Answer on Question#64359 – Chemistry– Organic chemistry

Question: how solid classified in the bais of intermolecular force

Answer: solids can be classified into different categories depending upon the nature of intermolecular forces between them. Various categories are:

- Ionic solids, where the constituent particles are anions and cations. Each participating ion is surrounded by a typical number of opposite charges. The attractive force between them is strong ion-dipole and ion-induced dipole forces. Example, NaCl, $Ba(NO_3)_2$.
- Molecular Solids, where the particles are molecules. Depending upon the nature of the molecules they are further divided into three types:
  - ✓ Non-polar molecular solids, where the particles are non-polar molecules like I_2. The attractive force between them is weak van der Waal force or dispersion force.
  - ✓ Polar molecular solids, where particles are polar molecules like sugar. The force holding them together is a dipole – dipole force of attraction.
  - ✓ Hydrogen-Bonded Molecular Solids, where the intermolecular forces are strong hydrogen bonds like ice and indigo.
- Covalent or Network Solids, where atoms of molecules are held to each other by covalent bonds. A network of interconnecting covalent bonds throughout the crystal thus leads to the formation of a giant molecule. Example is diamond.
- Metallic Solids, where, the constituent particles in metallic solids are metal atoms. The attractive force is metallic bond. Example, silver, gold.