Definitions (Pure Chemistry)

Mole Concept

Relative Atomic Mass (Ar)	The average mass of one atom of an element when compared with 1/12 the mass of one atom of carbon-12.
Relative Molecular Mass (Mr)	The average mass of one molecule of a substance when compared with 1/12 the mass of one atom of carbon-12.
Mole	One mole of a substance contains the same number of particles as the number of atoms in 12 grams of carbon-12.
Molar Mass	The mass of one mole of any substance.
Avogadro's Law	Avogadro's Law states that equal volumes of all gases, under the same temperature and pressure contain the same number of particles.
Empirical Formula	Empirical formula shows the simplest ratio of the different types of atoms in a compound.
Molecular Formula	Molecular formula shows the exact number of each element in a compound.
Structural Formula	Structural formula shows how the atoms are joined together in a compound.
Limiting Reactant	The limiting reactant is the reactant that is completely used up in a reaction and it limits the amount of products formed.

Atomic Structure

Element	An element is a pure substance that cannot be broken down into simpler substances by chemical means.
Compound	A compound is a pure substance that contains two or more different elements, chemically combined together.
Mixture	A mixture contains two or more substances that are not chemically combined together.
Molecule	A group of two or more atoms that are chemically combined.
Atom	The smallest particles of an element.
Isotope	An isotope is an atom of the same element with different number of neutrons, but same number of protons an electrons
Proton Number	The number of protons in the atom.
Nucleon Number	The number of protons and neutrons in the atom.

Chemical Bonding

Ionic Bond	Strong electrostatic force of attraction between oppositely charged ions.
Covalent Bond	Bond formed by the sharing of at least one pair of valence electrons between atoms.
Giant Ionic Lattice	Large number of oppositely charged ions arranged in a repetitive, orderly manner, held in place by strong ionic bonds
Simple Molecular Structure	Small molecules with strong covalent bonds within the molecule, but weak intermolecular forces of attraction between molecules.

Acids & Bases

Acid	A substance that produces H+ ions when dissolved in water.
Base	Any metal oxide or hydroxide that reacts with an acid to produce a salt and water only.
Alkali	A substance that produces OH- ions when dissolved in water.
Strong Acid	An acid that dissolves in water to produce a high concentration of H+ ions.
Weak Acid	An acid that dissolves in water to produce a low concentration of H+ ions.
Salt	A salt contains a positive metal ion (or ammonium ion) and a negative non-metal ion.

Redox

Redox Reaction	A reaction in which both reduction and oxidation take place.
Oxidation	A substance in oxidised when it gains oxygen in a chemical reaction.
Reduction	A substance is reduced when it loses oxygen in a chemical reaction.
Oxidising Agent	A substance that causes another reactant to go through oxidation, while undergoing reduction themselves.
Reducing Agent	A substance that causes another reactant to go through reduction, while undergoing oxidation themselves.

Chemical Reactions

pH	A measure of acidity or alkalinity of a substance in aqueous solution.
Indicator	An organic compound which changes in colour in accordance with the pH of a solution.
Acidic Oxide	An oxide that reacts with alkalis to produce salt and water only.
Basic Oxide	An oxide that reacts with acids to produce salt and water only.
Amphoteric Oxide	An oxide that reacts with both acids and alkalis to produce salt and water only.
Neutral Oxide	An oxide that does not react with acids or alkalis.

Energetics

Enthalpy Change	The overall heat change in a reaction.
Exothermic Reaction	A reaction in which heat is given out to the surroundings.
Endothermic Reaction	A reaction in which heat is absorbed by the surroundings.

Rate of Reaction

Activation Energy	The minimum energy that reacting particles must possess in order for a chemical reaction to occur.
Catalyst	A substance that will increase the rate of a reaction by lowering the activation energy. Once activation Energy is lowered, more reacting particles have energy greater or equal to the activation Energy.
Haber Process	An industrial application for the production of ammonia.

Electrolysis

Electrolysis	The process of using electricity to break down or decompose a compound.
Electrolyte	A molten or aqueous compound that conducts an electric current.
Electrode	A metal or carbon rod by which the current leaves or enters the electrolyte.
Inert Electrode	Electrodes that do not react with the products of electrolysis.
Non-Electrolytes	Substances that do not conduct electricity under any conditions.
Electroplating	The deposition of a thin layer of metal on an object, by means of electrolysis.
Simple Cell	A device that converts chemical energy into electrical energy.

Organic Chemistry

Homologous Series	Family of compounds with the same functional group, general formula and similar chemical properties.
Functional Group	A group of atoms responsible for the characteristic reactions of a particular compound.
General Formula	A formula that represents a homologous series of compounds using letters and numbers.
Hydrocarbon	A compound that contains only carbon and hydrogen atoms.
Saturated Hydrocarbon	A hydrocarbon that only contains single bonds between carbon atoms.
Monomer	A molecule that can be bonded to other identical molecules to form a polymer.
Polymer	A large molecule made up of repeating subunits known as monomers.
Addition Polymerisation	A process in which monomers join together to form a large polymer without losing any atoms.
Condensation Polymerisation	A process in which monomers join together to form a large polymer, producing water.