3. Properties of Natural Resources

Q. 1) Fill in the blanks with the appropriate term.

(temperature, volume, mass, density, humidity, acidic, weight, neutral, shape)

1. The capacity of air to hold moisture depends upon the ..... of the air.

Ans. humidity

2. Water does not have a ..... but has definite ..... and ..... .

Ans. shape, density, mass

3. While freezing, the ..... of water is lowered.

Ans. density

4. ..... Soil has pH 7.

Ans. Neutral

5. Shadu soil is used in ..... .

Ans. statues and idols

6. Acidic soil has pH ..... .

Ans. less than 6.5

Q. 2) Why is it said that.

1. Air is a homogeneous mixture of various gases.

Ans. Air is a homogeneous mixture of various gases because there are many constituent gases in the air. They are in the form of mixture and separate existence of each gas is not felt. The individual gases cannot be separated easily.

2. Water is universal solvent.

Ans. In water there are many substances easily dissolved so water is said to be the universal solvent.

3. There is no alternative to water for cleaning purposes.

Ans. Many substances can easily dissolve in water. We use water for cleaning utensils, bathing and washing clothes. It becomes very useful solvent to us. It is easily and cheaply available remedy for cleaning purpose. So it is said that there is no alternative to water for cleaning purpose.

4. The earth's surface remains warm.

Ans. The earth is receiving energy from the sun. This energy is reflected by the earth in the form of heat. However some constituents of air, carbon dioxide, water vapour absorb a part of this heat. Therefore air surrounding the earth keeps earth's surface warm.

Q. 3) What will happen if.....

1. The amount of water vapour in the air increases.

Ans. The amount of water vapour increases in the air then the humidity rises and air becomes humid.

2. Only one crop is grown repeatedly in the soil.

Ans. When only one crop is grown repeatedly in the soil then the fertility of soil is lowered and texture disturbs. Soil does not support the cultivation; crops will not give proper yield.

Q. 4) With whom should I pair up?

1.

Group 'A'	Group 'B'
1. Air	a. Excretion
2. Water	b. Scattering of light
3. Soil	c. Plasticity

Ans.

Group 'A'	Group 'B'
1. Air	Scattering of light
2. Water	Excretion
3. Soil	Plasticity

2.

Group 'A'	Group 'B'
1. Alkaline soil	a. pH less than 6.5
2. Acidic soil	b. pH 6.5 to 7.5
3. Neutral soil	c. pH more than 7.5

Ans.

Group 'A'	Group 'B'
1. Alkaline soil	pH more than 7.5
2. Acidic soil	pH less than 6.5
3. Neutral soil	pH 6.5 to 7.5

3.

Group 'A'	Group 'B'
1. China clay	a. Yellow colour
2. Shadu soil	b. Red colour
3. Terracotta soil	c. Whitish colour
4. Multani soil	d. White colour

Ans.

Group 'A'	Group 'B'
1. China clay	White colour
2. Shadu soil	Whitish colour
3. Terracotta soil	Red colour
4. Multani soil	Yellow colour

Q. 5) State whether the following statements are true or false.

1. Sandy soil has low capacity for holding water.

Ans. True.

2. Sea water is a bad conductor of electricity.

Ans. False. (Sea water is good conductor of electricity)

3. The substance in which a solute dissolves is called a solvent.

Ans. True.

4. The Pressure exerted by air is called atmospheric pressure.

Ans. True.

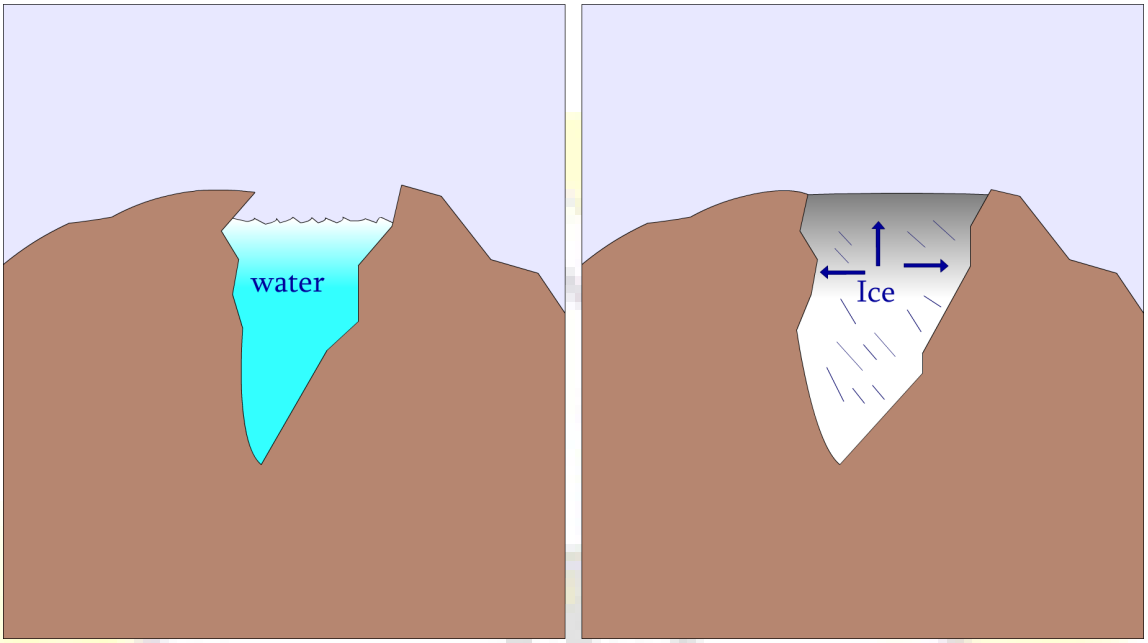
5. China clay is used in making statues and idols.

Ans. False. (China clay is used making bathroom tiles, tanks, laboratory apparatus, masks, and jars, etc.)

6. Multani soil is used in cosmetics.

Ans. True.

Q. 6) Explain the picture in your own words.



(a) (b)

Ans. 1) In figure 'a' water is seen in the crevice over a land surface and water is in liquid form.

2) In figure 'b' the same water is converting into solid ice.

3) When the temperature is decreasing, the water is freezing.

4) Since there is formation of ice i.e. the temperature is less than 4^0 C.

5) The water whose temperature is less than 4^0 C becomes less dense and volume Increases.

6) On this temperature water starts expanding which is shown by arrows in Figure 'b'.

7) However the anomalous expansion of water the crevice in figure 'b' now looks bigger than the crevice in figure 'a' .

Q. 7) Write answers to the following questions in your own words.

1. How is light scattered by the air?

Ans. 1) Air is a mixture of very fine particles of some gases, dust, smoke and moisture. 2) When the rays of light falls on these minute particles, the particles spread the light in all directions. 3) This is called scattering of the light.

2. Explain the various properties of water?

Ans. Water has following properties:

1) Cleaning abilities: Water is useful for cleaning purposes such as for washing clothes; bathing etc. It can clean almost everything. Thus is used in our day- to- day life.

2) Universal solvent: Many substances are soluble in water. It is a universal solvent. Water is used as solvent in factories, laboratories, foodstuffs.

3) Fluidity: Water has the property of fluidity. Due to which it can flow. Water is so used for transport and for generation of electricity.

4) Ability to perform body functions: water takes part in the different biochemical reactions taking place in the body and

in various types of biological process occurring in the body such as digestion, excretion etc.

5) Coolant: Water is a good coolant. e.g. in motor vehicles to control the temperature of the engine.

3. Why is the density of seawater more than that of rain water?

Ans. The sea water contains many salts in dissolved state. Therefore the density of sea water is more than the rain water.

4. What is the importance of good soil structure?

Ans. 1) When soil is of good quality the roots get sufficient supply of oxygen. 2) Good soil structure results in good fertility of soil. 3) In such soil the water drainage is good. 4) The plants grow well in such soil.

5. What are the various uses of soil?

Ans. 1) Plasticity: Plasticity is the property of soil. It can be given any required shape. However various articles are made from soil. They are baked and made hard for longer use. e.g., bricks, idols, storage earthen pots, earthen lamps, etc.

2) Water conservation: Soil has water holding capacity. So, water is available to us, throughout the year.

3) Plant conservation: Plants can grow in the good condition in the soil.

4) Medicine: Soil has good wounds healing property.

5) Cosmetic: Multani soil used in cosmetic products.

6. What is the need and importance of soil testing from the point of view of farmers?

Ans. The quality and amount of production of crop depends on fertility of soil. Certain crops require certain types of constituents in the soil. 1) By testing the soil constituents of soil could be understood. 2) Colour, texture and the proportion of organic matter in the soil is tested by various testing procedures. 3) If there is any deficiency in the soil that in also found out due to this testing. Measures to be taken to remove deficiency are also suggested. 4) The pH and the electrical conductivity tests are particularly useful in understanding the characteristics of soil.

7. What is the importance of air in transmission of sound?

Ans. 1) Sound cannot travel in vaccum. The medium of air is required for the transmission of the sound. 2) The vibrations from the source of sound pass from molecule to molecule in air and reach our ear. Hence air is most important for the transmission of the sound.

8. Why should a glass bottle completely filled with water never be kept in freezer?

Ans. 1) As water has anomalous behavior of expansion while getting frozen. 2) When the temperature goes below 4^0C the density of water start decreasing and at the same time the volume increases. 3) Temperature in freezer is always less than 4^0C. This causes expansion of the water. Due to expansion, the bottle may burst. 4) Bottle is made up of glass. The broken glass pieces may cause harm. Therefore the glass bottles should not be kept in freezer with completely filled.

Q. 8) Use your brain power!

1. What is the effect of increased temperature on the pressure of air?

Ans. When the air inside a closed container, if it's temperature increases, the pressure of air will be increased. When the temperature increases the molecules in air start vibrating with speed. Therefore there pressure also increases. But for open air or in open space if the temperature increases, then atmospheric air goes upper side so air pressure decreases.

2. Will sound be heard in space?

Ans. Medium is required for the propagation of air. We can hear the sounds due to medium of air. If this medium of

transmission is taken off then we cannot hear the sound. In space there is no air medium of transmission. Therefore we will not be able to hear anything.

3. What would happen if all the air surrounding us is removed?

Ans. If all the air surrounding us is removed vacuum will be created. And since sound cannot travel through vacuum we will not able to hear any sound. The oxygen in the air is required for our survival so without air life will be impossible. However everything will come to an end if all the air surrounding us is removed.

4. In summer, wet clothes dry quickly, but in the rains, they do not, why is this so?

Ans. During summer season, the temperature is high and humidity is less. So the water in the clothes evaporates faster in summer and clothes dry quickly in summer. On the other hand during rainy season temperature is low and humidity is high. The water in the clothes does not evaporate fast in rainy season, hence clothes dry slowly in rainy season.

5. In cold countries, how do aquatic animals remain alive even after the rivers or lakes freeze in winter?

Ans. Because of anomalous expansion of water, rivers, the lakes or any water body freezes only on the upper regions. In

cold countries the temperature of the upper regions of water decreases and becomes lesser than 4^0C. At 4^0C water has maximum density. These dense waters start moving to deeper regions. The deeper waters come to the top to replace these cold waters. The temperature of upper region water reaches 0^0C and starts freezing. The lower regions therefore, remain at 4^0C and are in liquid state. The aquatic animals remain safe up these waters. So ice cover on the top, the external lesser temperatures do not reach lower regions. So, aquatic animals remain alive even after the rivers or lakes freeze in winter.

6. Why is it difficult to plough clay soil?

Ans. The clay soil is very soft. The proportion of small particles in clay soil is more. The water logging occurs in this soil very easily. Therefore it becomes difficult to plough clay soil.