



Ionic Crystal Structure & Bonding

1 2 3 4 5

e.g.



Ionic Crystal Structure & Properties

1 2 3 4 5

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Covalent
Bond

The Covalent Bond

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-

e.g.

Forces Involved

Multiple Bonds

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Two Structures

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Coordinate
Bond

The Coordinate Bond (AKA Dative)

1 2 3 4 5

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E.g. 1

E.g. 2



Molecular Crystal Structure - Ice

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Ice: Structure & Properties

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Molecular Crystal Structure - Iodine

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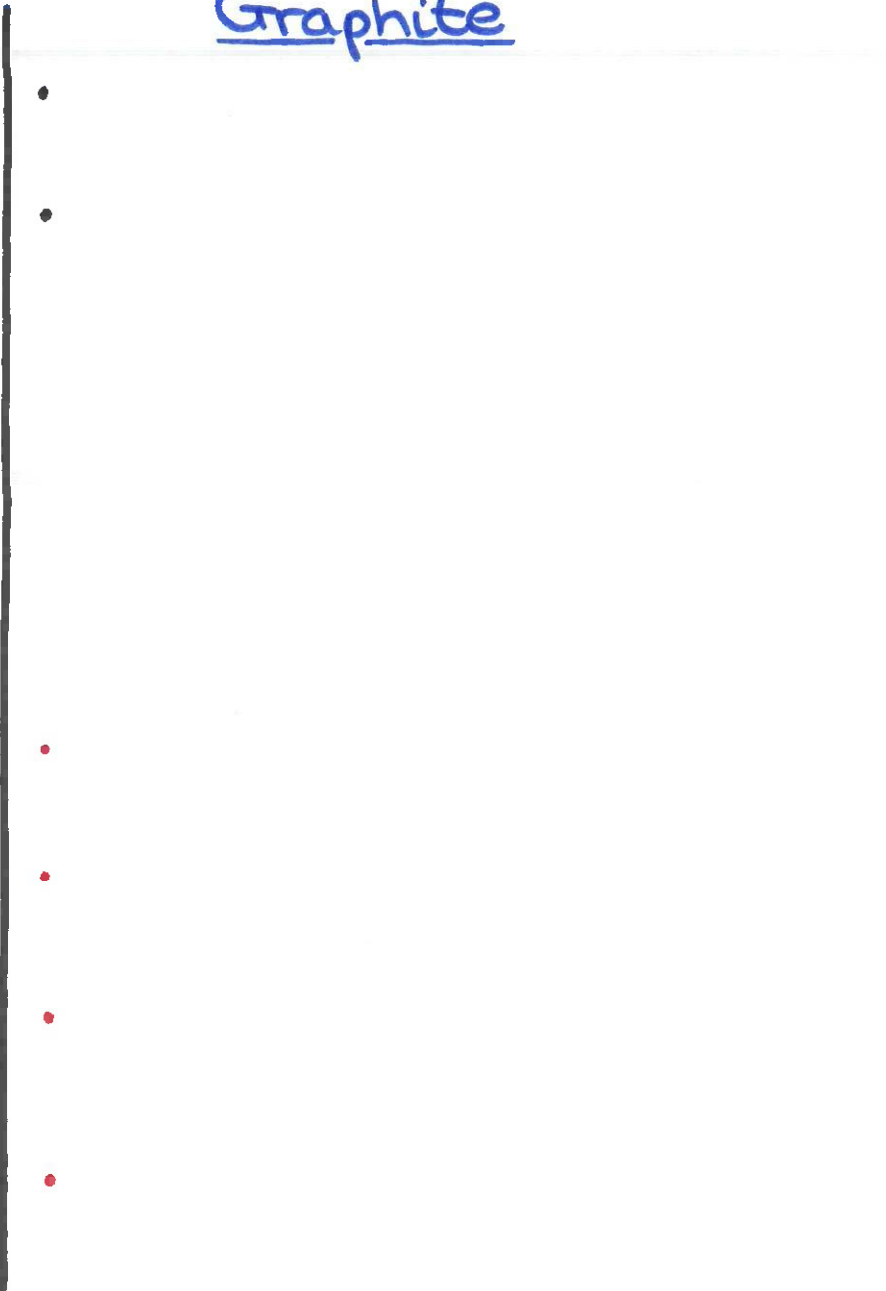
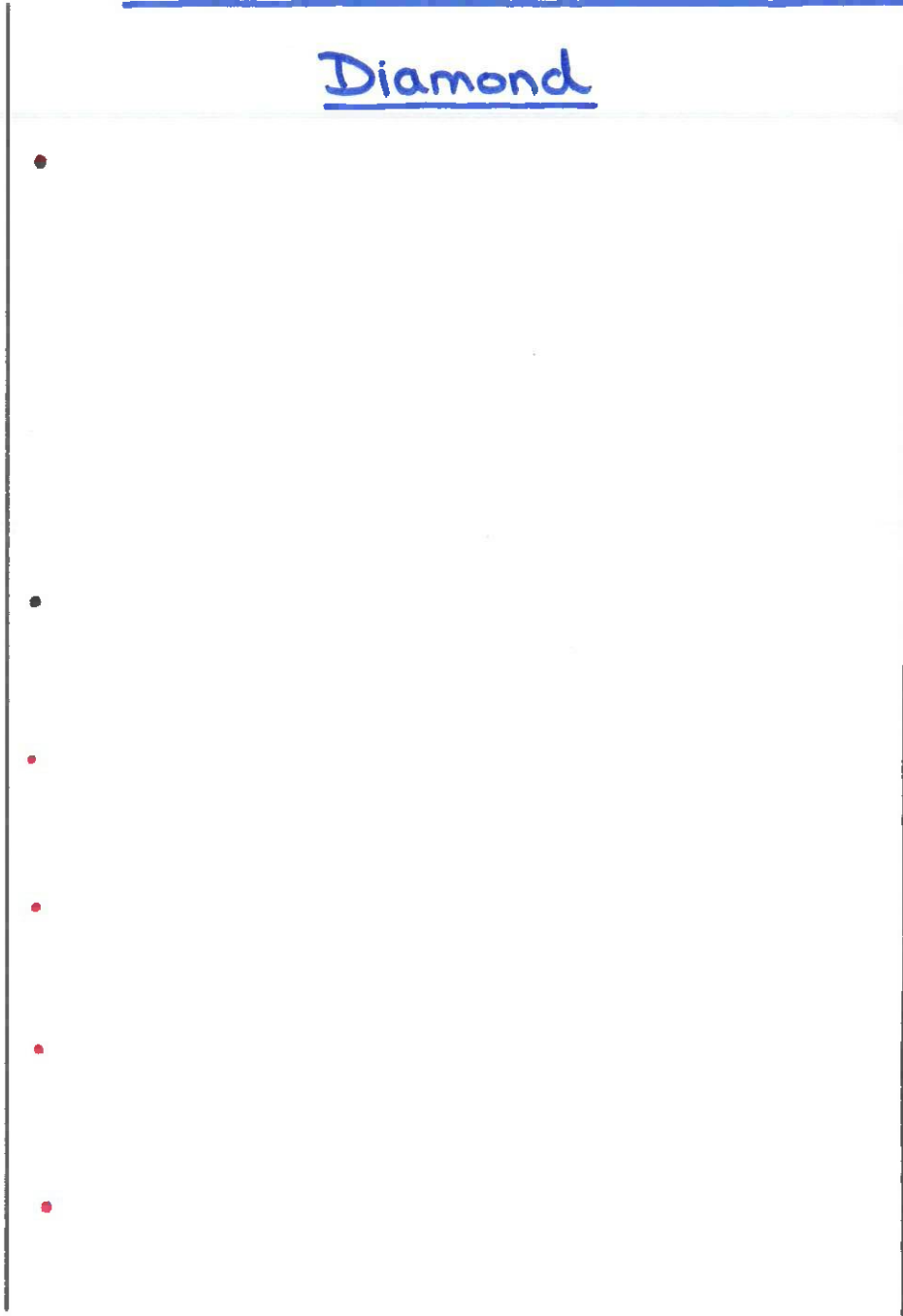
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Macromolecular Structure - Carbon

Diamond

Graphite





Metallic Crystal Structure

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V.S.E.P.R

V

S

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P

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e.g.

Repulsion

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3D Structure

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e.g.





Shapes & Bond Angles

1 2 3 4 5

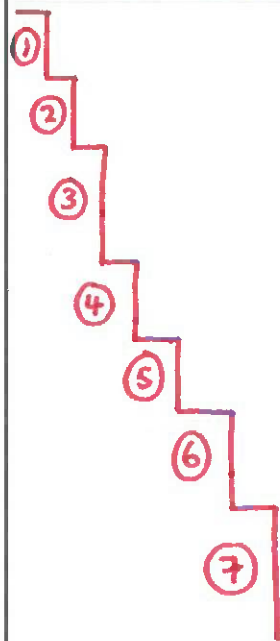
Shape	e ⁻ Pairs	Structure & Bond Angle	Shape	e ⁻ Pairs	Structure & Bond Angle

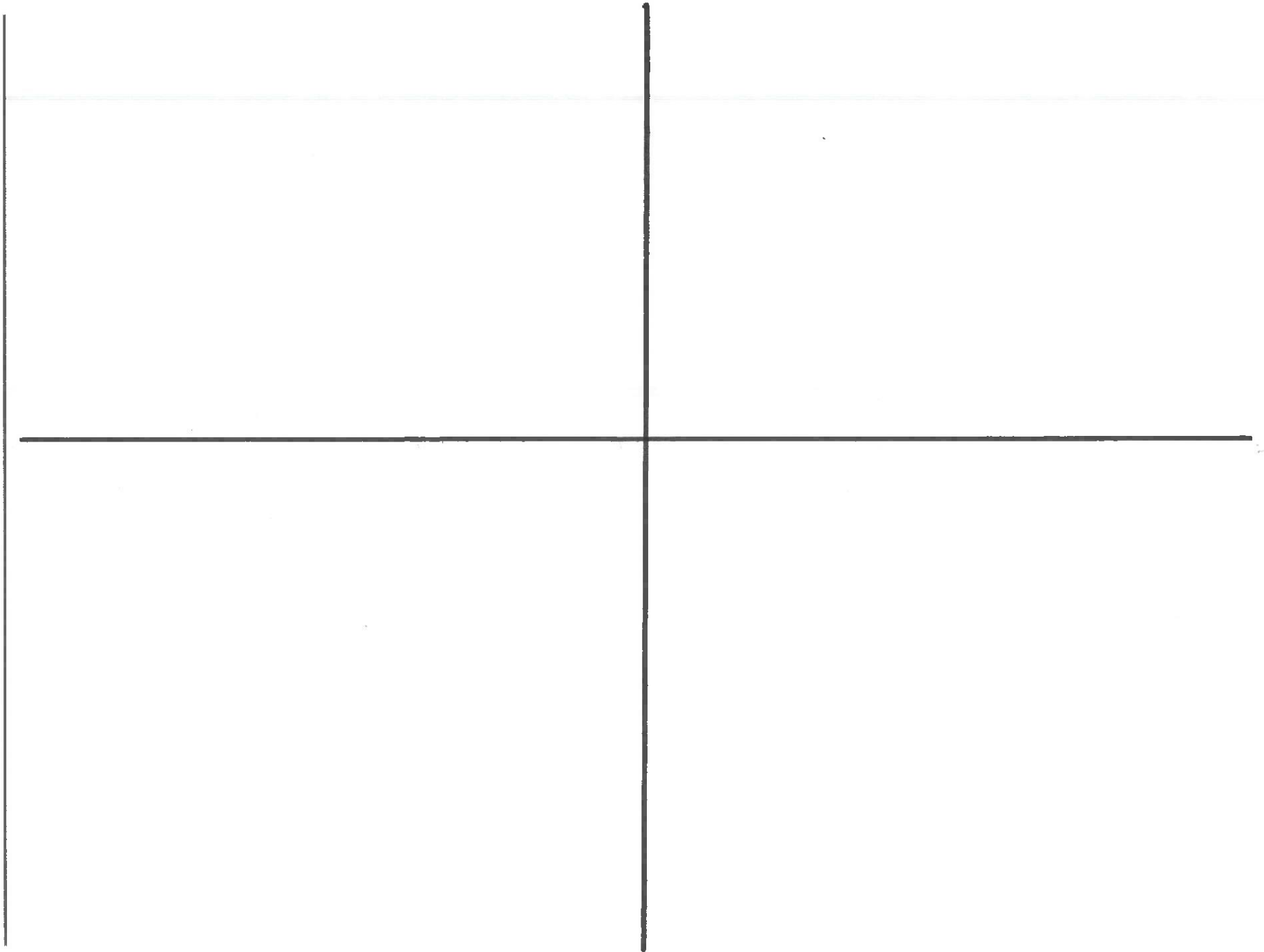


Finding Shapes of Unknown Molecules

1 2 3 4 5

Steps







Bond Angles in Large Molecules

e.g. Ethanol

①

②

e.g. Hydrazine

①

e.g. Glucose

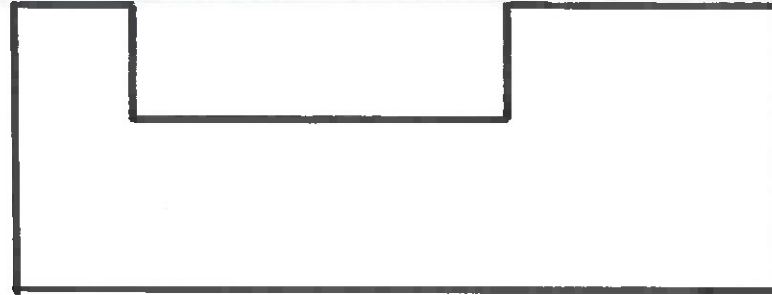
①

②



Electronegativity

Electronegativity



Impact on Bonding

Covalent:

NB, Ionic:

e.g.





Induced Dipole Forces

1 2 3 4 5
) → !

Induced
Dipole
Forces

(AKA -

- .
- .
- .

e.g. Monatomic Elements

Diatomic Elements

Large Non-Polar
molecules

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- .

e.g.



Permanent Dipole Forces

Permanent
Dipole
Forces

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Examples



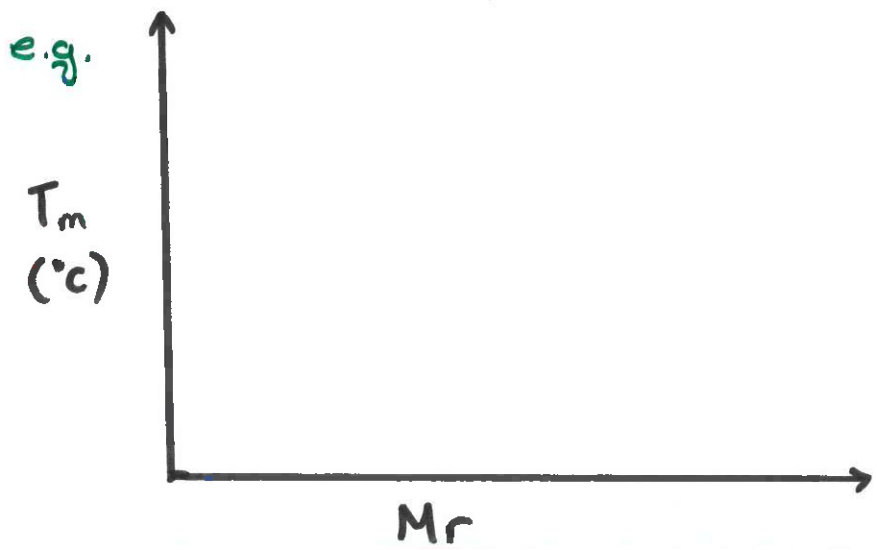


Hydrogen Bonding -

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Simple Molecules

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In Organic Molecules



Spotting I.M.F.s & Comparing T_m/T_B

- 1
- 2
- 3
- 4
- 5

Which has the higher T_m/T_B ?

