- For a given value of 'l' the total value of 'm' is equal to $(2l+1)$.

7.4 Spin Quantum Numbers (s)

- It represents the value of spin angular momentum is equal to $\frac{h}{2\pi}\sqrt{s(s+1)}$.
- The value of s is $+1/2$ and $-1/2$, which is signifies the spin or rotation or direction of electron on it's axis during movement, may be in clockwise or anticlockwise.
- Maximum spin of an atom $= 1/2 \times$ number of unpaired electron.

NODES

- ❖ The region around the nucleus where density of electron cloud is zero (i.e. $\Psi^2 = 0$) is known as node. Any plane passing through this point is known as nodal plane.
- ❖ Nodes are of two types (1) Angular nodes (2) Radial nodes.

  The no. of Angular nodes = ℓ

  The no. of Radial nodes = n-ℓ-1

  Total no. of nodes in an orbital = n - 1

8. ELECTRONIC CONFIGURATION PRINCIPLES

Filling up of orbitals in the ground state of atom is governed by the following rules:

(1) Aufbau principle: According to this principle, "In the ground state, the atomic orbitals are filled in order of increasing energies i.e. in the ground state the electrons first occupy the lowest energy orbitals available". The energy of an orbital is determined by the quantum number n and l with the help of (n+l) rule or Bohr Bury rule. Lower the value of n + l, lower is the energy of the orbital and such an orbital will be filled up first. When two orbitals have same value of (n+l) the orbital having lower value of "n" has lower energy and such an orbital will be filled up first. Thus, order of filling up of orbitals is as follows: