

Unit - 1. Rocks and Soils

Class: VIII

Subject: Social (Geography)

I. Choose the correct answer

- Which of the following is known as sphere of rocks
a) Atmosphere b) Biosphere **c) Lithosphere** d) Hydrosphere
- World soil day is observed on
a) 15th August b) 12th January c) 15th October **d) 5th December**
- Fossils are found in
a) Sedimentary rocks b) Igneous rocks
c) Metamorphic rocks d) Plutonic rocks
- The top layer of soil is called as
a) organic layer or humus b) topsoil c) subsoil d) bedrock
- Ideal soil for growing cotton is
a) Red soil **b) Black soil** c) Alluvial soil d) Mountain soil
- The major components of soil is
a) Rocks **b) Minerals** c) Water d) All the above
- Which one of the following is the most widespread most and productive category of soil
a) Alluvial soil b) Black soil c) Red soil d) Mountain soil

II Fill in the blanks

- Scientific study of rocks is called **Petrology** soil is highly suitable for millets cultivation.
- Black** soil is highly suitable for cotton cultivation.
- The "skin of earth" is **Soil**.
- White marble** is the kind of metamorphic rock using which Taj Mahal was built.
- Igneous rock** is known as the primary rocks.

III. State whether the following statements are true or false

1. Igneous rocks are called primary rocks. True
2. Slate is formed from shale. True
3. **Laterites** soil is formed by the process of leaching. False
4. M-sand is used as alternative for natural sand in construction. True
5. Volcanic mountains are covered with sedimentary rocks. False

Ans: sedimentary rocks are formed from broken Piece of rocks.

IV. Match the following

1)

- | | | |
|----------------------|---|-------------------|
| A. Granite | - | 1. Bed rock |
| B. Soil layer | - | 2. Plutonic rock |
| C. Barren island | - | 3. Strip farming |
| D. Soil conservation | - | 4. Active Volcano |

A B C D

- a) **2 1 4 3** b) 2 1 3 4 c) 4 3 2 1 d) 3 4 2 1

2)

- | | | |
|--------------|---|----------------------|
| A. Basalt | - | 1. Anthracite |
| B. Limestone | - | 2. Extrusive igneous |
| C. Coal | - | 3. Metamorphic rock |
| D. Gneiss | - | 4. Sedimentary rock |

A B C D

- a) 2 4 3 1 b) **2 4 1 3** c) 3 1 2 4 d) 3 1 4 2

V. Choose the incorrect statement from the following

1. a) Igneous rocks are called the primary rocks.
b) Soil is the product of weathering of rocks.
c) Sedimentary rocks are the hardest ones.
d) Deccan plateau is the region of Igneous rocks.
2. a) Soil erosion decreases its fertility.

b) Dynamic metamorphism is caused by high temperature.

c) Soil is a renewable source.

d) Humus is a part of the top layer of soil.

VI. Consider the following statements and choose the right option from the given ones

1) Statement (1): Sedimentary rocks consist of many layers.

Statement (2): Sedimentary rocks are formed by the sediments deposited at different points of time.

a) 1 and 2 are correct and 2 explains 1

b) 1 and 2 are correct but, 2 does not explain 1

c) 1 is correct but, 2 is incorrect

d) 2 is correct but, 1 is incorrect.

VII. Give reasons

1. Chemical sedimentary rocks are found in the beds of reservoirs.

These are formed by precipitating of minerals from water. It is formed usually through evaporation of chemical rich solutions.

2. Igneous rocks are found in the regions of volcanoes.

The igneous rocks are formed by the solidification of molten magma.

VIII. Distinguish between

1. Metamorphic rock and sedimentary rock.

Metamorphic rock:

i) When Igneous and sedimentary rocks subject to high temperature and pressure, the original rocks get altered to form a new kind of rock called metamorphic rocks.

ii) Metamorphic rocks are mostly crystalline in nature.

iii) They consist of alternate bands of light and dark minerals.

Sedimentary rock

Formed by the sediments derived and deposited by various agents.

i) They are non-crystalline rocks.

ii) They contain fossils. E.g Coal, oil , Natural gas.

2. Soil conservation and Soil erosion.

Soil conservation:

Soil conservation is the process of protecting the soil from erosion to maintain its fertility.

The methods that are widely practiced for conserving soil are afforestation, controlled grazing, construction of dams, Crop rotation, Strip farming, contour ploughing, terrace farming, checking shifting cultivation, wind break etc.,

Soil Erosion:

Soil erosion is the removal or destruction of the top layer of soil by natural forces and human activities. Soil erosion reduces the fertility of soil which in turn reduces the agricultural productivity.

Running water and wind are the major agents of soil erosion. Sheet erosion, Rill erosion and Gully erosion are the major types of soil erosion.

IX. Answer briefly

1. How are igneous rocks formed?

The igneous rocks are formed by the solidification of molten magma.

2. Describe about the composition of soil.

The basic components of soil are mineral, organic matter, water and air. It consists of about 45% mineral, 5% organic matter, 25% of water and 25% air. It is only a generalized fact. The composition of soil varies from place to place and time to time.

3. Define 'rock'.

The rocks are the solid mineral materials forming a part of the surface of the earth and other similar planets. The earth's crust (Lithosphere) is composed of rocks. A rock is an aggregate of one or more minerals. Rock is an important natural resource and is found in solid state. It may be hard or soft in nature.

4. State the types of soils.

- Alluvial soils
- Black soils
- Red Soils
- Laterite soils
- Mountain soils
- Desert soils

5. What is soil conservation?

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X Answer in a Paragraph

1. Explain the process of soil formation.

- Soil is a mixture of organic matter, minerals, gases, liquids and organisms that together support life. Soil minerals form the basis of soil. It forms on the surface of the earth.
- It is known as the 'skin of the earth'. Soils are formed from rocks (parent material) through the processes of weathering and natural erosion. Water, wind, temperature change, gravity, chemical interaction, living organisms and pressure differences all help break down parent material.
- It leads to the formation of loose material. In course of time, they further break down into fine particles. This process release the minerals locked in the rock fragments.
- Later on, the vegetative cover which develop in that region forms humus content in the soil. This way the soil gets matured gradually.

2. Classify and explain the rocks.

The igneous rocks are formed by the solidification of molten magma.

Igneous Rocks are of two types. They are:

- (i) Extrusive Igneous Rocks
- (ii) Intrusive Igneous Rocks.

(i) Extrusive Igneous Rocks:

Lava is actually a fiery red molten magma comes out from the interior of the earth on its surface. After reaching the earth surface the molten materials get solidified and form rocks. Rocks formed in such a way on the crust are called Extrusive igneous rocks.

These rocks are fine grained and glassy in nature due to rapid solidification. Basalt found in the north western part of peninsular India is the example for this type of rock.

(ii) Intrusive Igneous Rocks:

The molten magma sometimes cools down deep inside the earth's crust and becomes solid. The rocks formed this way is called 'Intrusive Igneous Rocks'. Since the cool down slowly and form crystals. Hence they are called 'crystalline rocks'. Intrusive igneous rocks are two types. They are,

1. Plutonic rocks
2. Hypabyssal rocks.

The deep seated rocks are called 'Plutonic rocks' and the ones formed at shallow depths are called 'Hypabyssal rocks'. Granite, Diorite and Gabbro are the example of plutonic rocks and dolerite is an example of hypabyssal rocks.

Types of Sedimentary Rocks

1. Organic Sedimentary Rocks:

These rocks are formed as a result of the decomposition of dead plants and animals. It contains fossils. Chalk, Talc, Dolomite and Limestone rocks are of this category.

2. Mechanical Sedimentary Rocks:

These rocks are formed due to the disintegration of igneous and metamorphic rocks. The natural agents erode and transport these rocks and deposit them at some places. After a long period of time, they cemented to form rocks. Sandstone, Shale and Clay are the examples of rocks of this type.

3. Chemical Sedimentary rocks

These are formed by precipitating of minerals from water. It is formed usually through evaporation of chemical rich solutions. These rocks are also called as evaporates. Gypsum is an example of this kind.

Metamorphic Rocks:

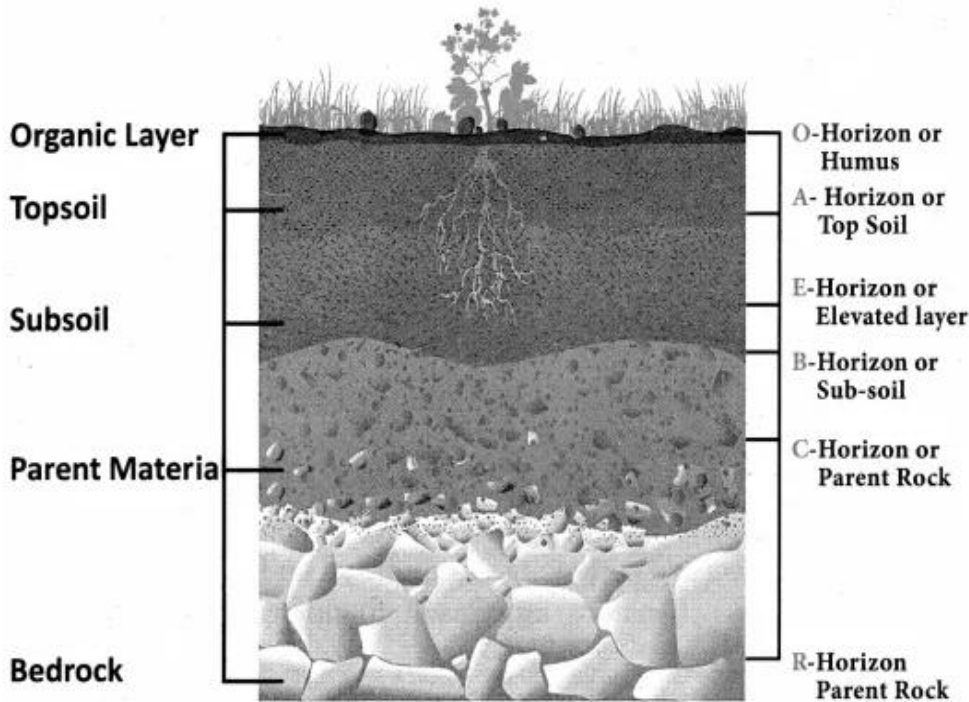
The word Metamorphic is derived from two Greek words “Meta” and “Morpha”, Meta means change and Morpha means shape. When Igneous and sedimentary rocks subject to high temperature and pressure, the original rocks get altered to form a new kind of rock called metamorphic rocks. Metamorphism is of two types. They are

1. Thermal Metamorphism
2. Dynamic Metamorphism

If the change in the rocks is mainly caused by high temperature, the process is called as 'Thermal Metamorphism'. If the change in the rock is mainly caused by high pressure, the process is called as 'Dynamic Metamorphism'.

3. Give an account on different layers of soil.

Layers of Soil:



Layers of soil	
O-Horizon or Humus	This layer is dominated by organic material (leaves, needles, twigs, moss and lichens).
A- Horizon or Top Soil	It is a part of top soil, composed of organic matter mixed with mineral matter.
E- Horizon or Elevated layer	E-Stands for elevated layer. This layer is significantly leached of clay, iron, and aluminum oxides, which leaves a concentration of ore
B- Horizon or Sub-soil	This layer reflects the chemical or physical alteration of parent material. Thus iron, clay, aluminum and organic compounds are found accumulated in this horizon.
C- Horizon or Parent Rock	Partially weathered parent material accumulates in this layer.
R- Horizon Parent Rock	This layer consists of unweathered part of bed rock.

4. Classify and explain the soil.

Classification of soils:

Soils are classified on the basis of their formation, colour, physical and chemical properties. Based on these, soil is classified into six major types. They are: Alluvial soil, Black soil, Red soil, Late rite soil, Mountain soil, Desert soil.

Alluvial soils:

These soils are found in the regions of river valleys, flood plains and coastal regions. These are formed by the deposition of silt by the running water. It is the most productive of all soils. It is suitable for the cultivation of sugarcane, jute, rice, wheat and other food crops.

Black soils:

These soils are formed by weathering of igneous rocks. Black soil is clayey in nature. It is retensive of moisture. It is ideal for growing cotton.

Red Soils:

These soils are formed by weathering of metamorphic rocks and crystalline rocks. The presence of iron oxide makes this soil brown to red in colour. It is usually found in semi-arid regions. It is not a fertile soil. It is suitable for millet cultivation.

Laterite soils:

These are the typical soils of tropical regions. These soils are found in the regions which experienced alternate wet and dry condition. As these soils are formed by the process of leaching, it is infertile. It is suitable for plantation crops like tea and coffee.

Mountain soils:

These soils are found over the slopes of mountain. Soils in these regions are thin and acidic. However characteristic of soil differs from region to region based on the altitude.

Desert soils:

These are sandy soil found in the hot desert regions. These soils are porous and saline. Since it is infertile agriculture in these soils are not so successful.

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