

## Class 8 Geography Chapter 2 Interior of the Earth Textbook Questions and Answers

### 1. Tick [✓] the correct options in the box:

Question A.

There are two layers in the crust.

- (a) Inner and outer crust [ ]
- (b) Continental and oceanic crust [ ]
- (c) Surface and oceanic crust [ ]
- (d) Mantle and core [ ]

Answer:

- (b) Continental and oceanic crust [✓]

Question B.

Which element is found in both mantle and crust?

- (a) Silica [ ]
- (b) Magnesium [ ]
- (c) Aluminium [ ]
- (d) Iron [ ]

Answer:

- (b) Magnesium [✓]

Question C.

Which of these minerals are found in the core of the earth?

- (a) Iron – magnesium [ ]
- (b) Magnesium – nickel [ ]
- (c) Aluminium – iron [ ]
- (d) Iron – nickel [ ]

Answer:

- (d) Iron – nickel [✓]

Question D.

The inner core is in which state?

- (a) Gaseous [ ]
- (b) Solid [ ]
- (c) Liquid [ ]
- (d) Semi-solid [ ]

Answer:

- (a) Gaseous [✓]

Question E.

The outer core is made up of

- (a) Iron [ ]
- (b) Gold [ ]
- (c) Hydrogen [ ]
- (d) Oxygen [ ]

Answer:

- (a) Iron [✓]

Question F.

The layer of the earth on which we live...

- (a) Mantle [ ]
- (b) Core [ ]
- (c) Crust [ ]
- (d) Continental crust [ ]

Answer:

- (d) Continental crust [✓]

### 2. Tell whether right or wrong. Correct the wrong statement

Question A.

The density of various materials is not the same in the interior of the earth.

Answer:

Correct.

Question B.

The core of the earth's interior is made up of hard rocks.

Answer:

Incorrect.

Correct statement: The core of the earth's interior is made up of elements, viz. iron and nickel.

Question C.

Secondary waves cannot pass through outer core.

Answer:

Correct.

Question D.

Continental crust is made up of silica and magnesium.

Answer:

Incorrect.

Correct statement: Continental crust is made up of silica and aluminum.

### 3. Answer the following

Question A.

What are the two parts of the crust? What is the basis of classification?

Answer:

1. Continental crust and the Oceanic crust are the two parts of the crust.
2. The crust is classified on the basis of whether it lies below the land or the ocean.
3. The part of the crust lying below the continent is known as the continental crust.
4. The part of the crust lying below the ocean is known as the oceanic crust.

Question B.

Why is the upper layer of the mantle known as the asthenosphere?

Answer:

1. The upper layer of the mantle is in liquid state.
2. The rocks in the upper 100 to 200 km of the mantle melt due to the heat and magma is created. Magma chambers are found in this layer of the earth.
3. Due to the heat and pressure, the energy waves are created in mantle. These energy waves move in vertical direction and magma comes out on the surface of the earth by volcanic eruptions.
4. These endogenetic movements continuously occur in the upper layer of the mantle. Therefore, the upper layer of the mantle is known as the asthenosphere.

Question C.

Magnetosphere of the earth is a result of rotation. Explain.

Answer:

1. The average temperature of the outer core of the earth is around 5000° C. The average temperature of the inner core of the earth is around 6000° C. This difference between the temperature results in formation of vertical currents.

2. The rotation of the earth gives eddy (circular) motion to these currents.

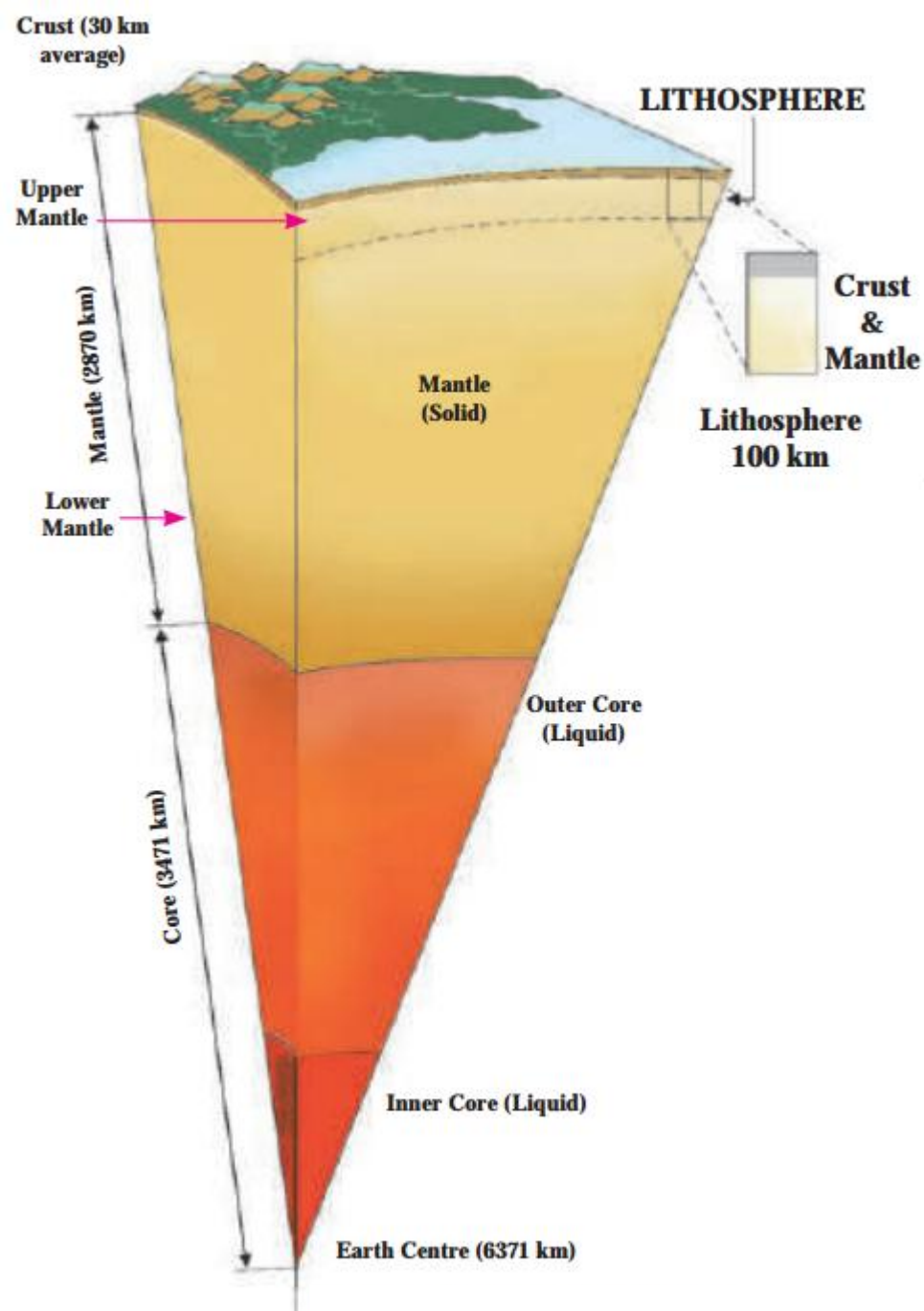
3. Electric currents develop in these spiral eddies of liquid iron leading to generation of the magnetic field of the earth. This magnetic field is called magnetosphere. In this way, the magnetosphere is formed due to the rotation of the earth.

### 4 Draw neat diagrams. label them and explain.

Question A.

The interior of the earth

Answer:



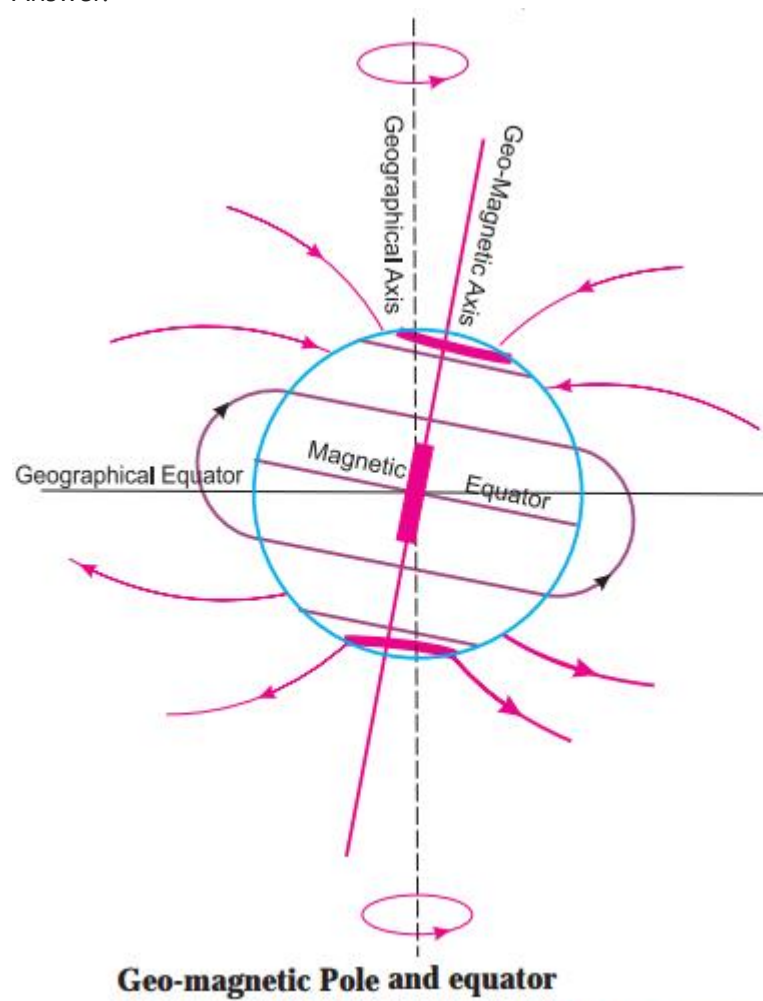
Explanation:

1. **Inner Core:** It is the center and the hottest layer of the Earth. The inner core is solid and made up of iron and nickel.
2. **Outer Core:** The outer core of the Earth is similar to a very hot ball of metals. It is composed of metals such as iron and nickel. The outer core surrounds the inner core.
3. **Mantle:** Mantle is the widest section of the Earth. Mantle is mainly made up of semi-molten rock known as magma. The rock is hard in the upper part of the mantle, but lower down the rock is softer and begins to melt. The mantle consists of very hot and dense rock.
4. **Crust:** The crust is the outer layer where we live. It's a solid rock layer divided into two types: Continental crust covers the land and Oceanic crust covers water.

Question B.

Magnetic pole and equator

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Answer:



#### 5. Give geographical reasons:

Question A.

There are discontinuities in the interior of the earth.

Answer:

1. There is a difference between the elements, temperatures and the pressure found in the three parts of the interior of the earth, viz, crust, mantle and core.
2. In the interiors of the earth, the transitional areas are found between (a) continental crust and oceanic crust (b) crust and mantle (c) upper mantle and lower mantle (d) mantle and core and (e) outer core and inner core. Therefore, there are discontinuities in the interior of the earth.

Question B.

There is correlation between the density of metals and their location in the interior of the earth.

Answer:

1. The rocks found in the crust have predominance of the compounds of silicon, aluminium, magnesium, etc. These compounds are lighter in weight. Therefore, they are found in the upper layer of the interior of the earth.
2. The elements like iron, nickel are found in the core of the earth. These elements are heavier in weight. Thus, metals with low density are found in upper level in the interior of the earth and the metals with high density are found in the lower level in the interior of the earth. Thus, there is correlation between the density of metals and their location in the interior of the earth.

Question C.

Mantle is the centre of earthquake and volcanic eruptions.

Answer:

1. The rocks in the upper 100 to 200 km of the mantle melt due to the heat and the magma is created.
2. Magma chambers are found in this layer of the earth.
3. Due to the heat and pressure, the energy waves are created in mantle. These energy waves move in vertical direction and magma comes out on the surface of the earth by volcanic eruptions. Thus, mantle is the centre of earthquake and volcanic eruptions.

Question D.

The thickness of the crust below the continents is more as compared to oceans.

Answer:

1. The density of the crust below the continents is 2.65 to 2.90 gm/cm<sup>3</sup> The density of the crust below the oceans is 2.90 to 3.3 gm/cm<sup>3</sup>
2. As the density of the crust below the continents is comparatively low, it keeps floating on the mantle. It does not subduct into mantle. As its effect, the thickness of the crust below the continents is found to be high.
3. As the density of the crust below the ocean is comparatively high, it subducts into mantle leading to its low thickness. Thus, the thickness of the crust below the continents is more as compared to oceans.

Question E.

Earth is protected because of the magnetosphere.

Answer:

1. The ozone layer protects the earth from ultraviolet radiation.
2. The earth's magnetosphere serves to deflect most of the solar wind, whose charged particles would otherwise strip away the ozone layer. In this way, the earth is protected because of the magnetosphere.

[Know this too:](#)

1. The average density of the earth is 5.5 gm/cm<sup>3</sup>.
2. The rocks in the upper 100 to 200 km of the mantle melt due to heat.
3. The mixture of molten rocks, volatiles, etc. found beneath the surface of the earth is called magma.
4. The mixture of molten rocks, volatiles, etc. erupted from volcano or fissure on the surface of the earth is called lava.

[Activity:](#)

Question 1.

Prepare a model of the earth's interior.

Answer:

1. The density of the earth goes on increasing from its surface to the centre.
2. The average density of the crust of the earth is approximately 2.98 gm/cm<sup>3</sup>.
3. The average density of the mantle of the earth is approximately 5.7 gm/cm<sup>3</sup>.
4. The average density of the outer core of the earth is approximately 9.8 gm/cm<sup>3</sup>.
5. The density of the inner core at the centre of the earth is approximately 13 gm/cm<sup>3</sup>.

### **Class 8 Geography Chapter 2 Interior of the Earth Additional Important Questions and Answers**

[Tick \[✓\] the correct options in the box:](#)

Question A.

Which seismic waves can travel through liquid medium?

- (a) Primary waves ☐
- (b) Secondary waves ☐
- (c) Surface waves ☐
- (d) Oceanic waves ☐

Answer:

- (a) Primary waves ☒

Question B.

Which of the following layers of the earth has the highest density?

- (a) Crust ☐
- (b) Mantle ☐
- (c) Outer core ☐
- (d) Inner core ☐

Answer:

- (d) Inner core ☒

Question C.

Which of the following waves can travel through all the layers of the interior of the earth?

- (a) Primary ☐
- (b) Secondary ☐
- (c) Tertiary ☐
- (d) Surface ☐

Answer:

- (a) Primary ☒

Question D.

Which of the following layers of the interior of the earth is in solid form and cool?

- (a) Crust ☐
- (b) Mantle ☐
- (c) Outer core ☐
- (d) Inner core ☐

Answer:

- (a) Crust ☒

[Examine the statements and incorrect ones :](#)

Question A.

As we move deeper the surface, temperature keeps decreasing.

Answer:

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Incorrect.

Correct statement: As we move deeper the surface, temperature keeps increasing.

Question B.

Magma chambers are found in lower mantle.

Answer:

Incorrect.

Correct statement: Magma chambers are found in upper mantle.

Question C.

The discontinuity is found between the crust, mantle and core.

Answer:

Correct.

Answer the following questions in one sentence each:

Question A.

In which of the layers of the interior of the earth is magma formed?

Answer:

Magma is formed in the mantle (upper mantle) of the earth.

Question B.

What are the two parts of the core?

Answer:

Outer core and inner core are the two parts of the core.

Match the columns and complete the chain :

Question A.

'A' Column (The layer of the interior of the earth)	'B' Column (Density)	'C' Column (Elements found)
1. Sial	(i) 13.3 gm/cm <sup>3</sup>	(a) Silica and Magnesium
2. Sima	(ii) 2.65 to 2.90 gm/cm <sup>3</sup>	(b) Nickel and Iron
3. Inner core	(iii) 2.90 to 3.3 gm/cm <sup>3</sup>	(c) Silica and Aluminium

Answer:

'A' Column (The layer of the interior of the earth)	'B' Column (Density)	'C' Column (Elements found)
1. Sial	(ii) 2.65 to 2.90 gm/cm <sup>3</sup>	(c) Silica and Aluminium
2. Sima	(iii) 2.90 to 3.3 gm/cm <sup>3</sup>	(a) Silica and Magnesium
3. Inner core	(i) 13.3 gm/cm <sup>3</sup>	(b) Nickel and Iron

Answer the following questions in brief:

Question A.

Describe the changes that take place in the temperatures from the surface of the earth to its centre.

Answer:

1. The process of cooling of the earth started from the surface. The temperature goes on increasing from the surface towards the core.
2. The surface of the earth is cool and solid.
3. The centre of the earth is extremely hot. The temperature at the centre of the earth is around 5500° to 6000° C.

Question B.

Describe the changes that take place in the density of the earth from its surface to the centre.

Answer:

1. The density of the earth goes on increasing from its surface to the centre.
2. The average density of the crust of the earth is approximately 2.98 gm/cm<sup>3</sup>.
3. The average density of the mantle of the earth is approximately 5.7gm/cm<sup>3</sup>.
4. The average density of the outer core of the earth is approximately 9.8 gm/cm<sup>3</sup>.

5. The density of the inner core at the centre of the earth is approximately 13 gm/cm<sup>3</sup>.

Question C.

Write in brief about the travelling of various types of earthquake waves through the layers of interior of the earth.

Answer:

1. The primary earthquake waves travel through the mantle as well as the core of the earth.
2. While travelling through the core of the earth, the direction of the primary earthquake waves gets altered.
3. While travelling through the core, the speed of the primary earthquake waves decreases.
4. The secondary earthquake waves can travel only through the mantle of the earth. These waves get absorbed in the core of the earth. Thus, these waves cannot travel through the core of the earth.

[Write short notes on the following:](#)

Question A.

The crust.

Answer:

1. The uppermost layer of the interior of the earth is called the crust. Continental crust and the oceanic crust are the two parts of the crust.

2. The thickness of the continental crust is approximately 16 km to 45 km. On the other hand, the thickness of the oceanic crust is approximately 7 km to 10 km

3. The density of the continental crust is approximately 2.65 to 2.90 gm/cm<sup>3</sup>. On the other hand, the density of the oceanic crust is approximately 2.65 to 2.90 gm/cm<sup>3</sup>.

4. Silica and aluminium are the main elements found in the continental crust. Therefore, it is also called Sial. On the other hand, Silica and Magnesium are the main elements found in the oceanic crust. Therefore, it is also called Sima.

Question B.

The mantle.

Answer:

1. The mantle is located below the crust of the earth. The mantle is divided into the upper mantle and the lower mantle.

2. The thickness of the mantle is approximately 2870 km. The average density of mantle is approximately 4.5 gm/cm<sup>3</sup>.

3. The rocks in the upper 100 to 200 km of the mantle melt due to the heat and magma is created. Magma chambers are found in this layer of the earth. Due to the heat and pressure, the energy waves are created in mantle. These energy waves move in vertical direction and magma comes out on the surface of the earth by volcanic eruptions.

4. These endogenetic movements continuously occur in the upper layer of the mantle. Therefore, the upper layer of the mantle is known as the asthenosphere.

5. The average thickness of mantle is approximately 2870 km. Its average density is approximately 4.5 gm/cm<sup>3</sup>. The temperature at the depth of 2400 to 2900 km is around 2200° to 2500° C. The density of the lower mantle is approximately 5.7 gm / cm<sup>3</sup>.

Question B.

The outer core.

Answer:

1. The outer core is located below the lower mantle.

2. It is located at the depth from 2900 km to 5100 km from the surface of the earth.

3. The average temperature of the outer core of the earth is around 5000° C. The density of the outer core of the earth is approximately 9.8 gm/cm<sup>3</sup>.

4. The secondary earthquake waves cannot travel from the core of the earth. Therefore, it is inferred that the outer core of the earth must be in liquid or semi-liquid form. The primary earthquake waves can travel from the outer core of the earth.

5. The vertical currents originate in the outer core of the earth.

Question C.

The inner core.

Answer:

1. The inner core is located below the upper core.
2. It is located at the depth from 5150 km to 6371 km from the surface of the earth.
3. The average temperature of the inner core of the earth is around 6000° C. The density of the inner core of the earth is approximately 13.3 gm/cm<sup>3</sup>.
4. The elements, viz. Iron (Ferrous) and Nickel (Ni) are mainly found in the inner core of the earth. Therefore, it is also called Nife.
5. The temperature at the centre of the earth is almost equivalent to the surface temperature of the sun.

[Give geographical reasons for the following:](#)



Question A.

The secondary waves of earthquake cannot travel through the core of the earth.

Answer:

1. The secondary waves of earthquake can travel only through the solid state of the interior of the earth.
2. The outer core of the centre of the earth is in liquid state. Therefore, the secondary waves of earthquake cannot travel through the core of the earth.

Question B.

The inner core is called Nife.

Answer:

1. The inner core predominantly comprises iron and nickel.
2. The word Nife is derived from the word Nickel (Ni) and Iron (Ferrous) (Fe). Therefore, the inner core is called (Ni + Fe) Nife.

Question C.

The upper layer of the crust is called Sial.

Answer:

1. The rocks in the upper layer of the crust have predominance of the compounds of silicon and aluminium.
2. The word Sial is derived from the word Silica (Si) and Aluminium (Al). Therefore, the upper layer of the crust is called (Si + Al) Sial.

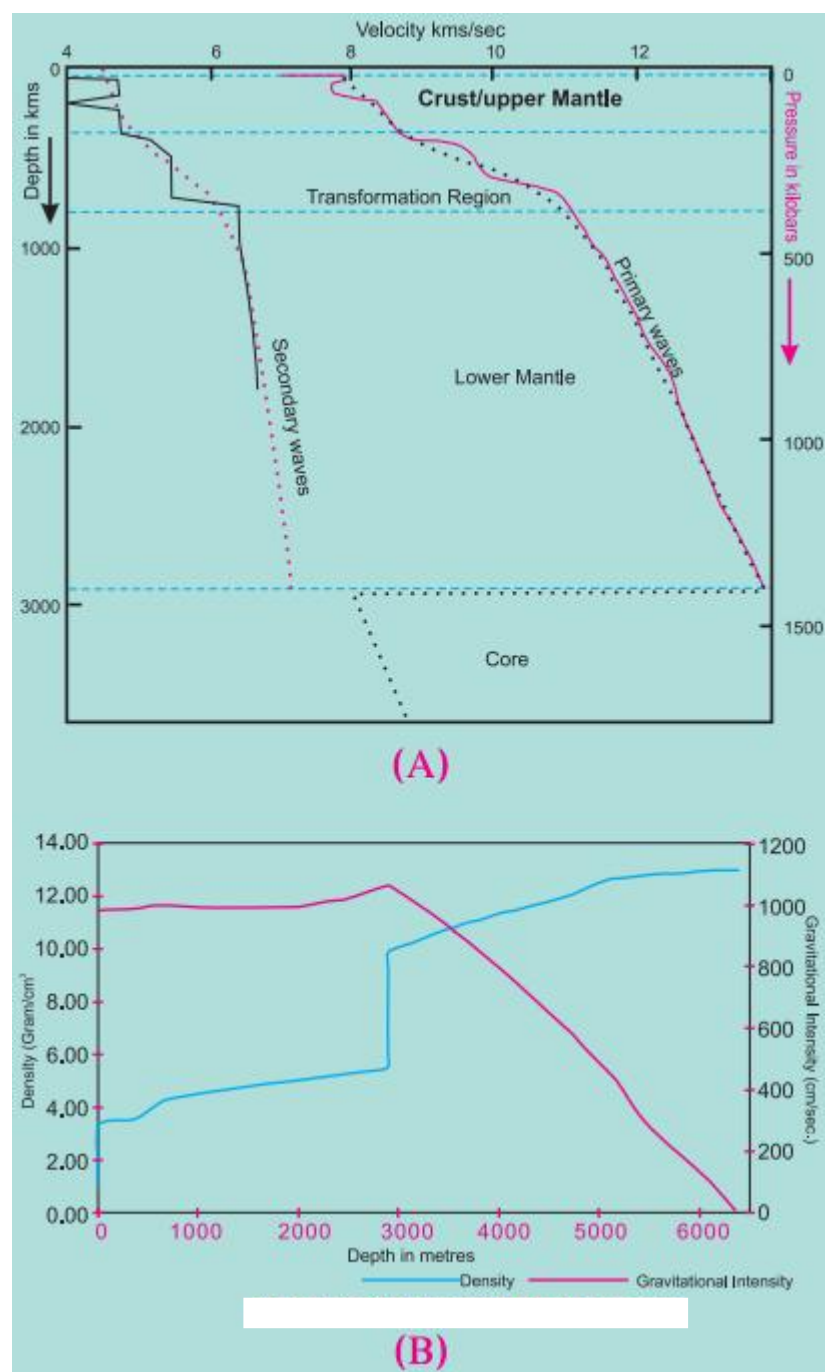
Question D.

The lower layer of the crust is called Sima.

Answer:

1. The rocks in the lower layer of the crust have predominance of the compounds of silicon and magnesium.
2. The word Sima is derived from the word Silica (Si) and Magnesium. (Ma). Therefore, the lower layer of the crust is called (Si + Ma) Sima.

Study the following map/ figure /graph and answer the following questions :



Question A.

At what depth does the curve of the secondary waves seem to have ended in figure (A)?

Answer:

The curve of the secondary waves seems to have ended around the depth of 2900 km in figure (A).

Question B.

What is the velocity of the secondary waves around the boundary of the outer core shown in figure (A)?



Answer:

The velocity of the secondary waves is 6 to 8 km/sec around the boundary of the outer core shown in figure (A).

Question C.

What conclusion can be drawn on the basis of the curve of the secondary waves stopping around the depth of 2900 km?

Answer:

On the basis of the curve of the secondary waves stopping around the depth of 2900 km, it can be concluded that secondary waves do not enter the core.

Question D.

What is the velocity of the primary waves at the time of entering the outer core shown in figure (A)?

Answer:

The velocity of the primary waves at the time of entering the outer core shown in figure (A) is 8 km/sec.

Question E.

What conclusions can be drawn about the intensity of the gravitational force shown in Figure (B)?

Answer:

The following conclusions can be drawn about the intensity of the gravitational force shown in Figure (B):

1. Gravitational force increases at certain depth from the surface of the earth and then it reduces according to the depth.
2. At the centre of the earth, the gravitational force is zero.

**Thought-Provoking Question:**

**Think about it:**

Question 1.

Imagine about the earth's interior and- write 10-12 sentences on it.

Answer:

1. The interior of the earth will be very hot.
2. Huge sized rocks will be present in the upper layers of the interior of the earth.
3. Due to extreme heat and pressure, the rocks must be melting in the interior of the earth.
4. Due to the melting of the rocks, magma will be created in the interior of the earth.
5. Due to endogenous movements in the interior of the earth, volcanic eruptions will occur on the surface of the earth.
6. The primary earthquake waves will be travelling through the mantle and the core of the earth.
7. The secondary earthquake waves will be travelling only through the mantle of the earth.
8. The temperature in the interior of the earth will get increased with the depth.
9. The highest temperature will be found at the centre of the earth.
10. The elements like silica, aluminium, magnesium, iron and nickel will be found in the various layers of the interior of the earth.

**Open-Ended Question:**

Question A.

What precautions can be taken to reduce the damage caused by earthquakes?

Answer:

The following precautions can be taken to reduce the damage caused by earthquakes:

1. Taking cover under a desk or a table or sturdy piece of furniture to protect oneself.
2. Finding clear spot away from buildings, trees and power lines. Dropping to the ground and staying there until the shaking stops.
3. Switching off the power supply, gas in-home/office, etc.
4. Helping the victims at the earliest.