Particle Arrangement in Matter

A. Choose the Correct Answer:

- 1. In which state of matter are the particles tightly packed and have a fixed shape?
 - A) Solid
 - B) Liquid
 - C) Gas
 - D) Plasma

2. Which state of matter has particles that are loosely packed and can flow?

- A) Solid
- B) Liquid
- C) Gas
- D) Bose-Einstein condensate

3. What happens to the particles when a solid is heated?

- A) They stop moving
- B) They move faster and spread apart
- C) They become tightly packed
- D) They lose energy and slow down

B. Fill in the Blanks:

- 1. In solids, particles are _____ packed and have a definite shape.
- 2. Particles in gases move _____ and fill the entire container.
- 3. The force of attraction between particles is the strongest in ______.

C. Case Study:

Ananya placed an ice cube in a glass.

- She observed that the ice maintained its shape initially.
- As it started melting, the ice turned into water, which took the shape of the glass.
- When she heated the water, it turned into steam and filled the surrounding air.
- Her teacher explained that this change in state occurs due to the arrangement and movement of particles.

Case Study Questions:

1. What was the state of matter of the ice cube initially?

- 2. How did the particle arrangement change when the ice turned into water?
- 3. What happened to the particles when the water was heated?
- 4. Why did the steam fill the surrounding air?

D. Short Answer Questions:

- 1. How are particles arranged in solids, liquids, and gases?
- 2. Why do gases fill the entire container they are kept in?
- 3. What happens to the movement of particles when a liquid is cooled?

E. Long Answer Questions:

- 1. Explain the arrangement of particles in solids, liquids, and gases with examples.
- 2. How does heating or cooling affect the movement and arrangement of particles in matter?
- 3. Why do solids have a definite shape, while liquids and gases do not?