Class 11 Geography NCERT Solutions Chapter 3 Interior of the Earth

Class 11 Geography Chapter 3 NCERT Textbook Questions Solved

1. Multiple choice questions

Question 1(i).
Which one of the following earthquake waves is more destructive?
(a) P-waves
(b) S-waves
(c) Surface waves
(d) None of the above.
Answer:
(a) P-waves

Question 1(ii).
Which one of the following is a direct source of information about the interior of the earth?
(a) Earthquake waves
(b) Volcanoes
(c) Gravitational force
(d) Earth magnetism.
Answer:
(a) Earthquake waves

Question 1(iii).
Which type of volcanic eruptions have caused Deccan Trap formations?
(a) Shield
(b) Flood
(c) Composite
(d) Caldera.
Answer:
(b) Flood

Question 1(iv).
Which one ofthe following describes the lithosphere?
(a) Upper and lower mantle
(b) Crust and upper mantle
(c) Crust and core
(d) Mantle and core.
Answer:
(b) Crust and upper mantle

2. Answer the following questions in about 30 words.

Question 2(i).
What are body waves?
Answer:
Body waves are generated due to the release of energy at the focus and move in all directions travelling through the body of the earth. Therefore, it has been named as body waves. These are of two types: P-waves and S-waves.

Question 2(ii).
Name the direct sources of information about the interior of the earth.
Answer:
Some of the direct sources are:-

- Mining: It is a process by which commercially variable valuable mineral resources are extracted from Earth's surface which includes precious stones, rocks and solid fuels.
- Drilling: Scientists world over are working on two major projects such as "Deep Ocean Drilling Projects" and "Integrated Ocean Drilling Project". The deepest drill at Kola, in Arctic Ocean, has so far reached a depth of 12 km.
- Volcanic Eruptions: When molten material is thrown onto the surfaced earth during volcanic eruption it becomes available for analysis

Question 2(iii).
Why do earthquake waves develop shadow zone?
Answer:
Earthquake waves get recorded in seismographs located at far offlocations. But there exist some specific areas where the waves are not reported. Such a zone is called the 'shadow zone'. The study of different events reveals that for each earthquake, there exists an altogether different shadow zone. It was observed that seismographs located at any distance within 105° from the epicentre, recorded the arrival of both P and S-waves.

However, the seismographs located beyond 145° from epicentre, record the arrival of P-waves, but not that of S-waves. Thus, a zone between 105° and 145° from epicentre was identified as the shadow zone for both the types of waves. The entire zone beyond 105° does not receive S-waves. The shadow zone of S-wave is much larger than that of the P-waves. The shadow zone of P-waves appears as a band around the earth between 105° and 145° away from the epicentre. The shadow zone of S-waves is not only larger in extent but it is also a little over 40 per cent of the earth surface.

Question 2(iv).
Briefly explain the indirect sources of information of the interior of the earth other than those of seismic activity.
Answer:
Analysis of properties of matter indirectly provides information about the interior

- Meteors

- Gravitation
- Magnetic field
- Seismic Activity.

3. Answer the following questions in about 150 words.

Question 3(i).
What are the effects of propagation of earthquake waves on the rock mass through which they travel?
Answer:
Earthquake waves are basically of two types: Body waves and surface waves. Body waves are generated due to the r elease of energy at the focus and move in all directions travelling through the body of the earth. Therefore these are called body weaves. The body wraves interact with the surface rocks and generate new set of waves called surface waves. These waves move along the surface. The velocity of waves changes as they travel through materials with different densities. The denser the material, the higher is the velocity. The direction of vibrations of S-waves is perpendicular to the wave direction in the vertical plane. Hence, they create troughs and crests in the material through which they pass. Surface waves are considered to be the most damaging waves.

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Question 3(ii).
What do you understand by intrusive forms? Briefly describe various intrusive forms.
Answer:
The lava that cools within the crustal portions assumes different forms. These forms are called intrusive forms. Important intrusive forms are described below:

- Batholiths: A large body of magmatic material that cools in the deeper depth of the crust develops in the form of large
  domes. Batholiths are the cooled portion of magma chambers.
- Lacoliths: These are large dome-shaped intrusive bodies with a level base and connected by a pipe-like conduit from below. It resembles the surface volcanic domes of composite volcano, only these are located at deeper depths.
- Lapolith: As and when the lava moves upwards, a portion of the same may tend to move in a horizontal direction wherever it finds a weak plane. It may get rested in different forms. In case it develops into a saucer shape, concave to the sky body, it is called lapolith.

- Phaeolith: A wavy mass of intrusive rocks, at times, is found at the base of synclines or at the top of anticline in folded igneous country. Such wavy materials have a definite conduit to source beneath in the form of magma chambers (subsequently developed as batholiths). These are called the phacoliths.
- Sills: The near horizontal bodies of the intrusive igneous rocks are called sill or sheet, depending on the thickness of the material. The thinner ones are called sheets while the thick horizontal deposits are called sills.
- Dykes: When the lava makes its way through cracks and the fissures developed in the land, it solidifies almost perpendicular to the ground. It gets cooled in the same position to develop a wall-like structure. Such structures are called dykes.

Class 11 Geography Chapter 3 NCERT Extra Questions

Class 11 Geography Chapter 3 Multiple Choice Questions

Question 1.
How do we measure magnitude of earthquake?
(a) Richter Scale
(b) Mercalli Scale
(c) Measuring Scale
(d) Seismograph.
Answer:
(a) Richter Scale

Question 2.
How do we measure intensity of earthquake?
(a) Richter Scale
(b) Mercalli Scale
(c) Measuring Scale
(d) Seismograph.
Answer:
(b) Mercalli Scale

Question 3.
Fast moving waves which reach the earth earliest are called:
(a) Alpha Waves
(b) S-Waves
(c) P-Waves
(d) Beta Waves.
Answer:
(c) P-Waves

Question 4.
The upper portion of mantle is called:
(a) Asthenosphere
(b) Crust
(c) Lithosphere

(d) Fossil Sphere.
Answer:
(a) Asthenosphere

Question 5.
What is the approximate depth of mantle?
(a) 2400 km
(b) 2900 km
(c) 3200 km
(d) 3500 km.
Answer:
(b) 2900 km

Question 6.
Core is made of which metals?
(a) Iron and Magnesium
(b) Iron and Silicon
(c) Nickel and Iron
(d) Nickel and Magnesium.
Answer:
(d) Nickel and Magnesium.

Question 7.
What is the density of the rocks between the adjoining line on mantle and core?
(a) 3-4 gm per sq cm
(b) 5 gm per sq cm
(c) 4-5 gm per sq cm
(d) 6 gm per sq cm.
Answer:
(b) 5 gm per sq cm

Question 8.
What is the thickness of the crust?
(a) 10 km to 200 km
(b) 50 km to 300 km
(c) 30 km to 400 km
(d) 100 km to 200 km.
Answer:
(a) 10 km to 200 km

Question 9.
What is the density of the rocks of mantle?
(a) 3-4 gm per sq cm
(b) 5 gm per sq cm
(c) 4-5 gm per sq cm

(d) 6 gm per sq cm.
Answer:
(a) 3-4 gm per sq cm

Question 10.
Crust and upper portion of mantle taken together is called:
(a) Asthenosphere
(b) Magma
(c) Lithosphere
(d) Core.
Answer:
(c) Lithosphere

Question 11.
What is the mean thickness of oceanic crust?
(a) 5 km
(b) 30 km
(c) 10 km
(d) 70 km.
Answer:
(a) 5 km

Question 12.
What is the mean thickness of continental crust?
(a) 5 km
(b) 30 km
(c) 10 km
(d) 70 km.
Answer:
(b) 30 km.

Class 11 Geography Chapter 3 Very Short Answer Type Questions

Question 1.
By which metals is core made of?
Answer:
Core is made up of nickel and iron.

Question 2.
Name the deepest mine of the world.
Answer:
Gold mines in South Africa are as deep as 3 – 4 km.

Question 3.
How do we measure magnitude, of an earthquake?
Answer:
We measure magnitude of an earthquake using Richter Scale.

Question 4.
What is the thickness of the crust in oceans, continents and mountains?
Answer:
The mean thickness of oceanic crust is 5 km whereas that of the continental is around 30 km. The continental crust is thicker in the areas of major mountain systems. It is as much as 70 km thick in the Himalayan region.

Question 5.
What do you mean by dykes?
Answer:
When the lava makes its way through cracks and the fissures developed in the land, it solidifies almost perpendicular to the ground. It gets cooled in the same position to develop a wall-like structure. Such structures are called dykes.

Question 6.
What do we get to know about the interior of the earth through mining?
Answer:
We get to know through the mining activity that temperature and pressure increase with the increasing distance from the surface towards the interior in deeper depths. Moreover, it is also known that the density of the material also increases with depth.

Question 7.
What do you mean by gravitational anomaly?
Answer:
The difference in readings from the expected values is called gravity anomaly. Gravity anomaly give us information about the distribution of mass of the material in the crust of the earth.

Question 8.
What do you mean by caldera?
Answer:
These are the most explosive of the earth's volcanoes. They are usually so explosive that when they erupt they tend to collapse on themselves rather than building any tall structure. The collapsed depressions are called calderas.

Question 9.
When can an earthquake cause tsunami?
Answer:
An earthquake can take form of tsunami if its epicentre is below ocean and its magnitude is very high. An earthquake of magnitude more than 5 on Richter scale can prove to be very dangerous.

Question 10.
What are different types of forces?
Answer:
There are two types of forces:-

1. Exogenic forces: These are the forces on the surface of the earth like weathering, erosion, mining, etc.
2. Endogenic forces: These are the forces under the surface of the earth, like volcanic eruption, earthquake and any other seismic activity, tectonic plates.

Question 11.
Name the interior most part of the earth. What is its depth?
Answer:
Core is the interior most part of the earth. Its depth is between 2900 km to 6373km.

Question 12.
What is a volcano?
Answer:
A volcano is a place where gases,' ashes and/or molten rock material – lava – escape to the ground.

Question 13.
What are intrusive forms?
Answer:
The lava that cools within the crustal portions assumes different forms. These forms are called intrusive forms.

Question 14.
What are batholiths?
Answer:
A large body of magmatic material that cools in the deeper depth of the crust develops in the form of large domes. Batholiths are the cooled portion of magma chambers.

Question 15.
What do you mean by hypocentre?
Answer:
The point where the energy is released is called the focus of an earthquake, alternatively, it is called the hypocentre.

Question 16.
What are surface waves?
Answer:
The body waves interact with the surface rocks and generate new set of waves called surface waves. These waves move along the surface. These waves are very destructive.

Question 17.
What do you mean by lapoliths?
Answer:
As and when the lava moves upwards, a portion of the same may tend to move in a horizontal direction wherever it finds a weak plane. It may get rested in different forms. In case it develops into a saucer shape, concave to the sky body, it is called lapoliths.

Question 18.
What do you mean by lacoliths?
Answer:
These are large dome-shaped intrusive bodies with a level base and connected by a pipe-like conduit from below. It resembles the surface volcanic domes of composite volcano, only these are located at deeper depths.

Question 19.
What do you mean by phacoliths?
Answer:
A wavy mass of intrusive rocks, at times, is found at the base of synclines or at the top of anticline in folded igneous country. Such wavy materials have a definite conduit to source beneath in the form of magma chambers (subsequently developed as batholiths). These are called the phacoliths.

Question 20.
What do you mean by sills?
Answer:
The near horizontal bodies of the intrusive igneous rocks are called sill or sheet, depending on the thickness of the material. The thinner ones are called sheets while the thick horizontal deposits are called sills.

Question 21.
What is magma?
Answer:
As long as liquid rocks are in the upper portion of the mantle, it is called magma.

Question 22.
Give meaning of mid-ocean ridge volcanoes.
Answer:
These volcanoes occur in the oceanic areas. There is a system of mid-ocean ridges more than 70,000 km long that stretches through all the ocean basins. The central portion of this ridge experiences frequent eruptions.

Class 11 Geography Chapter 3 Short Answer Type Questions

Question 1.
Write a note on composite volcanoes.
Answer:
These volcanoes are characterised by eruptions of cooler and more viscous lavas than basalt. These volcanoes often result in explosive eruptions. Along with lava, large quantities of pyroclastic material and ashes find their way to the ground. This material accumulates in the vicinity of the vent openings leading to formation of layers, and this makes the mounts appear as composite volcanoes.

Question 2.
Give a brief description of caldera.
Answer:
These are the most explosive of the earth's volcanoes. Their features are as follows:

- They are usually so explosive that when they erupt they tend to collapse on themselves rather than building any tall structure. The collapsed depressions are called calderas.
- Their explosiveness indicates that the magma chamber supplying the lava is not only huge but is also in close vicinity.
- The hills produced by them are similar to the one made by composite volcanoes.

Question 3.
Write a short note on flood basalt provinces.
Answer:
These volcanoes outpour highly fluid lava that flows for long distances.

- Some parts of the world are covered by thousands of sq. km of thick basalt lava flows.
- There can be a series of flows with some flows attaining thickness of more than 50 m.
- Individual flows may extend for hundreds of km.
- The Deccan Traps from India, presently covering most of the Maharashtra plateau, are a much larger flood basalt province.
- It is believed that initially the trap formations covered a much larger area than the present.

Question 4.
Explain the uppermost layer of the earth- crust.
Answer:
It is the outermost solid part of the earth. It is brittle in nature.

- Thickness: The thickness of the crust varies under the oceanic and continental areas. Oceanic crust is thinner as compared to the continental crust. The mean thickness of oceanic crust is 5 km whereas that of the continental is around 30 km. The continental crust is thicker in the areas of major mountain systems. It is as much as 70 km thick in the Himalayan region.
- Composition: It is made up of heavier rocks.
- Density: It is having density of 3 g/cm3.
- In Oceans: This type of rock found in the oceanic crust is basalt. The mean density of material in oceanic crust is 2.7 g/cm3.

Question 5.
Explain the innermost layer of the earth- core.
Answer:
The Core is the innermost layer of the earth.

- Information: The earthquake wave velocities helped in understanding the existence of the core of the earth.
- Depth: The core- mantle boundary is located at the depth of 2,900 km.
- Form: The outer core is in liquid state while the inner core is in solid state.
- Density: The density of material at the mantle core boundary is around 5 g/cm3 and at the centre of the earth at 6,300 km, the density value is around 13g/cm3.
- Composition: The core is made up of very heavy material mostly constituted by nickel and iron.
- Other name: It is sometimes referred to as the nife layer.

Question 6.
Explain the middle layer of the earth- mantle.
Answer:
The Mantle: The portion of the interior beyond the crust is called the mantle.

- Depth: The mantle extends from Moho's discontinuity to a depth of 2,900 km.
- Asthenosphere: The upper portion of the mantle is called asthenosphere. The word astheno means weak. It is considered to be extending upto 400 km. It is the main source of magma that finds its way to the surface during volcanic eruptions.
- Density: It has a density higher than the crust's (3.4 g/cm3).
- Upper Mantle: The crust and the uppermost part of the mantle are called lithosphere. Its thickness ranges from 10-200 km.
- Lower Mantle: The lower mantle extends beyond the asthenosphere. It is in solid state.

Question 7.
Write a short note on shield volcanoes.
Answer:
Shield Volcanoes:

- Composition: These volcanoes are mostly made up of basalt, a type of lava that is very fluid when erupted. For this reason, these volcanoes are not steep. They become explosive if somehow water gets into the vent; otherwise, they are characterised by low-explosivity.
- Largest of all: Barring the basalt flows, the shield volcanoes are the largest of all the volcanoes on the earth.
- Examples: The Hawaiian volcanoes are the most famous examples.
- Movement of Lava: The upcoming lava moves in the form of a fountain and throws out the cone at the top of the vent and develops into cinder cone.

Question 8.
What are the effects of earthquake?
Answer:
The following are the immediate hazardous effects of earthquake

- Loss of life and property: Ground shaking takes place in earthquake. It leads to loss of life and property. Many buildings fall off and take life of people who were in and around the building.
- Change in land: Due to earthquake we can see many changes in the land. Many areas get converted into pits. There are cracks in mountains.
- Causes landslides and tsunami: It leads to landslides in mountainous regions and tsunami in oceans. It may further aggravate the calamity and loss of human and property.
- Destruction of means of communication and transportation: It leads to destruction of means of communication and transportation. It creates problem in sending help and relief to victims.
- Other effects: Earthquake may also lead to breaking or damage of dams which mav lead to floods. .

Question 9.
What is earthquake? Discuss focus/ hypocentre and epicentre. How do we measure its magnitude and intensity?
Answer:
An earthquake is shaking of the earth. It's a nature event. It is caused due to release of energy, which generates waves that travel in all directions.

- Focus/Hypocentre: The point where the energy is released is called the focus/ Hypocentre of an earthquake.
- Epicentre: The point on the surface which is nearest to the focus of energy is called epicentre. It is the first one to experience the waves. It is a point directly above the focus.
  Measurement of earthquake:
    - Magnitude: It is measured by Richter Scale
    - Intensity: It is measured by Mercalli Scale.

Question 10.
Differentiate between Body waves and Surface waves?
Answer:
Main differences between body waves and surface waves are given below:

1. Body waves:
    - These are generated due to the release of energy at the focus.
    - They move in all directions travelling through the body of the earth.
    - These are less destructive than the surface waves.
2. Surface waves:
    - The body waves interact with the surface rocks and generate new set of waves called surface waves.
    - These waves move along the surface.
    - These waves are more destruction.

Question 11.
Differentiate between Primary" waves and Secondary" waves

	P-Waves	S-Waves
Other name	These are called primary waves.	These are called secondary waves.
Speed	These move faster and are the first to arrive at the surface.	These arrive at surface with sometime later.
Shadow Zone	The shadow zone of P-wave is much smaller than that of the S-waves.	The shadow zone of S-wave is much larger than that of the P-waves.
Source of travelling	They travel through gaseous, liquid and solid materials.	S-waves can travel only through solid materials.

Class 11 Geography Chapter 3 Long Answer Type Questions

Question 1.
Explain different types of earthquakes.
Answer:
The various types of earthquakes are:-

- Tectonic earthquake: The most common ones are the tectonic earthquakes. These are generated due to sliding of rocks along a fault plane.
- Volcanic earthquake: A special class of tectonic earthquake is sometimes recognised as volcanic earthquake. However, these are confined to areas of active volcanoes.
- Collapse earthquake: In the areas of intense mining activity, sometimes the roofs of underground mines collapse causing minor tremors. These are called collapse earthquakes.
- Explosion earthquake: Ground shaking may also occur due to the explosion of chemical or nuclear devices. Such tremors are called explosion earthquakes.
- Reservoir Induced earthquake: The earthquakes that occur in the areas of large reservoirs are referred to as reservoir induced earthquakes. Sometimes earthquakes also occur in mines due to mining processes. Sometimes earthquakes also occur below the oceans on surface of the ocean causing tsunamis.

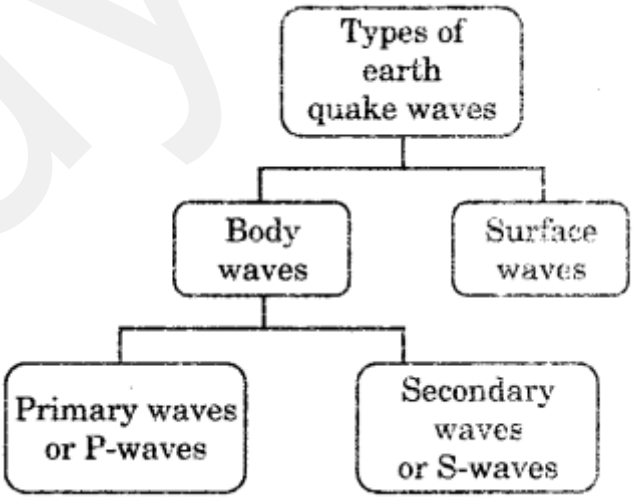
Question 2.
What are different sources of information | about the interior of the earth?
Answer:
Some of the direct sources are:-

- Mining: It is a process by which commercially variable valuable mineral resources are extracted from Earth's surface which includes precious stones, rocks and solid fuels.
- Drilling: Scientists world over are working on two major projects such as "Deep Ocean Drilling projects" and "integrated ocean drilling project". The deepest drill at kola, in Arctic Ocean, has so far reached a depth of 12 km.

- Volcanic Eruptions: When molten material is thrown onto the surface of the earth during volcanic eruption it becomes available for analysis.
  Some of the indirect sources of information: Analysis of properties of matter indirectly provides information about the interior. Knowing the total thickness of the earth, scientists have estimated the values of temperature, pressure and the density of materials at different depths.
    - Meteors that at times reach the earth: However, it may be noted that the material that becomes available for analysis from meteors, is not from the interior of the earth. The material and the structure observed in the meteors are similar to that of the earth. They are solid bodies developed out of materials same as, or similar to, our planet. Hence, this becomes yet another source of information about the interior of the earth.
    - Gravitation: The gravitation force (g) is not the same at different latitudes on the surface. It is greater near the poles and less at the equator. This is because of the distance from the centre at the equator being greater than that at the poles. The gravity values also differ according to the mass of material.
    - Magnetic surveys: Magnetic surveys also provide information about the distribution of magnetic materials in the crustal portion, and thus, provide information about the distribution of materials in this part.

Question 3.
Explain different types of earthquake waves.
Answer:

Earthquake waves are basically of two types body waves and surface waves.



- Body waves: These are generated due to the release of energy at the focus. They move in all directions in all directions travelling through the body of the earth. These are less destructive than the surface waves.
- Surface waves: The body waves interact with the surface rocks and generate new set of waves called surface waves. These waves move along the surface. These waves are more destruction. The surface waves are the last to report on seismograph. These waves are more destructive. They cause displacement of rocks, and hence, the collapse of structures occurs.
  There are two types of body waves. They are called P- and S-waves,
- P-waves: They move faster and are the first to arrive at the surface. These are also called 'primary waves'. The P-waves are similar to sound waves. They travel through gaseous, liquid and solid materials.

- S-Waves: S-waves arrive at the surface with some time lag. These are called secondary waves. An important fact about S-waves is that they can travel only through solid materials. This characteristic of the S-waves is quite important. It has helped scientists to understand the structure of t he interior of the earth. Reflection causes was es to rebound whereas refraction makes waves move in different directions. The variations in the direction of waves are inferred with the help of their record on seismograph.

Question 4.
Explain how does shadow zone emerge. Use a diagram.
Answer:
Earthquake waves get recorded in seismographs located at far off locations. However, there exist some specific areas where the waves are not reported. Such a zone is called the 'shadow zone'. The study of different events reveals that for each earthquake, there exists an altogether different shadow zone.

Seismographs located at any distance within 105° from the epicentre, recorded the arrival of both P and S -waves. However, the seismographs located beyond 145° from epicentre, record the arrival of P-waves but not that of S-waves. Thus, a zone between 105° and 145° from epicentre was identified as the shadow zone for both the types of waves. Figures given below show the shadow zones of P- and S-waves.

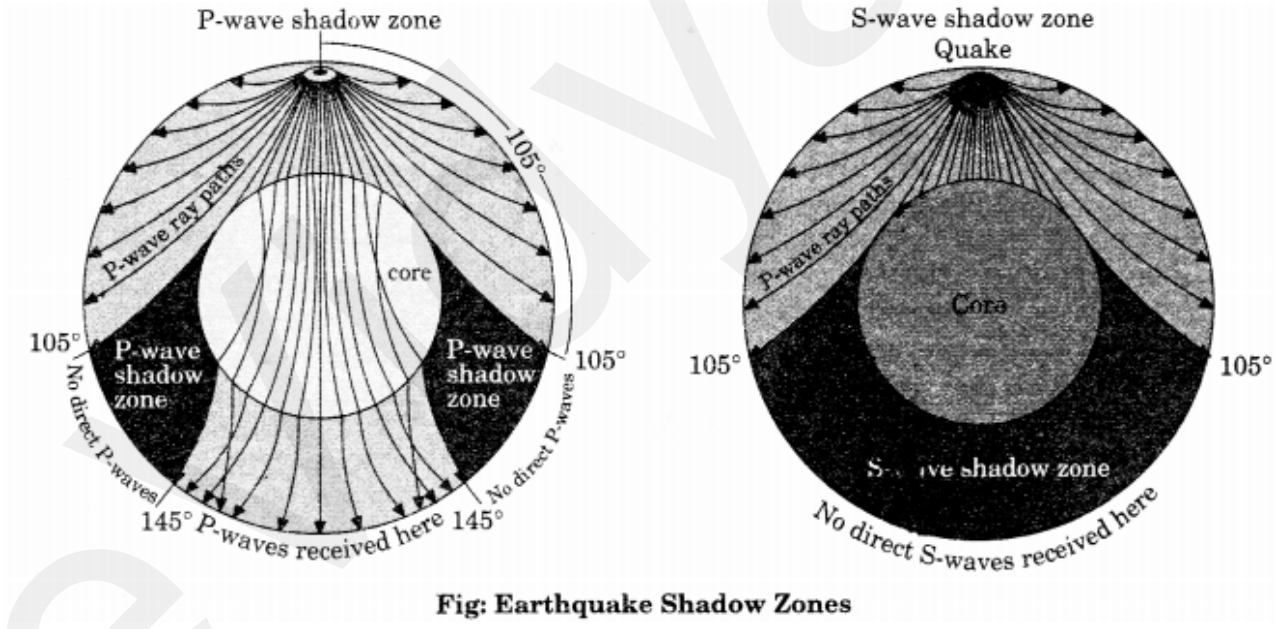


Fig: Earthquake Shadow Zones

Question 5.
Explain the interior structure of the earth.
Answer:
The interior structure f the earth can be classified into three parts:
1. Crust; (ii) Mantle; (iii) Core (i) Crust: It is the outermost solid part of the earth. It is brittle in nature. The thickness of the crust varies under the oceanic and continental areas. Oceanic crust is thinner as compared to the continental crust. The mean thickness of oceanic crust is 5 km w'hereas that of the continental is around 30 km. The continental crust is thicker in the areas of major mountain systems. It is as much as 70 km thick in the

Himalayan region. It is made up of heavier rocks. It is having density of 3 g/cm3. This type of rock found in the oceanic crust is basalt. The mean density of material in oceanic crust is 2.7 g/cm3.

2. Mantle: The portion of the interior beyond the crust is called the mantle. The mantle extends from Moho's discontinuity to a depth of 2,900 km. The upper portion of the mantle is called asthenosphere. The word astheno means weak. It is considered to be extending upto 400 km. It is the main source of magma that finds its way to the surface during volcanic eruptions. It has a density higher than the crust's (3.4 g/ cm3). The crust and the uppermost part of the mantle are called lithosphere. Its thickness ranges from 10-200 km. The lower mantle extends beyond the asthenosphere. It is in solid state.

3. Core: The earthquake wave velocities helped in understanding the existence of the core of the earth. The core- mantle boundary is located at the depth of 2,900 km. The outer core is in liquid state while the inner core is in solid state. The density of material at the mantle core boundary is around 5 g/cm3 and at the centre of the earth at 6,300 km, the density value is around 13g/cm3. The core is made up of very heavy material mostly constituted by nickel and iron. It is sometimes also called the nife layer.

Question 6.
In how many groups are volcanoes classified on the basis of nature of eruption and the form developed at the surface? Explain.
Answer:
Volcanoes are classified on the basis of nature of eruption and the form developed at the surface into following types:

1. Shield Volcanoes: These volcanoes are mostly made up of basalt, a type of lava that is very fluid when erupted. For this reason, these volcanoes are not steep. They become explosive if somehow water gets into the vent; otherwise, they are characterised by low-explosivity. Barring the basalt flows, the shield volcanoes are the largest of all the volcanoes on the earth. The Hawaiian volcanoes are the most famous examples. The upcoming lava moves in the form of a fountain and throws out the cone at the top of the vent and develops into cinder cone.

2. Composite Volcanoes: These volcanoes are characterised by eruptions of cooler and more viscous lavas than basalt. These volcanoes often result in explosive eruptions. Along with lava, large quantities of pyroclastic material and ashes find their way to the ground. This material accumulates in the vicinity of the vent openings leading to formation of layers, and this makes the mounts appear as composite volcanoes.

3. Calderas: These are the most explosive of the earth's volcanoes. They are usually so explosive that when they erupt they tend to collapse on themselves rather than building any tall structure. The collapsed depressions are called calderas. Their explosiveness indicates that the magma chamber supplying the lava is not only huge but is also in close vicinity. The hills produced by them are similar to the one made by composite volcanoes.

4. Basalt Flood Provinces: These volcanoes outpour highly fluid lava that flows for long distances. Some parts of the world are cohered by thousands of sq. km of thick basalt lava flows. There can be a series of flows with some flows attaining thickness of more than 50 m. Individual flows may extend for hundreds of km. The Deccan Traps from India, presently covering most of the Maharashtra plateau, are a much larger flood basalt province. It is believed that initially the trap formations covered a much larger area than the present.

5. Mid-Ocean Ridge Volcanoes: These volcanoes occur in the oceanic areas. There is a system of mid-ocean ridges more than 70,000 km long that stretches through all the ocean basins. The central portion of this ridge experiences frequent eruptions.

Class 11 Geography Chapter 3 Hots Questions

Question 1.
How does shadow zone emerge?
Answer:
The P-wave slows down (the rigidity G is 0.0) and the wave is deflected towards the centre of the Earth. From 105° to 140° from the epicentre no P-waves are recorded. This creates a belt from 105° to 140° around the Earth called the P-Wave Shadow Zone.

Although it is not illustrated think what would happen to an S-wave that just entered the outer liquid core. S-waves cannot travel through a liquid so from 105° to 105° degrees on either side of the epicentre no S-waves are recorded. This is the S-Wave Shadow Zone.

Question 2.
How will you locate epicentre of an earthquake?
Answer:
Check the scale on your map. It should look something like a piece of a ruler. All maps are different. On your map, one centimetre could be equal to 100 kilometres or something like that. Figure out how long the distance to the epicentre (in centimetres) is on your map. For example, say your map has a scale where one centimetre is equal to 100 kilometers. If the epicentre of the earthquake is 215 kilometers away, that equals 2.15 centimetres on the map. Using your compass, draw a circle with a radius equal to the number you came up within the centre of the circle will be the location of your seismograph. The epicentre of the earthquake is somewhere on the edge of that circle.