
CHAPTER END TEST

MATTER IN OUR SURROUNDINGS

(COVERS PART – I, II & III)

Class - IX

SOLUTIONS

SECTION - A

1. Temperature = Kelvin (K) [½]
Pressure = Pascal (Pa) [½]
2. The rate of diffusion increases. [1]
3. Density of water is maximum at 4°C. [1]
4. The carbon dioxide dissolved in soft drinks escape when kept open for a long time as gas molecules have high kinetic energy. [1]
5. The particles of water have strong forces of attraction. [1]
6. CNG: Compressed natural gas. [½]
LPG: Liquefied petroleum gas. [½]
7. Intermolecular forces between its particles will be strong. [1]
8. 1 Kg [1]
9. Temperature on Kelvin scale = Temperature on Celsius scale + 273 ∴
Temperature on Kelvin scale = 0° + 273
= 273 K. [1]
10. Gases under high pressure condition changes to liquid state. [1]
11. Gases < Liquids < Solids [1]

SECTION - B

12. (i) It helps in regulating the body temperature through sweating. [1]
(ii) It brings about transpiration in plants. [1]
13. (i) This process is called solidification. [1]
(ii) It is an exothermic change as heat is given out and liquid cools down to change into solid state. [1]
14. (i) As the temperature increases, the kinetic energy of the particles of a gas increases and they collide with each other inside the walls of the container which result in more pressure. [1]

- (ii) As the volume decreases, the number of collisions of particles of gas with each other inside the walls of the container increases, thus the pressure increases. [1]
15. Particles of solid have highest intermolecular forces of attraction, so they remain packed up in a definite shape and volume. They have least intermolecular spaces so they cannot be compressed. [1]
Sponges have pores which have air filled in them and as we squeeze it, the air is driven out and the sponge appears to be taking lesser space. [1]
16. Steam at 100°C will cause more severe burns. [1]
It is because steam has extra energy in the form of latent heat of vaporization. [1]

SECTION - C

17. (a) Condensation = Heat is given out. [1]
(b) Sublimation of solids = Heat is taken in. [1]
(c) Melting = Heat is taken in. [1]
18. Density of a substance is defined as mass per unit volume. [1]

S.I. unit of density is:

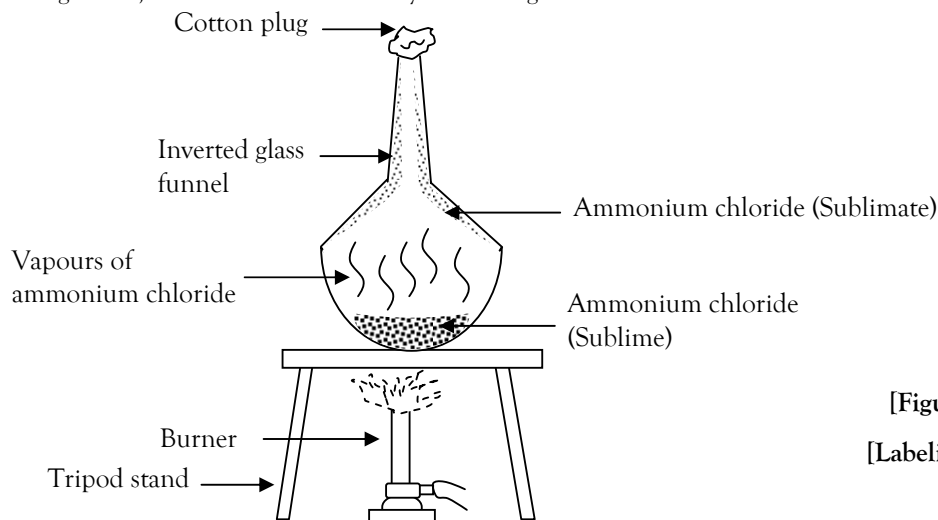
$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

S.I. unit of density = kg/m^3 [½]

More the density of the substance, harder it is. [½]

The particles are held with stronger forces of attraction and the intermolecular spaces are less, so the compressibility of that substance will also be less. [1]

19. Sublime is the substance that changes directly from solid to gaseous state and so can be separated from a substance which does not sublime. [½]
After cooling down, the solid formed directly from the gaseous state is called the sublimate. [½]



[Figure: 1 mark]

[Labeling: 1 mark]

SECTION – D

20. **Compressibility:** As the intermolecular spaces are least in the particles of solid, so they are almost incompressible, but liquids and gases have more intermolecular spaces and thus the distance between its particles can be reduced, so they are compressible. Gases having the maximum intermolecular spaces can be easily compressed up to a large extent.

Solids < Liquid < Gases [1]

Fluidity: The particles of liquids and gases have less intermolecular forces so they can move about free, and thus can flow. But the particles of solid are held by stronger intermolecular forces, so they cannot move about freely and thus cannot flow.

Solid < Liquid < Gases [1]

Rigidity: As the particles of solid are held by stronger forces of attraction, so they are harder, but the particles of liquid are held by lesser and particles of gases are held by least intermolecular forces, so they are less rigid.

Gases < Liquid < Solid [1]

Density: It is the measure of hardness of a substance, so stronger the intermolecular forces more will be its hardness and so more will be its density.

Gases < Liquid < Solid [1]

Rate of diffusion: It depends on the fluidity of a substance, more the movement of the particles more will be its rate of diffusion.

Solid < Liquid < Gases [1]