

MATERIALS AROUND US

Case study – 1

In a science lab, four students explored how different substances mix. Raima stirred **salt** in water—it disappeared completely. Amita tried mixing **chalk powder**, which settled at the bottom. Fatima opened a bottle of **cold drinks**, and bubbles rushed out. Priya mixed **oil and water**, but they stayed in separate layers. Their teacher asked them to think carefully: Why do some materials mix while others don't?

1.Assertion (A): Priya was unable to make oil and water form a uniform mixture with continuous stirring.

Reason (R): Stirring increases the miscibility of liquids permanently.

- A. Both A and R are true, and R is the correct explanation of A.
- B. Both A and R are true, but R is not the correct explanation of A.
- C. A is true, but R is false.
- D. A is false, and R is true.

2.Assertion (A): The sudden release of bubbles from Fatima's cold drink bottle is due to the reaction between gas and water.

Reason (R): Gases escape from liquids when pressure is reduced.

- A. Both A and R are true, and R is the correct explanation of A.
- B. Both A and R are true, but R is not the correct explanation of A.
- C. A is true, but R is false.
- D. A is false, but R is true.

3. Amita observed that chalk powder settled at the bottom. What does this observation indicate?

- A. Chalk dissolves slowly in water.
- B. Chalk changes into a gas when mixed with water.
- C. Chalk does not dissolve and its particles remain separate from water.
- D. Chalk and water form a new substance.

4. Raima observed that salt disappeared completely after stirring it in water. Which conclusion is most appropriate?

- A. Salt has changed into water.
- B. Salt particles have mixed uniformly with water particles.
- C. Salt has settled at the bottom of the container.
- D. Salt has reacted chemically with water.

5. Which student's observation provides the strongest evidence that a substance can be present in a liquid even when it is not visible?

- A. Amita
- B. Fatima
- C. Priya
- D. Raima