CBSE Test Paper 05

Chapter 14 Natural Resources

1. Rainfall patterns depend on - **(1)**

   a. The prevailing season in an area
   b. The number of water bodies in an area.
   c. The density pattern of human population in an area.
   d. The underground water table

2. The basic requirement of all life forms are **(1)**

   a. Water
   b. Food
   c. All of these
   d. Temperature

3. Nitrobacter changes **(1)**

   a. Ammonia to nitrate
   b. Nitrate to ammonia
   c. Nitrite to nitrate
   d. Ammonia to nitrate

4. Match the following with correct response. **(1)**

Column A	**Column B**
(1) Organic nitrogenous Compounds	(A) Protein
(2) Top soil	(B) eco-friendly
(3) Bio-fertilizers	(C) Humus
(4) Atmosphere	(D) Regulates temperature

   a. 1-D, 2-A, 3-C, 4-B
   b. 1-A, 2-C, 3-B, 4-D
   c. 1-C, 2-B, 3-D, 4-A

d. 1-B, 2-D, 3-A, 4-C

5. If there were no atmosphere around the earth, the temperature of the earth will **(1)**

   a. be unaffected
   b. increase
   c. go on decreasing
   d. increase during day and decrease during night

6. Name two green house gases. **(1)**

7. Name the two things essential for existence of life on Earth. **(1)**

8. Define atmosphere? **(1)**

9. What is weathering? **(1)**

10. What are CFCs? **(1)**

11. What are biogeochemical cycles? **(3)**

12. Carbon dioxide is necessary for plants. Why do we consider it as a pollutant? **(3)**

13. How is the life of organisms living in water affected when water gets polluted? **(3)**

14. Write a note on how forests influence the quality of our air, soil and water resources. **(5)**

15. What is the importance of water for plant life? **(5)**

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Answers

1. b. The number of water bodies in an area.
   Explanation: The number of water bodies in an area will allow the increased rate of evaporation
2. c. All of these
   Explanation: All form of life requires food, water, favourable temperature to sustain life. Food provides energy for carrying out various metabolic activities. Water and temperature provide optimal condition inside the body.
3. c. Nitrite to nitrate
   Explanation: Nitrobacterbacterium changes Nitrite into Nitrate which can be dissolved in water and can be absorbed by roots of plants. Nitrite and nitrate are forms of nitrogen.
4. b. 1-A, 2-C, 3-B, 4-D
   Explanation: Protein made up of amino acid which is a nitrogenous organic compound
   Top soil rich in organic decompost called humus
   Biofertilizers like manures are organic and thus not produce pollution to the environment
   As air consists of mixture of gases, among which carbon dioxide is mainly responsible for the regulation of temp.
5. d. increase during day and decrease during night
   Explanation: The atmosphere around the Earth prevents the heat radiation to escape into the outer space. Thus, in the absence of the atmosphere, the temperature of Earth will decrease up to freezing point during night and increase during day because atmosphere is no longer there to absorb radiations.
6. Gases such as carbon dioxide, methane, ozone, CFCs. are called green house gases.

7. (i) Natural resources like air, land and water.
   (ii) Energy of the Sun to maintain heat and temperature

8. Atmosphere is a transparent gaseous envelope that surrounds the earth.

9. Weathering is pulverisation of rocks to from fine particles.

10. CFCs or chlorofluorocarbons are man-made organo-halogens used in refrigerators and air conditioners that degrade the ozone layer.

11. The cycling of chemicals between the biological and the geological world is called biogeochemical cycle. The biotic and abiotic components of the biosphere constantly interact through biogeochemical cycles. During these interactions, there is a transfer of nutrients between living organisms and the non-living environment. The four important biogeochemical cycles are water cycle, nitrogen cycle carbon cycle and oxygen cycle.

12. Plants require CO_2 in an optimum amount for the process of photosynthesis. But high concentration of (more than normal) CO_2 is harmful and considered as a pollutant.
    It is considered as a pollutant because carbon dioxide is a green house gas and its excessive amount in the atmosphere results in global warming. It increases the overall temperature of the earth, resulting in changes in the earth's climate. During the last century, the temperature of earth has increased by 0.6ºC. This increase in temperature is ultimately believed to cause the melting of polar ice caps, rise in the sea level, and submerging of the coastal areas.
    Besides that, higher concentration of carbon dioxide may also cause suffocation, hard breathing and choking problems in humans.
    Also it leads to many environmental problems due to the absorption of Infra red radiations

13. Addition of undesirable chemicals like pesticides, fertilisers, industrial wastes and domestic wastes not only kill the aquatic organisms, they also cause water¬borne diseases. With the addition of pollutants, the phytoplankton and other organisms require more oxygen for their degradation, thus decreasing the amount of oxygen available in water. Due to this reduction in the dissolved oxygen in water, there are

adverse effects on the aquatic organisms leading to their deaths.Many aquatic species are on the brink of extinction.Polluted water also negatively impacts the breeding power of aquatic life. It makes fish and plants deficient in their ability to regenerate and reproduce.

14. **Air Resources**

    i. **Oxygen-Carbon Dioxide Balance:** Forests maintain the optimum level of oxygen and carbon dioxide. They function as a sink for excess carbon dioxide being produced due to excessive combustion. Forests also release a lot of more oxygen to compensate for excess being consumed elsewhere in respiration and combustion.
    ii. **Control of Air Pollution:** Both suspended particles and gaseous pollutants are picked up by forest plants.
    iii. **Soil Resources.** Roots of the forest plants hold the soil firmly. Forest cover protects the soil from direct pounding by rain drops. Forest soil is also sufficiently porous to reduce run off and increase infiltration of rain water. All the three factors prevent soil erosion.

    Water Resources.

    i. **Rainfall:** Forests help in increasing the amount and periodicity of rainfall.
    ii. Forest trees retain a lot of water at their bases. Percolation of water into interior of earth produces springs which form rivulets with perennial flow of water.

15. The role of water in a plant's life

    i. Role of water as a medium of fertilization in primitive plants: In lower group of plants like Algae, Fungi, Bryophytes and Pteridophytes to carry gametes for fertilization process water is needed as a medium of transport.
    ii. Role of water to keep root hairs and leaves in a stiff and rigid condition: The single celled root hairs and the multicellular photosynthetic organs leaves have to be stiff and rigid in condition in order to carry out their functional activities. In order to be stiff and rigid the cells of the parts must hold maximum amount of water in them. In such a condition only the root hairs are able to apply pressure to move their way into soil to collect water. Similarly, the leaves of the plant in a well expanded condition are exposed to bright Sunlight to carry their photosynthesis.
    iii. Role of water in transporting minerals from the soil into roots: Plants obtain their

minerals from the soil. Water present in the soil will dissolve these minerals into smaller ions and move these ions into roots passively along with the water they absorb.

iv. Role of water in transporting food materials in a plant: The glucose sugar produced in the plant body will be dissolved in water and it always be transported in a dissolved form through phloem tissue of the plant.

v. Role of water in metabolic activities of the cell: Cytoplasm is an active center of a cell where large number of constructive and destructive chemical reactions occur. These chemical reactions will help to synthesize new materials for the cell as well as the energy required for the activities of the cell. The chemical compounds present in the cytoplasm will need water as medium for the reactions to occur between them.

vi. Role of water in opening and closing of stomata: Stomata are tiny microscopic pores present on the surface of leaves. Each stoma is made up of two kidney shaped guard cells and because of their shape they leave a small openings in between them. The guard cells if they hold maximum amount of water they open and if they include little amount of water they close. So, the opening and closing of stomata is dependent on the water content of the guard cells.

vii. Role of water in Photosynthesis: Water acts as a source of hydrogen to reduce carbon dioxide to glucose in anabolic chemical reactions of photosynthesis.

viii. Role of water in cooling the plant body: Normally, every plant through out the day will be well exposed to high intensity of Sunlight. The water vapour released from the surface of the plant body through evaporation stays around the plant body and cool it. This will help the plant body to protect itself from dehydration and desiccation.

ix. Role of water in germination of seeds: When we sow seeds in soil through imbibition seeds drink water from the soil and swell. The force developed through this activity will brake the seed coat and allow the seed to germinate.