Unit F321: Atoms, Bonds and Groups
Definitions to Learn

1. Atoms and Electron Structure

Isotopes	atoms of an element with different numbers of neutrons and different masses
Relative atomic mass	average mass of an atom relative to 1/12 of the mass of a carbon-12 atom
Relative isotopic mass	mass of a particular isotope relative to 1/12 of the mass of a carbon-12 atom
Orbital	a region that can hold up to 2 electrons with opposite spins
1st ionisation energy	energy change when one mole of electrons is removed from one mole of gaseous atoms

2. Equations and acids

Acid	proton donor (H^+ donor)
Base	proton acceptor (H^+ acceptor)
Salt	produced when the H^+ of an acid is replaced by another positive ion

3. Redox

Oxidation	loss of electrons or increase in oxidation number
Reduction	gain of electrons or decrease in oxidation number
Disproportionation	a reaction in which an element is simultaneously oxidised and reduced

4. Moles and Equations

Amount of substance	the number of moles of substance that you have
Mole	unit for amount of substance
Avogadro constant, N_A	number of particles present in a mole (6.02×10^{23} mol^{-1})
Empirical formula	simplest whole number ratio of the atoms of each element in a compound
Molecular formula	actual number of atoms of each element in a molecule
Concentrated	containing a large amount of solute per dm^3 (say 10 mol dm^{-3} or more)
Dilute	containing a small amount of solute per dm^3 (say 2 mol dm^{-3} or less)

5. Bonding and Structure

Ionic bond	electrostatic attraction between oppositely charged ions
Covalent bond	a shared pair of electrons
Metallic bond	attraction between positive ions and delocalised electrons
Electronegativity	ability of an atom to attract the electrons in a covalent bond
Hydrogen bond	attraction between a lone pair and a hydrogen atom attached to O, N or F

6. The Periodic Table

Periodicity	patterns repeated across different periods (rows of the Periodic Table)