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Subject- chemistry

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Class X (B, D,E, F)

Carbon and it's compound part - 1

Covalent Bond: The atomic number of carbon is 6. Its electronic configuration is 2, 4. It requires, 4 electrons to achieve the inert gas electronic configuration. But carbon cannot form an ionic bond.

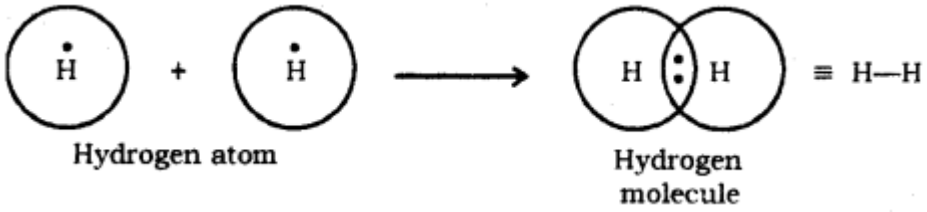
It could gain four electrons forming C^{4-} cation. But it would be difficult for the nucleus with six protons to hold on to ten electrons.

Types of Covalent Bond:

- Single Covalent Bond: When a single pair of electrons are shared between two atoms in a molecule. For example; F_2, Cl_2, H_2 etc.
- Double Covalent Bond: When two pairs of electrons are shared between two atoms in a molecule. For example; O_2, CO_2 etc.
- Triple Covalent Bond: When three pairs of electrons are shared between two atoms in a molecule. For example; N_2 etc.

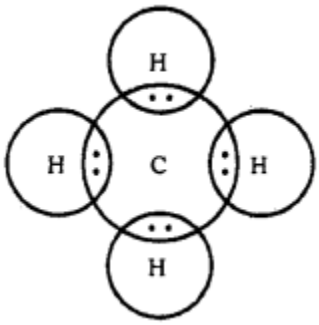
- Electron Dot Structure: The electron dot structures provides a picture of bonding in molecules in terms of the shared pairs of electrons and octet rule.

- Formation of Hydrogen Molecule
  Atomic number of Hydrogen = 1
  Number of valence electrons = 1

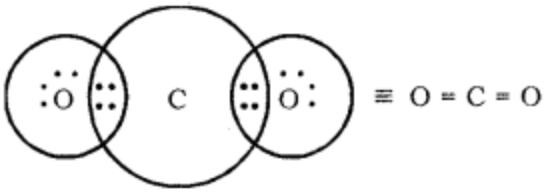


- Formation of CH_4 Molecule
  Atomic number of Carbon = 6 [2, 4]

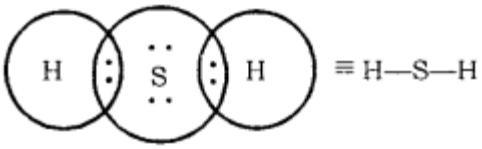
Number of valence electrons = 4
Atomic number of Hydrogen = 1
Number of valence electrons = 1



- Formation of CO_2 Molecule
  Atomic number of Carbon = 6 [2, 4]
  Number of valence electrons = 4
  Atomic number of Oxygen = 8 [2, 6]
  Number of valence electrons = 6



- Formation of H_2S Molecule
  Atomic number of Sulphur = 16 [2, 8, 6]
  Number of valence electrons = 6



- Physical Properties of Organic Compounds
  Most of the organic compounds have low boiling and melting point, due to the weak force of attraction (i.e., the inter-molecular force of attraction) between these molecules. Most carbon compounds are poor conductors of electricity, due to the absence of free electrons and free ions.

Compounds	M.P. (K)	B.P. (K)

Acetic acid (CH_3COOH)	290	391
Chloroform ($CHCl_3$)	209	334
Ethanol (CH_3CH_2OH)	156	351
Methane (CH_4)	90	111

By soni kumari (chemistry)