

Ch-3

Matter

Q1. Name the smallest particle from which matter is made up.

Ans. The smallest particle from which matter is made up is atom.

Q2. What are molecules?

Ans. Molecules are the smallest unit of matter. They exhibit all the properties of that kind of matter and are capable of independent existence.

Q3. Given reasons:

a) Liquids and gases flow but solids do not?

Ans. a) The molecules of liquids and gases are far apart i.e. have more gaps, intermolecular attraction force is very less as compared to solids, hence liquids and gases can flow but solids do not as gaps in solid molecules is less and molecular force of attraction very strong.

b) Intermolecular force of attraction is least and intermolecular spaces are very large, hence gases can fill up the space available to them.

c) Scent fumes (molecules) being gases fill the space between air molecules and the molecules of air fill the spaces between ~~see~~ scent molecules. Due to diffusion, fumes spread into a room.

d) The molecules of air are far apart i.e. large gaps and we can walk through air easily.

e) The molecules of liquid are loosely packed and intermolecular force of attraction is small but number of molecules in it remain the same. Hence liquids have definite volume but no definite shape.

f) When a teaspoon of sugar is added to half a glass of water and stirred the water level in the glass remain unchanged because the sugar particles are adjusted between the water molecules as inter-molecular gaps are more in liquids

g) This is because gases can diffuse or flow in all directions.

h) When we put a drop of red ink in a glass of water, its ~~part~~ particles diffuse with particles of water slowly but continuously and the water turns red

9. a) The force of attraction between particles of the same substance is called ~~the~~ cohesive force.

b) The phenomenon of intermixing of particles of one kind with another kind is called diffusion.

c) The zig zig zag motion of particles suspended in a medium is called Brownian movement.

Exercise P

Q1 Define matter.

Ans Anything that has mass and occupies space is called matter.

Q2 What are the two main types of matter? Give two examples for each type.

Ans The two main types of matter are:

1. Living matter: The earth is home to all kinds of plant and animal. They can grow, move and reproduce on their own.
Examples: Plant, lotus animal, human etc.

2. Non living matter: Most of matter in the universe is non living. It means that it does not grow, move or reproduce on its own. It can be natural or man made.

a) Natural matter: It occurs in natural and can be used to make useful substance, eg: wood, coal, silk, water, stone, cotton, juice, cereals, fruit etc.

b) Man made matter: It is produce artificially from nature matter eg plastic, soap, detergents, medicine, glass, nylon, steel, ceramic etc.

Q3. Different between living and non living matter.

Ans Living matter:

1. The earth is home to all kinds of plant and animals. They can grow move and reproduce on ~~the~~ their own.

2. It is natural only.

Non-living matter:

1. Most of the matter in the universe ~~is~~ is non living. It means that it does not ~~grow~~ grow move or reproduce on its own.

2. It can be natural or man made.

Q4 Select natural and man made matter from the following

Wood	detergents	cotton
Plastic	coal	Glass
Silk	water	nylon
Medicines	ceramic	fruits

Ans) Wood, silk, coal, water, fruits are natural matter.

Plastic, medicines, detergents, ceramic, cotton glass, nylon.

Q3 Give one difference between atoms and molecules.

Ans Atoms may or may not have ~~independent~~ independent existence. While molecules have ~~id~~ independent existence.

Q4. Define

- a) Intermolecular force of attraction
- b) Intermolecular space

a) The molecules of matter are ~~always~~ always in motion and attract each other with a force and this force is called intermolecular force of attraction, due to which they are held together..

b) The molecules can move only when there are gaps or space between them this space is called intermolecular space.

Q5 Name the three states of matter and define

Q5 Name the three state of matter and define them.

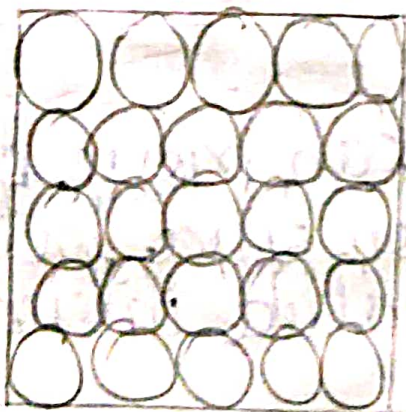
Ans The three states of matter are

1. Solid state

2. liquid

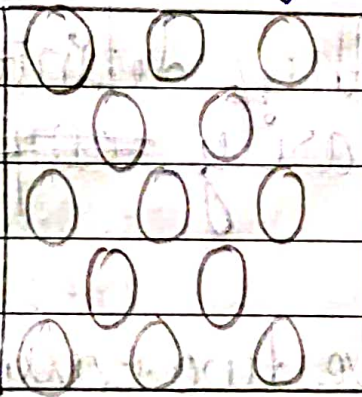
3. Gases

1. Solid states: The molecular are very close to each other, hence intermolecular spaces are small and intermolecular force is strong



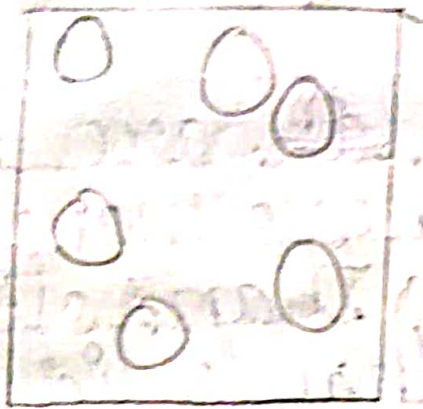
Hence solid have definite volume, rigid, retain definite shape and are incompressible

2. Liquids: The molecules are less closely packed have more intermolecular spaces than solid less stronger force than solid



Hence liquid have definite volume but no definite shape. They take the shape of the container in which they are put.

3. Gases: ~~The mol~~ The molecular in the gases are far ~~ap~~ apart with weaker force of attraction.



Hence gases have neither definite volume nor definite shape but easily ~~comp~~ compressible.

Q6. What are fluids? Give two examples

Ans Substance that flow are called fluids. Both gases and liquids are fluids eg gases (carbon dioxide, hydrogen) liquids (water, petrol and sulphuric acid).

Q7 Classify the following into solid liquids and gases

Oxygen, milk, common salt, wax, stone, LPG, Carbon dioxide, sugar, mercury, coal, blood, butter, copper, ~~coal~~ coconut oil, kerosene

Solid	Liquid	Gases
Common salt	Milk	Oxygen
Wax	Mercury	LPG
Stone	Blood Blood	Carbon dioxide
Sugar	Coconut oil Coconut oil	
Coal	Kerosene	
Butter		
Copper		

Ex-III

Q1) State the three effects of heat on Matter.

Ans) When a substance is heated, it can cause

1. Intercorversion of states of matter
2. Thermal expansion of the substance.
3. Chemical ~~change~~ change

Q2a) Define: interconversion of state of matter.

b) What are the two conditions for the interconversion of states of matter?

Ans) The process by which matter changes from one state to another and back to original state, ~~at~~ without any change in its chemical composition

b) Two conditions are:

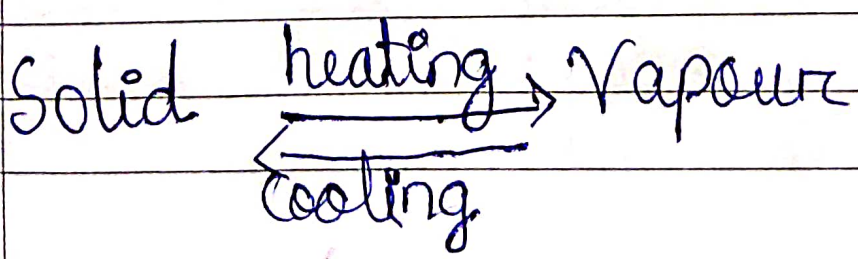
1. Change in temperature
2. By applying pressure

Q3. a) Fusion: The heating process by which a solid changes into the liquid state is called fusion

b) The heating process by which a liquid changes into its vapour state is called vaporisation

c) Condensation: The process by which a substance in gaseous state change into its liquid state is called condensation

d) Sublimation: The change of solid on heating to vapour directly and vice-versa without passing through the liquid state is called sublimation.



e) Diffusion: The phenomenon of intermixing or spreading of gaseous molecules is called diffusion.

f) Melting point: The fixed temperature at which a solid changes into a liquid at a given pressure is called its melting point. The temperature remains constant as long as the conversion is going on.

g) Boiling point: The fixed temperature at which a liquid starts changing into gaseous state is called its boiling point. The temperature remains constant till the whole of the liquid changes into gaseous state.

h) Change of vapours on cooling to liquid is called liquefaction.

Q4 a) Solidification: The process of changing liquid into a solid state by ~~set~~ cooling is known as solidification.

Ex - Water \rightarrow ice

~~Condens~~ Condensation: The process of changing a gas or vapour state to a liquid state by cooling is known as condensation.
Example: Steam \rightarrow Water

b) Melting: The fixed temperature at which a solid changes into a liquid at a given pressure is called its melting point.
eg ice \rightarrow water

Boiling: The fixed temperature at which a liquid starts changing into gaseous state is called its boiling point. eg water \rightarrow steam

c) Vapourisation: The process by which a ~~st~~ substance changes from a liquid state to vapour state is called vapourisation or evaporation.

Eg. Water changes into gaseous state on heating

Gas: The substance which remain in the gaseous state under ~~normal~~ normal condition of temperature and pressure are called gases. eg - Oxygen, hydrogen, nitrogen

d) Miscible: liquids which mix with each other are called miscible liquids. Ex: Water and alcohol

Immiscible liquid: liquid which do not mix with each other are called immiscible liquids. Ex: Water and oil

Q5. During interconversion of state of matter composition of substance remain the same matter changes from one state to another and back to the original state, while chemical reaction involves re-arrangement of the molecular structure and composition changes.

Q6. As a liquid is heated, its particles starts gaining energy and move more vigorously which increase the gaps between the particles and decreasing the force of attraction. Ultimately a liquid changes into gaseous state.

Q7. Water from oceans, river, lakes from leaves of ~~the~~ tree (transpiration) changes into vapours when temperature increase or evaporates and enters the atmosphere as clouds when temperature fall the vapour change into water and some of it in the form of snowfall on mountain and earth.

In the form of water and hales and this continues. Thus water cycle is examples of interconversion of states of water.

Q8 When metal ball is heated, it expands. This can be proved by following experiment. Take a metallic ring and ball. Try pass the metal ball through the ring. The ball is able to pass through the ring. Now heat the metal ball for 5-6 min. The hot ball is not be able to pass through the ring.

Q9. On heating candle wax melts then turns into vapours which reacts with air to produce two new substances, carbon dioxide and water. Therefore a candle on burning becomes smaller and smaller and the part of wax which has undergone chemical change.

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