

Ch-4 Earth's Structure

Earth is made up of several concentric layers they are the crust mantle and the core.

Distinguish between -

	<u>Crust</u>	<u>Mantle</u>	<u>Core</u>
<u>Location</u>	Upper most thinnest layer of earth.	located between crust and core.	Inner most layer of earth
<u>Thickness</u>	Continental crust - 35 km Oceanic crust - 5 km, 60 km below high mts.	2900 km overall upper mantle - till 700 km lower mantle - 700 to 2900 km	3500 km in radius, divided into outer and inner core.
<u>Composition</u>	Continental crust - sial Oceanic crust - sima	Denser material than crust, made up of basic.	Made of Nife (Nickel and iron)
<u>Temperature</u>	Temperature increases with depth.	Varies between 1000°C - 1900°C 3700°C	Ranges between 4400°C - 6000°C

Explain the terms -

Geology - Geology deals with the study of rocks found in the interior and on the surface of the earth.

Magma chamber - Hollow spaces between rocks where magma collects deep inside the earth and remains in a fluid state.

Density - It is the ratio of mass to volume for a given substance.

Mohorovicic Discontinuity - It is a boundary between the crust and the mantle, 8 km beneath the ocean and 32 km beneath the continents. It has the characteristics of both crust and mantle.

Gutenberg Discontinuity - The boundary between the mantle and the core which begins at the depth of 2900 km approximately.

Lithosphere - The word lithos means rocks. Lithosphere is the uppermost solid layer of earth made up of rocks.

Asthenosphere - It is the partially molten layer of the mantle found at a depth of 100 to 410 km approx.

Nife - The core of the earth is made up of two heavy metals like Nickel (Ni) and Iron (Fe).

Sources of information about earth's interior -

- i) seismic waves (Earthquake)
- ii) Magma through volcanic eruption
- iii) Meteorites

- consequences of temperature in the interior of the earth.

The internal heat melts the rocks and keeps the mantle and outer core in a semi-molten state.

- consequences of pressure in the earth's interior.

Due to pressure, the inner core of remains solid inspite of high temperature.

- The part of the earth suitable for human habitation? why?

Crust or lithosphere as it is a zone of contact between hydrosphere and atmosphere providing every thing required for existence.

Give reasons for each of the following:-

1. The study of meteorites helps scientists to know about the interior of the earth.

ans It is because the earth is said to be constructed of the same material as the meteorites.

2. Temperature starts rising gradually towards the interior of the earth.

ans It is because the density and pressure of the earth increases with depth. The radioactive materials trapped during formation of the earth release heat which is not given out by rocks since they are bad conductors of heat.

3. The asthenosphere is in a semi-molten state.

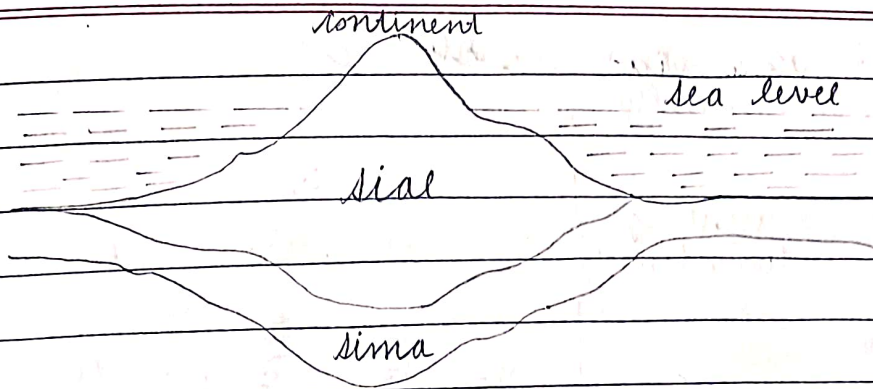
ans It is due to the high temperature of 1100°C which makes the rocks and metals molten.

4. The inner core is in a solid state.

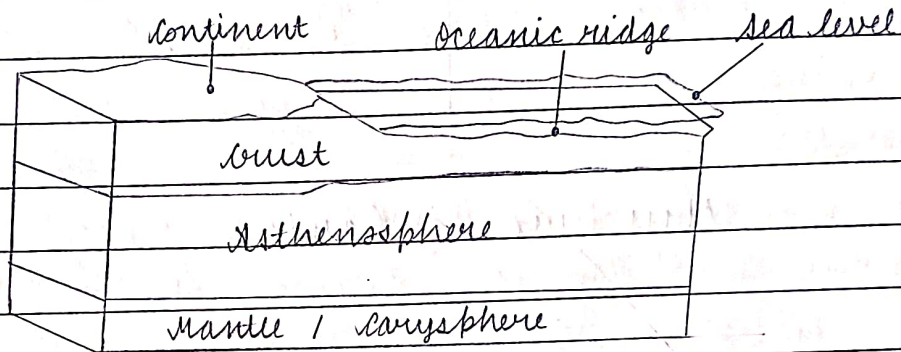
ans It is due to intense pressure of the overlying rocks and high density.

5. Which layer is responsible for earth's magnetic field? Why?

ans The core of the earth. It is because of the presence of iron and nickel in this layer.



Chemical composition of crust



asthenosphere

atmosphere

crust (lithosphere)

Mantle

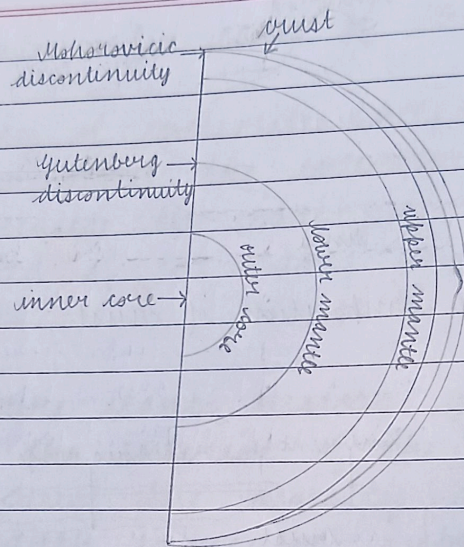
core

Gutenberg discontinuity

Mohor discontinuity

Ocean (Hydrosphere)

Layers of the Earth



Structure of Earth

- 1) A ...
def ...
reg ...
ha ...
ch ...
- 2) Ro ...
fi ...
m ...
m ...
- 3) E ...
d ...