GEOGRAPHY

2 LITHOSPHERE - II EXOGENETIC PROCESSES

I. CHOOSE THE CORRECT ANSWER.

1. The disintegration or decomposition of rocks is generally called as
a) Weathering b) Erosion c) Transportation d) Deposition **Ans: a)**

2. The process of the levelling up of land by means of natural agents.
a) Aggradation b) Degradation c) Gradation d) none **Ans: c)**

3. ..... is seen in the lower course of the river.
a) Rapids b) Alluvial fan c) Delta d) Gorges **Ans: c)**

4. Karst topography is formed due to the action of .....
a) Glacier b) Wind c) Sea waves d) Ground water **Ans: d)**

5. Which one of the following is not a depositional feature of a glacier?
a) cirque b) Moraine c) Drumlins d) Eskers **Ans: a)**

6. Deposits of fine silt blown by wind is called as .....
a) Loess b) Barchans c) Hamada d) Ripples **Ans: a)**

7. Stacks are formed by .....
a) Wave erosion b) River erosion c) Glacial erosion d) Wind deposition **Ans. a)**

8. ..... erosion is responsible for the formation of cirque.
a) wind b) glacial c) river d) underground water **Ans: b)**

9. Which one of the following is a second order land form?
a) Asia b) Deccan Plateau c) Kulu Valley d) Marina Beach **Ans: b)**

ADDITIONAL

10. ..... results in the weakening of rocks.
a) Hydration b) Oxidation c) Canyons d) Weathering **Ans: b)**

11. Building up of landforms due to natural agents is known as .....
a) Mountains b) Degradation c) Aggradation d) Deposition **Ans: c)**

12. Erosion is the most dominant action of river in the ..... course.
a) End b) Lower c) Middle d) Upper **Ans: d)**

13. The highest waterfalls in the world is ..... in Venezuela.
a) Los Angles b) Niagara c) Angel d) Silver **Ans: c)**

14. Lake Kanwar in ..... (India) is Asia's largest fresh water ox bow lake.
a) Kashmir b) Kerala c) Punjab d) Bihar **Ans: d)**

15. A triangular shaped low lying area formed by the river at its mouth is called .....
a) Delta b) Estuary c) Flood plain d) Alluvial Fan **Ans: a)**

16. The redness of the soil is due to the presence of ..... oxide.
a) Copper b) Silicon c) Iron oxide d) Nickel **Ans: c)**

17. In India, the mushroom rocks are found near Jodhpur in .....
a) Gujarat b) Punjab c) Assam d) Rajasthan **Ans: d)**

18. ..... are isolated crescent shaped sand dunes.
a) Loess b) Barchan c) Transverse dunes d) Longitudinal dunes **Ans: b)**

19. Formation of ..... are the most dominant and constructive work of the sea.
a) Waves b) Sea cliffs c) Sea cave d) Beach **Ans: d)**

20. Soil is the top covering of the Earth's surface formed by .....
a) Erosion b) Weathering c) Degradation d) Landslides **Ans: b)**

II. MATCH THE FOLLOWING.

1.	Distributaries	–	a)	Glacial action
2.	Mushroom rock	–	b)	Action of sea wave
3.	Eskers	–	c)	Lower course of river
4.	Stalactites	–	d)	Aeolian process
5.	Cliff	–	e)	Karst topography

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

ADDITIONAL

6.	Terminus	-	a)	Beach
7.	Spit	-	b)	Glacier
8.	Sand dunes	-	c)	Embankment of sediment
9.	River of ice	-	d)	End of glacier
10.	Juhu in Mumbai	-	e)	Mounds or hills of sand

Ans: 6-d 7-c 8-e 9-b 10-a

11.	V – shaped valley	-	a)	Erosional land form of glacier
12.	Sea Arch	-	b)	Depositional land form of glacier
13.	Matterhorn	-	c)	Erosional land form of river
14.	Yardang	-	d)	Erosional land form of wind
15.	Barchan	-	e)	Erosional land form of waves

Ans: 11-c 12-e 13-a 14-b 15-d

III. CONSIDER THE GIVEN STATEMENTS AND CHOOSE THE RIGHT OPTION GIVEN BELOW.

1. i) 'I' Shaped valley is an erosional feature of the river. (T)
   ii) 'U' Shaped valley is an erosional feature of the glacier. (T)
   iii) 'V' Shaped valley is an erosional feature of the glacier. (F)
   a) i, ii & iii are right
   b) i & ii are right
   c) i & iii are right
   d) only I is right
   Ans: b)

2. Statement I : Running water is an important agent of gradation.
   Statement II : The work of the river depends on the slop of land on which if flows.
   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)

3. Statement : Limestone regions have less underground water.
   Reason : Water does not percolate through limestone.
   a) The statement is right reason is wrong.
   b) The statement is wrong Reason is right.
   c) The statement and reason are wrong.
   d) The statement and reason are right.
   Ans: b)

ADDITIONAL

4. Statement I : Transverse dunes are asymmetrical in shape.
   Statement II : They have gentle slopes on the windward side and steep slopes on the leeward side.
   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: c)

5. Statement I : A triangular shaped low lying area formed by the river at its mouth is called delta.
   Statement II : Deltas have fine deposits of sediments enriched with minerals.
   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)

6. Statement : Erosion is the most dominant action of river in the upper course.
   Reason : Rivers usually tumbles down the steep mountain slopes. The steep gradient increases the velocity and the river channel performs erosion with great force in the upper course of the river.
   a) The statement is right reason is wrong.
   b) The statement is wrong Reason is right.
   c) The statement and reason are wrong.
   d) The statement and reason are right.
   Ans: d)

IV. ANSWER IN BRIEF.

1. Define weathering.

- Weathering is the breaking disintegration and decomposition of materials of the Earth's crust by their exposure to atmosphere.
- Weathering is affected and controlled by the factors such as temperature, rock structure, land slope and vegetation.

2. What do you mean by biological weathering?

- Weathering is the disintegration and decomposition of materials of the Earth's crust by their exposure to atmosphere.
- Biological weathering occurs due to the penetration and expansion of plant roots, earthworms, burrowing animals (rabbits, rats, etc.,) and some human activities.

3. Mention the three courses of a river with any two land forms associated to each course.

The three courses of a river with any two land forms associated to each course are-

S.No.	Courses of a river	Land forms
1.	Upper course	V Shaped Valleys and Waterfalls
2.	Middle course	Alluvial fans and Ox-bow lakes
3.	Lower course	Delta and Estuary

4. What are ox-bow lakes?

- The rivers loaded with debris flows slowly and forms sweeping loops and bends. It is referred to as meanders.
- Meanders in due course of time become almost a complete circle with narrow necks. This in turn gets abandoned and forms a lake. This is called as Ox-bow Lake.

5. How does a cave differ from a sea arch?

- Caves are hollows that are formed by the dissolution of limestone rocks when carbon di oxide in air turns into carbonic acid after its reaction with water.
- But, two caves approach one another from either side of a headland and unite, they form an Arch.

6. List out any four karst topographical areas found in India.

Karst topographical areas found in India are-

- Guptadham caves in Western Bihar.
- Tapkeshwar temple in Uttarakhand.
- Pandav caves at Pachamri in Madhya Pradesh and
- Borra caves of Visakhapatnam in Andhra Pradesh.

7. What do you mean by a hanging valley?

- A valley is a low area between hills or mountains often with a river running through it.
- There valleys are eroded by tributary glacier and that hangs over the main valley.

8. Define: a) Moraine b) Drumlin c) Esker.

Moraine : Landforms formed by the glacial deposits of valley or continental glaciers are termed as Moraines.

Drumlin : The deposits of glacial moraines that resemble giant inverted teaspoons or half cut eggs are known as Drumlins.

Esker : Long narrow ridges composed of boulders gravel and sand deposited by steams of melting water which run parallel to a glacier are called eskers.

9. Mention the various features formed by wind erosion.

- The air that blows horizontally at or near the Earth's surface is called wind.
- The erosional, transportational and despositional action of wind is predominant in arid regions.
- Some of the erosional landforms of wind are Mushroom rocks, Inselbergs and Yardangs.

10. What are wave cut platforms?

- Flat surface found at the foot of sea cliffs are called as Wave cut platforms.
- Wave cut platform is also referred as beach, shelf, terrace and plain

ADDITIONAL

11. What are the two processes that control the structure of the Earth's surface?

- The continuous interaction of internal and external processes control the structure of the Earth's surface.
- The external processes are the consequence of solar energy and gravitational forces. The internal processes are an outcome of the Earth's internal heat.

12. Define : Exfoliation.

- The alternate heating and cooling on rounded rock surfaces leads to the peeling of rocks, layer by layer like an onion. This is called Exfoliation.
- Sheeting and Shattering are the other forms of Exfoliation.

14. Write a note Carbonation.

- Carbonation is the mixing of water with the atmospheric carbon dioxide, forming carbonic acid.
- Carbonation is important in the formation of caves in limestone region.
- When the carbonic acid reacts with the carbonate rocks, the rocks get disintegrated.

15. What is a river? What are its primary functions?

Running water for few kilometres is known as river. Its primary functions are erosion, transportation and Deposition.

16. Where do the rivers originate?

- The rivers originate on higher landforms like mountains, hills and plateaus that receive water from various sources like the rain, glaciers, spring, lakes, etc.
- The place where the river originates is called its Source and where it joins the sea is known as its mouth.

13. What is Block disintegration?

Repeated expansion and contraction of rocks during day and night respectively causes stress on the joints of the rocks which results in Block disintegration.

14. Differentiate : Tributary and Distributary.

- Tributary is a small stream that joins the main river. For example, River Bhavani.
- Dsitributary is a river channel that gets separated from the major river. For example, Kollidam.

V. GIVE REASONS.

1. Chemical weathering is predominant in hot and humid zones.

The agents of chemical weathering are oxygen, carbon dioxide and hydrogen. These gases are plenty in hot and humid regions. So Chemical weathering is predominant in hot and humid zones.

2. Silt deposits are less at estuaries than deltas.

Deposition of silt by the river is not possible at estuaries because the waves keep on eroding the deposits. At the same time, Deltas have more fine deposits of sediments enriched with minerals.

3. The snow line is at the sea level in Polar Regions.

The height above which there is a permanent snow cover in the higher altitude or latitude is called snowline.

Higher the latitude, lower the snowline from the sea level. So the snow line is lower at the sea level in Polar Regions.

4. Wind can possibly erode the rocks from all sides.

- The air that blows horizontally at or near the Earth's surface is called Wind.
- The erosional, transportational and despositional action of wind is predominant in arid regions. This is called as Aeolian process.
- The Aeolian processes erode the rocks from all sides.

5. In limestone regions, surface drainage is rarely found.

- Water that percolates through the pores and fissures of rock gets collected beneath and earth's surface.
- The lime stones which are deposited under toper later of earth observes water. So in the lime stone regions, surface drainage is rarely found.

ADDITIONAL

6. Estuary is formed where the rivers meets the sea.

Deposition of silt by the river is not possible in this area like delta. In Estuary, the sea waves keep on eroding the deposits. Example – River Narmada and Tapti.

7. Sand dunes are formed mostly in deserts.

In deserts, during sandstorms, wind carries loads of sand. When the speed of wind decreases, huge amount sand gets deposited like mounds of soil. Only the desert region, we can find a huge amount of soil. So, sand dunes are formed mostly in deserts.

VI. DISTINGUISH BETWEEN:

1. Physical and Chemical Weathering.

S.No.	Physical weathering	Chemical weathering
1.	It is the breakdown of rocks without changing their chemical composition through the action of physical forces.	Disintegration and decomposition of rocks due to chemical reactions is called Chemical weathering.
2.	Heat and cool weather are the agents of physical weathering	The agents of chemical weathering are oxygen, carbon-dioxide and hydrogen.

2. Delta and Estuary:

S.No.	Delta	Estuary
1.	A triangular shaped low lying area formed by the river at its mouth is called delta.	Estuary is formed where the rivers meets the sea.
2	Cauvery Delta in Tamil Nadu is an Example.	River Narmada and Tapti are examples of Estuary

3. Stalactite and stalagmite:

S.No.	Stalactite	Stalagmite
1.	The water containing dissolved calcite gradually drips from the ceiling of the caves. Water evaporates and the remaining calcite hangs from the ceiling and form Stalactite.	Here, when the calcite deposits rises upward like a pillar stalagmites are formed.
2.	Stalactites are formed in the ceiling of the caves.	Stalagmites are formed on the floor of the caves.

4. Longitudinal and Transverse sand dunes.

S.No.	Longitudinal sand dunes	Transverse sand dunes
1.	Longitudinal sand dunes are long narrow ridges of sand.	Transverse dunes are asymmetrical in shape.
2.	These dunes are extended in a direction parallel to the prevailing winds.	These dunes are formed by alternative slow and fast winds that blow from the same direction.

5. Inselbergs and yardangs:

S.No.	Inselberg	Yardang
1.	Hard rocks like igneous rocks are more resistant to wind action. Such isolated residual hills rising abruptly from their surroundings are termed as inselbergs.	The rocks in arid regions have hard and soft layers arranged vertically. When wind blows over these rocks, the soft layers get eroded leaving irregular crests. These are called Yardings.
2.	Uluru or Ayers Rock, Australia is an example of Inselberg.	Example - Yardang located at Medow, Texas in the USA.

6. Spit and bar.

S.No.	Spit	Bar
1.	A spit is a ridge or embankment of sediment, attached to the land on one end and terminating in open water on the other end.	A bar is an elongated deposit of sand, shingle or mud found in the sea, almost parallel to the shoreline
2.	Spit are common at the mouth of estuaries.	Bar is found parallel to the shoreline.

ADDITIONAL

7. Continental glaciers and Valley glaciers.

S.No.	Continental glaciers	Valley glaciers
1.	Thick sheets of ice that covers vast areas of a continent is called Continental glacier	The glacier which takes its origin from a show covered mountain range is known as a Valley glacier.
2.	These glaciers cover large swaths of land.	These glaciers are confined to mountains and don't exceed the length of 100 km.
3.	These are far thicker and usually moves very little.	These glaciers are viewed as 'rivers of ice' far thinner. They move very fast.

VII. ANSWER IN PARAGRAPH.

1. Write a note on weathering. Classify and explain.

Weathering is the disintegration and decomposition of materials of the earth's crust by their exposure to atmosphere.

They are three types of weathering: Physical weathering, Chemical weathering and Biological weathering.

Physical weathering:

- It is the breakdown of rocks without changing their chemical composition, through the action of physical forces.
- The constant freezing and thawing of rocks during the night and day leads to the expansion and contraction of rocks.
- Exfoliation, block disintegration, granular disintegration, etc, are the different types of weathering.

Chemical weathering:

- Disintegration and decomposition of rocks due to chemical reactions is called Chemical weathering.
- The agents of Chemical weathering are Oxygen, Carbon-dioxide and Hydrogen.
- The Chemical weathering takes place through the process of oxidation, carbonation, solution and hydration.

Biological weathering:

- Biological weathering occurs due to the penetration and expansion of plant roots, earth worms, burrowing animals and some human activities.

2. Explain the erosional landforms formed by underground water.

The erosional landforms formed by underground water are-

Terra Rossa:

- Deposition of red soil on the surface of the Earth is due to the dissolution of limestone content in rocks.
- The redness of the soil is due to the presence of iron oxide.

Lappies:

- When the joints of limestone rocks are corrugated (ridged) by groundwater, long furrows are formed and these are called Lappies.

Sinkhole:

- A funnal shaped depressions formed due to dissolution of limestone rock is called sinkholes.

Caves and Caverns:

- Caves are hollows that are formed by the dissolution of limestone rocks when Carban di oxide in air turns into carbonic acid after its reaction with water.

- Caverns are the caves with irregular floors.
- All types of deposits in the caves and caverns are collectively called Speleothems.

3. What is a glacier? Explain its types.

A glacier is large mass of ice that moves slowly over the land form its place of accumulation. It is also known as 'River of ice'. The place of accumulation is called snowfield.

Glaciers are broadly divided into two types based on the place of occurrence such as Continental glacier and Valley glacier.

Continental glacier:

Thick sheets of ice that covers vast areas of a continent is called Continental glacier. These glaciers cover large swaths of land.

Valley glacier:

The glacier which takes its origin from a snow covered mountain range is known as a Valley glacier.

4. Describe the depositional work of winds.

Deposition occurs when the speed of wind is reduced by the presence of obstacles like bushes, forests and rock structures.

The sediments carried by wind get deposited on both the wind ward and leeward sides of these obstacles. Some of the depositional landforms are sand dunes, barchans and loess.

Sand dune:

In deserts, during sandstorms, wind carries loads of sand. When the speed of wind decreases, huge amount of sand gets deposited. These mounds or hills of sand are called sand dunes.

Barchan:

Barchans are isolated, crescent shaped sand dunes. They have gentle slopes on the windward side and steep slopes on the leeward side.

Transverse Dunes :

These are asymmetrical in shape. They are formed by alternate slow and fast winds that blow form the same direction.

Longitudinal Dunes :

These are long narrow ridges of sand, which extend in a direction paralled to the prevailing winds.

Loess:

The tem loess refers to the deposits of find silt and porous sand over a vast region.

ADDITIONAL

5. Give a detailed account on the three orders of land forms.

- Landform is a natural feature of the solid surface of the Earth or other planetary body.
- Typical landforms include hills, mountains, plateaus, canyons, valleys as well as shoreline features such as bays, peninsulas, and seas.
- Land forms are grouped into three orders. They are first order land form, second order land form, and third order land form.

First order land form:

First order land forms are continents and oceans.

Second order land form:

Mountains, plateaus and plains in both continents and oceans are the Second order land forms.

Third order land form:

Third order land forms are called as Minor land forms. They are deltas, fjords, coasts, sand dunes, beaches, valleys, cirques, mushroom rocks and limestone caves.

6. Write a paragraph on 'Erosional land forms of waves'.

A steady up and down movement of surface water are called waves. Sea waves are the most powerful agents of gradation.

Erosional land forms of waves:

Some of the erosional landforms of sea waves are sea cave, arch, stack, sea cliff and wave cut platforms.

Sea Cave:

Prolonged wave attack on the base of a cliff erodes rock materials which result in the formation of caves.

Sea Arch:

When two caves approach one another from either side of a headland and unite, they form an arch. **Example:** Neil island in Andaman and Nicobar.

Sea Stack:

Further erosion by waves ultimately leads to the total collapse of the arch. The seaward portion of the head land will remain as a pillar of rock known as Stack. **Example:** the Old man of Hoy in Scotland.

Sea Cliffs:

Sea cliffs are steep rock faces formed when sea waves dash against them. The rocks get eroded to form steep vertical walls.

Wave cut platforms:

Flat surface found at the foot of sea cliffs are called as Wave cut platforms. Wave cut platform is also referred as beach, shelf, terrace and plain.

ADDITIONAL

4. Is weathering a pre-requisite in the formation of soil? B.P.No.168

Weathering is the disintegration and decomposition of materials of the earth's curst by their exposure to atmosphere.

Soil is a mixture of disintegrated rock materials and decayed organic matter called humus.

It is essential for life on the earth. So weathering is a pre-requisite in the formation of soil.

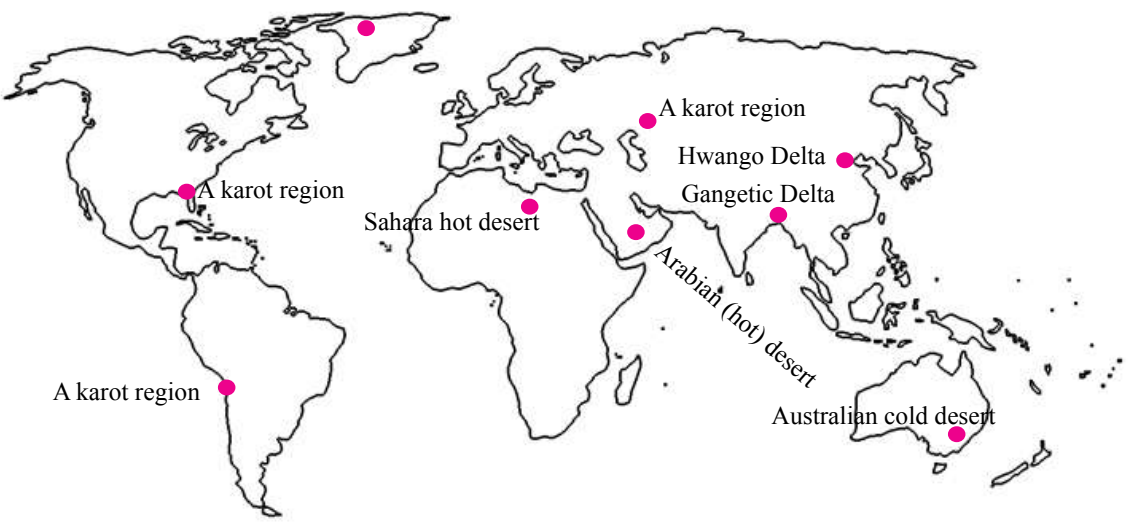
5. Snowline of Alps is 2700 metre where as snowline of Greenland is just 600 metre. Find out the reason. B.P.No.173

- The height above which there is a permanent show cover in the higher altitude or latitude is called snowline.
- The main principle behind is 'Higher altitude or latitude lower the snowline from the sea level. Here, the altitude of Alps is higher than Greenland.

VIII. MAP SKILL:

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

1. Any two deltas 2. A Karot region 3. Any two hot and cold deserts



IX. HOTS.

1. Is wind the only gradational agent in the desert?

No. Wind is not only gradational agent in the desert. A little rainfall also plays a minor as gradational agent in deserts.

2. Underground water is more common in limestone areas than surface run off. Why?

Limestone is the name given to rock which is composed mainly of calcium carbonate. It is a permeable rock. This means that water can enter limestone through pores, joints or cracks in the rock. So, underground water is more common in limestone areas than surface run off.

3. The river channels in the lower course are wider than the upper course.

- The river moving downstream is loaded with debris, brought down from its supper and middle courses.
- Large deposits of sediments are found at the level bed. In that region, the rivers splits into a number of channels called distributaries.
- The main work of the river here is deposition. Mainly of this, the river cannels in the lower course are wider than the upper course.

X. GIVE GEOGRAPHICAL TERMS FOR THE FOLLOWING.

a) Chemical alternation of carbonate rocks on lime stone region.
Karst topography.

b) Flat surfaces near cliffs.
Wave cut platforms

c) Erosion + Transportation + Deposition =
Gradation.

d) The bottom line of a snow field.
Snow line.

XI. ACTIVITY

Discuss in a small groups about the effects of global warming.
Internet.