Date: 24/9/2021

Q1. Do you know of any activity which may be polluting water source?

Q2. You have seen weather reports on television and in newspapers. How do you think we are able to predict the weather?

Q3. What are the different states in which water is found during the water cycle?

Q4. Name two biologically important compounds that contain both oxygen and nitrogen.

Q5. List any three human activities which would lead to an increase in the carbon dioxide content of air.

Q6. How is our atmosphere different from the atmospheres on Venus and Mars?

Q7. How does the atmosphere act as a blanket?

Q8. What causes winds?

Q9. How are clouds formed?

Q10. List any three human activities that you think would lead to air pollution.

Q11. Why is the atmosphere essential for life?

Q12. Why do organisms need water?

Q13. What is the major source of fresh water in the city/town/village where you live?

Q14. We know that many human activities lead to increasing levels of pollution of the air, water-bodies and soil. Do you think that isolating these activities to specific and limited areas would help in reducing pollution?

Q15. How is soil formed?

Q16. What is soil erosion?

Q17. What are the methods of preventing or reducing soil erosion?

Q18. How are living organisms dependent on the soil? Are organisms that live in water totally independent of soil as a resource?

Q19. Write a note on how forests influence the quality of our air, soil and water resources?

Q20. What is the greenhouse effect?

Q21. What are the two forms of oxygen found in the atmosphere?

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S1. Sewage disposal in our cities and towns and the waste from factories cause pollution of water. Fertilisers and pesticides used in farming also cause water pollution mainly in villages.

S2. Whather can be predicted by studying wind pattern which decide rainfall. It also shows areas of low pressure or high pressure. This information helps in predicting weather.

S3. The different states in which water is found during the water cycle are liquid (water), gas (water vapour) and solid (snow).

S4. Proteins, nucleic acids (DNA and RNA), alkaloids, urea and some vitamins.

S5. (a) Burning of wood (b) Burning of coal (c) Cutting of trees.

S6. The major component of the atmosphere on Venus and Mars is carbon dioxide. Actually, carbon dioxide constitutes up to 95-97%of the atmosphere on Venus and Mars whereas our atmosphere contains only less than 1% carbon dioxide. Thus, there is no possibility of any life on these planets.

S7. Air is a bad conductor of heat. The atmosphere keeps the average temperature of the Earth fairly steady during the day and even during the course of the whole year. The atmosphere prevents the sudden increase in temperature during the daylight hours. And during the night, it slows down the escape of heat into outer space.

S8. Uneven heating of air over land and water-bodies causes winds. Water vapour is formed due to the activities of living organisms and the heating of water-bodies. The air above the land gets heated faster and starts rising. In this way, a region of low pressure is created and air over the sea moves into this area of low pressure resulting into winds.

S9. When-water bodies like oceans, rivers, ponds and lakes etc., are heated during the day a large amount of water evaporates and goes into the air. This air also gets heated. It rises up carrying the water vapour with it. As the air rises, it expands and gets cooled. The condensation of water vapour forms tineydroplets and may cause rain.

S10. (a) Burning of fossil fuels like coal and petroleum.

(b) Incomplete burning of wood.

(c) Addition of dust and smoke into air.

S11. Atmosphere is the layer of air above the Earth's surface. It is essential for life because it provides oxygen to living beings to breathe and to carry out various human activities.

Eukaryotic cells and many prokaryotic cells need oxygen to break down glucose molecules and get energy to carry out their activities.

Air is a bad conductor of heat. Hence, the atmosphere also prevents the sudden change in temperature.

S12. Water is essential for the survival of life.

(a) All cellular processes take place in wter as medium.

(b) All reactions that occur within our body and cells, take place between substances that are dissolved in water.

(c) Substances are transported from one part of the body to the other in a dissolved form in water.

(d) Culture of fish and other aquatic animals like prawns are possible only in water.

(e) Plants are dependent on regular supply of water through irrigation.

Thus, the organisms need to maintain the level of water in their bodies to stay alive.

S13.

Location	Major source of fresh water
City	Municipal water supply system
Town	Municipal water supply system
Village	Ground water and well.

S14. By isolating the human activities that lead to increasing levels of pollution, to specific and limited areas we can reduce pollution to some extent. For example, installation of brick-kiln away from the village/town/city would be helpful in reducing air pollution. Similarly, locating the chemical factories to specific and limited areas would help reduction in water pollution and disposal of gargage and polythene bags etc. at a particular place would reduce soil polllution.

S15. Earth is broken down by various physical, chemical or some biological processes into fine particles called soil.

Following are the factors or proecsses responsible for making soil:

(a) **Sun:** During the day, the sun heats up rocks so that they expand. At night, these rocks contract due to cooling and crecks are formed. In this way, huge rocks break up into smaller pieces.

(b) **Water:** Water can get into the cracks formed into the rocks due to uneven heating by the sun. The freezing of water would widen the cracks resulting into formation of soil.

(c) **Wind:** Strong winds also erode rocks and carry sand from one place to another to form soil.

(d) **Living organisms:** The lichen grow on the surface of the rock and cause it to powder down to form thin layer of soil. The plants like moss and the roots of other trees also break the rocks and make soil.

S16. Soil erosion is the removal of soil form its surface by wind, water and deforestation etc.

Strong winds carry soil particles from one place to another to cause soil erosion.

Fast runnig water creates depression in the soil to cause soil erosion.

Deforestation (cutting of trees) and overgrazing also lead to soil erosion.

S17. Soil erosion can be controlled by the following ways:

(a) By planting more trees (forestation).

(b) By growing grasslands.

(c) By providing proper drainage system in the fields.

(d) By terrace cultivation on sloping fields.

(e) By control of grazing.

S18. Earth is the only planet on which life is possible. The living organisms get their food form the soil. The soil is not only a mixture of minerals but also contains living things, A large number of organisms present in the soil include earthworms, ants, termites, bacteria and fungi etc.

The organisms that live in water are not totally independent of soil as a resource because nutrients from the soil flow into water, which are required for their growth.

S19. Forests help in maintaining carbon dioxide and oxygen ratio in the atmosphere. Forests inhale carbon dioxide and exhale oxygen which enhances the quality of air by increasing the oxygen content.

The roots of plants bind the soil firmly and hence help in controlling soil erosion.

Forests regulate water cycle and earth's temperature. Forests cause more rains which are helful in reducing the shortage of water.

S20. Some gases mainly carbon dioxide and methane trap the sunlight in glass enclosure called greenhouse. The temperature inside the enclosure becomes much higher than the surroundings. These gases prevent the escape of heat from the Earth. The increase in the average temperature worldwide due to increase in the percentage of greenhouse gases (carbon dioxide and methane) is called greenhouse effect. Thus, greenhouse effect leads to global warming.

S21. (a) Oxygen (diatomic molecule) as O_2.

(b) Ozone (containing 3 atoms of oxygen) as O_3.