CHAPTER-2

NATURAL ENVIRONMENT: LAND

NOTES:

The earth our homeland is the third of the eight planets that orbit the sun. It is the only planet which supports life. It was formed from a cloud of gas and dust about 4,600 million year ago. Homo sapiens (modern humans) appeared on the earth about 2.5lakh years ago.

The most important source about the earth's interior comes from seismic waves generated by earthquake. They originate from the focus of the earthquake and travel in all directions. There are three types of waves known as P waves (Primary waves), S waves (Secondary waves) and L waves (Long waves). S waves are transmitted only through a solid body.

The interior of earth consists of three concentric layers- the crust, the mantle and core. The crust is a thin, solid layer forming the outer shell of the earth. It includes continental crust and oceanic crust.

A very thick layer called the mantle lies beneath the crust. It is composed of heavy rocks. The innermost part of the earth is known as core. It is composed of iron and nickel. The inner core has a temperature of about 4000°c. Sometimes hot materials from the earth's interior come out through cracks or joints as lava and form volcanoes.

The crust and topmost layer of the mantle form the lithosphere. The lithosphere consists of rigid plates bounded by oceanic ridges, trenches and faults. There are seven very large plates and several smaller ones.

Rocks and minerals

The materials that make up the earth's crust are called rocks example are granite, sandstone, marble, clay, sand, salt and coal. They do not possess a definite chemical composition but are a mixture of two or more minerals.

A mineral on the other hand, has a definite chemical composition, a crystalline form and certain physical properties. Examples are Silicates, quartz common salt etc.

On the basis of their mode of formation, rocks are classified into three groups- igneous, sedimentary and metamorphic.

Igneous rocks are formed when molten rock called magma cools and solidifies. Igneous rocks are parents of all other rocks and are also known as primary rocks.

Rivers and streams carry rock pieces and deposit as sediments which are buried layer by layer slowly. Due to pressure from above or because of cementation the loose materials ultimately become sedimentary rocks e.g. sandstone, shale, limestone.

When the original character of the rocks, i.e., colour, hardness and mineral composition is changed due to heat and pressure, it gives rise to metamorphic rocks. Examples are quartzite, marble, slate, gneiss. The famous Taj Mahal in Agra is built of white marble.

Rock cycle: The process of transformation of rocks from one to another is known as the rock cycle.

Igneous rock is exposed to weathering and erosion, changed into sedimentary rocks. These two rocks are changed into metamorphic rocks in course of time. The metamorphic rocks are forced deep into the earth's interior and melted to form magma.

Earth movements: The forces which originate inside the earth and bring changes on the surface are known as Endogenic or Internal forces. The forces which work on the surface of the earth are called Exogenic or External forces.

The Endogenic forces are divided into sudden and slow movements.

Sudden movements bring abrupt changes on the earth's surface. Earthquakes and volcanic eruptions cause sudden movement in the earth's crust.

Earthquake: Earthquakes are vibrations of the earth's surface. The Richterscale (0-9) is used to measure the magnitude or strength of an earthquake.

Slow movements continue over long periods and bring about a change in the surface level of a place. Slow movements are further classified into vertical movements and horizontal movements.

Vertical movements are responsible for a rise or fall of a part of the earth's surface. These earth movements built up continents.

Horizontal movements disturb the horizontal arrangement of rock layers. These movements are responsible for the formation of mountains.

Major Landforms: The major landforms of the earth are mountains, plateaus and plains.

Mountains: A highland of the surface of the earth is called a mountain. When its summit is less than 900 meters from the base it is called a hill.

Mountains are classified into fold mountain e.g. the Himalayas, the Alps, the Andes, the Aravallis.

Block Mountains e.g. the Vindhyas and the Satpuras.

Residual Mountain e.g. the Nilgiri Hills

Volcanic Mountain e.g. Mt. Fuji Yama and Mt. Popa.

Plateaus: A plateau is an elevated area. It has a large summit with an even surface. Very often, rivers cut out deep valleys in a plateau region.

On the basis of their situation the plateaus are of three types. They are

(a) Intermontane plateaus which are enclosed by mountains,
(b) Piedmont plateaus that are situated at the foot of a mountain and
(c) Continental plateaus which rise abruptly from the lowlands or the sea.

Plains: A flat and low lying land surface is called a plain. Uplifted coastal plains are formed by the uplift of a part of the sea floor.

Erosional plains are formed when an elevated tract of land is worn down to a plain by erosion. Depositional plains are formed by the filling up of depressions with sediments.

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