

## Points of Study: Unit: Atomic Structure and Bonding

**25 multiple choice, rest long answer, out of 40-50 marks.**

- Electron configuration (ions, atoms)
- ALL PERIODIC TRENDS plus exceptions
- Oxides and chlorides, trends
  - ? Reaction with water (For example: MgO and BaO and predicting which one is more soluble)
- Multiple ionization energies
- Electronic affinity (1<sup>st</sup>, 2<sup>nd</sup>)
- Existence of isotopes, mass spectroscopy (all 5 steps)
- Bonding --> ionic, how it happens, physical properties, LE, HE, melting point, boiling point
- **LEWIS STRUCTURES – have to know how to do these really well, have to know formal charge, shapes and bond angles, have to be able to tell which Lewis structure is which shape i.e. (pyramidal, triangular planar, etc.)**
- VSEPR and IMFA'S (predict properties of molecular compounds, for example: butane, propanol, propanal, ethanoic acid)
- Giant network of covalent compounds i.e. Diamond, graphite, silicon dioxide, mica
- Questions on radio isotopes and what they're used for
- Alpha, Beta, Gamma
- Hybridization (sigma, pi, sp<sup>2</sup>, sp<sup>3</sup>) you cannot deduce this until you have done Lewis structures
- Metallic bonding