INSIDE OUR EARTH

EXERCISE SOLUTIONS

Question 1.

(A) What are the three layers of the earth?

Answer:

The three layers of the Earth are the crust, the mantle and the core.

(i) **Crust**: The crust is the outer layer of the earth. It is the solid rock layer upon which we live.

(ii) **Mantle**: The mantle is made up of semi-molten rock called magma.

(iii) **Core**: Core is in the center and is the hottest part of the Earth. It is basically like the engine of Earth.

(B) What is a rock?

Answer:

A rock refers to any natural mass of mineral matter that makes up the Earth's crust. Rocks can be of different types having different sizes, shapes and colours.

(C) Name three types of rocks.

Answer:

Igneous, sedimentary and metamorphic rocks are the three types of rocks.

(i) **Igneous Rocks**: These rocks are formed when magma (molten rock deep within the earth) cools and hardens.

(ii) **Sedimentary Rocks**: These rocks are formed from particles of sand, shells, pebbles, and other fragments of material.

(iii) **Metamorphic Rocks**: Metamorphic rocks are formed under the surface of the earth due to the changes from increased pressure and temperature.

(D) How are extrusive and intrusive rocks formed?

Answer:

The rate at which magma cools determines whether an igneous rock is intrusive or extrusive.

Extrusive rocks are formed when the molten lava present inside the Earth's interior comes out during volcanic eruption. As the lava reaches the earth, also called magma, it cools down and solidifies. This solidified magma forms **extrusive rocks**.

When the molten magma cools down deep inside the earth's crust then the solid rocks so formed are called **intrusive rocks**.

(E) What do you mean by a rock cycle?

Answer:

The transformation of one type of rock into another, under suitable conditions, is referred to as the rock cycle. For example,

1. The igneous rocks are formed by solidification of molten magma.
2. These rocks may break down into smaller pieces. These smaller rock particles may then be transported and deposited under several layers of rocks to form sedimentary rocks.
3. Similarly, sedimentary and igneous rocks transform into metamorphic rocks when subjected to extreme heat and pressure.
4. Under the effect of heat and pressure, the metamorphic rocks break down to form sedimentary rocks or igneous rocks.

(F) What are the uses of rocks?

Answer:

Some of the uses of rocks are as follows:

(i) To build houses and buildings
(ii) Precious rocks, called gemstones, are often used to make jewellery

(iii) To make tools for cutting and drilling purposes
(iv) The fossilized remains of plants and animals present in rocks help in scientific research.
(v) The different minerals that make up different rocks are extracted and can be used as fuels, medicines, fertilizers, and in industries.

(G) What are metamorphic rocks?

Answer:
Metamorphic rocks are the rocks that are formed from igneous rocks and sedimentary rocks, under great heat and pressure. For example, under extreme heat and pressure clay transforms to slate and limestone gets transformed to marble.

Question 2.

Tick the correct Answer.

(A) The rock which is made up of molten magma is
(a) Igneous
(b) Sedimentary
(c) Metamorphic

Answer:
Igneous rocks are formed by solidification of volcanic magma.

(B) The innermost layer of the earth is
(a) Crust
(b) Core
(c) Mantle

Answer:
Mantle is the middle layer and crust is the outermost layer of the earth.

(C) Gold, petroleum and coal are examples of
(a) Rocks
(b) Minerals
(c) Fossils

Answer:
Rocks contain minerals. Fossils are the substances that are formed by dead remains of organic or inorganic matter.

(D) Rocks which contain fossils are
(a) Sedimentary rocks
(b) Metamorphic rocks
(c) Igneous rocks

Answer:
These rocks are formed by the deposition of sediments that trap fossils in them.

(E) The thinnest layer of the earth is
(a) Crust
(b) Mantle
(c) Core

Answer:
Mantle and core are the inner layers of the earth that are thicker than the crust.

Question 3.

Match the following:

(i) Core	(a) Earth's surface
(ii) Minerals	(b) Used for roads and buildings
(iii) Rocks	(c) Made of silicon and alumina
(iv) Clay	(d) Has definite chemical composition
(v) Sial	(e) Innermost layer
	(f) Changes into slate
	(g) Process of transformation of the rock

Answer:

(i) Core → (e) Innermost layer
Core is the innermost layer of the earth.

(ii) Minerals → (d) Has definite chemical composition

Minerals are naturally occurring substances which have certain physical properties and definite chemical composition.

(iii) Rocks → (b) Used for roads and buildings

Rocks are commonly used for the construction of roads and buildings.

(iv) Clay → (f) Changes into slate

Under great heat and pressure, clay transforms to slate (a metamorphic rock).

(v) Sial → (a) Earth's surface

Sial is composed of silica and alumina that is found on the surface of the earth.

Question 4.

Give reasons

(A) We cannot go to the centre of the earth.

Answer:

The centre of the earth is also called the core. It is the deepest layer of the earth that is characterized by extremely high temperature and pressure. It consists of molten magma at earth's centre that is so hot that it can melt anything that comes in its way. Thus, we cannot go to the centre of the earth.

(B) Sedimentary rocks are formed from sediments.

Answer:

Under heat or pressure bigger rocks break down into very smaller pieces. These pieces of rocks get accumulated one layer over the other, called sediments. As the pressure on the layers increases, they get compressed and the sediments transform to form sedimentary rocks. The silt carried by rivers gets accumulated one layer over the other and forms sedimentary rocks over a span of years.

(C) Limestone is changed into marble.

Answer:

Marble is a metamorphic rock that is formed from limestone, which is a sedimentary rock. Under extreme heat and pressure limestone gets converted into marble.

Question 5.

For fun.

(A) What are the minerals most commonly used in the following objects?

Answer:

Objects	Minerals most commonly used in them
Karhai	Iron, copper
Ornaments	Gold, silver
Lamp	Silver, gold
Hammer	Iron, lead
Bell	Silver, gold
Pan/tava	Iron, aluminium

(B) Identify some more objects made up of different minerals.

Answer:

Some more objects that are made of different minerals are utensils, decorative items and jewellery.

Answers may vary.