

**Class 11<sup>th</sup> | Chemistry**



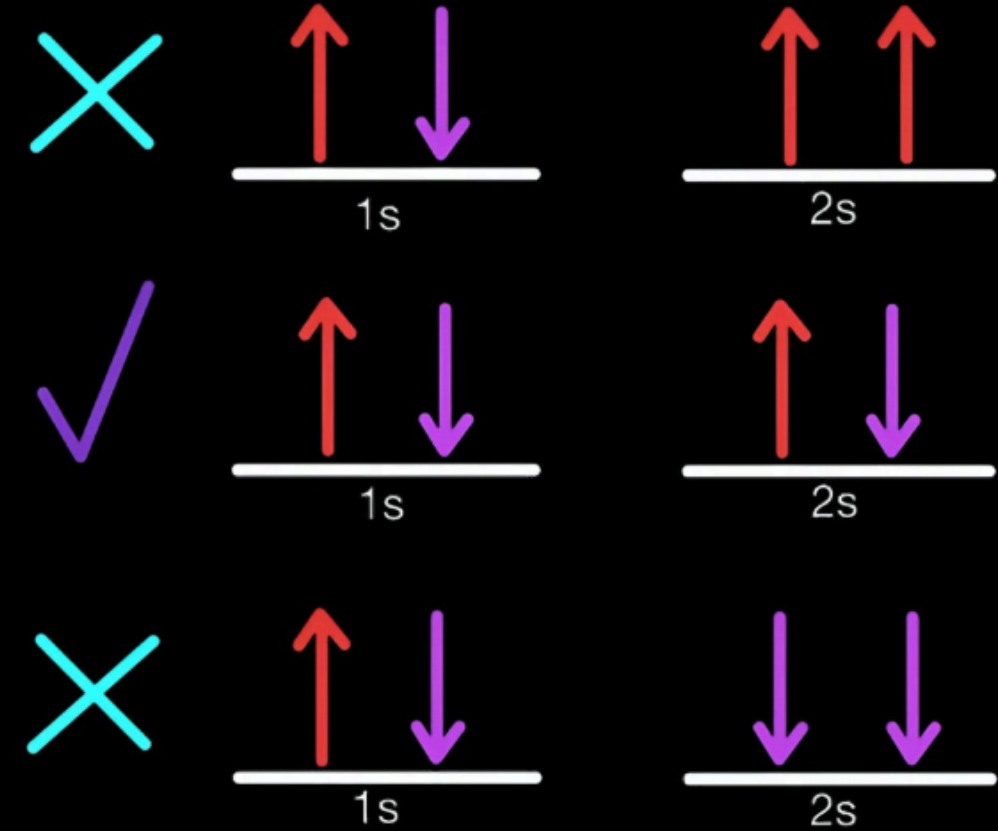
**Unit : 1**  
**Structure  
of Atom**

**Lecture - 9**

# Shapes of Atomic Orbital

- It states, no two electrons in an atom can have identical set of four quantum numbers.
- Only two electrons may exist in the same orbital and these electrons must have opposite spin

**The maximum number of electrons in s subshell is 2, p subshell is 6 d subshell is 10 and f subshell is 14.**



# Aufbau principle:

- **Aufbau is a German word which means structure or construction.**
- Aufbau Principle states that in the ground state of an atom, the electrons fill atomic orbitals of the lowest available energy levels before occupying higher levels i.e. orbitals are filled in the increasing order of their energies.

# Aufbau principle:

- The rule may be used to identify the sequence in which the energy of orbitals grows, where the sum of the main and azimuthal quantum numbers defines the energy level of the orbital.
- Lower values indicate lower orbital energy. If two orbitals have equivalent values, the orbital with the lower value is said to have lower energy.
- If value of  $(n + l)$  is same for any two subshell, then the deciding factor will be the value of  $n$ . Greater the value of  $n$ , greater will be its energy.

**The orbitals are filled with electrons in the following order:**

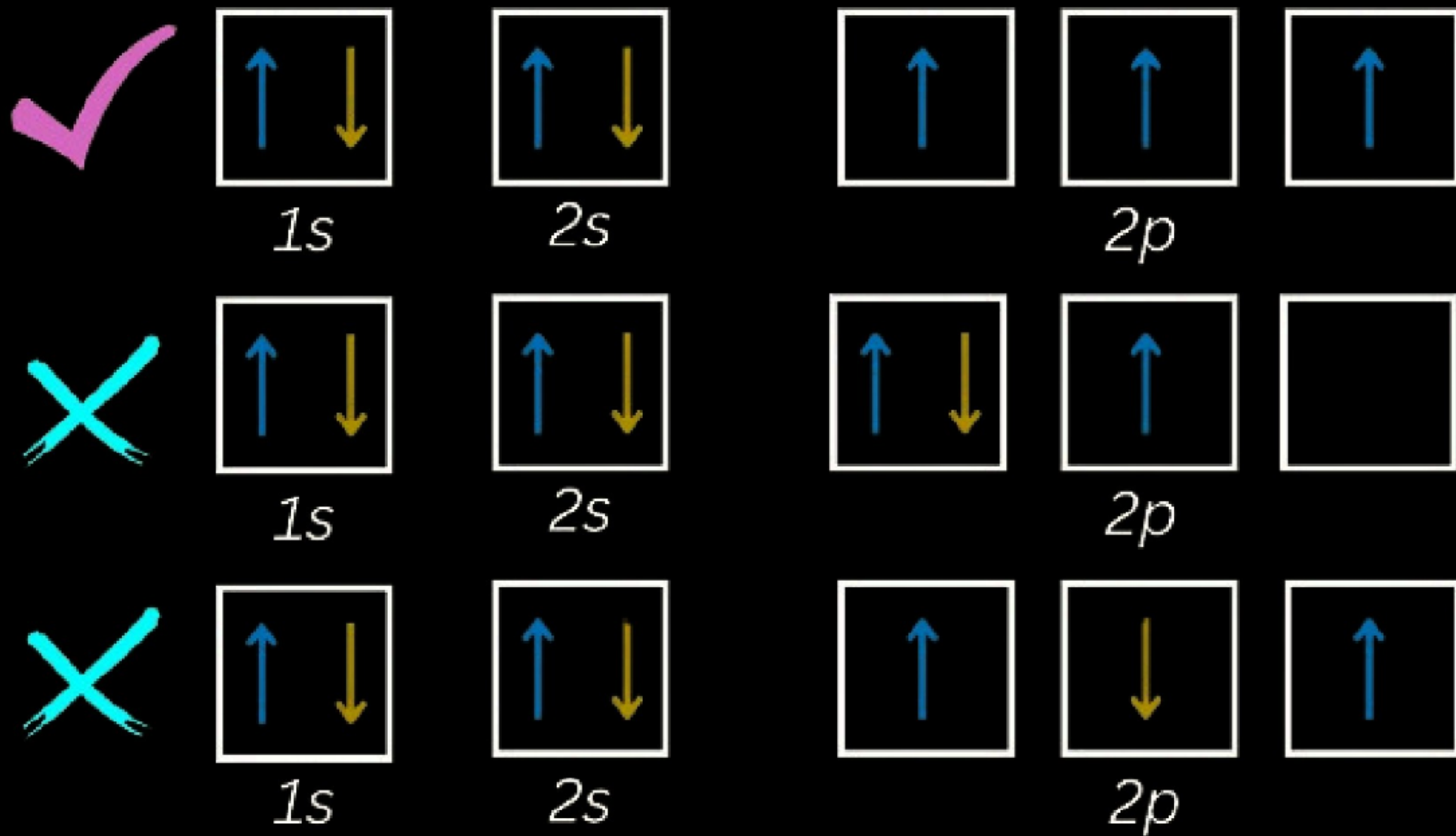
1s, 2s, 2p, 3s, 3p, 4s, 3d, 4p, 5s, 4d, 5p  
, 6s, 4f, 5d, 6p, 7s, 5f, 6d, 7p..

**and so on.**

# Hund's Rule

- Hund's Rule of Maximum Multiplicity states that for a given electron configuration, the term with maximum multiplicity falls lowest in energy. According to this rule electron pairing in p, d and f orbitals cannot occur until each orbital of a given subshell contains one electron each or is singly occupied.





# Electronic Configuration upto 30 Elements



Khatam !  
Tata !!  
Bye-Bye !!!  
Fir Mileinge...

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*Thank You*



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