

Matter is anything that has mass, occupy space and we can feel by our sense organs.

Matter is made up of various elements in same / different proportion. Again elements are also formed by similar types of atoms. Ex – H₂, O₂, Na, Zn etc. Now atom is the smallest unit of an element which takes part in a chemical reaction. Ex – Hydrogen, Oxygen, Iron, Gold etc.

Molecules, which was experimentally found by John Dalton that matter is made up of very small particles called molecules which can exist independently. Ex – O₂, CO₂, H₂O, SO₂ etc that which is made up of similar or different kind of atoms.

Kinetic theory of matter :

Kinetic theory of matter states that matter is composed of a large number of small particles called atoms which are in constant motion and also helps us to explain the behavior of matter and arrangement of atoms in different ways.

Characteristics of molecules:

- i) They are very small in size
- ii) They have spaces between them which is known as **inter molecular space**
- iii) They are constantly moving
- iv) They attract each other with a force known as **inter molecular force of attraction.**

Force of cohesion :

The force of attraction that exists between similar kinds of molecules is called force of cohesion which exists between the molecules of its own.

Force of adhesion:

The force of attraction exists between the different types of molecules is called force of adhesion. For example the wetting of tea with the cup is due to this force of adhesion.

States of matter:

Matter is classified into three categories:

- i) Solid (ice, stone, wood etc)
- ii) Liquid (water, milk, oil etc)
- iii) Gas (air, oxygen etc)

In addition of these three states, two other states i.e one plasma (at very high temperature) and other one Bose- Einstein condensate state (at extremely very low temperature)

Difference between solid, liquid and gas:

Solid	Liquid	Gas
i) Solids are rigid	i) Liquids are very less rigid	i) Gases are not rigid at all
ii) Solids have a fixed shape, size and a definite volume	ii) Liquids have a definite volume but not a fixed shape	ii) Gases have neither a definite shape nor a fixed volume.
iii) The intermolecular forces are the strongest in solid	iii) The intermolecular forces are moderate in liquids	iii) The intermolecular forces are the weakest in gases.
iv) The intermolecular distance among the molecules is the least	iv) The intermolecular distance is moderate	iv) The intermolecular distance is the maximum
v) The molecules in a solid do not move, but only vibrate about their mean positions.	v) The molecules in a liquid can move in all direction	v) The molecules in a gas can move freely and are in state of continuous random motion

Exercise

A) Fill in the blanks.

1) varies 2) attraction 3) solid 4) heating 5) solid, liquid and gas 6) water

B) State the following whether true or false

1) False 2) True 3) True 4) False 5) False 6) True

C) Choose the correct option:

1) a 2)d 3)b 4)a 5)b 6)a

D) Match the columns:

1) →c 2) →e 3)→b 4)→a 5)→d

Question and Answer (Short and precise):

A) → Given in the note.

B) → From the characteristics of solid, liquid and gas

C) → From the definition you have to write

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