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|  | INDIAN SCHOOL AL WADI AL KABIR | |  |
| CLASS: VIII | DEPARTMENT: SCIENCE 2025 - 26 | DATE: 07/11/2025 | |
| TEXTBOOK- Q &A | TOPIC: PARTICULATE NATURE OF MATTER | NOTE: A4 FILE FORMAT | |
| NAME OF THE STUDENT: | CLASS & SEC: | ROLL NO. | |

1. Choose the correct option -

The primary difference between solids and liquids is that the constituent particles are:

- (i) Closely packed in solids, while they are stationary in liquids.
- (ii) Far apart in solids and have fixed positions in liquids.
- (iii) Always moving in solids and have a fixed position in liquids.
- (iv) Closely packed in solids and move past each other in liquids.

Ans - (iv) Closely packed in solids and move past each other in liquids.

In solids, particles are fixed in position due to strong attractions, while in liquids, particles can slide past one another, allowing flow.

2. Which of the following statements are true? Correct the false statements.

- (i) Melting ice into water is an example of the transformation of a solid into a liquid.

Ans - True

- (ii) Melting process involves a decrease in interparticle attractions during the transformation.

Ans - True

- (iii) Solids have a fixed shape and a fixed volume.

Ans - True

- (iv) The interparticle interactions in solids are very strong, and the interparticle spaces are very small.

Ans - True

- (v) When we heat camphor in one corner of a room, the fragrance reaches all corners of the room.

Ans - True

(vi) On heating, we are adding energy to the camphor, and the energy is released as a smell.

Ans - False.

On heating, energy is added to camphor, causing it to undergo sublimation. The camphor directly converts into gas, and the vapour carries its characteristic smell.

3. Choose the correct answer with justification. If we could remove all the constituent particles from a chair, what would happen?

(i) Nothing will change.

(ii) The chair will weigh less due to lost particles.

(iii) Nothing of the chair will remain.

Ans - (iii) Nothing of the chair will remain. A chair is made up of constituent particles (atoms and molecules). If you remove all the particles from the chair, there is nothing left to form the structure, shape, weight, or existence of the chair.

4. Why do gases mix easily, while solids do not?

Ans - Gas particles are far apart from each other, and that's why they move very fast in all directions. Gases have weak intermolecular forces, so they don't stick to each other. Due to this, gas particles spread easily and mix with other gases. In solids, particles are tightly packed and can only vibrate in place, so they do not move freely and cannot mix easily.

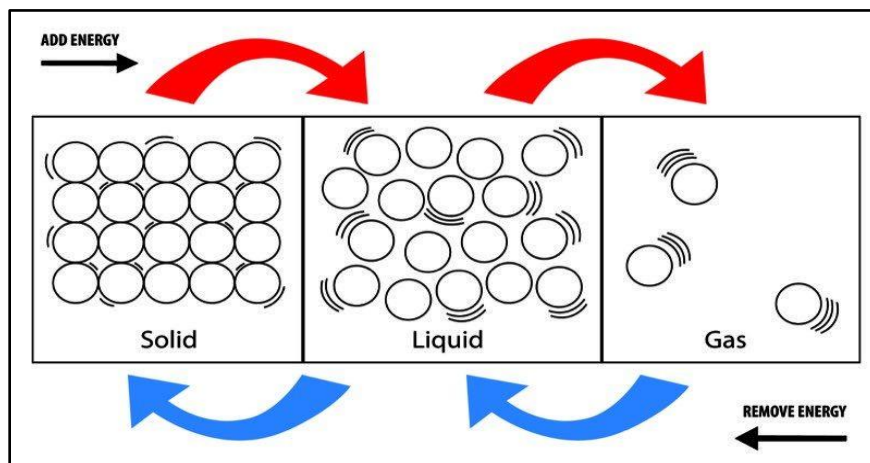
5. When spilled on the table, milk in a glass tumbler, flows and spreads out, but the glass tumbler stays in the same shape. Justify this statement.

Ans - In this case, milk is spilled on the table, and it spreads around the table because its state is liquid. Liquids can take the shape of their surrounding because their molecules are free to move. This is the reason the milk flows around the table. Whereas the glass tumbler's shape does not change because it is a solid. In solids, the molecules are closely packed.

6. Represent diagrammatically the changes in the arrangement of particles as ice melts and transforms into water vapour.

Ans - As ice melts into water and then vaporizes into steam, the arrangement of water particles changes significantly. Initially, in ice (a solid), water molecules are tightly packed in a fixed, crystalline structure with limited movement (vibrations). As ice melts, the particles gain kinetic energy, breaking free from their fixed positions and becoming

able to slide past each other, forming liquid water. Further heating increases the kinetic energy, causing the particles to move more rapidly and spread out, eventually breaking free from the liquid and becoming water vapour, a gas with particles moving randomly and freely.



Ice (Solid) Arrangement:

Water molecules are tightly packed in a regular, crystalline structure.

Movement: Molecules vibrate in fixed positions.

Water (Liquid) Arrangement:

Molecules are closer together than in a gas, but not in a regular structure. They can move around and slide past each other.

Movement: Molecules can move around and slide past each other.

Water Vapor (Gas) Arrangement:

Molecules are far apart and move randomly and freely in all directions.

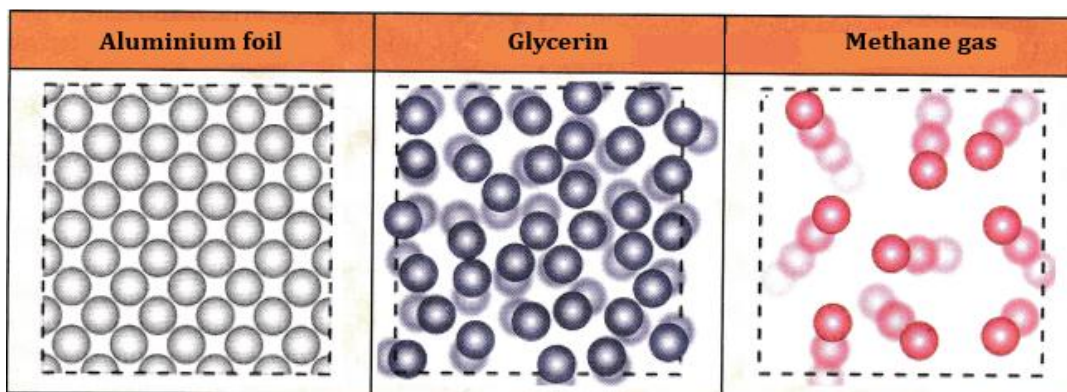
Movement: Molecules move rapidly and randomly, colliding with each other and the container walls.

7. Draw a picture representing particles present in the following:

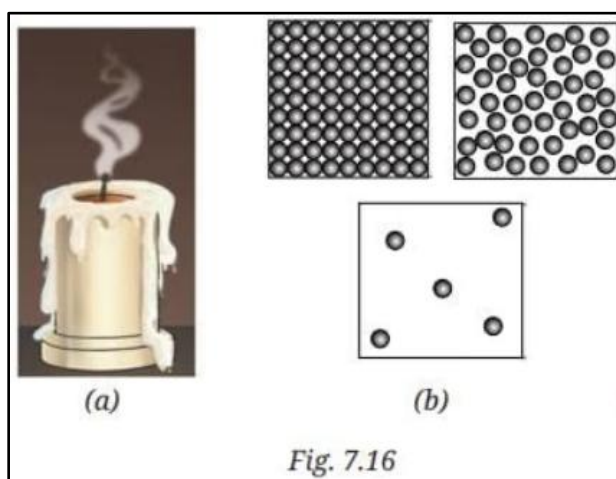
- (i) Aluminium foil
- (ii) Glycerin
- (iii) Methane gas

Ans -

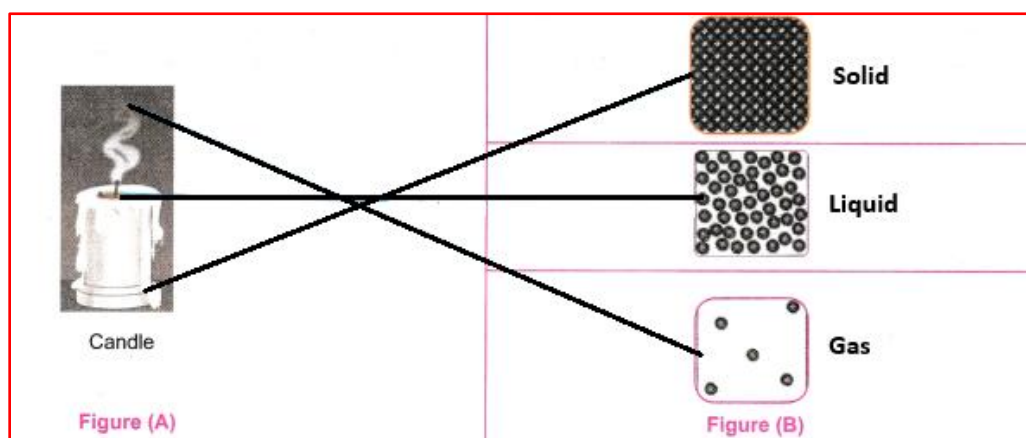
Pictorial representation of particles of Aluminium foil, Glycerin, and Methane gas.



8. Observe Fig. 7.16 (a) which shows the image of a candle that was just extinguished after burning for some time. Identify the different states of wax in the figure and match them with Fig. 7.16 (b) showing the arrangement of particles.



Ans: Different states of wax:



9. Why does the water in the ocean taste salty, even though the salt is not visible? Explain.

Ans - Ocean water tastes salty because it contains a high concentration of dissolved salts, primarily sodium chloride (common table salt). These salts are not visible

because they are dissolved at a molecular level, meaning the individual salt molecules are dispersed throughout the water, making it appear clear.

10. Grains of rice and rice flour take the shape of the container when placed in different jars. Are they solids or liquids? Explain.

Ans - Grains of rice and rice flour are considered solids, despite appearing to take the shape of their container. This is because each grain retains its shape and volume, even when mixed. The “flowing” behaviour is due to the ability of these small, irregularly shaped particles to move past each other with minimal friction.

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