

Class :- VI

Sub : Physics

Question answers of the exercises

Q.A

- 1.Matter is something that occupies space and has weight.
- 2.The three states of matter are solids,liquids,and gases.
- 3.An element is a substance ,which cannot be subdivided into two or more simpler substances by any chemical means.
- 4.A substance having structural rigidity and has a firm shape which cannot be changed easily is called solid.example brick
- 5.SPONGE is a solid which can be compressed easily.
- 6.Unlike solids and liquids ,gases exert pressure in all directions.the exerted pressure is equal and uniform on the walls of the container.gases possess low density.The intermolecular distance between the molecules of the gases is very large,hence the number of molecules of a gas is much lower compared to that of solids and liquids.The space between the molecules of the gases is very large because of the intermolecular distance between the gases is very large.so gases diffuse readily.

Q.B. LONG ANSWER QUESTIONS:-

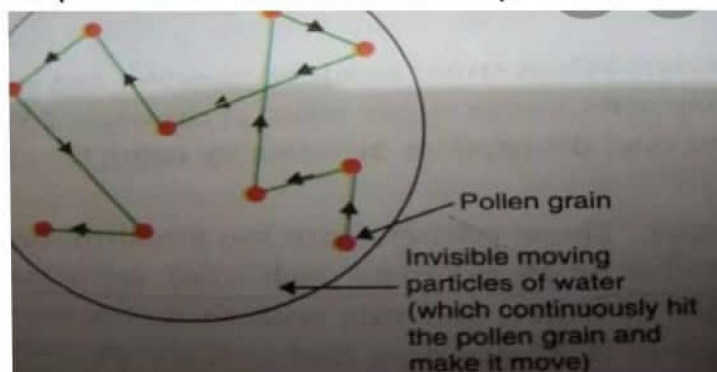
- 1.a. Matter is something that occupies space and has weight.
 - b. An element is a substance ,which cannot be subdivided into two or more simpler substances by any chemical means.
 - c. An atom is defined as the smallest unit of an element which may or may not have an independent existence ,but always takes part in a chemical reaction.
 - d. A molecule is defined as the smallest unit of matter ,which has an independent existence and can retain complete physical and chemical properties of the matter.

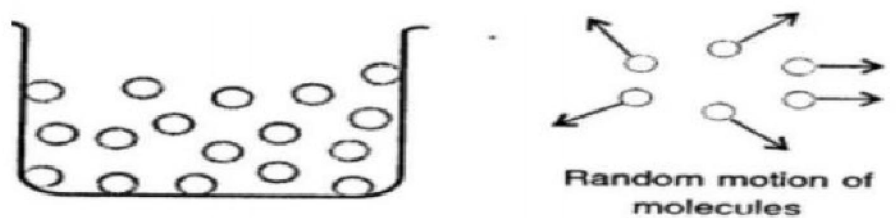
Chapter- Matter

- **Matter** is the substance which occupies space and has mass. It can be perceived by our sense of smell, touch, sight, hearing and taste.
- Matter is composed of tiny particles known as atoms.
- The three states of matter are solids, liquids, and gases.
Solids- it has a definite shape and definite volume.
Ex- wood, stone
Liquid – A liquid has a definite volume but not definite shape .
Ex - water, milk.
Gas- a gas neither has a definite shape nor a definite volume .
Ex- Air, oxygen.
- **Molecule** is the smallest unit of matter which can exist independently. ex- oxygen molecule(O_2)
- **Intermolecular space**- the space between any two consecutive molecules of a substance is called intermolecular space.

Study Material

- Mono atomic molecule-A molecule consisting of one atom .
Examples-Helium, Neon, Argon
- Diatomic molecule-A molecule having two atoms.
Examples-Oxygen, Nitrogen, Hydrogen
- Polyatomic molecule-A molecule having more than two atoms.
Examples-Ozone, Sulphur
- Three characteristics of molecules of matter which determine its solids ,liquids and gaseous state are-
 - i. Inter-molecular space
 - ii. Force of attraction between the molecules
 - iii. Movement of molecules.
- Distinguishing properties of solids, liquids and gases.(pg no-9 from book)
- Zig zag motion/Brownian motion-the haphazard, random motion of suspended particles on the surface of a liquid or in air.











*Molecules of a gas are far apart
and are free to move about*

The molecules in gas are far apart from each other i.e. have the greatest intermolecular distance which result into the weakest intermolecular forces of attraction .The molecules as are not bound by any strong force move about freely and thus gases do not have a definite shape and also do not have any definite volume.




Lesson-Matter

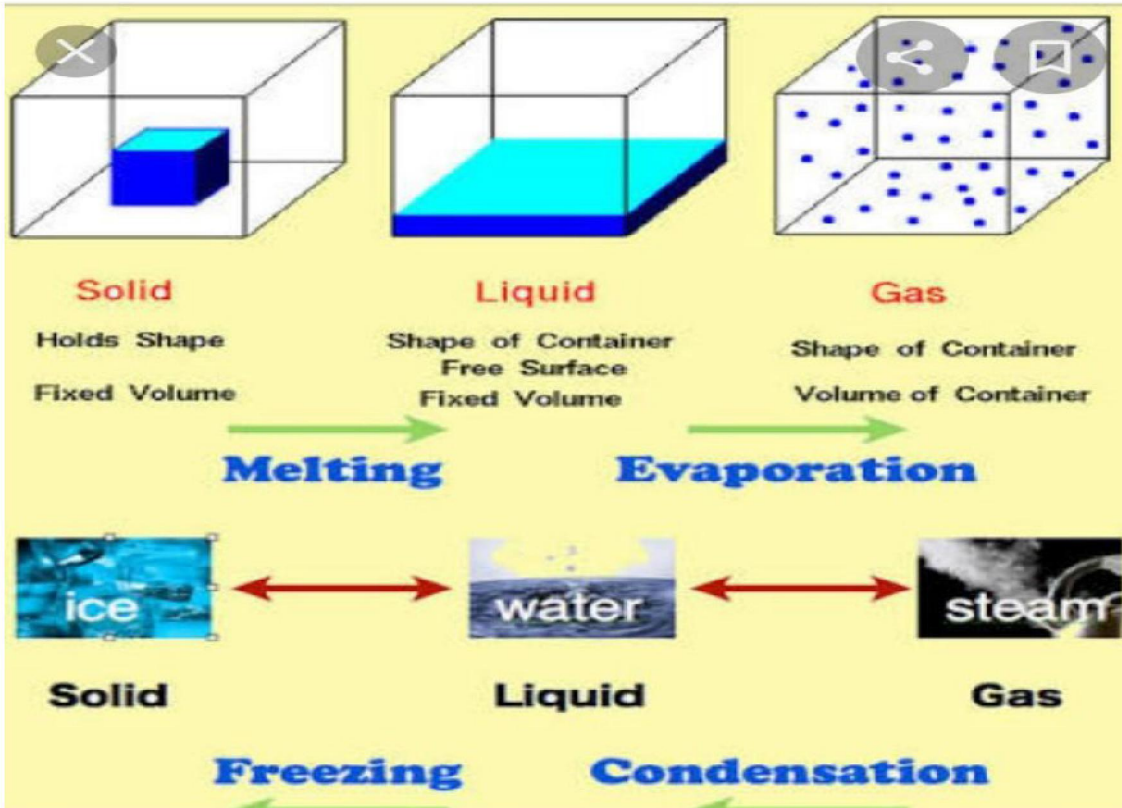
Revision:-

- States of matter-

States of matter			
SOLIDS 	They have a definite shape and a definite volume.	All particles are very close together.	
LIQUIDS 	Liquids have an indefinite shape and a definite volume.	Particles are not very close together.	
GASES 	Gases have an indefinite shape and an indefinite volume.	Particles of gases are very far apart and move freely.	

- Distinguishing properties of solids, liquids and gases-

Properties		Solids	Liquids	Gases
1	Mass	Definite	Definite	Definite
2	Shape	Definite	Acquires the shape of the container	Acquires the shape of the container
3	Volume	Definite	Definite	Indefinite
4	Compressibility	Not possible	Almost Negligible	Highly Compressible
5	Fluidity	Not possible	Can flow	Can flow
6	Rigidity	Highly rigid	Less rigid	Not rigid
7	Diffusion	Slow	Fast	Very fast
8	Space between particles	Most closely packed 	Less closely packed 	Least closely packed 
9	Interparticle force	strongest	Slightly weaker than in solids	Negligible



Lesson- Matter

Sample questions-

1. Complete the following:
 - a. Solid $\xrightarrow{\text{Melting}}$ liquid
 - b. Liquid $\xrightarrow{\text{boiling}}$ gas
2. What is Fusion?
3. Differentiate between cohesive force and adhesive force.
4. Distinguish between solids, liquids and gases on the basis of their following properties:-
 - a. Fluidity b. Expansion on heating c. Diffusion d. Viscosity e. Rigidity
5. Define the following terms.
 - a. Melting point b. Boiling point c. Sublimation d. Molecule
6. Distinguish between the three states of matter-solids, liquids and gases on the basis of their molecular model.

F. MARK THE STATEMENT AS TRUE OR FALSE

1. All the matter is made-up of atoms. **T**
2. A piece of sponge cannot be compressed whereas crystal of sugar can be compressed. **F**
3. Particles are more closely packed in solid and least in gases. **T**
4. Gases cannot diffuse into each other rapidly. **F**
5. Kinetic energy is large in solids, large in liquids and least in gases. **F**

G. CHOOSE THE ODD ONE OUT GIVING REASON

1. Sodium chloride, sponge, sand, honey - *It is in liquid form.*
2. Hydrogen gas, oxygen gas, chloride gas, water - *It is a liquid.*
3. Stone, a piece of wood, metal piece, sponge - *It can be compressed.*
4. Water, kerosene, milk, CNG - *It is a gas which can be compressed.*

H. MATCH THE FOLLOWING

Column A	Column B
1. Stone (c)	(a) can be compressed
2. Smell of perfume (d)	(b) acquire shape of cylinder
3. Sponge (a)	(c) particles closely packed
4. Liquids (b)	(d) can be diffuse in air
5. LPG (a)	(c) having fixed volume

I. GIVE ONE WORD FOR THE FOLLOWING

1. A state of matter which do not have any shape but conform shape of container completely. **LIQUID**
2. Name the force which binds particles together in solids. **COHESIVE FORCE**
3. Name the irregular motion of particles in air. **BROWNIAN MOTION**
4. Name the energy possessed by motion of particles of matter. **KINETIC ENERGY.**

C. PICK THE CORRECT ONE

1. The three major states of matter are :
(a) solid (b) liquid (c) gas ☒ (d) all of these
2. Anything that has mass and takes up space is called :
☒ (a) matter (b) molecule (c) atom (d) element
3. A substance which cannot be subdivided is known as :
(a) molecule (b) compound ☒ (c) element (d) particle
4. Matter that is composed of atoms packed tightly together are known as :
☒ (a) solids (b) liquids (c) gases (d) plasma
5. The smallest unit of an element which may or may not have an independent existence is :
(a) molecule (b) compound ☒ (c) atom (d) ion

D. FILL IN THE BLANKS

1. LIQUID do not hold their shape at room temperature.
2. GASES has not definite volume and no definite shape.
3. SOLIDS have fixed shape and definite volume.
4. LIQUID have fixed volume but no fixed shape.
5. GASES have high compressibility.

Q4
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Table 1.1: The table brings out the comparison of the properties of solids, liquids and gases.

Properties	Solids	Liquids	Gases
Mass	Definite	Definite	Definite
Shape	Definite	Acquires the shape of the container	Acquires the shape of the container
Volume	Definite	Definite	Indefinite
Compressibility	Not possible	Almost negligible	Highly compressible
Fluidity	Not possible	Can flow	Can flow
Rigidity	Highly rigid	Less rigid	Not rigid
Packing of particles	Most closely packed	Less closely packed	Least closely packed
Kinetic energy	Least	Large	Very large

