28/6/18

Chapter - 3
Periodic Table

⇒ A systematic and tabular arrangement of different elements is called Periodic table.

There are two attempts in periodic table :-

1) Earlier attempts 2) Modern attempts

1. Earlier Attempts

(1) **Proust views**

According to Proust, All the elements are made up from Hydrogen atom, And there properties are similar to Hydrogen atom.

(2) **Lavosier views** :- Father of chemistry

According to Lavosier

- Metals → e^- donor → electropositive
- Non-Metal → e^- acceptor → electronegative

But this theory was failed, after the discovery of Metalloids.

Teacher's Signature

③ Doberenier Triad

He arranged the elements in group of three, known as triads and According to him, The atomic mass of middle elements is the average of mass of other two elements

Ex → (1) Li Na K
7 23 39

$$Na = \frac{7+39}{2} = \frac{46}{2} = 23$$

(2) Be Mg Ca
9 24 40

$$Mg = \frac{9+40}{2} = \frac{49}{2} = 24.5$$

(3) Ca Sr Ba
40 88 137

$$Sr = \frac{40+137}{2} = \frac{177}{2} = 88.5$$

(4) P As Sb
31 75 120

$$As = \frac{31+120}{2} = \frac{151}{2} = 75.5$$

Demerits ① This Method of Classi. was not systematic

② All the elements that time could not be classified in the form of triad.

(5) F Cl Br
19 35.5 80

$Cl = \frac{80+19}{2} = \frac{99}{2} = \underline{49.5}$ <Exception>

(6) Cl Br I
35.5 80 127

$Br = \frac{35.5+127}{2} = \frac{162.5}{2} = \underline{81.5}$

④ **Newland Rule of Octave's (1965)**

Newland's arranged 8-8 elements in a group and According to him, property of 8th element will have similar to 1st element according to musical notes [56 Elements were known]

⟨1⟩	Li	⟨1⟩ Be	B	C	N	O	F	{Similar property}
⟨8⟩	Na	(8) Mg	Al	Si	P	S	Cl	
⟨1⟩	K	⟨1⟩ Ca	[Sc X]					

★ **Limitation of this Law**

1) Valid up to calcium atom.
2) Inert gases was not discovered at that time
3) Valid only for lighter element.