Chapter 5 : Substances in the surroundings - their states and properties

Question. 1. Fill in the blanks:

(1) Characteristic properties of substances depend on its **physical** state and the **arrangement** of particles in it

(2) **Solid** state has a definite shape of its own.

(3) Nowadays **digital** thermometers are frequently used.

(4) Water is continuously **evaporating**

(5) Solid carbon dioxide is called **dry ice**

(6) Ability to return to its original shape is called **elasticity**

(7) Metals like gold can be drawn into wires due to its property of **ductility**.

Question. 2. One word in the following statements is wrong. Correct it and rewrite the statements:

(1) Boiling of water means sublimation.

(2) Each substance has a specific condensation point which is the same as its melting point.

(3) Sand is melted to make wax.

(4) To check whether the white powder is salt or chalk powder, we use the property of hardness as a confirmatory test.

(5) Upon heating the crystals of iodine convert into liquid.

(6) Liquids flow downwards from the slope. This property is called transparency.

Answer.

(1) Wrong. Boiling of water means vaporization.

(2) Wrong. Each substance has a specific condensation point which is the same as its boiling point.

(3) Wrong. Sand is melted to make glass.

(4) Wrong. To check whether the white powder is salt or chalk powder, we use the property of solubility as a confirmatory test.

(5) Wrong. Upon heating, the crystals of iodine convert into gas.
(6) Wrong. Liquids flow downwards from the slope. This property is called fluidity.

Question. 3. In a paragraph below, write 'solid', 'liquid' or 'gas' in each of the brackets depending on the substance referred to just before:
On a bright sunny day, Riya and Gargi are playing with a ball (**solid**) in the park. Gargi feels thirsty. So Riya brings tender coconut water (**liquid**) for her. At the same time, a strong breeze (**gas**) starts blowing and it also begins to rain (**liquid**). They run back into the house (**solid**), change their clothes (**solid**) and then their mother gives them a cup (**solid**) of hot milk (**liquid**) to drink.

Question. 4. Who am I?
(1) I'm found in a thermometer, I measure temperature. **Mercury**
(2) I make things hold or cold. **Heat**
(3) I have no shape whatsoever! **Liquid and Gas**
(4) I dissolve in water, but not in kerosene. **Salt**

Question. 5. Write the properties of these substances:
(1) Water: It is a colorless, odorless liquid that boils at 100°C and freezes at 0°C.
(2) Glass: It is a transparent, brittle material made by melting sand, with poor heat conductivity.
(3) Chalk: It is a soft, white, porous material that easily breaks and dissolves poorly in water.
(4) Iron ball: It is a hard, dense, metallic sphere that is magnetic and a good conductor of heat and electricity.
(5) Sugar: It is a sweet, crystalline substance that dissolves easily in water and caramelizes when heated.
(6) Salt: It is a white, crystalline compound that dissolves in water and has a salty taste.

(7) Flour: It is a fine powder made from grains, used in cooking, and absorbs moisture easily.
(8) Coal: It is a black, solid fossil fuel that burns to produce heat and energy but leaves behind ash.

Question. 6. What is it made from? Why?
(1) A sickle to cut sugarcane: A sickle is made from iron or steel because these metals are strong and sharp for cutting tough plants like sugarcane.
(2) The sheets used for roofing: Roofing sheets are made from materials like metal, asbestos, or plastic because they are durable, weather-resistant, and provide good protection.
(3) A screwdriver: A screwdriver is made from steel for strength and durability, with a plastic or rubber handle for grip.
(4) A pair of tongs: A pair of tongs is made from metal like stainless steel because it can withstand heat and pressure when gripping objects.
(5) Electric cables: Electric cables are made from copper or aluminum because they are excellent conductors of electricity.
(6) Ornaments: Ornaments are made from gold, silver, or gemstones because these materials are valuable, durable, and attractive.
(7) Pots and pans: Pots and pans are made from metals like stainless steel or aluminum because they conduct heat well and are durable for cooking.

Question. 7. Answer the following questions in one sentence:
(1) What did scientist J. Willard Gibbs show?
Answer. J. Willard Gibbs showed that the characteristics properties of a substance depend on its physical state and the arrangement of particles in it.
(2) Which unit is used to measure the body temperature?
Answer. The body temperature is measured in Fahrenheit.
(3) What is sublimation? Write the names of everyday substances that sublimate.

Answer. The change of a solid substance directly into a gas or vapour without first changing into a liquid is called sublimation. Example. Camphor, naphthalene balls, iodine crystals, ammonium chloride or navsagar

(4) How are metals obtained?

Answer. Metals are found in the form of minerals deep inside the earth's crust. They are removed and processed to obtain metals.

(5) Use your brain power! (Textbook page 36)

On opening a box of camphor, its smell spreads all around. Why does it happen?

Answer. The smell of camphor spreads because camphor sublimates, turning directly from solid to gas, allowing its molecules to disperse quickly through the air.

Question. 8. Why does this happen? OR Give reasons.

(1) Coconut oil thickens in winter.

Answer. Coconut oil thickens in winter because the temperature drops below its melting point, causing it to solidify.

(2) Kerosene left in an open dish disappears.

Answer. Kerosene left in an open dish disappears because it evaporates, turning from liquid to vapor and mixing with the air.

(3) The fragrance of incense sticks lighted in one corner of a room spreads to the other corner.

Answer. The fragrance of incense sticks spreads because the smoke particles diffuse through the air, carrying the scent throughout the room.

(4) What do you see in the picture?

Answer. We see that the air filled balloon put in the trough of water is floating but the apple sinks to the bottom. Apple is a solid substance and hence its density is more. Balloon floats as it is lighter due to air in it.

Question. 9. Write short notes on:

(1) Uses of changes in physical state: Refrigeration uses the change from liquid to gas to absorb heat and cool. Water is boiled to create steam for cooking or generating electricity. Metals are melted to shape them into different products. Dry ice sublimates to create cooling and fog effects.

(2) Characteristics of substances: Substances have unique physical properties like color, texture, and density that can be observed. They also have chemical properties that show how they react with other substances. Each substance has specific melting and boiling points that indicate when it changes state. Solubility varies, affecting how substances mix with others.

(3) Characteristics of metals: Lustre refers to the shiny appearance of metals, making them visually appealing. Metals are good conductors of heat and electricity. Metals are Malleable, means itcan be hammered or pressed into shapes without breaking. Metals are ductile which allows metals to be stretched into wires without losing their strength.