

Organic Chemistry [POC]

Organic Chemistry :-

It is a branch of chemistry that studies the structure, properties and reactions of organic comp's which contain Carbon in covalent bonding.

study of structure determines their chemical composition and formula.

pharmaceutical organic chemistry:

Deals directly with the medication nature and structure including our bodies nature and structure.

Simply \rightarrow study of any compound containing a carbon atom inside it.

uses of chemistry :-

industry and transport

Food science & Agriculture

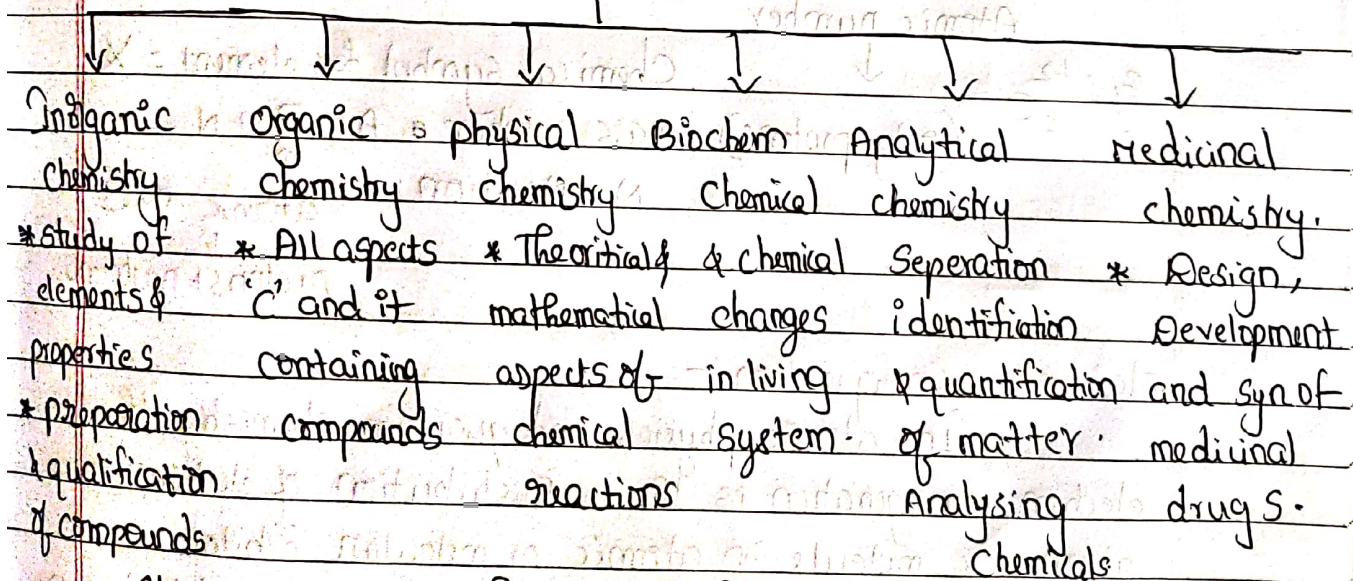
Science and technology

* Medicine

polymer industry

Branches of Chemistry :-

Chemistry



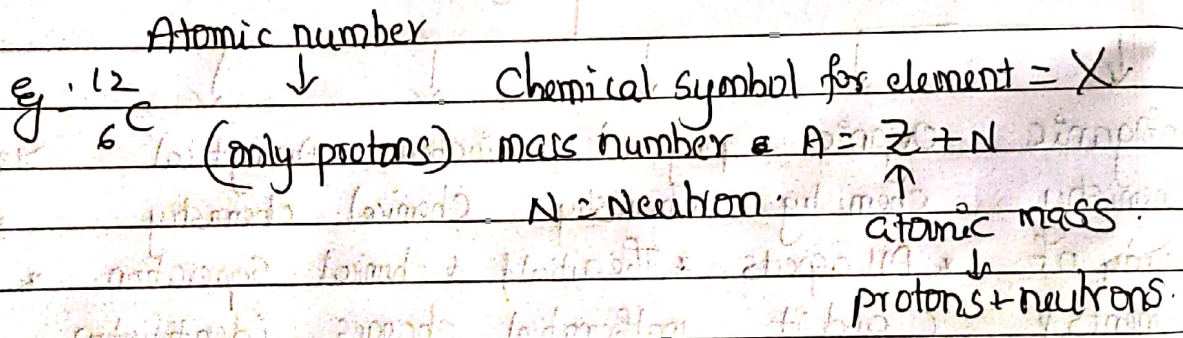
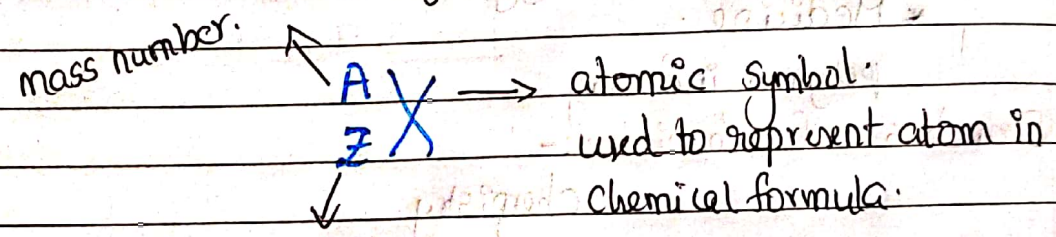
Stereochemistry :- The study of spatial arrangement of atom in molecules and their effects on the chemical and physical properties of substances.

Atom - Basic building blocks of matter.
cannot be chemically subdivided.
Smallest unit of ordinary matter that forms chemical elements.
Components of atom: - protons, Neutrons, Electrons

Molecule :- A group of atoms bonded together, representing the smallest fundamental unit of a chemical compound that can take part in chemical reaction.

Atomic number :- The number of protons in the nucleus of an atom, which is characteristic of a chemical element and determines its place in the periodic table.

Mass number :- Number of protons and neutrons in an atom.



Electronic Configuration :- In atomic physics and quantum chemistry, the electron configuration is the distribution of electrons of an atom or molecule in atomic or molecular orbitals.

eg: $1s^2 2s^2 2p^6$ The 1 represents \rightarrow principal level energy
2 " \rightarrow total no. of electrons
s " \rightarrow type of sublevel.

'C' $\rightarrow 1s^2 2s^2 2p^2$ e^-

Hybridization:- Mixing atomic orbitals into new hybrid orbitals (with diff energies, shapes etc., than the component atomic orbitals) suitable for the pairing of electrons to form chemical bonds in valence.

types of Hybridization

- sp^3 → ~~2s orbital~~ one 2s orbital & 3 p orbitals
- sp^2 → one 2s orbital & 2 p orbitals
- sp → one 2s orbital & one p orbital

Orbital:-

is a mathematical function that describes the wave-like behaviour of an electron, electron pair or nucleons.

or

electron cloud having an energy state.

Types of Organic reactions:

- 1) Addition reactions
- 2) Substitution reactions - SN^1 & SN^2
- 3) Elimination reactions - E^1 & E^2
- 4) Rearrangement reactions
- 5) Free radical reactions - chain initiation
chain propagation
chain termination.

Types of ~~reagents~~ Reaction intermediates:-

- Carbocations
- Carbanions
- Carbenes
- Nitrenes

Nucleophile:- Nucleus loving i.e. electron rich species. (negative charge) electron donors act as Lewis bases

Electrophile:- Electron loving i.e. electron deficient species (positive charge) electron acceptors, act as Lewis acids.