

Matter in Our Surroundings

Assertion & Reason Type Questions

Directions : Each of the following questions consists of two statements, one is **Assertion (A)** and the other is **Reason (R)**. Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- b. Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
- c. Assertion (A) is true but Reason (R) is false.
- d. Assertion (A) is false but Reason (R) is true.

Q1. Assertion (A): When sugar crystals dissolve in water, the level of water does not change.

Reason (R): Sugar particles occupy the intermolecular space between the water molecules.

Answer : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

Q2. Assertion (A): Particles of matter are continuously in motion.

Reason (R): The kinetic energy of particles increases with increase in temperature.

Answer : (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

Q3. Assertion (A): The intermolecular forces in solid state are stronger than those in the liquid state.

Reason (R): The space between the particles of matter is called intermolecular space.

Answer : (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

Q4. Assertion (A): Liquids diffuse easily as compared to gases.

Reason (R): Intermolecular forces in liquids are greater than in gases.

Answer : (d) Assertion (A) is false because gases diffuse easily than liquids.

Q5. Assertion (A): The melting point of ice is 0°C or 273.15 K .

Reason (R): The conversion of a solid into liquid is also called fusion of the solid.

Answer : (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

Q6. Assertion (A): Naphthalene, camphor, iodine, ammonium chloride are some common examples of the substances which undergo sublimation.

Reason (R): All solids are first converted to liquids and then to gases on heating.

Answer : (c) Reason (R) is false because certain solids directly change to the gaseous state upon heating.

Q7. Assertion (A): At normal pressure (1 atm), the boiling point of water is 100°C or 373.15 K .

Reason (R): The atmospheric pressure at sea level is 1 atm and is taken as normal atmospheric pressure.

Answer : (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

Q8. Assertion (A): There is no change in the temperature of a substance when it undergoes a change of state though it is still being heated.

Reason (R): The heat supplied is absorbed either as latent heat of fusion or as latent heat of vaporisation.

Answer : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

Q9. Assertion (A): A gas can be easily compressed by applying pressure.

Reason (R): Since, the interparticle spaces in the gaseous state are very small, they cannot be compressed by applying pressure.

Answer : (c) Reason (R) is false because the interparticle spaces in the gaseous state are very large, so they can be compressed by applying pressure.

Q10. Assertion (A): Perspiration keeps our body cool.

Reason (R): Latent heat of vaporisation is absorbed from the body during perspiration.

Answer : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).