

## Very Short Answer Questions

**Q.1. Read the following statements and give the appropriate terms for each of them.**

**Q. The process of breakdown of rocks by the action of wind, water, sunlight.**

**Ans.** Weathering

**Q. Removal of topsoil during heavy rains or strong winds.**

**Ans.** Erosion

**Q. Accumulation of wastes in the soil generated by human activity which alter the features of soil.**

**Ans.** Soil pollution

**Q. The process of movement of water into deeper layers of soil.**

[NCERT Exemplar]

**Ans.** Percolation

**Q.2. Unscramble the following jumbled words related to soil.**

[NCERT Exemplar]

**Q. SUHUM**

**Ans.** HUMUS

**Q. ILOSFIPROLE**

**Ans.** SOIL PROFILE

**Q. ZOINORH**

**Ans.** HORIZON

**Q. MOAL**

**Ans.** LOAM

**Q. GINRHETWEA**

**Ans.** WEATHERING

**Q. ATONIERPCL**

**Ans.** PERCOLATION

**Q.3. What is 'weathering'?**

**Ans.** Disintegration of parent rocks by some physical, chemical and biological agents is called weathering.

**Q.4. What is humus?**

**Ans.** The organic matter of the soil formed by decaying remains of plants and animals that enriches the soil is called humus.

**Q.5. Which layer of soil is rich in fauna?**

**Ans.** A-horizon

**Q.6. What kind of soil should be used for making matkas and surahis?**

**Ans.** Clayey soil.

## Short Answer Questions

**Q.1. Which of the following situations — 'A' or 'B' is advantageous for absorption of water and minerals? Why?**

**Situation 'A' : Growth and branching of roots in the C-horizon. Situation 'B' : Growth and branching of roots in A and B-horizons.**

**[NCERT Exemplar]**

**Ans.** Situation 'B' is advantageous to plants because A and B-horizons are rich in water, minerals and humus.

**Q.2. How can a farmer convert acidic soil to neutral soil?**

**[NCERT Exemplar]**

**Ans.** A farmer can add a small quantity of quicklime or slaked lime solution to the soil. These are the basic substances which will make the acidic soil neutral.

**Q.3. Is it a good practice to remove grass and small plants that are growing in an open, unused field? Give reason to support your answer.**

**[NCERT Exemplar]**

**Ans.** No, it is not a good practice. Plants cover the soil surface and their roots bind the soil particles and hold them in place. During strong winds and rains they prevent soil erosion and thereby protect the topsoil.

**Q.4. A man digging a pit found that he could dig with ease initially but digging became difficult as he went deeper. He could not dig beyond a depth of 5 feet. Provide a suitable scientific explanation.**

**[NCERT Exemplar]**

**Ans.** The soil surface has loose topsoil which is easier to dig. At deeper layers, partially weathered rocks or bedrocks are present which are hard, making digging difficult.

**Q.5. What is the difference between rate of percolation and the amount of water retained?**

**Ans.** Percolation refers to the amount of water seeping down while amount of water retained refers to the amount of water held. Higher percolation means large spaces between soil particles and lower in the amount of water retained.

**Q.6. What is soil erosion? List the agents of soil erosion.**

**Ans.** Soil erosion is defined as the removal of the topsoil. The different agents responsible for soil erosion are wind and water.

**Q.7. Soil is a home to several animals. Give examples to support this statement.**

**Ans.** Earthworms burrow through the soil, ants live in large colonies and burrows in soil, centipedes live under stones and in soil, some bacteria living in soil fix nitrogen for the plant to take up and microorganisms decompose dead plants and animals.

**Q.8. What is soil profile? Name the layers found in soil profile.**

**Ans.** A vertical section through different layers of the soil is called soil profile. The different layers found in soil profile are A-horizon, B-horizon, C-horizon and bedrock.

**Q.9. List two harmful effects of soil erosion.**

**Ans. (a)** Decrease in soil fertility and thus crop productivity.

**(b)** Water bodies become muddy, affecting aquatic life.

**Q.10. What are the constituents of soil?**

**Ans.** Soil consists of

- a. soil particles of different sizes
- b. soil water
- c. humus
- d. soil air
- e. flora and fauna

**Q.11. How can you calculate the absorption of water by soil?**

**Ans.**

The absorption of water by soil can be calculated by

$$\text{Percentage of water absorbed} = \frac{(U-V) \text{ mL}}{\text{weight of soil}} \times 100$$

where U mL = Initial volume of water in the measuring cylinder

V mL = Final volume of water in the measuring cylinder

## Long Answer Questions

**Q.1. Continuously water-logged soils are disadvantageous for plant growth. Why?**

[NCERT Exemplar]

**Roots, although underground, possess living cells that require oxygen for respiration and production of energy. They absorb oxygen that is present in the spaces between soil particles. But in water-logged soils, water occupies the spaces between soil particles and pushes the oxygen out into the atmosphere. Thus, roots are deprived of oxygen and this affects root and plant growth.**

**Q.2. Why is soil erosion relatively less in dense forests as compared to barren, open fields?**

[NCERT Exemplar]

**Ans.** In dense forests, the tree cover (canopy) prevents rain water from directly falling on the ground/soil. Also roots of the vegetation bind the soil particles and hold them together. As a result soil erosion is minimised. But in barren, open fields the soil is exposed to the falling rain. The soil particles become loose due to the impact of raindrops and the flow of water carries them away. The flowing water further erodes the soil surface aggravating erosion.

**Q.3. Gardeners gently dig up the soil around the roots of garden herbs (plants) frequently. Give reasons.**

[NCERT Exemplar]

**Ans. (a)** For enabling easy root growth;

**(b)** For easier percolation of water;

**(c)** For aerating the soil/enabling air to get into deeper layers of soil;

**(d)** For removing the weeds.

**Q.4. In towns and cities, generally, the bore wells have to be dug very deep to get water as compared to bore wells dug in villages. Give suitable reasons.**

[NCERT Exemplar]

**Ans.** This is so because of excessive use of water which depletes the ground water.

Towns and cities have asphalted roads and vast areas of soil are concreted. As a result, rain water cannot percolate to recharge ground water and the ground water level further decreases. Villages have larger areas of open soil surface and fewer asphalted roads and concrete surfaces. Thus, larger soil surface area is available for rain water to

percolate into the soil easily and recharge the ground water. As a result, even shallow bore wells yield water.

## **HOTS (Higher Order Thinking Skills)**

**Q.1. Why are earthworms called a farmer's friend?**

**Ans.** Earthworms are called a farmer's friend because they make the land fertile by moving in soil when the land is watered, eating the soil and defecting **in it**.

**Q.2. Why does topsoil have the most humus?**

**Ans.** Humus is formed by decaying remains of plants and animals which are only found in topsoil.