



Q. 1. Convert the following temperatures to the Celsius scale.

- (a) 293 K
- (b) 470 K

ANSWER:-

- (a) 293 K into °C = $293 - 273 = 20^{\circ}\text{C}$
- (b) 470 K into °C = $470 - 273 = 197^{\circ}\text{C}$

Q. 2. Convert the following temperatures to the kelvin scale.

- (a) 25°C
- (b) 373°C

ANSWER:-

- (a) 25°C into K = $25 + 273 = 298\text{ K}$
- (b) 373°C into K = $373 + 273 = 646\text{ K}$

Q. 3. Give reason for the following observations.

- (a) Naphthalene balls disappear with time without leaving any solid.
- (b) We can get the smell of perfume sitting several metres away.

ANSWER:-

- (a) Naphthalene balls gradually vanish over time without leaving any residue because they undergo sublimation, directly converting from a solid to a gaseous state.
- (b) The fragrance of perfume can be sensed from several meters away because it contains a volatile solvent that evaporates quickly and diffuses through the air.

Q. 4. Arrange the following substances in increasing order of forces of attraction between the particles—
water, sugar, oxygen.

ANSWER.

Oxygen → water → sugar



Q. 5. What is the physical state of water at—

- (a) 25°C
- (b) 0°C
- (c) 100°C ?

ANSWER:-

- (a) liquid
- (b) solid or liquid
- (c) liquid and gas

Q. 6. Give two reasons to justify—

- (a) water at room temperature is a liquid.
- (b) an iron almirah is a solid at room temperature.

ANSWER:-

- (a) Water is a liquid at room temperature because its freezing point is 0°C and its boiling point is 100°C.
- (b) An iron almirah remains solid at room temperature because the melting point of iron is higher than room temperature.

Q. 7. Why is ice at 273 K more effective in cooling than water at the same temperature?

ANSWER:-

At 273 K, ice absorbs heat energy or latent heat from the surrounding environment to overcome fusion and turn into water. This is why ice has a greater cooling effect than water at the same temperature, as water does not absorb this additional heat.

Q. 8. What produces more severe burns, boiling water or steam?

ANSWER:-

Steam at 100°C causes more severe burns because it contains additional heat, known as latent heat, whereas boiling water does not have this extra heat.

Q. 9. Name A, B, C, D, E and F in the following diagram showing change in its state.

ANSWER:-

- A → Liquefaction/melting/fusion
- B → Vaporisation/evaporation
- C → Condensation
- D → Solidification
- E → Sublimation
- F → Sublimation

