

Hw
5-7-21

Objective Type questions

Q1) Fill in the blanks

a) Water is matter because it has volume and occupies space.

b) Any matter which has a definite volume but no definite shape is called a liquid.

c) Water and Gas can flow.

d) The molecules are at greater distance in liquid gases as compared to liquids.

e) Water boils at 100 °C

f) The physical state of a substance, which has neither fixed ~~and~~ volume nor fixed shape is a gas.

Q2)

For each of the following ~~statements~~ statements say whether it describes a solid, a liquid or a gas.

a) Particles move about very quickly but don't leave the surface. ~~not~~ Liquid.

b) Particles are quite close together. Liquid.

c) Particles are far apart and move in all directions. Gas.

5. Match the following

- | | |
|-------------------------|---|
| a) Solids | ai) Can flow in all directions |
| b) Sublimation | ii) The temperature at which a liquid changes into its gaseous state. |
| c) Boiling point | iii) Can have any no. of free surfaces |
| d) Gases | iv) Gaps between particles |
| e) Intermolecular space | v) Change of state directly from solid to gas. |
-

Q6) a) Formation of water vapour from water.

Evaporation.

when exposed to

b) Disappearance of camphor ~~in~~ air.

c) Conversion of ice into water. Melting

d) Conversion of water into steam. Evaporation

Q1) a) Substances which sublime
b) Substances which don't change their state.
box, apple.

c) Substances which are ~~rigid~~^{rigid} and not compressible. Diamond, Metal ball.

MCQ

Q1) Which one is a kind of matter?

ans) b) Petroleum.

Q2) The state of matter which has no definite shape or volume is called -

ans) gas

Q3) There are large gaps in-

ans) a) d) air

Q4) All kinds of matter -

ans) a) occupy space and has a definite ^{volume}

Q5) A kind of matter which can sublime is -

ans) d) iodine

Q6) A substance which can change its state -

ans) a) oxygen

Q7) The process by which a solid changes into a

liquid is called -

ans) b) Melting

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Exercise - I

(Ch 3)
Matter

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1. Define Matter.

ans) Matter is anything that occupies space and has mass.

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

ans) The two main types of matter are ^{living} ~~living~~ and non-living things. Ex-

Ex-

Living things - Human being and Lotus

Non-Living things - Plastic and water.

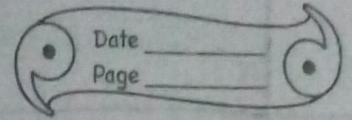
3. Differentiate between living and non-living matter.

ans) The difference between living and non-living matter.

- Living things can move freely but non-living things can't.
 - They can respond to nature but ~~non-living~~ ^{non-living} things can't.
 - They can reproduce but non-living things cannot.
 - They can eat food and produce energy but non-living things cannot.
 - They can breathe but non-living things cannot.
4. Select the natural and man made ~~things~~ ^{matter} from the following list:
- ans) i.) Natural matter - wood, silk, coal, water, cotton, fruit
- ii.) Man-made matter - Plastic, medicines, detergents, ceramic, glass, nylon.

Exercise - II

particle



Q1. Name the smallest ⁿ from which matter is made up of.

ans.) The smallest particle from which matter is made up is atom.

2. What are molecules?

ans) Molecules are very small unit of matter.

They exhibit all the properties of that kind of matter and is capable of independent existence.

3. Give one difference between atoms and molecules.

ans) ~~Atoms~~ Atoms may or may not have ^{independent} independent existence. While molecules have independent

4. Define:

i) Intermolecular force of attraction

ii) Intermolecular space:

ans) Intermolecular force of attraction:-

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

Intermolecular space:-

The molecules can move only when there are gaps or space between them, this space is called Intermolecular space.

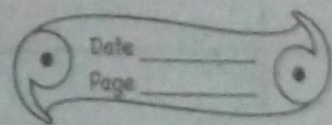
5. Name the three states of matter and define them.

ans. The three states of matter are

Solid

Liquid

Gas.

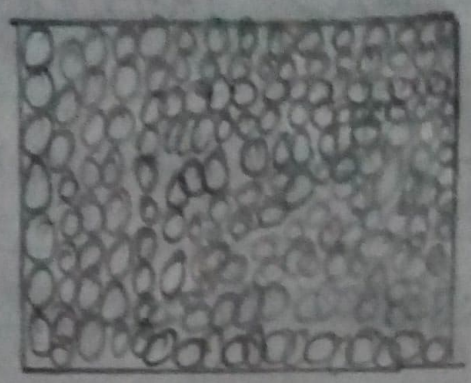


Solid:- The molecules are very ~~close~~ close to each other hence ~~inter~~ intermolecular spaces are small and intermolecular force is strong.

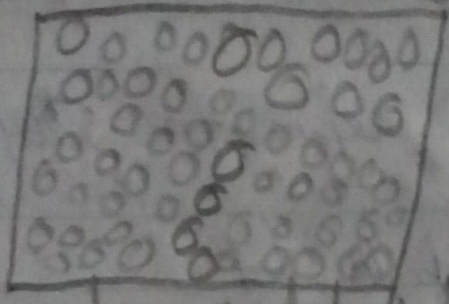
~~Liqu~~ Hence, solids have definite volume, rigid, retain definite shape and are incompressible. ~~li~~

Liquids:- The molecules are less closely packed have more intermolecular spaces than solid, less stronger forces than solids. Hence liquids have definite volume but no definite shape. They take the shape of container in which they are put.

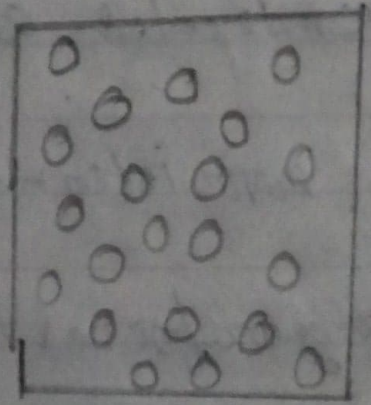
Gases:- The molecules in the gases are far apart



Molecular model of Solids



Molecular model of Liquids



Molecular model of Gases

with weakest force of attraction. Hence gases have neither definite volume nor definite shape but easily compressible.

6. What are fluids? Give two examples.

Ans. Substances that can flow are called fluids.

Both gases and liquids are fluids, eg. -

Gases (Carbon dioxide, hydrogen), liquids

(water, petrol and sulphuric acid).

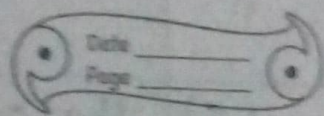
7. Classify the following into solids, liquids and gases:

Oxygen, blood, butter, milk, camman, wax,

Stone, L.P.G., carbon-dioxide, sugar, ~~mercury~~

mercury, coal, Copper, coconut oil, Kerosene.

Gas	Solids	Liquids	Gases
	Common Salt	Milk	Oxygen
	Wax	mercury	LPG.
	Stone	Blood coconut	Carbon dioxide
	Sugar	coconut oil	
	Coal	Kerosene	
	Butter		
	Copper		



8. Give Reasons.

(a) Liquids and gases flow but solids ~~do not~~ do not?

Ans. The molecules of Liquids and gases are far apart i.e. have more gaps, intermolecular attraction force is very less as compared to solids.

(b) Gas fills up the space available to it.

A. Inter molecular force of attraction is least and intermolecular spaces are very large, hence gases can fill up the space available to them.

(c) The odour of scent spreads in a room

Ans Scent fumes (molecules) being gases filled the spaces between air molecules and the molecules of air fill the spaces between scent molecules due to diffusion, fumes spread into a room.

OR

Due to intermixing of scent molecules and air molecules, scent fumes spread into the room.

(d) We can walk through air.

ans. The molecules of air are far apart ~~the~~ i.e. large gaps and we can walk through air easily.

(e) liquid have definite volume but no definite shape.

ans The molecules of liquids are loosely packed and intermolecular force of attraction is small but no. 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?

ans When a teaspoon of sugar is added to half a glass of water and stirred, the water level in the glass remains unchanged because the sugar particles are adjusted between the water molecules as intermolecular gaps are more in liquids.

(g) When an empty gas jar is inverted over a gas jar containing a coloured gas, the gas also spreads into the empty jar.

ans. This is because Gases can diffuse or flow in all directions.

(h) A red ink drop added to small amount of water in a glass turns the water red in some time.

ans. When we put a drop of red ink in a glass of water its particles diffuse with particles of water slowly but continuously and the water turns red.

Q.9. Define

(a) Cohesive force: the force of attraction between particles of the same substance is called cohesive force.

(b) Diffusion: The phenomenon of intermixing of particles ~~super~~ of one kind with another kind is called diffusion.

(c) Brownian movement: The zigzag motion of particles suspended in a medium is called Brownian movement.

Q.10. Why is an egg kicked out of a bottle when air is blown inside the bottle?

Ans. When we insert the bottle and blow air into the bottle through the side opening. It creates high pressure ~~at~~ inside the bottle and egg is kicked out of the bottle.

Exercise-III

1. State the three effects of heat on matter.

ans. ~~The~~ When a substance is heated, it can cause.

i) Inter-conversion of state of matter.

ii) Thermal expansion of the substance.

iii) Chemical change.

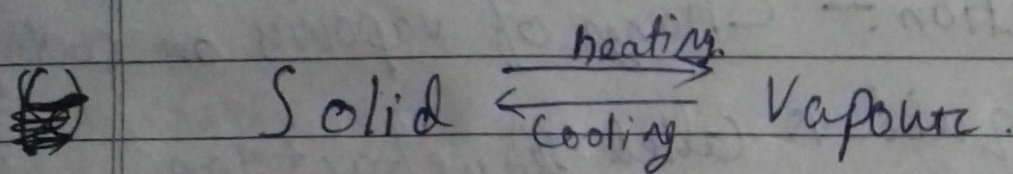
3. Define:

(a) Fusion - The heating process by which a ^{solid} ~~liquid~~ changes into ^{the} liquid state is called fusion.

(b) Vaporisation - The heating process by which a ~~substance in~~ liquid ~~state~~ changes into its vapour state is called vaporisation.

(c) Condensation - The process by which a ~~liquid~~ substance in gaseous state changes into its liquid state is called condensation.

(d) Sublimation.- The change of solid on heating to vapours directly viceversa without passing through the liquid state is called sublimation.



(e) Diffusion - The phenomenon of inter-mixing or spreading of gaseous ~~molecul~~ molecules is called diffusion.

(f) Melting Point.- The fixed temperature at which a solid changes into a liquid at ~~the~~ a given ~~temp~~ pressure is called its melting Point.

(g) **Boiling Point:**— The fixed temperature at which liquid starts changing into gaseous state is called its Boiling Point. The temperature remains constant ~~as long as~~ till the whole of the liquid changes into gaseous state.

(h) ~~Liquefafe~~
Liquefaction:— Change of vapours on cooling to liquid is called liquefaction.

2.3 (a) Define : Interconversion of states of matter.

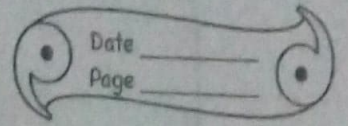
ans (a) The process by which the matter changes from one state to another and back to original state, without any change in its chemical composition.

(b) What are the two conditions for the ~~inter~~ inter-conversion of states of matter?

ans Two conditions are :

i) Change in ~~temp~~ temperature.

ii) By applying pressure.



Q.4. Differentiate between.

(a) ~~Sed~~ Solidification and Condensation.

Ans: Solidification: The process of changing liquid ~~Ans~~ ~~Solid~~ into a solid state by cooling is known as solidification.

Example: Water \rightarrow Ice

(b) Condensation: The process of changing a gas or vapour state into a liquid state by cooling is known as condensation.

Example - Steam \rightarrow Water.

(b) Melting and Boiling.

Ans 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 liquid starts changing into gaseous state is called its boiling point.

Example - Water \rightarrow Steam

(c) ~~The~~ Gas and Vapour;

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

Gas: The substance which remain in the gaseous state under normal condition of temperature and pressure are called gases.
eg. oxygen, Hydrogen, Nitrogen.

(d) Miscible and immiscible liquids.

ans. Miscible - Liquids which mix with each other are called miscible liquids. Example - water, alcohol.
Immiscible liquids. - Liquids which do not mix with each other are called immiscible liquids.
Example - Water and oil.

5. Give reasons:

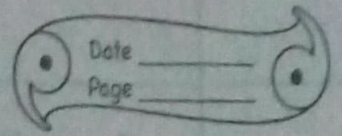
(a) How is inter conversion of states of matter different from chemical reaction?

Ans. During Inter-conversion 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.

Why a solid does not flow, but a liquid flows?

ans. 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~~ 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~~ to move about freely. This makes a liquid flow.



6. How does a liquid change into its gaseous state? Explain.

ans) As a liquid heated, its particles starts 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. What cycle is an example of interconversion of states of water. Explain.

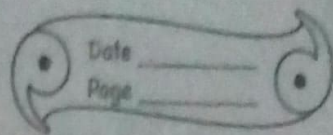
ans) Water from oceans, rivers, lakes from leaves of trees (transpiration) changes into vapours when temperature increases or

evaporates and enters the atmosphere as clouds. When temperature falls the vapours change into water and some of it in the form of snow fall on mountains and earth in the form of water and lakes and this continues. Thus water cycle is an example of inter conversions of state of water.

8. What happens to a metal ball when it is heated? What does this show?

ans) When metal ball is heated it expands. This can be proved by following experiment:

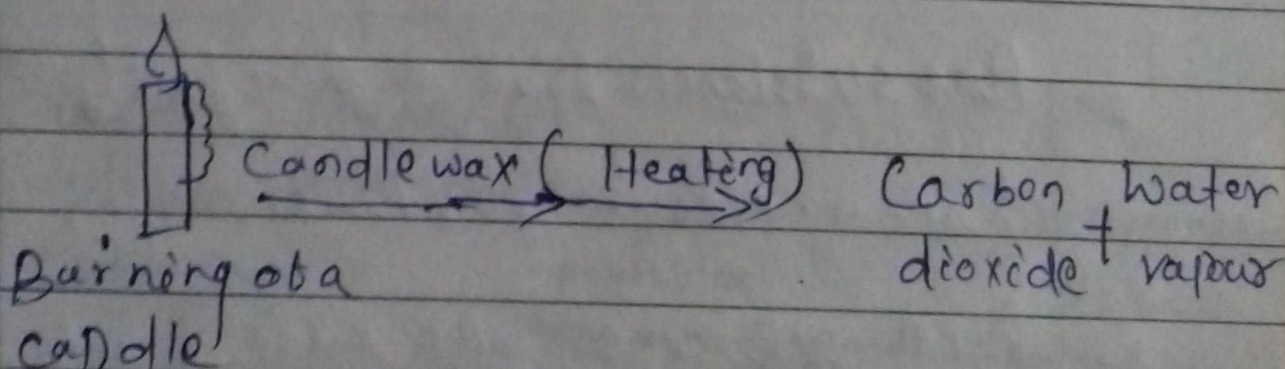
Take a metallic ring and ball try to pass the metal ball through the metal ring. The ball is able to pass through the ring. Now heat the metal ball for 5-6 minutes. The hot ball is not able to pass through the ring. ~~The~~



This shows that a solid expands on heating. Now cool the ball, it again passes through the ring. This shows that a solid expands on heating.

9. Why does a candle become smaller on burning with time?

any 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 on burning becomes smaller and smaller and the part of wax which has undergone chemical change cannot be recovered.

Homogenous Mixture - It is the mixture in which the components are uniformly distributed throughout its volume and cannot be seen separately.

Eg - Tea, Fruit juice, medicine, honey, milk, Blood etc

Heterogenous mixture - It is the ~~mixture~~ ^{mixture} in which the components are not uniformly distributed throughout its volume and ~~can~~ can be easily seen separately.

Eg - Ice in water, Soupy noodles, Assorted candies, Assorted dry biscuits, Soil, oil in water.
Characteristics of Pure Substances

- ▶ Pure substances have a perfectly ~~homogeneous~~ homogeneous mixture.
- ▶ Pure substances are made ^{up} of only one type of atoms (elements) or molecules (compounds).
- ▶ Pure substances have a fixed composition.
- ▷ Pure substances have a fixed density, melting point, boiling point, physical and chemical

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properties.