Class - IX

Chemistry Notes

Chapter – 1

Matter in our surroundings

CH-1 Matter in our surroundings

1. What is matter ?

Anything which occupies space and has mass is called matter. All substances are made up of material called matter.

Example : Table,chair,gold,oxygen,carbon etc

2. What are the characters of particles of matter ?

- Particles of matter have space between them.
- Particles of matter continuosly moving.
- Particles of matter attrace each other.

3.Define 'Diffusion' ?

The intermixing of two different types of matter on their own is called Diffusion.

Rate of Diffusion increases with increase of the Temperature.

4. What is CNG and LPG ?

CNG = Compressed Natural Gas

LPG = Liquified Petroleum Gas

5.The rate of diffusion of liquids is higher than solids ?

Rate of diffusion of liquids is higher than solids that of solids because in the liquid stage, Particles move freely and have greater space between each other as compared to particles in the solid state.

6. States of Matter .

On the basis of physical state , all matter can be classified into three states –

Solid – Table, Chair, Iron etc
Liquid – Water, Petrol, Ink etc
Gas – Nitrogen, Oxygen, Carbondioxide etc

These states of matter rise due to the variation in the characters of the particles of matter

Properties	Solids	Liquids	Gases
Shape	Solids have definite shape	They have no definite shape. They take the shape of the container	They donot have any definite shape.
Volume	Solids have definite volume	Liquids have definite volume	No fixed volume
Inter moleculer Space	Solids are least	More than that in solids	Maximum in gaseous
Inter moleculer force of attraction	Maximum in solids	Less than that in solids	Least in gaseous
Compressibility	Neligible in solids	Very low in liquids	Highly compressive
Fluidity	Rigid	Fluid	Fluid
Density	High density	Less than that of solids	Low Density

7. A diver is able to cut through water in a swimmingpool. Which property of matter does this observation show ?

The particles of every matter has a force attracting them. This force keeps the particles together in a matter in the case of water, The force of attraction between particles is less in comparison to solids. Thus water molicules flow easily giving way to a diver.

8. Give Reason

1) A Gas fills completely the vessel in which it is kept.

The molecules of a gas posses high knetic energy and very inter.
The molecules move in all dorection as result the vessel is completely filled with gas.

2) A Wooden table should be called a solid why?

A Wooden table maintains its shape and it posses all the property of shape like Rigility, Fixed volume, incompressability etc.

3) A Gas exerts pressure on the walls of the container.

In the gaseous state, the particles move above randomly at high speed. Due to this movement, the molecules keep hitting the walls of the container.
As a result pressure is exerted by the gas on the force exerted by gas particles per unit area on the walls of the container.

4) We can easily move our hand in air but to do the same through a solid block of wood we need a karate expert.

Solid have very strong intermoleculer force of attraction among these particles while intermoleculer force of attraction in gases is least. Due to this reason we are able to easily move our hands in air but cannot do the same through the solid block of wood.

9. Liquids generally have lower density as compares to solids but Ice is a solid that floats on water and why?

When water is converted on ice its volume expand its comparison to the volume of water in this Ice occupies more space as a result its density decreases and its floats on water.

10. We can get the smell of a perfume sitting several meters away.

Moleculer and perfume contain volatile organic solvent which can easily defuse through air and hence carry the fragrance several metres away.

11. Water at temperature is a liquid.

Water at room temperature is a liquid because the innermoleculer forces among the particles are strong enough to keep them together and also it has fixed volume but no fixed shape.

12. Name the physical state of matter which cannot be easily compress.

Solid

13. Density Equation –

Density is mass per unit volume of a substance

Density =

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

14. Define – Latent Heat of fusion

Latent heat of fusion is the amount of heat energy required to change 1kg of solid into liquid at its melting point.

15. What is latent heat of Vapourisation.

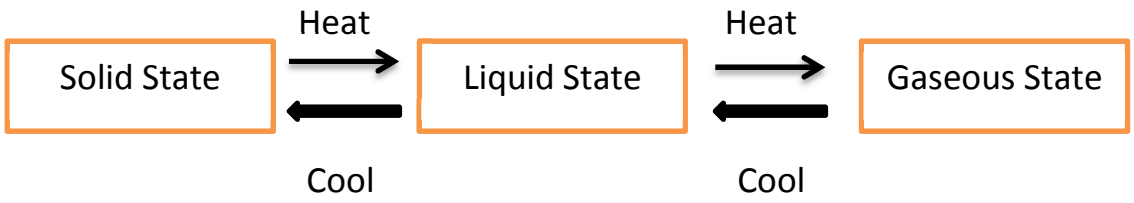
Latent heat of vapourisation is the heat energy required to change 1kg of a liquid to gas at atmospheric pressure at its boiling point.

16. Define Boiling point and Melting point.

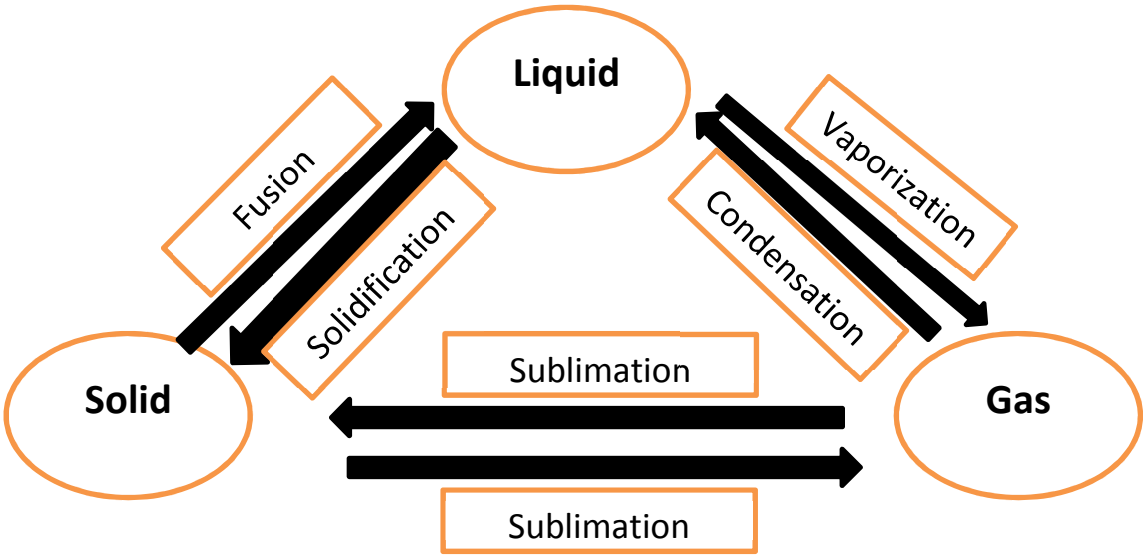
Boiling Point	**Melting Point**
The Temperature at which a liquid starts boiling at the atmospheric pressure is known as boiling point **Boiling is the Bulk Phenomenon**	**The Temperature at which a solid melts to become a liquid at the atmospheric pressure is called melting point.**

17. What is the melting point of ice?

273.16 Kelvin



18. Draw Interconversion of the three states of matter.



19. Define Sublimation

A Change of State directly from solid to gas without changing into liquid (or Vice Versa) is called Sublimation.

20. Effect of change of Pressure?

The physical state of matter can also be change by changing the pressure Example: Gases can be changed into liquids by applying pressure and reducing temperature.

21. Solid Carbondioxide is also known as dried ice give reason.

Solid Carbondioxide gets converted directly into gaseous state on decrease of pressure to one atmosphere without coming into liquid state. Hence solid Carbondioxide is also known as dried Ice.

22. Write the Difference between Evaporation and Boiling

Evaporation	**Boiling**
1) Evaporation is the surface phenomenon. 2) Evaporation occurs at all Temperature. 3) Evaporation Results in Cooling 4) Evaporation is a very slow process 5) Evaporation happens on its own	1) Boiling is a bulk phenomenon. 2) Boiling takes place at the boiling point of the liquid. 3) Boiling result in cooling 4) Boiling is a fast process. 5) For boiling we have to supply energy. It does not happen on its own.

23. Why is it that solids do not diffuse into one another?

Due to the presence of strong inter molecular attractive forces between the molecules in solid state. They cannot exchange their position or diffuse into one another as a result the solids do not diffuse into one another.

24. Convert the following temperature to Celsius in scale.

A) 300 K (KELVIN)

300K = 300 – 273 = 27*C

B) 573 K

573K = 573 – 273 = 300*C

C) 293 K

293 K = 293 – 273 = 20*C

D) 470 K

470 K = 470 – 273 = 197*C