



Chapter-9

SOIL

SOLUTIONS:

Exercises:

Tick the most suitable answer in questions 1 and 2.

Q1. In addition to the rock particle, the soil contains

- i. Air and water
- ii. Water and plants
- iii. Minerals, organic matters, air and water
- iv. Water, air and plants

Answer: iii. Minerals, organic matters, air and water.

Q2. The water holding capacity is the highest in

- i. Sandy soil
- ii. Clayey soil
- iii. Loamy soil
- iv. Mixture of sand and loam

Answer: ii. Clayey soil

Q3. Match the items in column I with those in column II

Column I

- i. A home for living organisms
- ii. Upper layer of the soil
- iii. Sandy soil
- iv. Middle layer of the soil
- v. Clayey soil

Column II

- a. Large particles
- b. All kinds of soil
- c. Dark in colour
- d. Small particles and packed tight
- e. Lesser amount of humus

Answer: i-b, ii-c, iii-a, iv-e, v-d.

Q4. Explain how soil is formed.

Answer: Soil is formed by breaking down of rocks due to the action of wind, water and climate. This process is called weathering. It is a slow process and it occurs all the time.

Q5. How is clayey soil useful for crops?

Answer: Clayey soil is suitable for growing cereals like wheat and gram as it is good at retaining water and rich in clay, humus, organic matters and it is very fertile for growing crops.

Q6. Lists the difference between clayey soil and sandy soil.

Answer: Difference between Clayey soil and sandy soil

CLAYEY SOIL	SANDY SOIL
i. The proportion of fine particle is higher.	i. Proportion of large particle is higher.
ii. Particles are packed tightly.	ii. Particles are loosely packed.
iii. Water retaining capacity is high.	iii. Water retaining capacity is low.
iv. It is rich in humus.	iv. It is not rich in humus.
v. It is suitable for growing cereals like wheat , gram etc.	v. It is suitable for growing cotton, potato etc.

Q7. Sketch the cross section of soil and label the various layers?

Answer:



Fig: cross section of soil.

Q8. Razia conducted an experiment in the field related to the rate of percolation. She observed that it took 40min for 200ml of water to percolate through the soil sample. calculate the rate of percolation.

Answer: We know that, amount of water=200ml

Percolation time=40min

By using the formula rate of percolation (ml/min) = Amount of water (ml)/ percolation time(min)

$$=200/40 \text{ ml/min}$$

$$=5 \text{ ml/min}$$

∴ Rate of percolation is 5 ml/min.

Q9. Explain how soil pollution and soil erosion could be prevented?

Answer: Prevention of soil can be done by

- i. Using manures instead of synthetic fertilizers.
- ii. Treating industrial wastes before releasing in the soil.
- iii. Avoiding dumping of polythene and plastic in the soil.

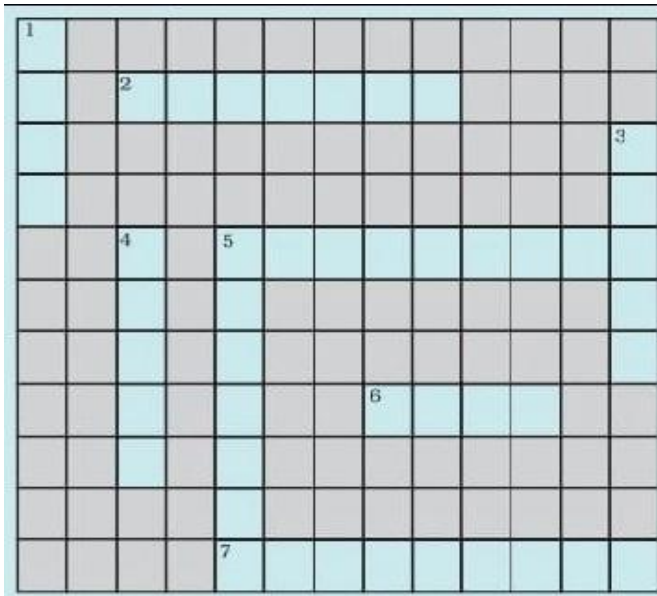
Prevention of soil erosion can be done by

- i. Plantations of trees in large scale (Afforestation) .
- ii. Avoiding overgrazing of grassland.



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Q10. Solve the following crossword puzzle with the clues given



Across

2. Plantation prevents it.
5. Use should be banned to avoid soil pottery.
6. Types of soil use for making pottery.
7. Living organism in the soil.

Down

1. In desert soil erosion occurs through.
3. Clay and loam are suitable for cereals like.
4. This type of soil can hold very little water.
5. Collective names for layers of soil.

Answer: 1. wind

2. erosion
3. wheat
4. sandy
5. profile
6. clay
7. earthworm



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EXTRA QUESTIONS AND ANSWERS

Q1. What is soil?

Answer: Soil is one of the most important natural resource. It is the mixture of rock particle and humus.

Q2. What is the function of the soil?

Answer: Function of the soil are as follows

- i. It provides anchorage to the plants.
- ii. It supply water and minerals to the plants.
- iii. It gives shelters to many organisms.

Q3. Name some organisms which live in the soil.

Answer: Ants, earthworm, mites, rodents, moles, beetles etc.

Q4. What is humus?

Answer; The rotting dead matter in the soil is called humus.

Q5. What is weathering?

Answer: The process of breaking down of rocks by thwe action of wind, water, and climate is called weathering.

Q6. What is soil profile?

Answer: The vertical section through different layers of soil is called soil profile.

Q7. Explain the different layers of soil.

Answer: Soil have different layers. These layers are referred to as horizons. The layers are

- i. A- horizon: The uppermost layer of soil is called A-horizon or top soil. It is generally dark in colour as it is rich in humus and minerals. This layer is very fertile and provides nutrients for growing plants. It also provides shelter for many organism.
- ii. B- horizon: It is the layer just beneath the A- horizon. It has lesser amount of humus but more of minerals. This layer is generally harder and more compact.
- iii. C- horizon: It is the third layer of the soil which is made up of small lump of rocks with cracks and crevices.
- iv. Bedrock: This layer lie under the C- horizon. It is hard and difficult to dig with a spade.

Q8. How is soil classified?

Answer: Soil is classified on the basis of the proportion of particles of various sizes.

Q9. What are the different types of soil?

Answer: The different types of soil are;

- i. Sandy soil; If the soil contains greater proportion of big particles, it is called sandy soil.
- ii. Clayey soil; If the proportion of fine particle is relatively higher, the soil is called clayey soil.
- iii. Loamy soil; It is the mixture of sand, clay and silt.

Q10. Which type of soil would be the best for making pots, toy and statues?

Answer: Clayey soil would be the best for making pots, toys and statues.

Q11. What determines the various types of vegetation in a region?

Answer: The climatic factors as well as the components of soil determine the various type of vegetation in a region.

Q12. Which kind of soil would be the most suitable for planting the followings

Wheat, pulses, cotton, lentil, gram and potato?

Answer:

Wheat and gram → Clayey and loamy soil

Pulses and lentils → Loamy soil

Cotton and potato → Sandy soil

Q13. What is erosion?

Answer: The removal of land surface by water, wind, or ice is called soil erosion.

Q14. What is the difference between percolation rate and water retaining capacity if the soil ?

Answer: Percolation rate of water in soil is the speed at which the movement of water occur through the soil whereas water retaining capacity is the amount of water absorbed by the soil.



Q15. Choose the correct answer.

- a. Which soil would have the lowest percolation rate?
 - i. Clayey soil
 - ii. Sandy soil
 - iii. Loamy soil
- b. Which layer of soil has more minerals
 - i. A- horizon
 - ii. B-horizon
 - iii. C-horizon
- c. The size of silt particle is
 - i. Greater than sand particle
 - ii. Smaller than clay particle
 - iii. In between sand and clay particles

Answer: a-ii, b-ii, c-iii.

