

Law of Chemical Combinations

Avagadro's

@ Constant Pressure & temperature. Volume is directly Proportional to No of moles

Low of Definite Proportions

A given compound always contain exactly the same proportions of elements

Gay Lussac's Law

@ Constant Volume. Pressure is directly proportional to volume

Low of Multiple Proportions

If two elements can combine to form more than one compound, the masses of one element that combine with a fixed mass of the other element are in ratio of small whole number

Low of Conservation of mass

Matter can neither be created nor destroyed.

Balance a Chemical Equation

Write correct formulas of reactant & products

Balance Number of C atoms

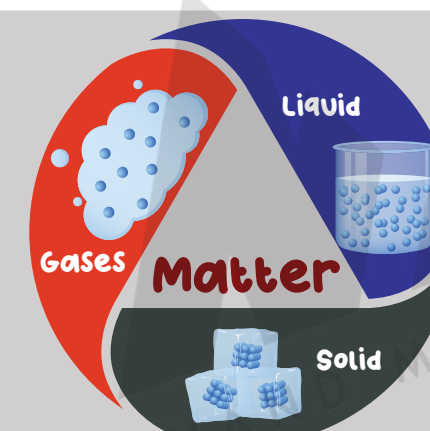
Balance Number of H atoms

Balance Number of O atoms

Verify number of atoms of elements

Significant Figures

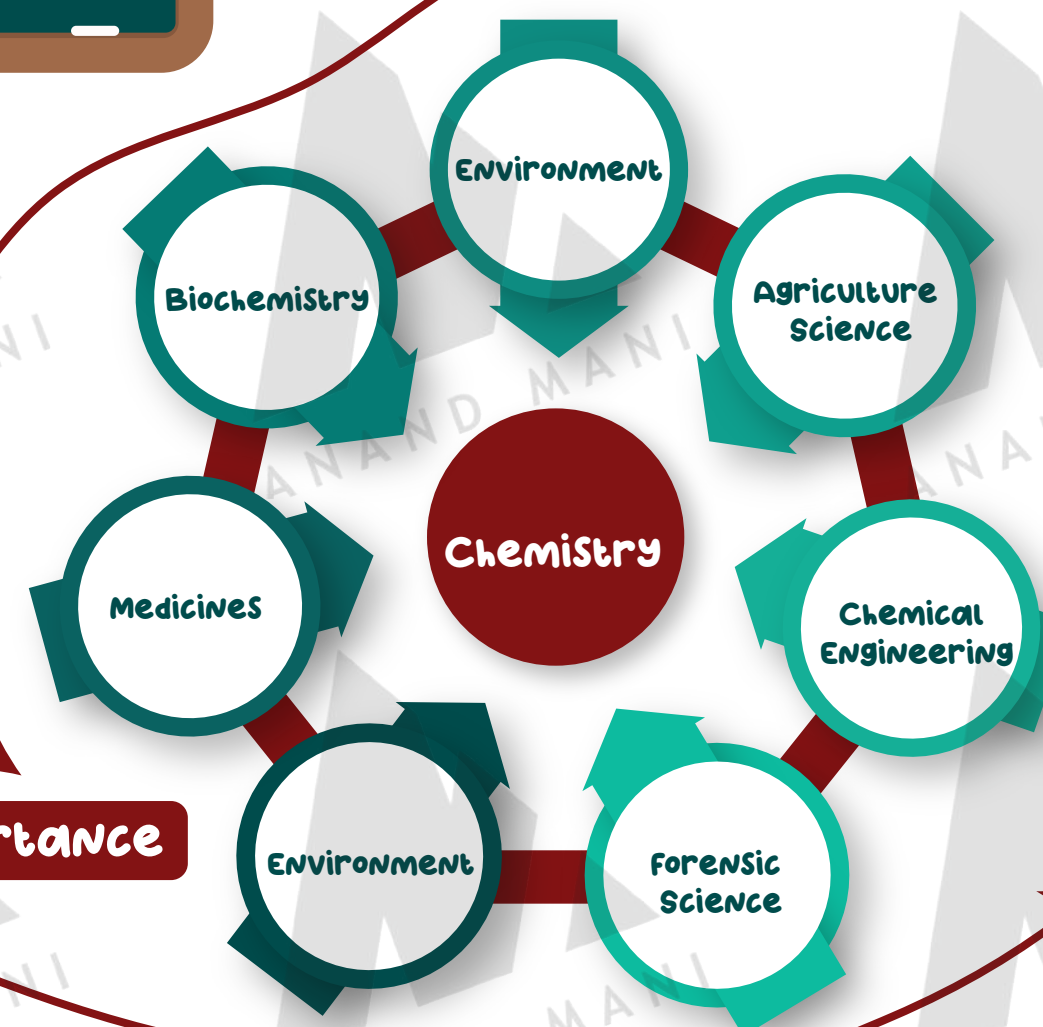
- All the non-zero numbers in a measurement are significant.
- Zeros sandwiched anywhere between non-zeros are significant.
- Zeros to the left of a first non-zero digit are not significant.
- The zeros to the right of the last non-zero digit are significant if no. has a decimal point.



Stoichiometry

SOME BASIC CONCEPTS OF CHEMISTRY

Importance



Concentration terms

Dalton's Atomic Theory

- Atoms consist of indivisible atoms.
- All the atoms of a given element have identical properties including identical mass.
- Atoms are neither created nor destroyed.
- Compounds are formed when atoms of different elements combine in a fixed ratio.

Limiting Reagent

The reactant that is entirely used up in a reaction

Moles (n)

$$n = \frac{\text{given number}}{\text{Avagadro's No}} = \frac{n}{N_A}$$

$$n = \frac{\text{given mass}}{\text{Molar mass}} = \frac{m}{M}$$

$$n = \frac{\text{given volume}}{22.4 \text{ L}} = \frac{V}{22.4 \text{ L}}$$

Empirical & Molecular Formula

- Step 1 → Conversion of mass % to grams
- Step 2 → Convert into number moles of each element
- Step 3 → Divide the mole value obtained above by the Smallest Number
- Step 4 → Write Empirical formula by mentioning the No. after writing the symbols of respective elements
- Step 5 → Writing Molecular Formula
 - (a) Determine EF mass Add the atomic masses of various atoms present in the EF
 - (b) Divide molar masses by EF mass
 - (c) Multiply EF by n obtained above

Dilution

$$M_1V_1 = M_2V_2$$

Basicity

No of H⁺ ion displaced in one molecule of the acid

Acidity

No of OH⁻ ion displaced in one molecule of the base

