

Electronic Configuration

Distribution of electron in various orbitals is known as electronic configuration. The electrons filled in orbitals must obey the following rules-

- Aufbau's principle
- Pauli's exclusion principle
- Hund's rule of maximum multiplicity

1. Aufbau's principle: According to this principle, orbitals with lowest energy are filled before the orbitals having higher energy.

$1s < 2s < 2p < 3s < 3p < 4s < 3d < 4p < 5s < 4d < 5p < 6s < 4f < 5d < 6p < 7s < 5f < 6d <$

$7p$ ($n + l$) rule (Bohr Bury's Rule)

According to this, The orbital which has lower value of ($n + l$) is lower in energy.

2. Pauli's exclusion principle: According to this principle, in an atom, no two electrons have same value of all the four quantum numbers. In the same orbital, electron always accommodate in opposite spins. An orbital can have a maximum of two electrons, with opposite spin.
3. Hund's rule of maximum multiplicity: According to this rule, electrons are distributed among the orbital of a subshell in such a way so as to give the maximum number of unpaired electrons with a parallel spin.

Summary

1. Atomic number: It is equal to the number of protons in the nucleus of an atom.
2. Mass number: It is equal to the sum of the positively charged protons (p) and electrically neutral neutrons (n).
3. Isotopes: Isotopes are the atoms of the same element which have the same atomic number but different mass numbers.
4. Isobars: Isobars are the atoms of different elements having the same mass number but different atomic numbers.
5. Isoelectronic species: These are those species which have same number of electrons.
6. Radiations: These are defined as the emission or transmission of energy through space in the form of waves.