CLASS-IX (CHEMISTRY)

CH-1: MATTER IN OUR SURROUNDINGS

(EXERCISE QUESTIONS AND ANSWERS)

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1. Convert the following temperatures to the Celsius scale.
(a) 300 K (b) 573 K.

(a) Given:
Temperature in Kelvin scale=300 K
we know,
K=C+273
or, C=K-273
or, C=300-273
or, C=27
therefore, 300 K = 27°C

(b) Given:
Temperature in Kelvin scale=573 K
we know,
K=C+273
or, C=K-273
or, C=573-273
or, C=300
therefore, 573 K = 300°C

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2. Convert the following temperatures to the Kelvin scale.
(a) 25°C (b) 373°C.

(a) Given:
Temperature in Celsius scale=25°C
we know,
K=C+273
or, K=25+273
or, K=298
therefore, 25°C=298 K

(b) Given:

Temperature in Celsius scale=373°C

we know,

K=C+273

or, K=373+273

or, K=646

therefore, 373°C=646 K

3. Give reason for the following observations.

(a) Naphthalene balls disappear with time without leaving any solid.

Naphthalene balls disappear with time without leaving any solid because naphthalene is a sublime substance and easily converts from solid to gaseous state at room temperature.

(b) We can get the smell of perfume sitting several meters away.

We can get the smell of perfume sitting several meters away because of diffusion process. The particles of the smell of perfume possess high kinetic energy and diffuse into air at a very fast rate.

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

In increasing order of force of attraction between the particles:
oxygen < water < sugar

5. What is the physical state of water at-
(a) 25°C (b) 0°C (c) 100°C?

(a) At 25°C, water exists as liquid.
(b) At 0°C, water can exist as both solid and liquid.
(c) At 100°C, water can exist as both liquid and gas.

6. Give two reasons to justify-

(a) Water at room temperature is a liquid.

Water at room temperature is a liquid because its freezing point is 0°C and boiling point is 100°C. Also at room temperature it has no fixed shape but has fixed volume. It is slightly compressible and can flow.

(b) An iron almirah is a solid at room temperature.

An iron almirah is a solid at room temperature because melting point of iron is much higher than room temperature. Also at room temperature it has rigid shape, definite volume, cannot be compressed, and cannot flow. Since these all are the characteristics of a solid, an iron almirah is a solid.

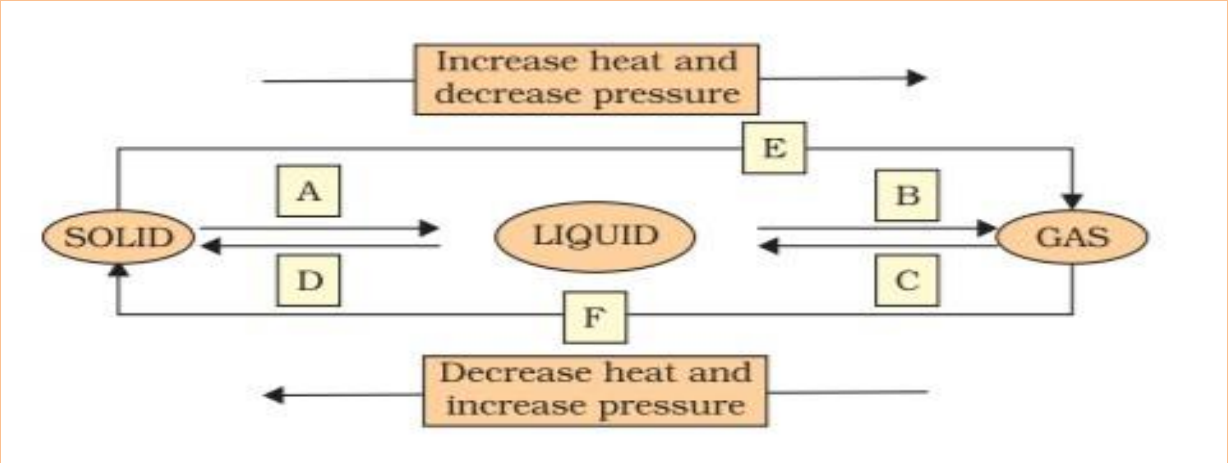
7. Why is ice at 273 K more effective in cooling than water at the same temperature?

An ice at 273 K is more effective in cooling than water at the same temperature because water at 273 K contains more heat as latent heat of fusion but ice does not at 273 K.

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

Both boiling water and steam are at 100 °C but steam causes severe burn than boiling water because the steam contains more heat as latent heat of vaporization.

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



Here,

A ⟶ Fusion

B ⟶ Vaporization

C ⟶ Condensation

D ⟶ Solidification

E ⟶ Sublimation

F ⟶ Sublimation