T1 atom	T1 ion	T1 molecule
T1 mole	T1 molar mass	T1 limiting reagent
T1 empirical formula	T1 percentage yield	T1 atom economy

T1 A discrete group of atoms joined by covalent bonds.	T1 An atom or group of atoms with a net electric charge from losing or gaining electrons.	T1 The smallest unit of an element that retains its chemical identity, consisting of a nucleus and electrons.
T1 The reactant that is used up first and therefore limits the amount of product formed.	T1 The mass of one mole of a substance.	T1 The SI unit of amount of substance, containing exactly 6.02214076 times ten to the power 23 specified entities.
T1 The percentage of the reactants' mass that ends in the desired product.	T1 Actual product yield divided by the theoretical maximum yield, multiplied by one hundred.	T1 A formula showing the simplest whole-number ratio of atoms of each element in a compound.

T1 isotopes	T1 orbital	T1 periodicity
T1 ionic bond	T1 covalent bond	T1 electronegativity
T1 functional group	T1 homologous series	T1 hazard

T1 A repeating pattern in element properties across the periodic table.	T1 A quantum state associated with an electron's spatial distribution around a nucleus, often represented by a region of high probability.	T1 Atoms with the same proton number but different neutron numbers.
T1 The tendency of an atom in a chemical bond to attract the shared electrons towards itself.	T1 A chemical bond involving a shared pair of electrons attracted to the nuclei of bonded atoms.	T1 The electrostatic attraction between oppositely charged ions.
T1 A potential source of harm; risk considers its likelihood and severity under actual conditions.	T1 A family of compounds with the same functional group and successive CH_2 units, such as the alkanes.	T1 An atom or group of atoms responsible for characteristic chemical reactions of an organic compound.

T1 free radical	T1 E/Z isomerism	T1 electrophile
T1 addition polymerisation	T1 element	T1 compound
T1 molecular formula	T1 relative atomic mass	T1 relative molecular mass

T1 A species that accepts an electron pair to form a covalent bond.	T1 Geometrical isomerism of a double bond with two different groups on each carbon; higher-priority groups are opposite in E and on the same side in Z.	T1 A species containing one or more unpaired electrons.
T1 A substance containing two or more different elements chemically bonded in fixed proportions.	T1 A substance made of atoms with the same proton number.	T1 The joining of unsaturated monomers into a polymer without forming a separate small-molecule product.
T1 The mass of a molecule relative to one twelfth of the mass of a carbon-12 atom, found by adding its atoms' relative atomic masses.	T1 The weighted mean mass of an element's atoms relative to one twelfth of the mass of a carbon-12 atom.	T1 A formula showing the actual numbers of atoms of each element in one molecule.

T1 relative formula mass	T1 mass concentration	T1 amount concentration
T1 parts per million	T1 atomic number	T1 mass number
T1 mass-to-charge ratio	T1 relative abundance	T1 ionisation energy

T1 The amount of solute in moles per dm^3 of solution.	T1 The mass of a dissolved substance per unit volume of solution.	T1 The sum of the relative atomic masses of the atoms in a formula, written Mr.
T1 The total number of protons and neutrons in an atomic nucleus.	T1 The number of protons in the nucleus of an atom.	T1 A ratio expressed as parts in one million; state its basis, such as mass fraction, where 1 ppm equals 1 mg/kg.
T1 The energy required to remove an electron from a specified gaseous atom or ion, under the stated ionisation process.	T1 The proportion of a particular species or isotope in a mixture, often expressed as a percentage.	T1 In mass spectrometry, the ion's mass number divided by its charge number, conventionally written m/z.

T1 coordinate bond	T1 bond length	T1 bond angle
T1 polarising power	T1 polarisability	T1 structural isomers
T1 risk	T1 carbon neutrality	T1 homolytic fission

T1 The angle between two bonds that meet at the same atom.	T1 The equilibrium distance between the nuclei of two bonded atoms.	T1 A covalent bond in which both shared electrons were supplied by the same atom.
T1 Compounds with the same molecular formula but different connections between their atoms.	T1 How easily an anion's electron cloud is distorted; larger anions are more polarisable.	T1 How strongly a small, highly charged cation distorts a nearby anion's electron cloud.
T1 Breaking a covalent bond so that each fragment receives one electron from the bonding pair.	T1 No net addition of carbon dioxide over the stated boundary and period, balancing remaining emissions with removals.	T1 The possibility of an adverse outcome, often assessed using its likelihood and consequences.

T1 heterolytic fission	T1 sigma bond	T1 pi bond
T1 carbocation	T1 repeat unit	T1 biodegradable
T2 enthalpy change	T2 Hess's law	T2 mean bond enthalpy

T1 A covalent bond formed by sideways overlap of orbitals, with electron density on opposite sides of the internuclear axis.	T1 A covalent bond formed by head-on orbital overlap along the line joining the bonded nuclei.	T1 Breaking a covalent bond so that both electrons in the bonding pair go to the same fragment.
T1 Able to be broken down by microorganisms.	T1 The smallest structural pattern that repeats along a polymer chain.	T1 An organic ion in which a carbon atom carries a positive charge.
T2 The average enthalpy change for breaking one mole of a specified covalent bond type homolytically in gaseous molecules.	T2 The enthalpy change between given initial and final states is the same whatever sequence of steps connects them.	T2 The heat transferred in a reaction or process at constant pressure.

T2 hydrogen bond	T2 oxidation number	T2 standard solution
T2 disproportionation	T2 activation energy	T2 nucleophile
T2 exothermic	T2 endothermic	T2 neutralisation

T2 A solution whose concentration is accurately known, whether prepared directly or determined by standardisation.	T2 The formal charge an atom would have if bonding electrons were assigned according to agreed electronegativity rules.	T2 An attraction between a hydrogen atom bonded to an electronegative atom and a suitable electronegative atom with a lone pair.
T2 An electron-pair donor that forms a covalent bond to an electron-deficient centre.	T2 The minimum energy that reacting particles need for a successful reaction.	T2 A reaction in which the same element is both oxidised and reduced.
T2 A reaction between an acid and a base that forms a salt, usually with water.	T2 Describing a process that takes in heat from its surroundings.	T2 Describing a process that transfers heat to its surroundings.

T2 atomisation	T2 London forces	T2 dipoles
T2 polar molecules	T2 oxidising agent	T2 reducing agent
T2 half-equations	T2 shielding	T2 precipitate

T2 A pair or separation of opposite electric charges, producing a positive and a negative end.	T2 Attractive interactions caused by temporary fluctuations in electron distribution that induce dipoles in neighbouring particles.	T2 Converting an element in its standard state to gaseous atoms, an endothermic step in an energy cycle.
T2 A substance that donates electrons to another substance and is itself oxidised.	T2 A substance that accepts electrons from another substance and is itself reduced.	T2 Molecules with an uneven charge distribution, giving dipole-dipole attractions.
T2 An insoluble solid formed when substances in solution react.	T2 The reduction in nuclear attraction experienced by an electron because of repulsion from other electrons.	T2 The two equations showing electron loss and electron gain in a redox reaction.

T2 aliquots	T2 volumetric flask	T2 concordant
T2 Electronegativity	T2 Maxwell–Boltzmann	T2 catalyst
T2 Dynamic equilibrium	T2 Heterolytic	T2 hydrolysis

T2 Within a small agreed range; only concordant titres are averaged.	T2 A flask calibrated to contain a stated volume at its mark and calibration temperature, used to prepare solutions accurately.	T2 Measured portions of a larger solution sample, often transferred with a calibrated pipette.
T2 A substance that increases a reaction rate without being used up overall.	T2 The distribution of molecular energies in a gas; at fixed temperature a catalyst lowers the activation threshold without changing that distribution.	T2 The tendency of an atom in a chemical bond to attract the shared electrons towards itself.
T2 Breaking chemical bonds by reaction with water.	T2 Describes bond fission where one atom takes both shared electrons, forming ions.	T2 A state in which opposing processes continue at equal rates, so there is no overall change in composition.

T2 reflux	T2 Distillation	T2 aldehyde
T2 anhydrous	T2 molecular-ion peak	T2 Fragment ions
T3 core practical	T3 flame test	T3 precipitate

T2 An organic compound containing a carbonyl group bonded to at least one hydrogen atom.	T2 Separating substances by vaporising and condensing them, using differences in volatility or boiling point.	T2 Heating a reaction mixture while condensing its vapour and returning the condensate to the same vessel.
T2 Smaller ions formed when the molecular ion breaks up, used to deduce structure.	T2 The mass-spectrum peak from the whole molecule minus one electron, giving the molecular mass.	T2 Containing no water, especially no water of crystallisation.
T3 An insoluble solid formed when substances in solution react.	T3 Identifying a metal ion by the colour its compound gives in a flame.	T3 One of the specified practical activities of the IAL course, assessed through written papers.

T3 ionic	T3 redox	T3 drying agent
T3 deliquescent	T3 gas syringe	T3 burette
T3 volumetric flask	T3 titration	T3 standard solution

T3 A substance that removes water, such as anhydrous calcium chloride.	T3 A process in which oxidation and reduction occur together through changes in oxidation state.	T3 Relating to ions or ionic bonding.
T3 A graduated tube with a tap used to deliver accurately measured volumes of liquid.	T3 A calibrated syringe used to collect and measure gas from a reaction.	T3 Absorbing so much moisture from the air that the solid dissolves in it.
T3 A solution whose concentration is accurately known, whether prepared directly or determined by standardisation.	T3 A method of finding an unknown concentration by measuring the volume needed to react with a solution of known concentration.	T3 A flask calibrated to contain a stated volume at its mark and calibration temperature, used to prepare solutions accurately.

T3 clock reaction	T3 distillation	T3 reflux
T3 meniscus	T3 uncertainty	T3 enthalpy change
T3 displace	T3 heat loss	T3 concordant

T3 Heating a reaction mixture while condensing its vapour and returning the condensate to the same vessel.	T3 Separating substances by vaporising and condensing them, using differences in volatility or boiling point.	T3 A reaction system giving a sharp visible change after a delay; under controlled conditions, the delay can be used to compare rates.
T3 The heat transferred in a reaction or process at constant pressure.	T3 An estimate of the possible range of error in a measurement.	T3 The curved surface of a liquid in a tube; read the burette at the bottom of it.
T3 Within a small agreed range; only concordant titres are averaged.	T3 Thermal energy transferred from a warmer calorimeter to its surroundings, tending to reduce the measured rise in an exothermic experiment.	T3 To replace another element in a compound during a chemical reaction.

T4 rate equation	T4 order	T4 rate constant
T4 half-life	T4 conductivity	T4 hydrolysis
T4 rate-determining step	T4 intermediate	T4 catalyst

T4 The proportionality constant in a reaction's rate equation at a specified temperature.	T4 An exponent describing how reaction rate depends on a reactant's concentration; the sum of these exponents is the overall reaction order.	T4 An expression relating reaction rate to reactant concentrations raised to their experimentally determined orders.
T4 Breaking chemical bonds by reaction with water.	T4 How well a substance carries electric current.	T4 The time for the number of undecayed nuclei in a radioactive sample to halve.
T4 A substance that increases a reaction rate without being used up overall.	T4 A species formed in one step of a reaction mechanism and consumed in a later step.	T4 The slow step controlling the overall rate under the stated conditions.

T4 pre-equilibrium	T4 halogenoalkane	T4 homogeneous catalyst
T4 heterogeneous catalyst	T4 activation energy	T4 equilibrium constant
T4 Entropy	T4 total entropy change	T4 Thermodynamic stability

T4 A catalyst in the same physical phase as the reactants.	T4 An alkane derivative in which one or more hydrogen atoms have been replaced by halogen atoms.	T4 A fast initial equilibrium before the slow step, used in some rate derivations.
T4 A value relating the equilibrium activities, concentrations or partial pressures of products and reactants at a specified temperature.	T4 The minimum energy that reacting particles need for a successful reaction.	T4 A catalyst in a different physical phase from the reactants.
T4 The preference for a state under specified conditions, accounting for enthalpy and entropy; a favoured product may still form slowly.	T4 The entropy change of system plus surroundings; a process is feasible when it is positive.	T4 A thermodynamic measure related to energy dispersal and the number of microscopic arrangements consistent with a system's macroscopic state.

T4 Kinetic stability	T4 lattice energy	T4 electron affinity
T4 Born–Haber cycle	T4 atomisation	T4 covalent character
T4 Hydration enthalpy	T4 partial pressure	T4 mole fraction

T4 The enthalpy change when one mole of gaseous atoms each gains one electron to form gaseous 1− ions.	T4 The enthalpy change associated with forming an ionic solid from gaseous ions, or the reverse process under a stated sign convention.	T4 Persistence because reaction is slow, often due to a high activation barrier, even when conversion is thermodynamically favoured.
T4 The degree to which an ionic bond is distorted toward electron sharing by polarisation.	T4 Converting an element in its standard state to gaseous atoms, an endothermic step in an energy cycle.	T4 An energy cycle used to calculate lattice energy from other measured enthalpy changes.
T4 The amount of one component divided by the total amount of all components in a mixture, using moles for both.	T4 The pressure a gas in a mixture would exert if it alone occupied the same volume at the same temperature.	T4 The enthalpy change when one mole of gaseous ions forms aqueous ions in sufficient water that further dilution has negligible effect.

T4 acid	T4 base	T4 conjugate
T4 strong acid	T4 weak acid	T4 dissociation
T4 monoprotic	T4 buffer solution	T4 equivalence point

T4 Related by the gain or loss of one proton: a conjugate acid-base pair.	T4 A substance that accepts protons in the Bronsted-Lowry model, or donates an electron pair in the Lewis model.	T4 A substance that donates protons in the Bronsted-Lowry model, or accepts an electron pair in the Lewis model.
T4 The separation of a chemical species into smaller particles, such as ions formed when an ionic compound dissolves.	T4 An acid that only partially ionises in aqueous solution.	T4 An acid that essentially completely ionises in aqueous solution at the concentrations being considered.
T4 The point in a titration at which the reacting substances are present in the proportions required by the balanced equation.	T4 A solution resisting pH change on adding small amounts of acid or base.	T4 Of an acid: releasing one H^+ per molecule.

T4 titration curve	T4 titrant	T4 indicator
T4 half-neutralisation	T4 chiral centre	T4 enantiomers
T4 plane-polarised	T4 racemic mixture	T4 aldehyde

T4 A substance that shows a change in chemical conditions through an observable change, often in colour.	T4 The solution added from the burette in a titration.	T4 A graph showing how pH changes as a titrant is added to a solution.
T4 Stereoisomers that are mirror images of each other and cannot be superimposed.	T4 An atom, commonly carbon bonded to four different groups, around which arrangements can produce non-superimposable mirror images.	T4 The point where half the acid has reacted, where pH = pKa.
T4 An organic compound containing a carbonyl group bonded to at least one hydrogen atom.	T4 An equal mixture of the two enantiomers, with no overall optical activity.	T4 Of light: vibrating in one plane only.

T4 ketone	T4 carbonyl	T4 Tollens' reagent
T4 nucleophilic addition	T4 iodoform test	T4 nitrile
T4 reflux	T4 acyl chloride	T4 esterification

T4 Ammoniacal silver nitrate, which gives a silver mirror with aldehydes but not ketones.	T4 The functional group consisting of a carbon atom double-bonded to an oxygen atom.	T4 An organic compound with a carbonyl carbon bonded to two carbon groups.
T4 An organic compound containing a carbon atom triple-bonded to a nitrogen atom.	T4 A test with iodine and alkali giving yellow CHI_3 for a $CH_3CO–$ or $CH_3CH(OH)–$ group.	T4 A reaction in which an electron-pair donor attacks an electron-deficient multiple bond, forming an addition product.
T4 A reaction that forms an ester, commonly by reacting an alcohol with a carboxylic acid.	T4 An organic compound containing a carbonyl carbon bonded to a chlorine atom and another carbon group or hydrogen.	T4 Heating a reaction mixture while condensing its vapour and returning the condensate to the same vessel.

T4 amine	T4 amide	T4 polyester
T4 condensation	T4 chemical shift	T4 integrated areas
T4 splitting	T4 chromatography	T4 stationary phase

T4 A polymer containing repeated ester links in its main chain.	T4 An organic compound containing a carbonyl group bonded to a nitrogen atom.	T4 An organic compound derived from ammonia by replacing one or more hydrogen atoms with carbon-containing groups.
T4 Relative areas under proton-NMR signals, used to infer relative numbers of hydrogen atoms in the corresponding environments.	T4 The position of an NMR signal relative to a reference, reflecting the chemical environment of the nucleus.	T4 A chemical reaction in which molecules join and a small molecule, commonly water, is eliminated.
T4 The phase that remains fixed in a chromatography system and interacts differently with components of a mixture.	T4 A separation technique based on different affinities of substances for a stationary phase and a mobile phase.	T4 The division of an NMR peak into several lines by neighbouring hydrogens.

T4 mobile phase	T4 HPLC	T4 gas chromatography
T4 retention time	T4 mass spectrometry	T5 half-cell
T5 salt bridge	T5 standard hydrogen electrode	T5 standard electrode potential

T4 Separating volatile substances carried by a gas through a column.	T4 High-performance liquid chromatography: a liquid pushed under pressure through a packed column.	T4 The moving solvent or gas in chromatography.
T5 One electrode with its electrolyte, forming one half of an electrochemical cell.	T4 Identifying substances from the mass-to-charge ratios of their ions.	T4 The time taken for a substance to pass through a chromatography system and reach the detector under specified conditions.
T5 The potential of an electrode relative to the standard hydrogen electrode, measured under standard conditions.	T5 The hydrogen reference electrode assigned a standard electrode potential of zero volts.	T5 The connection completing the circuit between two half-cells while keeping the solutions separate.

T5 reducing agent	T5 oxidising agent	T5 disproportionation
T5 fuel cell	T5 transition element	T5 ligand
T5 complex ion	T5 coordination number	T5 bidentate

T5 A reaction in which the same element is both oxidised and reduced.	T5 A substance that accepts electrons from another substance and is itself reduced.	T5 A substance that donates electrons to another substance and is itself oxidised.
T5 An ion or molecule that binds to another species at a specific site, such as a metal centre or a receptor.	T5 A d-block element forming one or more stable ions with partially filled d orbitals.	T5 An electrochemical device that converts the chemical energy of a continuously supplied fuel and oxidant into electricity.
T5 Describes a ligand forming two dative bonds to the same metal ion.	T5 The number of nearest neighbours around a particle, or of donor atoms directly bonded to the central atom in a complex.	T5 A charged species with a central metal ion bonded to surrounding ligands.

T5 monodentate	T5 amine	T5 hexadentate
T5 octahedral	T5 tetrahedral	T5 square planar
T5 ligand exchange	T5 chelate	T5 amphoteric

T5 Describes a ligand capable of binding to one metal centre through six donor atoms, as $EDTA^{4-}$ can.	T5 An organic compound derived from ammonia by replacing one or more hydrogen atoms with carbon-containing groups.	T5 Describes a ligand forming one dative bond to the metal ion.
T5 Four donor atoms arranged at the corners of a square around a central atom; adjacent bond angles are 90° and opposite ones 180°.	T5 An arrangement toward the four corners of a tetrahedron; ideal bond angles are about 109.5°.	T5 Describing an arrangement with six surrounding positions directed toward the vertices of an octahedron.
T5 Able to react as both an acid and a base, as aluminium hydroxide does.	T5 A complex in which a ligand binds through multiple donor atoms to the same metal centre, forming one or more coordination rings.	T5 A reaction in which one ligand in a complex is replaced by another.

T5 autocatalyst	T5 arene	T5 delocalised
T5 electrophilic substitution	T5 nitronium	T5 amide
T5 aliphatic	T5 Reflux	T5 azo

T5 Describing electrons that are spread over several atoms rather than confined to one bond or atom.	T5 An aromatic hydrocarbon containing one or more aromatic ring systems.	T5 A reaction product that catalyses its own formation; its buildup can initially accelerate the reaction, though reactant depletion can later slow it.
T5 An organic compound containing a carbonyl group bonded to a nitrogen atom.	T5 The positively charged ion NO_2^+, an electrophile used in aromatic nitration.	T5 A reaction in which an electrophile replaces an atom or group in a molecule.
T5 The –N=N– linkage; in the stated azo dyes it connects aromatic systems.	T5 Heating a reaction mixture while condensing its vapour and returning the condensate to the same vessel.	T5 Describes non-aromatic carbon compounds, including open-chain and non-aromatic cyclic compounds.

T5 diazonium	T5 amino acid	T5 zwitterion
T5 peptide bond	T5 polyamide	T5 Grignard reagent
T5 extraction	T5 Recrystallisation	T5 polydentate

T5 A particle with both positive and negative charges on different parts, but no overall charge.	T5 An organic molecule containing amino and carboxyl groups; these molecules join to form proteins.	T5 Here, an aromatic ion Ar–N_2^+ prepared from a primary aromatic amine and nitrous acid under cold conditions, then used in azo coupling.
T5 An organomagnesium halide containing a carbon-magnesium bond, used in synthesis including formation of carbon-carbon bonds.	T5 A polymer whose chain contains repeating amide links.	T5 A covalent bond joining amino acids, formed between an amino group and a carboxyl group with water removed.
T5 Describes a ligand forming several dative bonds to the same metal ion.	T5 Purifying a solid by dissolving it in a suitable solvent and allowing crystals to form as conditions change.	T5 Here, separating a substance into a chosen solvent by its different distribution between two immiscible liquid phases.

T6 cation	T6 precipitate	T6 reagent
T6 titre	T6 gradient	T6 quench
T6 titrate	T6 starch	T6 endpoint

T6 A substance used to bring about a chemical reaction or test for another substance.	T6 An insoluble solid formed when substances in solution react.	T6 An ion with a positive electric charge.
T6 To stop or slow a reaction quickly, for example by adding water or cooling.	T6 The change in the vertical coordinate divided by the change in the horizontal coordinate.	T6 The volume added from the burette to reach the end point.
T6 The point in a titration where the indicator changes colour.	T6 A storage polysaccharide in plants, made from glucose units.	T6 To add one solution to another until the reaction is just complete.

T6 half-cell	T6 salt bridge	T6 purity
T6 yield	T6 purification	T6 litmus
T6 ionic equation	T6 clock reaction	T6 burette

T6 How much of a sample is the desired substance, checked by melting point or chromatography.	T6 The connection completing the circuit between two half-cells while keeping the solutions separate.	T6 One electrode with its electrolyte, forming one half of an electrochemical cell.
T6 An indicator that is red in acidic conditions and blue in alkaline conditions.	T6 Removing impurities from a product.	T6 The amount of product obtained in a reaction, often expressed as a percentage of the theoretical amount.
T6 A graduated tube with a tap used to deliver accurately measured volumes of liquid.	T6 A reaction system giving a sharp visible change after a delay; under controlled conditions, the delay can be used to compare rates.	T6 An equation showing the ions and other species that take part in a reaction, omitting spectator ions.

T6 measuring cylinder	T6 water bath	T6 activation energy
T6 equilibrium	T6 saturated solution	T6 indicator
T6 methyl orange	T6 phenolphthalein	T6 concordant

T6 The minimum energy that reacting particles need for a successful reaction.	T6 A container of heated water used to warm a reaction gently and evenly.	T6 A graduated container used to measure the volume of a liquid.
T6 A substance that shows a change in chemical conditions through an observable change, often in colour.	T6 A solution containing the solute's equilibrium solubility limit at the stated conditions.	T6 A state with no resultant force or resultant moment.
T6 Within a small agreed range; only concordant titres are averaged.	T6 An acid–base indicator that changes from colourless to pink as pH rises through an alkaline transition range.	T6 An acid–base indicator that changes from red through orange to yellow as pH rises through an acidic transition range.

T6 solubility	T6 fume cupboard	T6 excess
T6 soluble	T6 impurity	T6 recrystallisation
T6 solvent	T6 melting temperature	T6 stoichiometry

T6 Present in more than enough amount, so another reactant limits the reaction.	T6 A ventilated cabinet for handling harmful vapours safely.	T6 The maximum amount of a solute that can dissolve in a specified amount of solvent at a given temperature and pressure.
T6 Purifying a solid by dissolving it in a suitable solvent and allowing crystals to form as conditions change.	T6 An unwanted substance mixed with a product.	T6 Able to dissolve.
T6 The quantitative relationships between reactants and products specified by a balanced chemical equation.	T6 The temperature at which a solid melts; a pure substance melts sharply.	T6 The substance in which a solute dissolves to form a solution.

T6 Thiele tube	T6 capillary tube	

	T6 A very narrow glass tube that holds a sample for a melting-point test.	T6 A shaped glass tube of oil used to heat a melting-point sample evenly.