GEOGRAPHY

1 LITHOSPHERE – I ENDOGENETIC PROCESSES

I. CHOOSE THE CORRECT ANSWER.

1. ..... is the rigid outer layer of the Earth.
   a) Core b) Mantle c) Crust d) Inner core **Ans: c)**

2. ..... layer is made up of liquid iron.
   a) Inner core b) Outer core c) Mantle d) Crust **Ans: b)**

3. Magma is found in the .....
   a) crust b) mantle c) Core d) None of the above **Ans: b)**

4. Diastrophism is connected to .....
   a) Volcanism b) Earthquakes c) Tectonics d) Fold/Fault **Ans: c)**

5. The movement of tectonic plates is induced by ..... energy.
   a) Hydel b) Thermal c) Wave d) Tidal **Ans: b)**

6. In the ancient period, Gondwana land moved towards ..... direction.
   a) North b) South c) East d) West **Ans: a)**

7. Many million years ago , India was a part of the super continent .....
   a) Gondwana b) Laurasia c) Panthalasa d) Pangea **Ans: a)**

8. The movement of plates that creates stress and tension in the rocks causing them to stretch and cracks result in .....
   a) Fold b) Fault c) Mountain d) Earthquake **Ans: b)**

9. ..... refers to a bowl-shaped depression found at the top of the volcano.
   a) Crater b) Vent c) Chamber d) Volcanic cone **Ans: a)**

10. The point of origin of an Earthquake is called the .....
    a) Epicentre b) Focus c) Seismic wave d) Magnitude **Ans: b)**

ADDITIONAL

11. The structure of the Earth's interior is divided into ..... Layers.
    a) Two b) Three c) Four d) Five **Ans: b)**

12. The interior part beneath the crust is called .....
    a) Core b) Lava c) Mantle d) Rock **Ans: c)**

13. The word 'igneous' is deried from the Lating word Ignis meaning .....
a) Wind b) Water c) Fire d) Land **Ans: c)**

14. The instrument which records the earthquake waves is called .....
a) Seismometer b) Windwane c) Lactometer d) Radiometer **Ans: a)**

15. The ..... is the most seismically and volcanically active zone in the world.
a) Mid Oceanic Ridges b) Mid Continental belts
c) Pacific Ring of Fire d) Atlantic Ring **Ans: c)**

16. The term 'Volcano' is derived from the ..... term 'VULCAN'.
a) Greek b) Sanksrit c) Japanese d) Latin **Ans: d)**

17. The world 'Tsunami' is a Japanese term meaning .....
a) Harbor waves b) Cyclone c) Thunder d) Lightning **Ans: a)**

18. The science that deals with Earthquakes is called .....
a) Pathology b) Geology c) Seismology d) Archaeology **Ans: c)**

19. ..... waves are the fastest of all the Earthquake waves and the first to reach the epicenter.
a) Surface b) Secondary c) Primary d) Thunder **Ans: c)**

20. Igneous rocks are also called Primary or ..... rocks.
a) Parental b) Mother c) Major d) Founder **Ans: b)**

21. The ..... is the layer of Earth where life exists.
a) Lithosphere b) Biosphere c) Hydrosphere d) Atmosphere **Ans: b)**

II. MATCH THE FOLLOWING.

1.	Endogenetic process	-	a)	Seismograph
2.	Mantle	-	b)	Subduction Zone
3.	Convergent boundaries	-	c)	Volcanic Eruption
4.	Earthquake	-	d)	Pacific Ocean
5.	Composite volcano	-	e)	SIMA

Ans: 1-c 2-e 3-b 4-a 5-d

ADDITIONAL

6.	Earthquakes	-	a)	Mother rocks
7.	Richter scale	-	b)	Seismic waves
8.	Himalayas	-	c)	Store house of rocks
9.	Igneous rocks	-	d)	Fold mountain
10.	Crust	-	e)	Magnitude of Earthquakes

Ans: 1-b 2-e 3-d 4-a 5-c

III. CONSIDER THE GIVEN STATEMENTS.

1. i) Mt. Fuji is a dormant volcano. (T)
   ii) Mt. Kilimanjaro is a dormant volcano. (F)

iii) Mt. Tanzania is a dormant volcano. (F)
Which of the statement(s) is are true?

a) i is true b) ii is true c) iii is true d) i, ii, iii are true **Ans: a)**

2. Statement : Magma gushes out when it finds vents.
Reason : Interior of the Earth contains compressed hot magma
Which of the statement(s) is are true?

a) Statements & reason are true b) Statements is true, reason is false
c) Statement is false reason is true d) Statement & reason are false **Ans: a)**

3. Statement I : Mountain ranges are formed by the collision of tectonic plates.
Statement II : The movement of tectonic plates is due to the thermal energy from the mantle.

a) Statement I is false II is true b) Statement I and II are false
c) Statement I is true II is false d) Statement I and II are true **Ans: d)**

ADDITIONAL

4. i) The term 'volcano' is derived from the French term "VULCAN'. (F)
ii) Volcanoes are classified into two types. (F)
iii) Mt St. Helens in the USA is an example of active volcano. (T)
Which of the statement(s) is are true

a) i is true b) ii is true
c) iii is true d) i, ii, iii are true **Ans: c)**

5. Statement : The volcano in Mauna Loa, Hawaii is an example of dead volcano.
Reason : The volcano that permanently stops its volcanic activity is called as extinct or dead volcano.

a) Statements & reason are true b) Statements is true, reason is false
c) Statement is false and reason is true d) Statement & reason are false **Ans: c)**

6. Statement I : Crust is the inner most layer of the Earth.
Statement II : It is the skin of out Earth where we live.

a) Statement I is false II is true b) Statement I and II are false
c) Statement I is true II is false d) Statement I and II are true **Ans: a)**

7. Statement I : Mantal is also termed as SIMA.
Statement II : It contains the major elements Silica(si) and Magnesium(Mg).

a) Statement I is false II is true b) Statement I and II are false
c) Statement I is true II is false d) Statement I and II are true **Ans: d)**

IV. ANSWER IN BRIEF.

1. Write a brief note on the various spheres of the Earth.

The Earth surface is a vast area which contains four spheres. They are-

Lithosphere - It is the solid outer part of the Earth.

Atmosphere - It is a thin layer of gases that surrounds the Earth.

Hydrosphere - It is the watery part of the Earth's surface.
Biosphere - This is the layer of the Earth where life exists.

2. Mention the layers of the interior of the Earth.

The structure of the Earth's interior is divided into three layers namely the crust, the mantle and the core.

Crust - Crust is the outer layer of the Earth. It is also known as the 'Skin of our Earth'. It is the solid and rigid layer.

Mantle - The interior part beneath the curst is called Mandle. The major elements of the Mantle are Silica (si) and Magnesium (Mg). So, this layer is also known SIMA.

Core - The Core is the innermost and hottest layer of the Earth. It is composed mainly of Nickel (Ni) and Iron(Fe). So, This layer is called as NIFE.

3. Define : Plate tectonics.

- Tectonic plates are huge slabs of rocks which float independently over the mantle.
- Collisions of these plates produce mountain ranges and other irregular surface features both on land and ocean floor.
- This phenomenon is called 'Plate tectonics.

4. What is Tsunami?

- The word 'Tsunami' is a Japanese term meaning harbor waves.
- It is adopted to describe large seismically generated sea waves caused by Earthquakes and landslides.
- These waves travel at a great speed (more than 500 km per hour) and the length of 600 km.
- These waves reach to a height of more than 15 m near the sea shore.
- The waves are capable of causing destruction along the coastal areas.

5. What is a Volcano? Mention its major components.

A volcano is a vent an opening on the surface of the Earth crust through which hot solid, liquid and gaseous materials (magma) erupt out to the surface from the Earth's interior.

Its major components are-

- Magma chamber
- Volcanic cone
- Vents
- Creater

6. What is an Earthquake and how it occurs?

A sudden movement of the earth's crust caused by the release of stress accumulated along geologic faults or by volcanic activity is known as Earthquake.

It occurs mainly because of-

- The sudden vibration in the Earth's crust which spreads outward in all the direction as waves from the source of disturbance.
- The time when rocks underneath the Earth surface push over each other or pull apart from one another.
- The time when the tectonic plates colliding with each other.

7. What are seismic waves and mention its types?

The Seismic waves are generated by the earthquakes. The nature, force and speed of these seismic waves depend on the nature of the medium through which it passes. Its types are –

- Primary waves or P-waves.
- Secondary waves or S-waves and
- Surface waves or L-waves.

8. Write about the Pacific Ring of fire.

- The Pacific Ring of Fire or Ring of Fire is an area where a large number of earthquakes and volcanic eruptions occur in the basin of the Pacific Ocean.
- The Ring of Fire contains more than 450 volcanoes and is home to over 75 percent of the world's active and dormant volcanoes.
- Approximately 90 percent of the world's earthquakes and 81 percent of the world's largest earthquakes happen along the Ring of Fire.

ADDITIONAL

9. What are Composite Volcanoes?

- Volcanoes built by many layers of hardened lava, pumice and volcanic ash are called as Composite Volcanoes.
- These are conical in shape and also known as Strata Volcanoes.
- These volcanoes are commonly found in the Pacific Ocean.
- Example: Mt. Fuji in Japan.

10. Write a few lines about Richter scale.

- C.F.Richter devised a scale to measure the magnitude the Earthquakes is called Richter scale.
- This scale relates to the energy released at the epicenter and provides an estimation of the severity of an earthquake.
- It is an open ended scale.

11. What is called Endogenetic processes?

The forces that act from the Earth's interior towards the Earth's surface are called Internal processes or Endogenetic processes. These forces build the landscape and create topographic relief.

12. What are metamorphic rocks?

- The term 'metamorphic' is derived from the word 'metamorphosis' which means 'change of form.
- When igneous or sedimentary rocks are subjected to extreme heat and pressure, they undergo a complete change in their form and character. Such types of rock are called as metamorphic rocks.
- For example, granite may get transformed to gneiss, limestone to marble and sandstone to quartzite.

13. What are rocks? Mention its types?

An aggregate of minerals on the Earth's crust is called 'rock'. It may be hard and compact like 'granite' or solid as 'clay' or loose as 'sand'. The crust of the Earth is a storehouse of rocks.

Based on formation, rocks are classified as –

- Igneous rocks,
- Sedimentary rocks and
- Metamorphic rocks.

14. Write a note on Sedimentary rocks.

- Sedimentary rocks are named after the Latin word 'sediment' meaning settle.
- Rivers, glaciers and winds carry bits of rock and soil and deposit them in layers.
- After a few million years, these deposits harden into compact rocks and are called Sedimentary rocks.
- Sandstone, limestone, chalk, gypsum and coal are examples of sedimentary rocks.

15. Write a note on Fold and Fault?

- Tectonic plates float independently over the mantle. Due to the lateral compressional forces, they are forced to move upwards and downwards. At that time, the sedimentary beds become bent or curved. This is called Fold.
- The movement of plates creates stress and tension in the rocks, causing them to stretch and crack. This is called 'Fault'.

V. GIVE REASONS FOR THE FOLLOWING.

1. SIAL floats over SIMA.

- Crust is the outer layer of the Earth. It is the skin of our Earth. The major elements of crust are Silica (Si) and Aluminum (Ai) and thus, it is termed as SIAL.
- The interior part beneath the crust is called Mandle. The major elements of the mantle are Silica (Si) and Magnesium (Mg).
- So, we say SIAL floats over SIMA.

2. Igneous rocks are also called Primary Rocks or Mother rocks.

- The interior of the Earth contains very hot molten material called 'Magma'.
- When the magma reaches the Earth's surface, it is referred to as 'Lava'.
- The lava on the surface cools down and gets solidified as rocks called igneous rocks.
- All other rocks are directly or indirectly formed from igneous rocks.
- So Igneous rocks are called Primary rocks or Mother rocks.

ADDITIONAL

4. Earth's core is also called as 'NIFE'.

- The core is the innermost and hottest layer of the Earth. It lies below the mantle.
- Core is mainly composed of Nickel (Ni) and Iron (Fe).
- So the Core is also called as NIFE.

5. The interior part of the crust is also called as SIMA.

- The interior part beneath the crust is called mantle.
- The major elements of the mantle are Silica (Si) and Magnesium (Mg).
- Hence, it is also called as SIMA.

VI. Distinguish between:

1. Core and crust.

S.No.	Core	Crust
1.	Core is the innermost lay of the Earth.	It is the outer layer of the Earth.
2.	It lies below the mantle.	It lies above the layer – mantle.
3.	It is termed as NIFE.	It is known as SIAL.
4.	It is mainly composed of Nickel and Iron.	The major elements of crust are Silica and Aluminium.

2. Epi centre and Hypo centre:

S.No.	Epicentre	Hypocentre
1.	It is a point on the Earth's surface that lies directly above the Hypocentre.	The point of origin of an Earthquake is called Hypocentre (Focus).
2.	The impact of the Earthquake is felt the most at the epicenter.	It generates a series of elastic waves.

3. Divergent and convergent boundaries:

S.No.	Divergent boundary	Convergent boundary
1.	Here, the plates pull away from each other..	Here, the plate moves towards each other.
2.	Magma pushes up from the mantle	Sometimes, a plate sinks under another

4. Primary waves and Secondary waves.

S.No.	Primary waves	Secondary waves
1.	These waves are the fastest of all the earthquake waves.	These waves are not fast compared to P-Waves.
2.	These waves pass through solids, liquids and gases.	These waves pass or travel only through solids.

5. Shield volcano and volcanic Dome.

S.No.	Shield volcano	Volcanic Dome
1.	Shield volcanoes are formed by intense viscous lava.	Volcanic dome is formed due to the slow ejection of viscous lava from a volcano.
2.	Volcano at Mauna Loa, Hawaii is an example for shield volcano.	Lava dome at Paricutin, Mexico is an example for Volcanic dome.

ADDITIONAL

6. Crust and Mantle.

S.No.	Crust	Mantel
1.	It is the outer layer of the Earth.	It is the interior parts and also beneath the crust.
2.	It lies above the layer – Mantle.	It lies above the layer – Core.
3.	It is known as SIAL.	This layer is known as SIMA.
4.	The major elements of crust are Silica and Aluminium.	The major elements of Mantel are Silica (Si) and Magnesium (Mg).

VII. WRITE ANSWERS IN A PARAGRAPH.

1. Describe the structure of the Earth.

The Crust:

- Crust is the outer layer of the Earth.
- It is also known as the skin of our Earth
- It is the slid and rigid layer of the Earth which is between 5 and 30 km.
- The crust is classified as Continental crust and Oceanic crust.
- The major elements of crust are Silica (Si) and Aluminium (Al). Thus, it is termed as SIAL.

The Mantle:

- The interior part beneath the Crust is called Mantel which is about 2900 km thick.
- The major elements of the mantle are Silica (Si) and Magnesium (Mg). Hence, it is also termed as SIMA.
- In the upper part of the mantle, the rock remains solid. In the lower part of mantle, rocks are in molten form.
- This molten rock inside the Earth is called 'Magma'.

The Core:

- The core is the innermost and hottest layer of the Earth.
- It is composed mainly of Nickel (Ni) and Iron (Fe). Hence, it is called NIFE.

- The core divided into Solid inner core and Liquid outer core.
- The presence of large quantities of iron in the core is responsible for the Earth's gravitational force.

2. Write a note on the internal and external processes of Earth.

The formation and deformation of landforms on the surface of the Earth is a continuous activity of two broad processes. These processes are referred as Geomorphic Processes. The two processes are: Internal processes, External processes.

Internal processes:

The forces that act from the Earth's interior towards the surface of the Earth are called Internal Processes or Endogenetic Processes. These forces build the landscape and create topographic relief.

External processes:

The forces that act on the surface of the Earth due to natural agents like running water, glacier, wind, waves etc., are called External Processes or Exogenetic Processes. These external processes tear the landscape down into relatively low elevated plains.

3. How are volcanoes classified based on the periodicity of their eruptions?

Volcanoes are classified into three based on the periodicity of eruptions. They are-

- Active Volcano
- Dormant Volcano and
- Extinct volcano.

Active Volcano:

- Active volcanoes are those which constantly eject volcanic lava, gases and fragmented materials.
- Volcano at Mount St. Helens in the USA is an example for Active Volcano.

Dormant Volcano:

- Volcanoes that do not show any sign of volcanic activity for a long period of time are known as dormant volcanoes.
- Sometimes, there may be a sudden explosion which may cause unimaginable loss to life and property.
- Example – Mt. Fuji in Japan.

Extinct Volcano:

- A volcano which stopped permanently its volcanic activity is known as Extinct Volcano.
- It is also called as Dead Volcano.

  Example: Mt Kilimanjaro, Tanzania and Tiruvannamalai, Tamil Nadu.

4. Explain the effects of Volcanoes.

The effects of volcanoes can be divided into Constructive effects and Destructive effects of volcano are given below.

Constructive effects:

- Volcanic materials enrich the soil fertility that promotes agricultural activities.
- The hot volcanic region helps in generating geothermal energy.
- Many active and dormant volcanoes are the most attractive tourist spots of the world.
- Most of the volcanic materials are used as building materials.

Destructive effects:

- Volcanic eruption causes Earthquakes, fast floods, mud slide and rock fall.
- Lava can travel very far and burn, bury or damage anything in its path.
- The large amount of dust and ash makes breaking hard and irritable.
- Volcanic eruptions can alter the weather conditions.
- It disrupts transport in and around the volcanic region.

ADDITIONAL

5. Explain the Seismic waves.

Earthquakes generate seismic waves. The nature, force and speed of these seismic waves depend on the nature of the medium through which it passes. Accordingly they are three major types of waves. They are: Primary or P-waves, Secondary or S-waves and Surface wave or L-waves.

Primary Waves or P-Waves:

- Primary waves or P-waves are the fastest of all the Earthquake waves and the first to reach the epicenter.
- These waves pass through solids, liquids and gases either through push or pull.
- The average velocity is 5.3 km per second to 10.6 km per second

Secondary Waves or S-Waves:

- Secondary waves or S-waves travel only through solids.
- These waves shake the ground perpendicular to the direction in which they propagate.
- The average velocity of these waves is 1 km per second to k km per second.

Surface Waves or L-Waves:

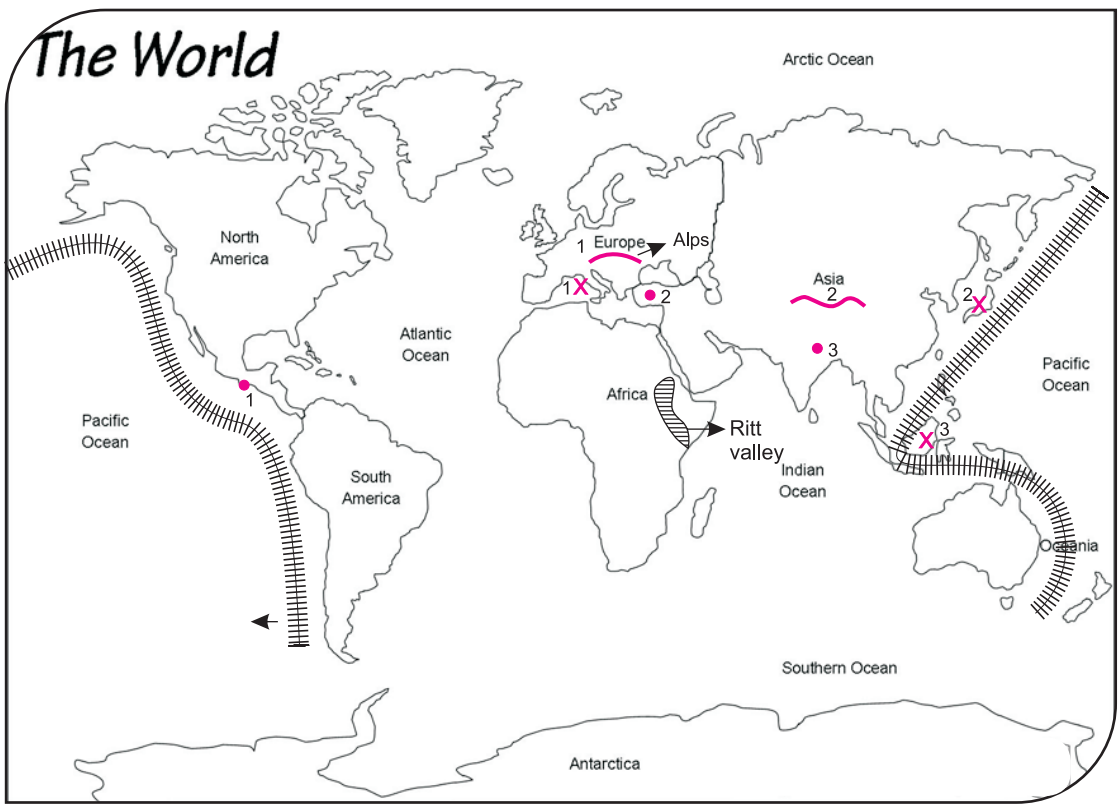
- Surface waves are similar to P-waves but they travel primarily along the ground surface.
- These waves travel comparatively slower and are the most destructive waves.
- The average velocity of these waves is 1 km per second to 5 km per second.

VIII. MAP SKILL:

1. On the given outline map of the world, mark the following:

a. Pacific Ring of fire
b. Earthquake prone zones (any two)
c. Locate any two active volcanoes of the world.
d. Himalayas and Alps ranges
e. Rift valley of East Africa.

Outline map of the world



Pacific Ring of fire

Earth quake prone zone - 1. Mexico 2. Turkey 3. Nepal

X Active Volcanoes - 1. Italy 2. Japan 3. Philippines

1 Alps, 2. Himalayas

Rift Valley

IX. HIGHER ORDER THINKING QUESTIONS (HOTS).

1. Consider the various sources of information related to the Earth's Interior. Classify the above as DIRECT & INDIRECT sources of information. Give reasons-

i) Seismic activity ii) Earth 'smagnetism iii) Volcanoes
iv) Mined rocks v) Gravitational force vi) Meteors

iii) Volcanoes and iv) mined rocks are Direct Source of Information.

Mining, drilling and volcanic eruption are the example of Direct source of information. During the process of mining and drilling, rocks and minerals are extracted which gives information that there are layer system in the crust. Crust is made of many kings of rocks and minerals. Volcanic eruption suggests that there is some zone inside the earth which is very hot and in liquid condition.

i) Seismic activity, ii) Earth's magnetism, v) Gravitation force and vi) Meteors are Indirect Source of Information.

Seismic activity, Gravitation force, Magnetism field, falling of meteors, etc., are example of indirect source. They are very important to know about the Earth's interior. These sources suggest that there are three layers in the Earth each layer has different density. Density increases towards the centre of the Earth.

2. Scientists use GPS to measure the rate of Tectonic Plate movements. Discuss.

(Self Activity)

X. LIFE SKILLS.

1. Imagine that you feel tremors or shocks in your locality. What will be your role in saving lives from destruction? List out the Do's and Don'ts.

Do's	Don'ts
Do stay indoors and wait for the shaking to stop.	Don't turn on the gas in your kitchen; there might be leakages.
Do move to a nearby safe place or take cover under a table or desk.	Don't light a match until you are certain there are no gas leakages.
Do hold on to a piece of heavy furniture for support.	Don't stop your car under or over bridges, overpasses or underpasses, if you happen to be driving.
Do stand against an inside wall.	Don't go near windows and doors
Do find a safe spot away from power lines and building if you are outdoors.	Don't take an elevato.r
Do slow down your car and drive to a safe place nearby and then turn off ignition.	