CLASS-VII : Science
CHAPTER - 9 : SOIL

1. The natural resource which supports in supplying water and nutrients to plants is:
(a) Soil (b) Coal (c) Oil (d) Water
1. (a) The natural resource which supplies nutrients in the food chain is soil. Plants absorb nutrients from the soil through their roots and these nutrients enter into the body of the animals when they consume these plants.

2. Select the correct alternative:
(i) Soil is the home for many organisms
(ii) The top layer of the soil is humus
(iii) Polythene bags and plastics pollute the soil
(iv) The soil which contains greater proportion of big particles is called clayey soil.
(a) (i) & (ii) (b) (i), (ii) & (iii) (c) (iii) & (iv) (d) All of the above
2. (b) First three statements are correct. Soil is definitely the home for organisms like earthworms. The top most layer of the soil is made up of dead and decaying plant matter and is called humus. The plastics and polythene bags pollute the soil as they are non-biodegradable i.e., they can not de decomposed easily. It is the sandy soil which contains greater proportion of big particles not clayey soil.

3. Soil is composed of distinct layers; the topmost layer consists of rotting dead matter called _____.
(a) Clay (b) Humus (c) Sand (d) Gravel
3. (b) The topmost layer of the soil which consists of dead and decaying matter is called humus and is also the most fertile layer.

4. The process of formation of soil by the breaking down of rocks by the action of wind, water and climate.
(a) Weathering (b) Erosion (c) Filtration (d) Evaporation
4. (a) Weathering is the process by which soil is formed. The rocks weather and breakdown into smaller pieces by the action of wind and water and finally fine particles of soil are obtained. Each kind of soil depends on the kind of rocks from which it is formed.

5. Match the following :
(i) Mixture of rock particles and humus (A) Bed rock
(ii) Soil (B) Silt
(iii) Hard layer of soil (C) Soil

(iv) Deposits in river beds (D) Natural resource
(a) (i) - A; (ii) - D; (iii) - C; (iv) - B (b) (i) - B; (ii) - C; (iii) - D; (iv) - A
(c) (i) - D; (ii) - A; (iii) - B; (iv) - C (d) (i) - C; (ii) - D; (iii) - A; (iv) – D

5. (d) Soil is the mixture of rock particles which are present at the lower layers and finer particles towards the top with humus being the topmost layer. Soil is a natural resource and supplies nutrients. Bedrock is the hard layer of soil lying at the lowest level. Silt is the deposits of soil in river beds and is the most fertile soil for farming.

6. The _____ makes the soil fertile and provides nutrients to growing plants.
(a) Water (b) Clay (c) Humus (d) Sand

6. (c) Humus is the topmost layer of the soil which is made up of dead and rotting matter. As a result it has lot of nutrients present in it, which it provides to the plants growing on it.

7. The classification of soil is done on the basis of proportion of particles of various
(a) Shapes (b) Sizes (c) Concentration (d) Solubility

7. (b) The proportion of particles of various sizes forms the basis of the classification of the soil. The soil where the greater proportion of particles is large sized is the sandy soil while the clayey soil has the greater proportion of fine particles. Loamy soil is the kind of soil which is a mixture of sandy and clayey soil i.e. a mixture of particles of greater size and finer particles.

8. _____ Soil is a mixture of sand, clay and silt.
(a) Loamy (b) Clayey (c) Sandy (d) Black

8. (a) Loamy soil is mixed soil. It does not consist of a single kind of soil but is composed of sandy soil, clayey soil and silt (the most fertile soil found near riverbeds). The particles present in this kind of soil are also of mixed nature like the bigger particles in sandy soil and finer particles in clayey soil.

9. Rate of percolation of water in soil can be calculated by the following formula:

(a) Percolation rate (g/sec) $= \frac{\text{Amount of soil(g)}}{\text{Percolation time (sec)}}$

(b) Percolation rate (min. /q) $= \frac{\text{Percolation time (min.)}}{\text{Amount of minerals (g)}}$

(c) Percolation rate (mL/ min) $= \frac{\text{Amount of water (ml)}}{\text{Percolation time (min.)}}$

(d) Percolation rate (min/mL) $= \frac{\text{Percolation time (min.)}}{\text{Amount of water (ml)}}$

9. (c) Percolation of water is the absorption of water by the soil at a given place. It varies from place to place as the cemented area cannot absorb water but the water just flows over into drains while the *kutcha* land can easily absorb water and increase the level of ground water. Percolation rate of water is the time in which the given area of land can absorb a given amount of water. It is measured in (i.e. it has a unit) ml/min.

$$\text{Percolation rate} = \frac{\text{Amount of water (ml)}}{\text{Percolation time (min.)}}$$

10. Lentils and other pulses grow well in _____ soils, which drain water easily.

(a) Loamy (b) Clayey (c) Sandy (d) None of the above

10. (a) Loamy soil as the topsoil is most favorable for most kinds of vegetation including pulses and lentils. It has the right amount of ratio between sandy, clayey and another soil called silt. The sandy soil is well aerated as it has the bigger particles which cannot fit together and thus can't hold water. While the clayey soil has good water retention capacity as it has fine particles which fit close together. This makes loamy soil well aerated as well as having the right water holding capacity and most suitable to grow vegetation.

11. Unit of percolation rate of water in soil is:

(a) (ml/sec) (b) (ml/min) (c) (g/min) (d) (g/sec)

11. (b) As rate of percolation is the time in which a given amount of water is absorbed by a given area of land. It is the ratio of amount of water which is measured in ml to time which is measured in min. So this gives a unit of ml/min.

12. Removal of land surface by water, ice or wind is known as

(a) Weathering (b) Deforestation (c) Erosion (d) Evaporation

12. (c) Soil erosion is the process of removal of top surface of land by the action of wind, water and ice. The strong winds or the water flow during floods carries away the top fertile layer of the soil leaving it infertile, unsuitable for the growth of crops. This occurs usually in areas which do not have a cover of vegetation or where deforestation has occurred and the land is bare and the soil is ready to be blown away.

13. Soil erosion can be prevented by

(a) Planting more trees (b) Cutting down trees (c) Deforestation (d) None of these

13. (a) Soil erosion can be prevented by using measures where the land is not bare but covered. The best way to cover the land is by having a vegetation

cover, planting more trees. The roots of the plants hold the soil firmly and the top layer of soil cannot be carried away by the action of wind or water. Thus deforestation by over graving of land should be prevented and efforts should be made to plant more trees so that the land always has a vegetation cover to prevent soil erosion.

14. On hot summer day air above the soil seems to shimmer because of
(a) Shiny surface of the soil reflects
(b) Air becomes mirror like
(c) Water vapours coming out of soil are reflected by the sunlight
(d) All the above
14. (c) The air above the soil becomes very hot on the hot summer day due to the heat of the air the water present in the soil evaporates and these vapours reflect the sunlight incident on them. This makes the air above the soil shimmer.

15. The mixture of rock particles and _____ is called the soil.
(a) Humus (b) Clay (c) Minerals (d) Water
15. (a) Soil is a mixture of rock particles and humus where humus composed of dead and decaying matter makes the topsoil while the rock particles form the lower layers. The biggest rocks form the lowest layer called the bedrock.

16. Which kind of soil is used for making *matki* and *surahi* etc.?
(a) Clayey soil (b) red soil (c) black soil (d) sandy soil
16. (c) Black soil is most suited for making *matki* and *surahi* etc.

17. A vertical section through different layers of the soil is called:
(a) Soil Profile (b) Horizons (c) Bed rock (d) Soil layers
17. (a) Soil profile is the vertical section through different layers of the soil. Horizons are different layers of the soil as horizons A the topmost layer then horizon B the second layer and horizon C the lowest layer made up of rocks also called Bedrock.

18. _____ soils are heavy as they hold water, have little air.
(a) Loamy (b) Clay (c) Sandy (d) Silt
18. (b) Clayey soil is made up of fine particles which fit close together and have high water retention capacity with very little space for air between them. So this soil becomes heavy due to the large quantity of water present between them.

19. The soil which occurs as a deposit in river beds :

(a) Loamy (b) Sandy (c) Silt (d) Clay
19. (c) Silt is the soil present as deposits in riverbeds. It is formed by the weathering of rocks in the mountains and flows into the rivers. This is the most fertile soil and best suited for growth of plants as its particles are neither too big to lose all the water nor too small to hold all the water.

20. The layers in the soil profile differs in
(a) texture, size
(b) colour, height, texture
(c) water content, colour, size
(d) texture, colour, depth and chemical composition
20. (d) The soil profile is the different layers of soil present in the earth. These layers are different from each other due to their texture, colour, the depth at which a particular layer is present and also the chemical composition of a layer.

21. Many living organisms such as worms, rodents, moles & beetles and roots of small plants are found in
(a) B-horizon (b) Topsoil (c) Bedrock (d) C-horizon
21. (b) Topsoil or Horizon A is the layer which contains large amounts of nutrients. It is the layer in which many rodents live and also the roots of small plants reach only the topsoil not deeper then that.

22. On heating the soil sample in the boiling tube what will you observe?
(a) It starts boiling
(b) No change in the sample
(c) Water vapours condense on the cooler inner walls of upper part of boiling tube
(d) Soil particles start vaporizing
22. (c) When the soil sample is heated in a test tube water droplets are seen on the cooler parts of the test tube. This simply shows that soil has moisture and on heating this moisture or water evaporates into water vapours which condenses on the cooler parts of the test tube and are seen as water droplets.

23. What does PVC stands for?
(a) Polyvinyl Chloride (b) Pent Vinyl Chloride (c) Phenyl Vanadium Chloride
(d) Poly Vanadium Chloride
23. (a) PVC is poly vinyl chloride, a chemical compound which is used to make pipes and other things.

24. The soil rich in clay and organic matter is best suited for which kind of crop?
(a) Pulses (b) Paddy (c) Cotton (d) Wheat
24. (b) Paddy grows well in clayey soil rich in organic matter; along with this the soil should also have a good water retention capacity. This means the ideal soil for growing paddy should be able to hold good amount of water.

25. Match the following
1. Gram (A) Loamy soil
2. Cotton (B) Clayey and loamy soil
3. Lentil (C) Clayey soil rich in organic matter
4. Paddy (D) Sandy soil
25. (a) Gram and wheat grow well in both clayey and loamy soil as these both are good in retaining water and clayey soil rich in humus also becomes very suitable as it is very fertile. Cotton does not need too much of water but requires proper aeration so the ideal soil for growing cotton is sandy-loam or loamy soil. This is because such kind of soil does not hold too much water and is also well aerated. Lentil and pulses require a soil which drains water easily so loamy soil is more suited. While paddy requires large quantity of standing water, so clayey soil rich in organic matter is most suitable for growing paddy.

Class 7
L-9 SOIL
Difficult questions

1. Soil profile is a-
Horizontal section through different layers of soil.
Diagonal section through different layers of soil.
Vertical section through different layers of soil.
Transverse section through different layers of soil.

Ans: (c)

Explanation: Soil profile is defined as a vertical section through different layers of soil. Vertical section allows the study of each and every layer of soil.

2. A soil sample takes 15 minutes to percolate 300 ml of water. Its rate of percolation will be-
10 ml/min.
15 ml/min.

25 ml/min.
20 ml/min.

Ans: (d)

Explanation: Rate of percolatio $\frac{\text{amount of water (ml)}}{\text{percolation time (min)}}$

$= \frac{300 \text{ ml}}{15 \text{ min}}$

= 20 ml/min.

3. On pouring water through the soil kept in a funnel, if 'U' is the initial volume of water in a measuring cylinder and 'V' is its final volume, what will be the percentage of water absorbed by the soil?

(a) $\frac{(U-V)}{\text{weight of soil}} \times 100$

(b) $\frac{\text{weight of soil}}{(U-V)} \times 100$

(c) $\frac{U}{V} \times 100$

(d) $\frac{V}{U} \times 100$

Ans: (a)

Explanation: The formula for calculating the percentage of water absorbed by a particular amount of soil is given by:

$$\frac{(U-V)}{\text{weight of soil}} \times 100$$

where, U is the initial volume of water poured over soil.
V is the final volume of water left after getting filtered through the soil.

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