

09/07/2020

BONDING AND GENERAL CONCEPT

1.

TOPIC :- HYDROGEN BONDING

CLASS :- DEGREE-I (HONOURS) (P-II)

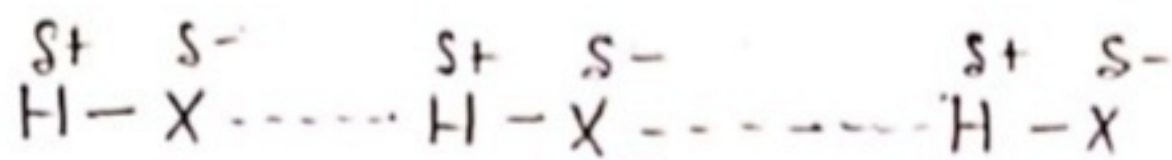
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Whenever a molecule contains a Hydrogen atom linked to a highly electronegative atom, (such as F, O or N), this atom attracts the shared pairs of electrons more and so this end of the molecule becomes slightly negative while the other end (ie; H end) becomes slightly positive.

* The negative end of one molecule attracts the +ve end of the other and as a result, a weak bond is formed between them.

* This bond is called H-bond.

* It is represented by the dotted lines.



As a result of H-bonding, an H-atom links the two electronegative atoms simultaneously.

one by a covalent bond and the other by a H-bon

CONDITION FOR H-BONDING

1. The molecule must contain a highly electronegative atom linked to H-atom.
- * The higher the electronegativity, more is the polarisation of the molecule.
 - * The size of the electronegative atom should be small.
 - * The smaller the size, the greater is the electrostatic attraction.
 - * Thus, only F, O & N atoms can form hydrogen bonds, as these atoms are small in size and have high electronegativities.
(electronegativity: - F = 4.0, O = 3.5, N = 3.0)
 - * Chlorine having the same electronegativity as that of nitrogen, does not form hydrogen bond due to its larger size.
 - * But in organic compounds Cl form H-bonding due to the difference in electronegativities between C & Cl.

TYPES OF H-BONDING

3.

There are two types of H-bonding.

1. Intermolecular H-bonding.
2. Intramolecular H-bonding.

Intermolecular H-bonding

When hydrogen bonding takes place between different molecules of the same or different compounds, it is called intermolecular hydrogen bonding.

