

## **2. The Natural Realms of the Earth -Lithosphere**

### **Improve your learning**

#### **1. Question**

Find the odd out in the context of the lithosphere and give a reason for your choice  
Byson gorge; Grand Canyon; Ozone; Thar desert.

#### **Answer**

The odd one out is Ozone.

The lithosphere is the outer layer of the Earth's crust. All the plains, plateaus, mountains and deserts are found in this realm. Byson gorge, grand canyon and Thar desert are found in this sphere.

Apart from this, there are 3 other spheres - Atmosphere, Hydrosphere and Biosphere.

Ozone is found in the atmosphere. It is the thin layer of air that surrounds the Earth.

#### **2. Question**

How is the lithosphere formed?

#### **Answer**

- The Earth has evolved over a period of time. It was a big ball of fire with heavier substances at the bottom and the lighter ones at the top.
- When the earth cooled down, the heat could not be trapped due to lack of atmosphere.
- Since it was exposed, the surface cooled down quickly due to the cold temperature of the space. This created a cool layer which solidified into crust.
- This difference in magma created 2 different types of the lithosphere - Ocean and continental.
- The depth of the lithosphere varies from place to place. It is the deepest in the lower continents.
- The composition of each type of crust changes at the boundaries of the plate.

#### **3. Question**

How are the continental plates formed and how are they eventually destroyed?

#### **Answer**

- Continental plates are formed due to the cooling of magma.

- Continental plates are moving continuously. The shape and size of the Earth cannot change due to this constant movement of the continental plates. So, the plates form layers. This leads to the formation of mountains and trenches.
- Assume, two plates collide together during their shifting. So, one of the plates moves down under the other. The plate which is underneath gets heated due to the Earth's heat and melts. Thus, the continental plates are destroyed.
- When 2 plates are pushed away from each other, molten magma comes out and this leads to the formation of a new crust.

#### **4. Question**

List out the landforms due to the river work.

#### **Answer**

The landforms due to the river works are mentioned below:

1. **WATERFALL:** A waterfall is formed when there is a change of rock type from a highly resistant rock to a less resistant rock, on the course of the river leading to erosion.
2. **V- SHAPED VALLEY:** A valley is a portion formed between two mountains. formed due to the erosion by river and weathering.
3. **MEANDERS:** A meander is formed due to the general turns or bends in a river.
4. **OXBOW LAKES:** An oxbow lake is formed from a meander. When the deposits near a meander increases, the loops tend to come closer. Eventually, this loop cuts off from the river and forms its own lake called the oxbow lake.
5. **GORGE:** A gorge is formed when a river cuts down a valley with steep sides. For example, the Byson Gorge in Andhra Pradesh and Indus Gorge in Kashmir.
6. **CANYON:** A canyon is as deep as a gorge but is wider at the top than at the bottom.
7. **DELTA:** A delta is a depositional landform at the point where a river reaches the sea.

Other landforms formed by river work are levees, floodplains and braided channel.

#### **5. Question**

Draw a table as given below and fill information. And write a small paragraph to explain the similarities and difference that you can think of in the context of earth's external changes. (if there is no information available in the text, leave the

column blank)

	Wind	Water	Glacier
Landform			
Process			

### Answer

	Wind	Water	Glacier
Landform	Sand dunes	Waterfall	U-Shaped valley
Process	Erosion	Erosion	Plucking

### 6. Question

Why are Glaciers not found in your surrounding?

### Answer

A glacier is the mass movement of ice.

In mountainous regions, there is continuous snowfall, just like the plains have rainfall. This snow accumulates and forms ice. It slowly moves down, and upon reaching the water surface, it begins to melt. A small river is formed here.

For example, the Himalayas have the Gangotri glacier. The river Ganga is formed from here.

Glaciers are not found in our surroundings because it exists only in cold areas where snow falls. Since we do not live in an area surrounded by mountains, glaciers do not exist near us.

### 7. Question

How are Beaches formed and name some Beaches?

**Answer**

A beach is a landform near the coast of a sea or an ocean. It is formed when the waves in the sea deposit sands and other deposits on the shore. The wind further pushes this sand in the interiors of this land.

For example, Juhu beach, Manori beach etc

**8. Question**

How is the human lifestyle responsible for the extension of deserts?

**Answer**

The human lifestyle is responsible for the extension of deserts in the following ways:

- a) After the Industrial Revolution, the human lifestyle had extremely affected the environment.
- b) The increase in the cut down of trees led to a reduction in rainfall and food.
- c) Due to this, the dependence on groundwater has increased.
- d) This had led to a reduction in the groundwater level and turned the land into desert.
- e) The drilling in the desert has also increased over the years due to the essential requirement of oils to run the mills, factories etc.
- f) The sands of the desert are used for constructing houses.

**9. Question**

Find out the order of the landforms for the following:

**Answer**

S.No.	Landform	Order of Landform
1	The Himalayan Mountains	II order Land form
2	The Pacific Ocean	I order Land form
3	Asia Continent	I order Land form
4	Byson Gorge	III order Land form
5	Jog waterfall	III order Land form
6	Rocky mountains	II order Land form
7	The Indian Ocean	I order Land form
8	The great rift valley	III order Land form

#### 10. Question

Draw the map of world plates by observing map 2.

**Answer**



## 11. Question

Read the para under the title 'Erosion' on page 20 and comment on it.

### Answer

- Erosion is the wearing away of the surface of the Earth due to the action of natural forces, such as wind, water and glacier ice. These particles move from one place to another.
- It is different from weathering. Weathering is the process of breaking down of rocks and dissolving into tiny particles by chemical and physical processes.
- Erosion moves the weathered particles from one place to another through natural agents.

### CAUSES OF EROSION :

- Water: The weathered rocks and other particles are carried from one place to another by rainfall and other flowing water to low elevated areas.
- Wind: The movement of air with force is called wind. It usually blows from a high-pressure area to a low-pressure area. The weathered rocks move from one place to another due to the wind.
- Ice: Ice forms when the temperature drops. This type of ice sheet erodes mounting surfaces. When it slides down, it also takes away the eroded rocks with it.
- Waves: Waves are the moving ridges in a water body. This movement creates Kinetic energy which is capable of transferring sand particles to different places.

### EFFECTS OF EROSION:

- Repeated erosion washes away the topsoil which has the maximum nutrients necessary for the growth of the plant. Thus, there is a reduction in the fertility of the soil.

- Erosion leads to deposition on the roads. this intervenes with the transportation lines. The cost to manage the transport also increases.
- It can cause landslides and damage the buildings, and the residents of that area. The government has to incur a significant cost for the rehabilitation.
- Young plants may not make it to maturity time
- It leads to a loss of fertilisers, pesticides and insecticides.
- It leads to deposition in the drains and thus, disrupting the drainage system
- If these deposits are accumulated near the water bodies. it may damage the water ecosystem.