

NCERT SOLUTIONS

CLASS - 11th



aglasem.com

Class : 11th

Subject : Geography

Chapter : 6

Chapter Name : Geomorphic Processes

Q1 Multiple Choice Questions

(i) Which one of the following processes is a gradational process?

(a) Deposition (c) Volcanism

(b) Diastrophism (d) Erosion

(ii) Which one of the following materials is affected by hydration process?

(a) Granite (c) Quartz

(b) Clay (d) Salts

(iii) Debris avalanche can be included in the category of:

(a) Landslides (c) Rapid flow mass movements

(b) Slow flow mass movements (d) Subsidence

Answer.

i-(d) Erosion

ii-(b) Clay

iii-(c) Rapid flow mass movements

Page : 54 , Block Name : Exercises

Q2 Answer the following questions in about 30 words.

- (i) It is weathering that is responsible for biodiversity on earth. How?
- (ii) What are mass movements that are real rapid and perceptible? List.
- (iii) What are the various mobile and mighty exogenic geomorphic agents and what is the prime job they perform?
- (iv) Is weathering essential as a pre-requisite in the formation of soils? Why?

Answer.

- (i) Bio-diversity depends on forest and forest depends upon weathering mantles.
- (ii) Landslides are mass movements that are rapid and perceptible. These include slump, debris slides and rockslides.
- (iii) Weathering, mass movements and erosion, transportation and deposition are the main exogenic geomorphic agents. Their primary job is of denudation.
- (iv) Soil formation depends first on weathering. It is this depth of the weathered material, which is the primary input for soil to form.

Page : 54 , Block Name : Exercises

Q3 Answer the following questions in about 150 words.

- (i) Our earth is a playfield for two opposing groups of geomorphic processes.”Discuss.
- (ii) Exogenic geomorphic processes derive their ultimate energy from the sun’s heat. Explain.
- (iii) Are physical and chemical weathering processes independent of each other? If not, why? Explain with examples.
- (iv) How do you distinguish between the process of soil formation and soil forming factors? What is the role of climate and biological activity as two important control factors in the formation of soils?

Answer.

(i) The earth’s crust is dynamic. All changes take place under the influence of certain forces working continuously within the earth as well as over the surface of the earth. The external forces are known as *exogenic forces* and the internal forces are known as *endogenic forces*. The actions of exogenic forces result in wearing down (degradation) of relief/elevations and filling up (aggradation) of basins/depressions, on the earth’s surface. The phenomenon of wearing down of relief variations of the surface of the earth through erosion is known as *gradation*. It may be sudden forces like earthquakes, volcanoes, etc. in general, the endogenic forces are mainly land hurling forces and exogenic forces are mainly land wearing forces.

(ii) Exogenic forces act on the surface of the earth. All exogenic forces such as weathering and denudation derive their energy from the sun. Sunlight causes air to move, water to evaporate, and ocean waves to rise. These moving fluids like water, wind and waves, etc., attack the solid surface, eroding it , carrying the broken pieces far away, and depositing them to fill low places in the landscape. Weathering is a process of the breaking of rocks by static agents of weather. In this process, the rocks are disintegrated by physical forces and decomposed by chemical action. Agents of physical weathering such as insulation, frost, etc. wholly depend upon energy derived from the sun. The agents of denudation like river, glaciers, wind, sea waves, etc also derive their energy from the sun.

(iii) Weathering is the action of elements of weather and climate over earth materials. Physical and chemical weathering processes aren't independent of each other, rather work of agents of physical and chemical weathering are interdependent. Chemical weathering is brought about by oxidation, carbonation, hydration and solution. The agents of physical weathering, like unloading and expansion, temperature changes and expansion, freezing, thawing and salt weathering, easily break these decayed and decomposed rocks. Chemical weathering depends upon the work of physical weathering because physical weathering prepares ground for agents of chemical weathering to work. For example, agents of physical weathering like variation in temperature, freezing thawing and frost wedging, salt weathering, etc... breaks the rocks and agents of chemical weathering can easily work on them.

(iv) Soil is a dynamic medium in which many chemical, physical and biological activities go on constantly. The soil formation begins with the breaking down of rocks into small pieces by various agents of weathering and erosion. It contains a mixture of minerals. This rock material contains a mixture of minerals. Later on, decaying plant remains are mixed in it. This is known as humus and forms organic part of the soil. Animals and insects with microorganisms like bacteria also forms organic matter.

Soil holds water, which provides life to plants and trees. Plant roots penetrate down, burrowing animals bring up particles, mass of material becomes porous and sponge-like with a capacity to retain water and to permit the passage of air and finally a mature soil, a complex mixture of mineral and organic products forms. Thus, soil is the final product of the interactions between the weathering of underlying rock, the climate, plants and the activities of millions of insects and microorganisms. All these physical, chemical and biological act as soil-forming Factors

Five basic factors that control the formation of soils: (i) parent material (ii) topography (iii) climate (iv) biological activity (v) time.

The role of the climate and biological activity are as follows:

→The climate of an area is a major active factor in soil formation. The climate elements that are responsible for soil forming are-Moisture and temperature.Both of them affects the chemical and biological activities. Excess of water due to moisture helps in eluviation and illuviation. In regions with humidity minerals like magnesium, sodium, silica are removed from the soil. Whereas in areas with high temperature water evaporates leaving behind salt in the soil.

→Biological activity includes the effect of vegetation, bacteria, and animals. The vegetative cover and organisms helps in adding organic matter, nitrogen, moisture retention etc. . Dead plants provide humus, which increases soils' fertility. Bacteria like Rhizobium helps in nitrogen fixation by changing nitrogen from air into chemical form, Burrowing animals like ants, rodents,etc. also helps in mixing air, water and minerals by reworking the soil.

Page : 54 , Block Name : Exercises

aglasem.com