

- 5) They are generally hard and rigid.
- 6) They are good conductors of heat.

### Liquids:

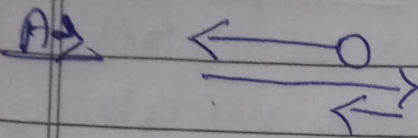
- 1) Molecules are less tightly packed.
- 2) The inter-molecular force of attraction is less than that of solids.
- 3) The molecules here can move from one place to another.
- 4) Do not have any particular shape of their own and thus acquire the shape of the vessel.
- 5) A particular quantity of a liquid has a definite volume at a given temperature.

### Gases:

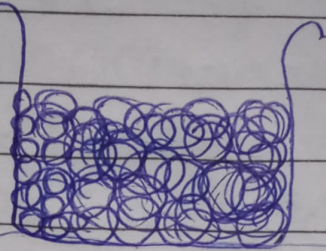
- 1) The force of attraction between the molecules is the least.
- 2) The intermolecular space is the largest.
- 3) Neither have a definite shape nor a definite volume.
- 4) The molecules move independently.
- 5) Worst conductors of heat.



14) Give the molecular model for a solid and use it to explain why a solid has a definite volume and a definite shape.



Vibration of a molecule about its mean position.

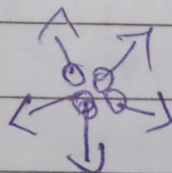
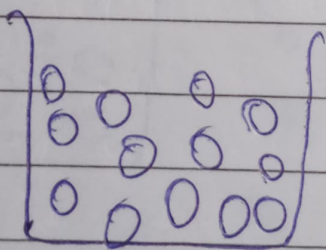


Molecules of a solid arranged ~~loosely~~ closely and in a definite manner, not free to move about.

Here the molecules are very tightly packed that there is no or very less intermolecular

15) Describe the molecular model for a liquid. How does it explain that a liquid has no definite shape, but has a definite volume?

Ans



Molecules of a liquid arranged less closely are free to move about within the liquid.

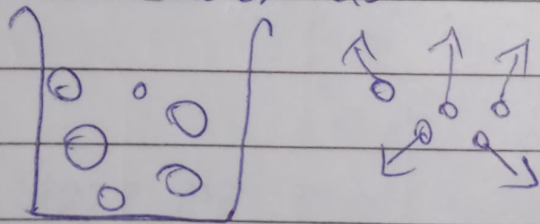
Motion of molecules



Here the molecules are less tightly packed as compared to solids and also there is lesser force of intermolecular attraction. The ~~the~~ intermolecular distance is greater than that in the solids. Thus, they do not have a definite shape but acquire the shape of the vessel in which they are contained but have a definite volume at a given temperature.

10) A gas has neither a definite volume ~~nor~~ nor a definite shape. Describe the molecular model to explain it.

A) Here the molecules are far apart from each other i.e. have the greatest ~~the~~ intermolecular distance which result into the weakest intermolecular forces of attraction. The molecules as are not bounded by any



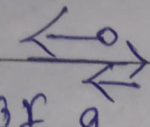
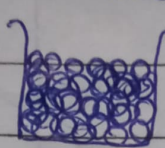
Random motion of molecules.

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

strong force move about freely and thus gases do not have a definite shape and also ~~and~~ do not have any definite volume.

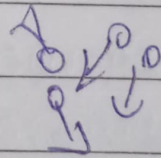
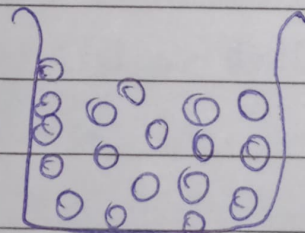


17) Distinguish between the three states of matter - solids, liquid and gas on the basis of their molecular models.

As Solids:    
Vibration of a molecule about its mean position.

Here the molecules are very tightly packed that there is no or very less inter-molecular space. and there is high inter-molecular force of attraction (force of cohesion).  
The molecules do not move about their mean position and thus solids have a definite shape and volume.

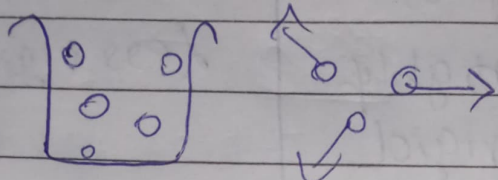
Liquids:



Motion of molecules

Here the molecules are less tightly packed as compared to solids and also there is lesser force of intermolecular attraction. The intermolecular distance is greater than that in the solids, thus they cannot have a definite shape, but acquire

The shape of the vessel in which they are contained but have a definite volume at a given temperature.

Gas:  Random motion of molecules.

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

18) Distinguish between solids, liquids and gases on the basis of their following properties:

a) compressibility

b) fluidity

c) rigidity

d) expansion on heating

19) What do you mean by change of state of matter? Explain:

a) The change of a solid into a liquid at a constant temperature, and.



187A)

a) Compressibility

Solids  
Not  
compressible

Liquids  
Negligible  
compressible

Gases  
Highly  
compressible

b) Fluidity

Not  
possible

Can flow

Can flow

c) Rigidity

Highly  
rigid

Less rigid

Not rigid

d) Expansion  
on heating

Low

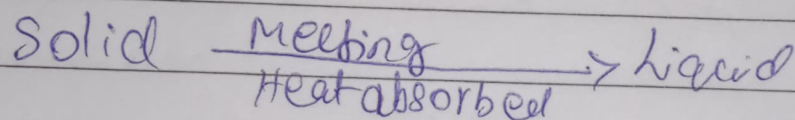
More than  
solids

More than  
liquids

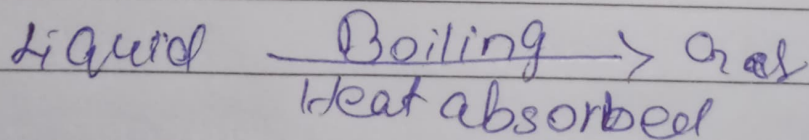
b) The change of a liquid into a gas at a constant temperature.

A) The change in state of matter of a substance from solid to liquid or from liquid to gas is brought by imparting heat energy to it at a constant temperature.

a) The process of change of substance from solid state into its liquid state on absorption of heat at a particular temperature, called the melting point, is called melting or fusion i.e.



b) The process of change of a substance from a liquid state to its gaseous state at a particular temperature, called the boiling point, is called boiling or vapourisation i.e.



20) Complete the following:

a) Solid  $\xrightarrow{\text{heating}}$  Liquid

b) Liquid  $\xrightarrow{\text{Boiling}}$  Gas