~Chemistry

Chapter-1 Notes

Matter in our Surrounding

- **Matter** → Anything that occupies space and has mass and offers resistance to any applied force.

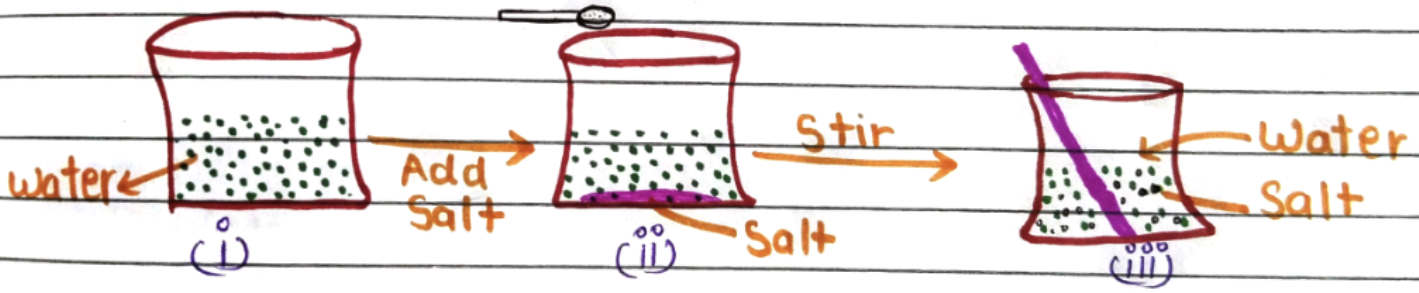
Matter is made up of particles. (very small)

- **Characteristic of Particles :** {Smart classes}

(i) Particles of matter are continoosly moving

Particles possesses Kinetic energy, Ass the temperature rise, Particles moves faster because kinetic energy of Particles increase.

(ii) Particles of matter have space between them.



(iii) Particles of matter attract each other.

- Space between Particles → Gases > liquid > Solids
- Force of Attraction → Solids > liquid > Solids
- Movement of Particles → Gases > liquid > Solids

STATES of MATTER

SOLID LIQUID GASES

(i). **Solid state :**

(a). Have definite shape (b). Have definite volume.
(c). Have distinct boundaries
(d). Have rigidity and incompressibility.

(ii). **Liquid state :**

(a). Have fluidity (not rigid) (b). Have definite volume
(c). Low compressibility (d). No definite shape, boundy

(iii). **Gaseous state :**

(a). Have fluidity (b). Have no definite volume
(c). Have no definite shapes (d). Have high Compressibil -ities.

Change in Physical state of Matter Can be done in two ways :

(A) By changing the temperature :

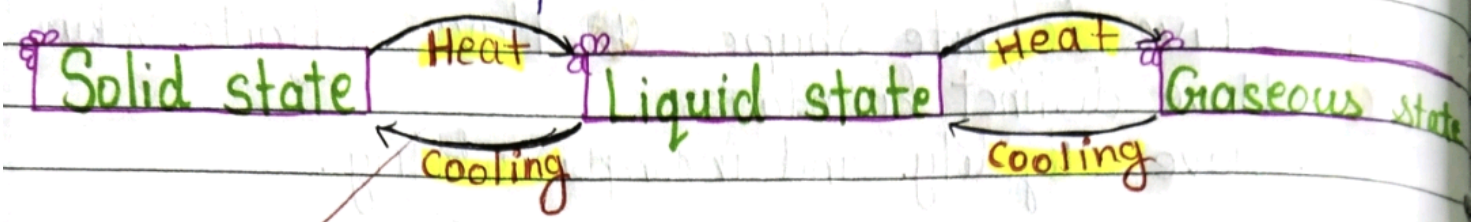
(i). **Melting Point** : The temperature at which a solid melts to form liquid at atmospheric pressure is called Melting Point.

- **Latent heat of fusion** : The amount of heat required to change 1 Kg solid to its liquid state at atmospheric Pressure.

(ii) **Boiling Point** :- The temperature at which a liquid boils to form vapour at atmospheric Pressure is called Boiling Point

- **Latent heat of Vapourisation** :- The amount of

heat required to change 1 Kg liquid to its gaseous state at atmospheric Pressure.



At 25°C → Water is liquid
At 0°C → Water is solid (ice)
At 100°C → Water is gaseous (steam)

→ Boiling point of water is 373K or 100°C.

(iii) **Sublimation**:- Change of solid directly into vapour on heating and vapours into solid on cooling without passing through liquid state is called Sublimation :-
Solid → Gaseous and Gaseous → Solid

Example :- Camphor (Solid state) $\xrightarrow[\text{cooling}]{\text{Heat}}$ Vapour (gaseous state)

(B). By changing the Pressure :

- By applying high Pressure, the particles of a gas can be brought close together.
- Solid Carbondioxide (**dryice**) is changed into CO_2 gas directly without changing into liquid.
- **Evaporation** : A surface phenomenon in which liquid changes into vapours at any temperature below its boiling point is called

Evaporation

- Factors affecting evaporation :

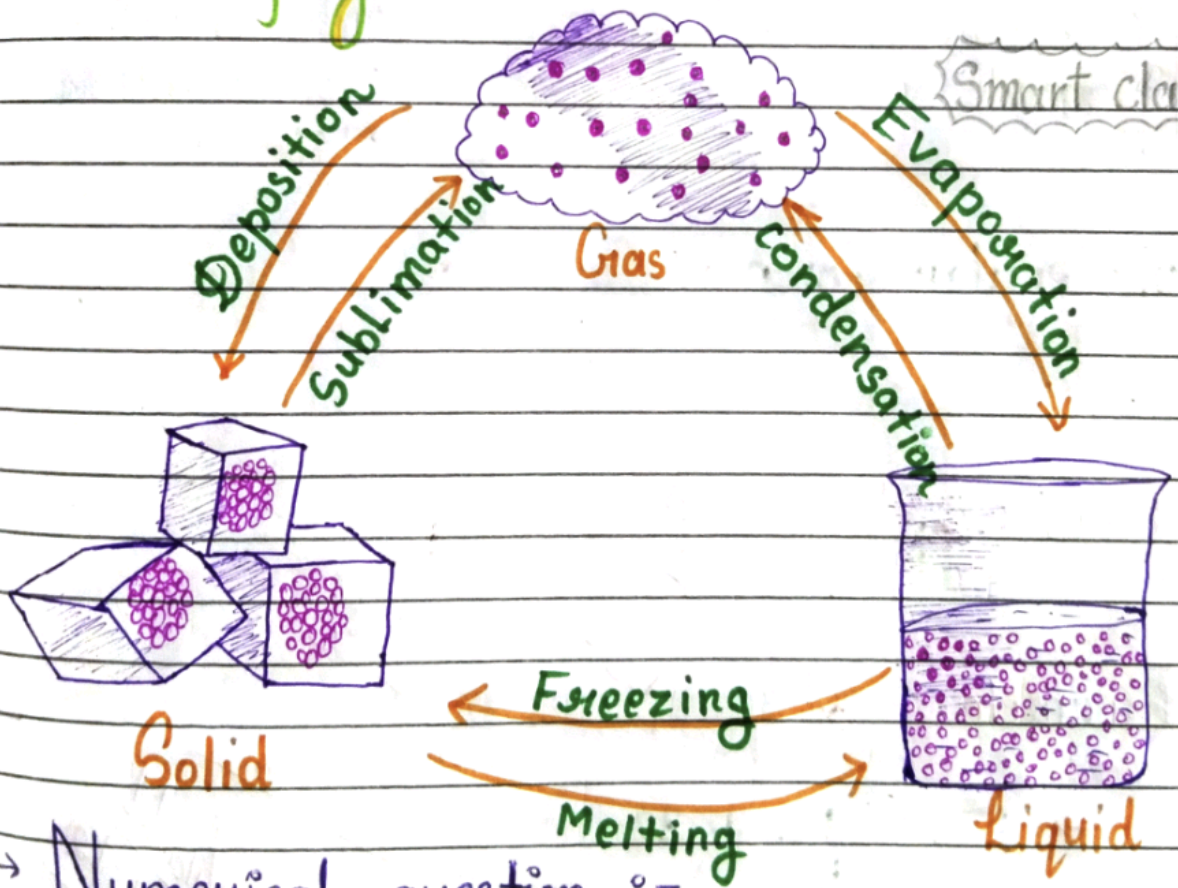
(a). Exposed surface area : Surface area ↑ = evaporation ↑

(b). Increase in temperature : temperature ↑ = evaporation ↑

(c). Humidity : Humidity ↑ = evaporation ↓

(d) Wind : Speed of wind ↑ = evaporation ↑

→ Changing states of Matters



→ Numerical question :-

Q. Convert into celsius scale :-

(i) Kelvin = 300 , °C = ?

= °C = K − 273

$= 300 - 273 = °C = 27$

Q. Convert into Kelvin
$= ∵ °C = 70$, Kelvin = ?

$K = °C + 273$

$K = 70 + 273 = K = 343$

∴ Important ∴

Matter — Smart classes

Physical classification
- Solid
- Liquid
- Gas

Chemical classification
- Elements
- Components
- Mixtures.

- **Intermolecular force** :- force of attraction or repulsion that act between particles (atoms, molecules or irons).

- **Celsius** :- 0°C — 50°C — 100°C

- **Fahrenheit** :- 32°F — 122°F — 212°C

→ $F = \frac{9}{5}C + 32$

- **Kelvin** :- 273 K — 373 K

13/5/23

the end