MIND MAP

- **Sub-atomic particles of atom includes**

(a) Electrons – negatively charged with charge of –1 and negligible mass.

(b) Protons – Positively charged with charge of +1 and mass is 1 u.

(c) Neutrons – Particles are with no charge and mass of 1 u

Thomson's model of an atom

- Atom is electrically neutral consisting of positively charged sphere with electrons embedded in it.
- If failed to explain the results of experiments carried out by other scientists.

Rutherford's model of an atom

- He performed the α-particle scattering experiment and proposed that an atom is electrically neutral, with a positively charged nucleus having protons and neutrons and negatively charged electrons revolving around the nucleus.

Valency

- The combining capacity of the atoms of an element is valency.
- Elements having 1, 2, 3, and 4 electrons in the valence shell, has valency equal to number of electrons.
- Elements having more than 4 electrons in the valence shell has valency equal to 8 minus the number of valence electrons.

Isotopes

- Isotopes are the atoms of the same element, having the some atomic number but different mass number.
- Isotopes are useful as nuclear fuel, in medical field, in carbon dating, etc

Bohr's model of an atom

- An atom has a positively charged nucleus and electrons revolve in permitted circular orbits with fixed radii and energy.
- Bohr explained the drawback of Rutherford's model of an atom

Bohr-Bury scheme

- The number of electrons that can be present in a given shell is $2n^2$, when 'n' is the number of shell.
- Maximum number of electrons in the outermost orbit

Atomic number and mass number

- Atomic number (z) is number of protons in one atom of an element.
- Mass number (A) is the sum of protons and neutrons present in the atom of the element.
- Notation for an atom