Science Class 10 Notes for Periodic Classification of Elements

1. Classification means identifying similar species and grouping them together.

2. Lavoisier divided elements into two main types known as metals and non-metals.

3. Doberiner's Law of Triads:

According to this law, "in certain triads (grout) of three elements) the atomic mass of the central element was the arithmetic mean of the atomic masses of the other two elements." But in some triads all the threc elements possessed nearly the same atomic masses, therefore the law was rejected.

e.g., atomic masses of Li, Na and K are respectively 7, 23 and 39, thus the mean of atomic masses of I St and 3rd element is

Limitations of Doberiner's Triads: He could identify only a few such triads and so the law could not gain importance. In the triad ofFe, Co, Ni, all the three elements have a nearly equal atomic mass and thus does not follow the above law

4. Newland's Law of Octaves:

According to this law "the elements are arranged in such a way that the eighth element starting from a given one has properties which are a repetition of those of the first if arranged in order of increasing atomic weight like the eight note of musical scale."

Drawback of Newland's law of Octaves:

(i) According to Newland only 56 elements exists in nature and no more elements would be discovered in the future. But later on several new element were discovered whose properties did not fit into law of octaves.

(ii) In order to fit new elements into his table Newland adjust two elements in the same column, but put some unlike elements under the same column.

Thus, Newland's classification was not accepted.

Mendeleev's Periodic Table :

Mendeleev arranged 63 elements known at that time in the periodic table. According to Mendeleev "the properties of the elements are a periodic function of their atomic masses." The table consists of eight vertical column called 'groups' and horizontal rows called 'periods'.

Merits of Mendeleev's Periodic Table: