

Chapter - 3 Objective type Questions

1. Fill in the blanks.

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

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

c) Solid and liquid can flow.

d) The molecules are at a greater distance in gas as compared to liquid.

e) water boils at 100 °C.

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

2. True or False

a) Only water can exist in three different states. False True

b) If the container in which a gas is collected has an opening, the gas will flow out and spread itself indefinitely. True

c) Solids have the largest intermolecular space. False
correct ans - Gas have the largest intermolecular space.

d) There is no difference between evaporation and boiling. False

correct ans - There is difference between evaporation and boiling.

e) All solid, on heating, first change to liquid and then to the gaseous state. False

correct ans - No all solid doesn't change into liquid and then to gaseous state.

p) The intermolecular force of attraction is the weakest in gases. True

q) A gas has no free surface. False

4. Whether it describe solid, liquid or gas.

a) Particles move about very quickly but ~~do not~~ do not leave surface. Gas and liquid.

b) Particles are quite quite close together. ans. Solid.

c) Particles are far apart and move in all directions. ans - Gases

5. Match the following:

Column A

Column B

(ii) a) Solid

i) Can flow in all directions

(v) b) Sublimation

ii) The temperature at which a liquid

ii) changes into its gaseous state.

(iii) Boiling point

iii) Can have any number of free surfaces.

(i) d) Gases

iv) Gaps between particles.

(iv) e) Intermolecular space.

v) Change of state directly from solid to gas.

6. Name the phenomenon which causes the following changes:

a) Formation of water ~~to~~ vapour from water: Vaporisation

b) Disappearance of camphor when exposed to air: Sublimation

c) Conversion of ice into water: melting

d) Conversion of water into steam: boiling

Q7 Give two example of each:

- a) Substances which sublime: camphor, Iodine
- b) Substance which don't change their state: Oxygen, Hydrogen
- c) Substances that are rigid and not compressible: wood, glass

MCG

1. Which one is a kind of matter:

b) petroleum

2. The state ^{of} matter which has no definite shape or volume is called:

c) gas

3. There are large intermolecular gaps in: d) air

4. All kinds of matter:

a) occupy space and have definite mass

5. A kind of matter which can sublime is : d) iodine.

6. A substance which can change its state :

b) oxygen.

7. The process by which a solid changes into a liquid is called :

b) melting.

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CHAPTER - 3 (Matter)

ACTIVITY 1.

• List 5 objects made by using each of the following materials:

1. Wood - Furniture, Frame, Bed, Door, Cupboard
2. Paper - Book, board game, Photographs, Origami
3. Plastic - Bottle, box, containers, CD, cane.
4. Metals - Rod,
5. Leather - Bag,
6. Cloth - Silk, Cotton,

EXERCISE - 1

1. Define matter

ans- Anything that has mass and occupies space is called matter.

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

ans- The two main types of matter are:

1. Living matter: The earth ^{is} home to all kinds of plants and animals. They ^{can} grow, move and reproduce on their own. Ex - Plant, lotus, animal, human etc.

2. Non-living matter: Most of the 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 nature and can be used to make more useful substances, eg., wood, coal, silk, water, stone, cotton, fibre, cereals, fruits, etc. etc.

b) Man-made matter: It is produced artificially from natural matter, eg. plastic, soaps, detergents, medicines, glass, nylon, steel, ceramic etc.

3. Differentiate between living and non-living matter

ans - Living matter

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

2. It is natural only.

→ Non-living matter:

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

2. It can be natural or man-made.

4. Select natural and man-made matter from the following

list - wood, plastic, silk, medicines, detergent, coal, water, ceramic, cotton, glass, nylon, fruit.

ans - Natural matter: Wood, silk, coal, water, fruit.

Man made matter: Plastics, medicines, detergent, ceramic, cotton, glass, nylon.

EXERCISE - II

1. Name the smallest particle from which matter up.

Q1- The smallest particle from which matter is made up is atom.

2. What are molecules?

Ans- Molecules are the smallest 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 may or may not have independent existence, while molecules have independent existence.

4. Define - a) Intermolecular force of attraction

b) Intermolecular space.

Ans- 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 space is

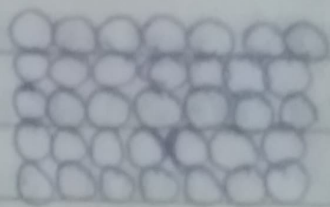
called intermolecular space.

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

ans - The three states of matter are:

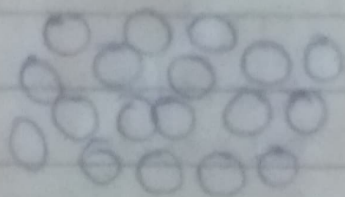
1. Solid State
2. ~~Liquid~~ Liquid
3. Gases

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

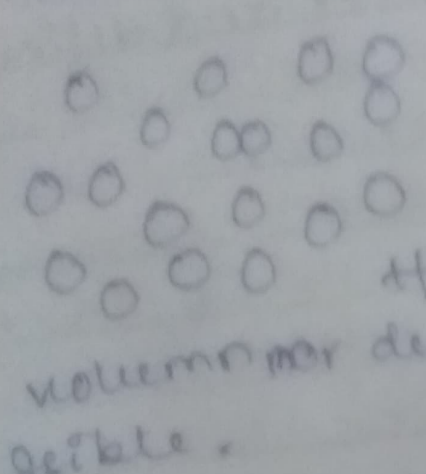


Hence solid have definite volume, rigid, retain definite shape and are incompressible.

Liquid: The molecules are less closely packed have more intermolecular spaces than solid, less stronger forces than solids.



Hence liquid have definite volume but not definite shape. They take the shape of container in which they are put.



Gases - The molecules in the gases are far apart with weaker 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), liquid (water, petrol and sulphuric acid)

7. Classify the following into solids, liquids and gases. Oxygen, milk, common salt, wax, stone, L.P.G, carbon-dioxide, sugar, mercury, coal, blood, butter, copper, coconut oil, kerosene.

<u>Solid</u>	<u>Liquid</u>	<u>Gases</u>
Common salt	Milk	Oxygen
Wax	Mercury	L.P.G
Stone	Blood	Carbon-dioxide
	Coconut oil	

Solid

Liquid

Gases

Sugar

kerosene

—

Coal

Butter

Copper

8. Give Reasons

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

b) A gas fills up the space available to it.
 ans - Intermolecular force of attraction is least and intermolecular spaces are very large, hence gases can fill up the shape available to them.

c. The odour of scent spreads in a room.
ans- Scent fumes (molecules) being gases fill 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 inter-mixing 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 i.e. large gaps and we can walk through air easily.

e. Liquids have definite volume but no definite shape.

ans- 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.

↳ When a teaspoon of sugar is added to half a glass of water and stirred, the water level in glass remains 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 inter-molecular 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 a 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.

9. Define

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

(b) Diffusion - The phenomenon of inter-mixing of particles of one kind with another kind is called diffusion.

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

10.

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

EXERCISE - III

Q1. Define the three states of heat on matter.

ans - When a substance is heated, it can cause.

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

Q2. (a) Define: Interconversion of States of Matter.
ans - The process by which 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 interconversion of states of matter.
ans - Two conditions are:

1. Change in temperature
2. By applying pressure

Q3. Define the following terms:-

(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.

The solidification of a liquid on heating is a reversible process. The solid state is more stable than the liquid state.

Both ΔH_{fusion} and $\Delta H_{solidification}$ are equal in magnitude but opposite in sign.

Diffusion: The phenomenon of intermixing of particles of different substances is called diffusion.

Freezing 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 till the end as long as the conversion is going on.

Differentiate between:

Evaporation and condensation

Evaporation: This process of changing a liquid into a solid state by cooling is known as solidification. Ex - water \rightarrow ice.

Condensation: This process of changing a gas or vapour state to a liquid state by cooling is known as condensation. Ex - steam \rightarrow water.

(b) Melting and boiling

ans - This fixed temperature at which a solid changes into liquid at a given pressure is called melting point. Ex - ice \rightarrow water.
The fixed temperature at which a liquid starts changing into gaseous state is called its boiling point.

(c) Vapourisation and Gas.

ans The process by which a substance changes from a liquid state to vapour state is called vapourisation or evaporation. eg. Water changes into gaseous state on heating.

The substances which remain the gas state under normal conditions of temperature and pressure are called gases. eg. Oxygen, nitrogen, hydrogen.

Miscible and Immiscible liquids.

Liquids which mix with each other are called miscible liquids. Ex - water & alcohol.

Liquids which do not mix with each other are called immiscible liquid.
Ex - water & oil.