

CW
20.7.21

Ch-3 Ex-II (Ans)

Matter classmate

Date _____

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①

- ① The smallest particle from which matter is made up is atom.
- ② Molecules are the smallest unit of matter. They exhibit all the properties of that kind of matter and is capable of independent existence.
- ③ Atoms may or may not have independent existence. While molecules have independent existence.
- ④ a) The molecules of matter are 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 is called intermolecular space.
- ⑤ The three states of matter are:
Solids
Liquids
Gas

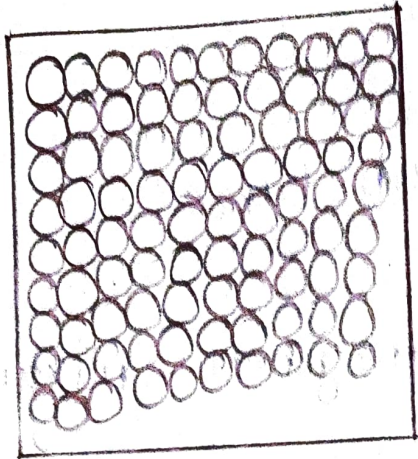
i) Solid state: The molecules are very close to each other hence intermolecular spaces are small and intermolecular force is strong. Hence solids have definite volume, rigid, retain definite shape and are incompressible.

ii) Liquids: The molecules are less closely packed have more intermolecular space than solids, less stronger forces than solids.

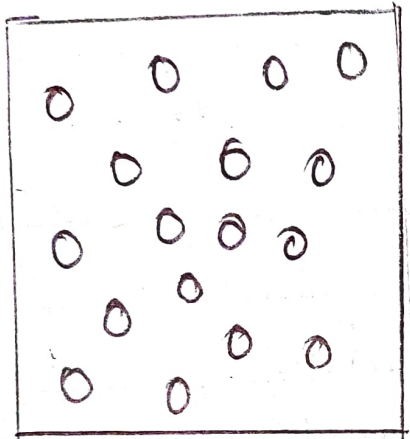
⑥ Substances that can flow are called fluids. Both gases and liquids are fluids, e.g. gases (carbon dioxide, hydrogen), liquids (water, petrol and sulphuric acid).

<u>Solids</u>	<u>Liquids</u>	<u>Gases</u>
Common salt	Milk	Oxygen
Wax	Mercury	L.P.G
Stone	Blood	Carbon Dioxide
Sugar	Coconut oil	
Coal	Kerosene	
Butter		
Copper		

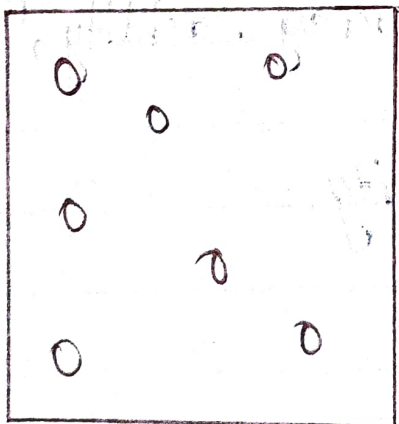
⑤ iii) Gases: The molecules in the gases are far apart with weakest force of attraction. Hence gases are neither definite volume nor definite shape but easily compressible.



Solid



Liquid



Gas

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Ex-II (Ans) (3)

classmate

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① Atom is the smallest particle from which matter is made up of.

⑧ a) Liquids and gases have more gaps between their molecules thus can move like fluids. But solids ~~have~~ can't move thus they can't flow.

b) A gas can move freely anywhere and also can fill up any space available to it.

c) The odour is gas, so it can move from one room to another like gas.

Gas has b

d) ~~Our body is made up of solid and solid occupies space through air.~~

e) Liquids have a area in which they are present like Ex- In a pond the volume of water is in its boundary. But liquids don't have definite shape it only depends on the size of the container.

f) Because liquid has space between them if the didn't then the sugar will not be able to dissolve also there are no physical changes in the water level.

- g.) Because gas can move to any place / move freely.
- h.) It shows that a red ink drop has so many molecules to make a glass of water red.
9. a.) Cohesive force - The force of attraction between two molecules of the same kind.
- b.) Diffusion - The mixing of two substances by motion.
- c.) Brownian movement - The zig-zag motion of path of particles.

⑧ d) The molecules of air are far apart i.e. large gaps and we can walk through air easily.

⑩) When we invert the bottle and blow air into the bottle through the side opening, it creates high pressure inside the bottles and the egg is kicked out of the bottle.

Exercise - III

①) When a substance is heated, it can cause:

- 1) Interconversion of states of matter.
- 2) Thermal expansion of the substance.
- 3) Chemical change.

② a) The process by which matter changes from one state to another and back to original state, without any change in its chemical composition.

b) Two conditions are:

- Change in temperature.
- By applying pressure.

③ a) Fusion: The heating process by which a solid changes into the liquid state is called fusion.

- b.) Vaporisation: 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 changes into its liquid state is called condensation.
- d.) Sublimation: The change of solid on heating to vapours directly and vice-versa without passing through the liquid stage is called sublimation.

Solid $\xrightarrow{\text{Heating}}$ Vapour
 $\xleftarrow{\text{Cooling}}$

- e.) Diffusion: The phenomenon of ^{inter}mixing 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 changes into gaseous state is called its boiling point. The temperature remains constant till the whole of the liquid changes into gaseous state.

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

4) a) Solidification: The process of changing liquid into a solid state by cooling is known as solidification.
Ex - water \rightarrow ice

Condensation: The process of changing a gas or vapour state to a liquid state by cooling is known as condensation.

Ex: steam \rightarrow water

b) Melting: The fixed temperature at which a ~~liquid~~ ^{solid} starts changing into ~~gaseous~~ ^{liquid} state is called as Melting point.
e.g. ice \rightarrow water

Boiling: The fixed temperature at which a substance changes from a liquid state to vapour state is called its boiling point.

e.g. water \rightarrow steam

c) Vaporisation: The process by which a substance changes from a liquid state to gaseous state is called vaporisation.
e.g. Water $\xrightarrow{\text{heating}}$ gaseous state.

Gas: The substance which remain in the gaseous state under normal conditions of temperature and pressure are called gases.

e.g. Oxygen, hydrogen, nitrogen

d) Miscible: Liquids which mix with each other are called miscible liquids.

ex - Water and alcohol

Immiscible liquids: Liquids which do not mix with each other are called immiscible liquids.

ex - Water and oil

(5) a) During interconversion of states of matter composition of substance remains 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.

b) In solids, there is a strong force of attraction between the molecules and the space between them is very negligible. The molecules are therefore, not free to move. They merely vibrate about their mean positions. But in the case of liquids, the molecules are not very closely packed. They do not attract each other as strongly as the molecules are

not very closely packed. They do not attract each other as strongly as the molecules of solids. Thus, the intermolecular spaces are larger and the molecules are able to move about more freely. This makes a liquid flow.

⑥. As a ~~liquid~~ liquid is heated, its particles start gaining energy and move more vigorously which increases the gaps between the particles and decreasing the force of attraction. Ultimately a liquid changes into gaseous state.

⑦. Water from oceans, lakes from leaves of trees (transpiration) changes into vapour when temperature increases or evaporates and enters the atmosphere as clouds when temperature falls the vapour change into water and some of it in the form of snow fall on mountains and earth in the form of hail, rain and this continues. Thus water cycle is example of interconversion of states of water.

⑧. When metal ball is heated, it expands. This can be proved by following experiment :-

Take a metallic ring and ball. Try to pass the metal ball through the ring. The ball is able to pass through the ring. Now heat the metal ball for 5-6 mins. The hot

ball is not be able to pass through the ring. This shows that a solid expands on heating. Now cool the ball, it again passes through the ring. This shows that a solid contracts on cooling.

9.) On heating, candle wax melts, then turns into vapour which reacts with air to produce two new substances, carbon dioxide and water. Therefore, a candle burning becomes smaller and smaller and the part of wax which has undergone chemical change cannot be recovered.

Burning
of a
candle



Candle wax

heating



Carbon
dioxide

+

Water
Vapour

Extra Questions

2) a) List the characteristics of pure substances?

ans: Pure substances are of two types - elements and compounds.

- ~~Had~~ Have uniform composition throughout i.e. homogeneous.
- Have definite set of physical and chemical properties.
- Have fixed melting and boiling point.
- Cannot be broken into simpler substances by any physical means.

b) i- elements

compounds

- has only one kind of atoms

- has only one kind of atoms.

- Ex - Oxygen, hydrogen, nitrogen, etc

- Ex - Water, sugar, salt, etc

ii- homogeneous

heterogeneous

- Here the composition is uniformly mixed.

- Here the composition is not uniformly mixed.

- ~~We can see a~~

- We can't see or differentiate in the composition

- We can see or differentiate the composition

- Ex - Tea, lemonade, juice etc.

- Ex - currey, soup, etc.