

HOLIDAY HOME WORK

- a) The solids are \rightarrow (A) More dense
- b) The intermolecular forces in liquids are:
(A) weaker than in solids
- c) what is the state of motion?

Ans- Both by the state of rest or motion.

- d) The strength of force is expressed by?

A- Magnitude

- e) The force between the charged bodies is called \div (A) electrostatic force.

- f) when two forces act in opposite direction then net force acting two forces

A) Difference between two factors.

Fill in the blanks

- a) All the molecules of substance are identical

- b) The intermolecular spacing is least in solids. more in liquids & still more in gases.

- c) The molecular motion in liquid & gas is zig zag path.

- d) In a solid, the molecules vibrate to & fro

but they remain at their fixed positions
① The intermolecular forces are the weakest in gases.

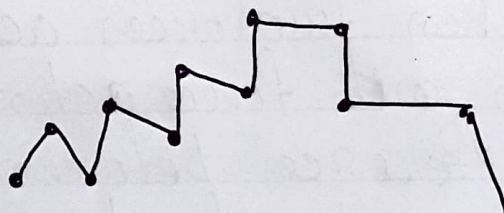
Short answer type

① How do the solids, liquid & gases differ in their following properties?

	Solid	Liquids	Gases
size	They have a definite size	Indefinite	Indefinite
shape	They have definite shape	Indefinite	Indefinite
Density	Highly dense	Less dense than solids	Less dense than liquids & solids

② Describe a simple experiment to illustrate that molecules are not at rest, but they constantly move.

Ans - Take a beaker. Fill it partly with water. And some lycopodium powder in the beaker containing water. Stir the contents of the beaker with a glass rod. Take out a few drops of this suspension on a glass plate, place it on the table & illuminate it with a table lamp. Observe the glass plate through a microscope. It is found that the fine particles of lycopodium powder move

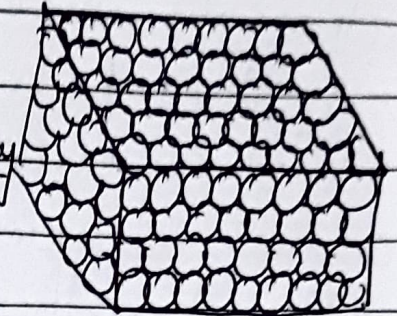


Zig zag path of a fine particle of lycopodium powder.

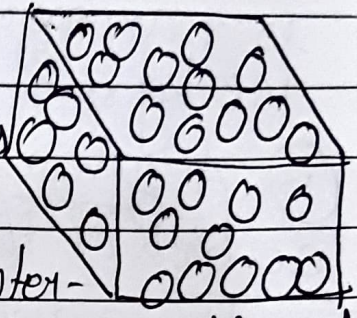
rapidly in a random manner & their path is zig zag.

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

Ans - The molecules in a solid are in fixed position & due to the strong intermolecular forces, they do not leave their positions, so a solid has a definite shape & a definite size (volume)

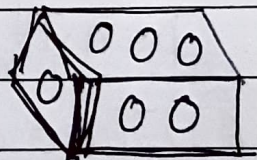


Liquid → The liquid molecules can slide over one another due to which a liquid can flow. The intermolecular forces, although weak are sufficient to keep the molecules within the boundary of the vessels. So, liquid do not have a definite shape, but they have a definite volume.



Gases -

The gas molecules are quite free to move here & there in the space available to them because of their weak intermolecular forces. This is why, the gases have neither a definite shape nor a definite volume.



4) How does a density of a liquid or gas vary with temperature?

Ans - Most of the liquids increase in volume with an increase in temperature, but water shows anomalous behaviour. Water has a maximum volume at 4°C & maximum density at 4°C . Actually, when volume increases density decreases & when volume decreases the density increases. But water when cooled further below 4°C hence the density of water increases when it is cooled upto 4°C while decreases when cooled further below 4°C . So other metals, the density of water is maximum at 4°C equal to 1 g cm^{-3} or 1000 kg m^{-3} .

5) A given quantity of a liquid is heated. Which of the following quantity will vary & how?

When a given quantity of liquid is heated

- Mass: ~~does~~ does not change.
- Volume: changes & increases with rise in temperature.
- Density: changes & decreases.

$$\text{Density} = \text{Mass} / \text{Volume}$$

6) Two objects of same mass are moving with velocities v & $4v$ respectively. Find the ratio of their kinetic energy.

Ans - Kinetic energy of the body $k = \frac{1}{2}mv^2$
For same mass m $k \propto v^2$

Given : $v_1 = v$ & $v_2 = 4v$

Thus ratio of K.E. = $\frac{k_1}{k_2} = \frac{v_1^2}{v_2^2}$
 $\therefore \frac{k_1}{k_2} = \frac{v^2}{(4v)^2} = \frac{1}{16}$

① Define Kinetic energy & Potential energy.
 Ans - Kinetic energy :-

Kinetic energy is the energy possessed by a body due to its state of motion. It is equal to the work done in moving the body ~~initially~~ initially from rest.

Potential energy :-

It is the energy possessed by a body due to its state of rest or position. It is the work done on the body to bring it to that state or rest or position.

⑧ Define pressure. Write its S.I unit.

Ans Pressure is the thrust acting per unit area. It depends on the area on which the force acts. The S.I unit of pressure is $N m^{-2}$ or Pa.

⑨ Find the amount of work done if a force of 60 N moves an object through a distance of 5 m in the direction of force.

Ans - Force = 60 N

$s = 5 m$

Work done = $W = F \times s = 60 \times 5 = 300 J$

10) Define moment of force

Ans - The moment of a force is equal to the product of the magnitude of the force & the perpendicular distance of the force from the pivoted point.