Chem Bonding

Intermolecular force

id-id
- factors
  - electron cloud size
  - degree of branching (for organic molecules)

pd-pd
- factors
  - Overall dipole moment

H-bond
- factors
  - extent of H-bond
  - dipole moment of H-π bond
- Effect
  - ① higher than expected mp and bp
  - ② lower density of ice than water
  - ③ Dimerisation of carboxylic acids
  - ④ Difference in bp and solubility
- No.
  - inter vs intra H-bonding

Ionic
- Structure:
  - giant ionic lattice
- properties
  - high mp, bp
  - hard and brittle
  - cannot conduct electricity in solid state
  - soluble in polar, insoluble in non-polar
- Factors affecting strength
  - lattice energy
    - $\left|\frac{\text{product of charge}}{\text{sum of radii}}\right|$

Covalent
- Factors
  - polarity
  - multiplicity
  - size
  - proximity of ~~delocalised~~ lone pair electrons
- properties
  - ① (a) high mp bp
    - poor electrical conductor
    - ~~po~~ insoluble
    - very hard
  - ① (b) high mp bp
    - insoluble
    - flaky and slippery
    - good conductors along the layers; poor across
  - ② low mp bp
    - poor electrical conductors
    - very soft
    - like dissolves like
- structure:
  - ① giant molecular
    - tetrahedral
    - layered
  - ② Simple molecular

Metallic
- Structure:
  - giant metallic structure
- properties
  - high mp bp
  - conduct electricity in all states
  - malleable and ductile
- Factors
  - charge density
  - no. of delocalised electrons

Chemistry

Date:

POP bazic