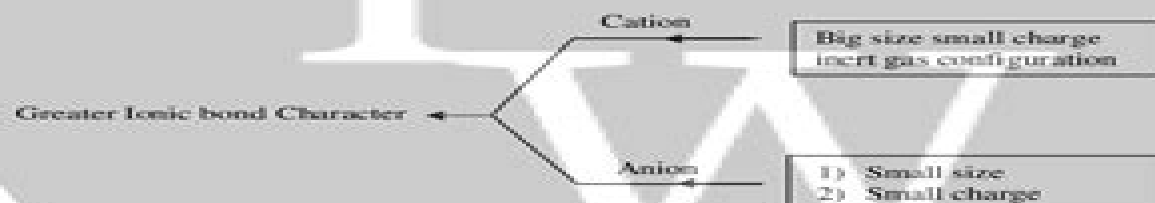


## CHAPTER

## 04

## CHEMICAL BONDING &amp; MOLECULAR STRUCTURE

- An atom (or) group of atoms having independent existence in nature is defined as molecule.
- Force of attraction that holds two atoms (or) oppositely charged ions in molecule is chemical bond.
- An atom must have eight electrons in its outermost energy level for its stability is called as octet rule.
- The number of electrons an atom loses (or) gains in an ionic bond formation is called electrovalency.
- According to Fajan's Rules
  - The no. of electrons an atom of the element loses (or) gains is known as electrovalency of that element.
  - Favourable conditions for cation formation.
    - 1) Low I.P
    - 2) Low charge on ion
    - 3) Big atomic size
    - 4) Inert gas configuration
  - Favourable conditions for anion formation.
    - 1) High E.N & E.A
    - 2) Small atomic size
    - 3) Low charge on ion



- $\text{LiCl}$  is more covalent in nature and so dissolved in non-polar solvents like alcohol (or) ether.
- Ions which have 18 electrons  $[ns^2np^6nd^{10}]$  in their outermost main energy level are stable and it is called as pseudo inert gas configuration (or) nickel group configuration.
- The energy liberated when an ionic crystal is formed from an assembly of isolated gaseous ions is called lattice energy.
- Lattice energy
 
$$(\cup) = \left[ -N_0 \frac{AZ^+Z^-e^2}{r} + N_0 \frac{Be^2}{r^9} \right]$$
  - The total amount of energy change in a reaction remains the same whether the reaction takes place in one (or) several stages is known as Hess law of constant heat summation.

$$\cup = \frac{AZ^+Z^-e^2N_0}{\epsilon_0} \left[ 1 - \frac{1}{n} \right]$$

(Born – Lande equation)

Coordination number of  $\text{Na}^+$  and  $\text{Cl}^-$  in  $\text{NaCl}$  crystal is (6:6)Coordination number of  $\text{Cs}^+$  and  $\text{Cl}^-$  in  $\text{NaCl}$  crystal is (8:8)

# Bonding Chemical Formulas

**Arshad Iqbal**



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Manahan, 2009-03-10 Written by Stanley Manahan *Fundamentals of Sustainable Chemical Science* has been carefully designed to provide a basic introduction to chemistry including organic chemistry and biochemistry for readers with little or no prior background in the subject Manahan bestselling author of many environmental texts presents the material in a practical **Chemistry** John Olmsted, Gregory M. Williams, 1997 Textbook outlining concepts of molecular science

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Orbitals in Chemistry Victor M. S. Gil, 2000-08-10 This text presents a unified and up to date discussion of the role of atomic and molecular orbitals in chemistry from the quantum mechanical foundations to the recent developments and applications The discussion is mainly qualitative largely based on symmetry arguments It is felt that a sound mastering of the concepts and qualitative interpretations is needed especially when students are becoming more and more familiar with numerical calculations based on atomic and molecular orbitals The text is mathematically less demanding than most traditional quantum chemistry books but still retains clarity and rigour The physical insight is maximized and abundant illustrations are used The relationships between the more formal quantum mechanical formalisms and the traditional chemical descriptions of chemical bonding are critically established This book is of primary interest to undergraduate chemistry students and others taking courses of which chemistry is a significant part

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**Chemistry: Core Concepts, 3rd Edition** Allan Blackman, Daniel

Southam, Gwendolyn Lawrie, Natalie Williamson, Christopher Thompson, 2024-01-09 The third edition of Chemistry Core

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web we are honoured to have you all here i d like to acknowledge the dignitaries who joined us when i mention your name would you please stand introduce them by rank title

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web sep 26 2017 start the salutation often this is different from the address for example if you were writing to the queen of england you would use either madam or may it

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