake.

Q.7 In what way can we design buildings to minimize the loss of life and property in the event of an earthquake? Give two examples. Also, mention the importance of the location of the building in reference to earthquake safety.

Ans: To make buildings safer during earthquakes, we should:

a) Use earthquake-resistant designs like strong foundations and flexible structures that can absorb shaking.

b) Install shock absorbers and use light materials that reduce damage if something falls.

Examples:

1. Buildings in Japan often have base isolators that help the building move without breaking.
2. In some places, wooden homes are used because wood bends and doesn't easily crack during shaking.

Location is also important:

3. Buildings should be made on strong ground, not on loose soil or near steep slopes.
4. Avoid constructing buildings close to fault lines, where earthquakes are more likely to happen.

Choosing the right design and location helps save lives and reduces damage during an earthquake.