13/7/2021

HOME ASSIGNMENT

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(1) Write down five general properties of solids, liquids and gases.

PROPERTIES OF :-

Ans> Solids-

* The molecules in a solid are closely packed.
* The molecules in a solid are rigid.
* The inter-molecular forces are very strong.
* A solid cannot flow.
* A solid has a definite shape and a definite volume.

Liquids-

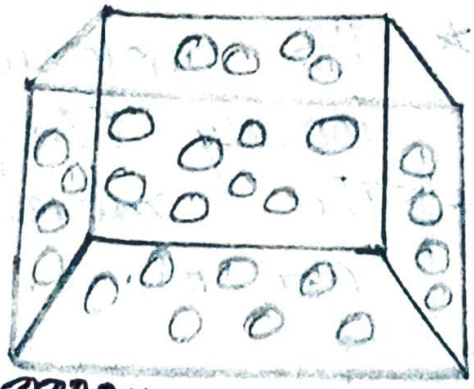
* The molecules in a liquid are loosely packed.
* The molecules in a liquid are non-rigid.
* The inter-molecular forces are less strong (moderate).
* A liquid can flow.
* A liquid has a definite volume, but not a definite shape.

Gases :-

* The molecules in a gas are wide apart.
* The molecules in gas are rigid, homogeneous and perfectly elastic.
* The inter-molecular forces are weak.
* A gas can flow.
* A gas has neither a definite volume nor a definite shape.

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

Ans * Each liquid is made up of very tiny particles called molecules. They are very small in size & they are not in a rigid arrangement.



ARRANGEMENT OF MOLECULES IN A LIQUID.

* The inter-molecular spaces in liquids are more than that in

solids.

* The molecules of a liquid can move about freely within the boundary of the vessel in which the liquid is kept.

* The liquid molecules are less closely packed and their positions are not fixed as they are free to move within the boundary of the vessel. This is because the inter-molecular forces in a liquid are weak in comparison to that in solids.

The liquid molecules can slide over one another due to which a liquid can flow. The inter-molecular forces, although weak, are sufficient to keep the molecules within the boundary of the vessel. So, liquids do not have a definite shape, but have a definite volume.

Gases:

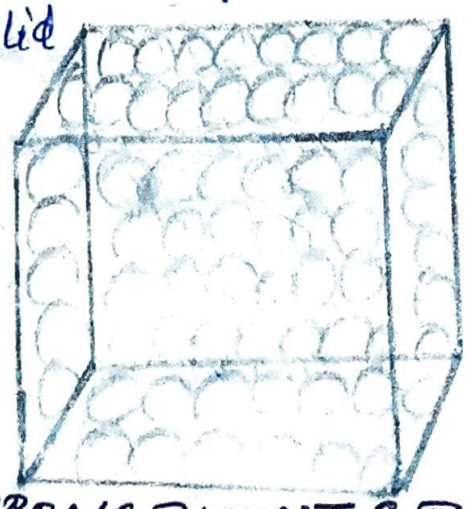
(3) Distinguish between the three states of matter - solid, liquid and gas on the basis of their molecular models.

Ans) MOLECULAR MODEL OF SOLIDS

* Each solid is made up of very tiny particles called molecules and these molecules are very small in size and they can be ~~assumed~~ assumed to be like tiny rigid balls.

* The separation between two molecules in a solid (i.e. inter-molecular spacing) is very small.

* The molecules in a solid can only vibrate to and fro about their mean positions. They do not leave their positions.



ARRANGEMENT OF MOLECULES IN A SOLID

* The molecules in a solid are closely packed due to the

strong attractive forces between them.

MOLECULAR MODEL OF LIQUIDS

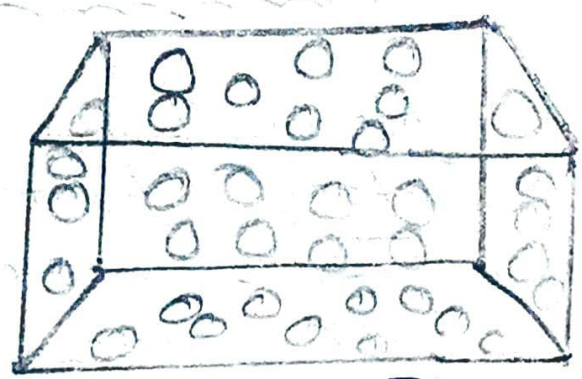
* Each liquid is made up of very tiny particles called molecules. These molecules are very small in size and they are not in a rigid arrangement.

* The inter-molecular spaces in liquids are more than that in solids.

* The liquid molecules can move about freely within the boundary of the vessel in which the liquid is kept.

* The molecules in a liquid are less closely packed and their positions are not fixed as they are free to move within the boundary of the vessel.

This is because the inter-molecular forces in a liquid are weak in comparison to that in solids.



ARRANGEMENT OF MOLECULES IN A LIQUID.

MOLECULAR MODEL OF GASES

* Gases are made up of very tiny particles called molecules. These molecules are very small in size and they can be assumed to be like rigid, homogeneous and perfectly elastic balls.

* The separation between the molecules is quite large as compared to that in liquids and solids.

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* The molecules in a gas can move about freely in the space available to them.

* The molecules in a gas are wide apart and their positions are not fixed because the inter-molecular forces in them are very weak.

(4) How do the solids, liquids and gases differ following properties?

(a) Size -

Solids - A solid has a definite size.

Liquids - A liquid has indefinite size.

Gases - A gas has indefinite size.

(b) Shape -

Solids - A solid has a definite shape.

Liquids - A liquid has no definite shape.

Gases - A gas has no definite shape.

(c) Density-

Solids - A solid is highly dense.

Liquids - A liquid is less dense than solids.

Gases - A gas is leastly dense.

(5) Give reasons!

(a) A gas can fill the whole vessel in which it is enclosed.

Ans → A gas ~~is~~ has ~~to~~ very loosely packed molecules. The force of attraction is very low thus, they possess high kinetic energy. So, the molecules in a gas can move about freely in the space ~~of~~ available to them. Thus, a gas can fill the whole vessel in which it is enclosed very quickly.

(b) Solids cannot be compressed.

Ans> The molecules in a solid are closely packed due to strong attractive forces between them and the inter-molecular spaces between the molecules are less. The molecules in solid can only vibrate to and fro about their mean positions. They do not leave their positions. So, Solids cannot be compressed.

(c) Liquids can flow.

Ans> The inter-molecular spaces in liquids are more than that in solids. The molecules in a liquid are less closely packed and their positions are not fixed as they are free to move within the boundary of the vessel & the force of attraction of

the molecules ~~are~~ is weaker than solids. So, liquids can flow.

~~Q)~~ Select the correct alternative.

(1) The intermolecular force ~~of~~ is maximum in - solids

a) solids
b) gases
c) liquids
d) none of the above

(2) The molecules ~~can~~ can move freely anywhere in - gases

a) solids
b) gases
c) liquids
d) none of the above.