**Higher Leaving Certificate Chemistry Definitions 2012**

* **Usually worth between 10 and 20 percent in the exam**
* **They need to be learned and written accurately**
* **Key words in bold**
* **Explanation and modifications written in italics**

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| ***Acid*** ***(Brønsted-Lowry)*** | **Proton (H+) donor**  |
| ***Acidic Oxide*** | Oxide that **lowers pH in water**  |
| ***Activation Energy*** | **Minimum energy needed for colliding particles to react** |
| ***Addition Polymerisation*** | **Monomers combining to form a large molecule** |
| ***Atomic Number*** | **Number of protons** in nucleus  |
| ***Atomic Orbital*** | **Region** around nucleus **in which there is high probability of finding electron**  |
| ***Atomic Radius*** | **Half the distance between the centres of singly-bonded atoms of the same element** |
| ***Atomic Sub-Level*** | A sub-division of a main energy level **consisting of** one or more **orbitals of the same energy**  |
| ***Auto-ignition*** | Tendency to **premature ignition**  |
| ***Avogadro’s Law*** | **Equal volumes of gases contain equal numbers of molecules under same conditions** of temperature and pressure  |
| ***Base*** ***(Brønsted-Lowry)*** | **Proton (H+) acceptor** |
| ***Biochemical Oxygen Demand* (*BOD)*** | Amount of **oxygen consumed in** p.p.m. (mg l-1)when sample **kept in the dark for five days at 20oC**  |
| ***Bond Energy*** | Average **energy** required **to break 1 mole of bonds** **into separate atoms in the gaseous state**  |
| ***Boyles’ Law.*** | **pressure inversely proportional to volume for definite mass** of gas **at constant temp or *PV* = *k*** |
| ***Catalyst*** | **Substance that alters the rate of a reaction and is not used *up***  |
| ***Catalytic Cracking*** | **Splitting of long chain molecules** by heat and catalyst(s) *[Accept “hydrocarbons” for “molecules”]* |
| ***Charles’ Law*** | **Volume varies directly with Kelvin temperature** at **constant pressure** **or V/T\* = k** *\* must be capital letter.* |
| ***Chemical Equilibrium*** | State in which **rate of forward reaction = rate of reverse reaction**  |
| ***Chromatography*** | Separation of a mixture of components **based on their** relative **attractions for a stationary phase while carried by a mobile phase**   |
| ***Condensation Reaction*** | **Production of a more complex molecule with formation of an unsaturated compound** **(**or **double bond) by the loss of a small molecule** |
| ***Conjugate Acid (Bronsted-Lowry)*** | **Produced by gain of one proton (H+)**  |
| ***Conjugate Pair*** | *Acid-Base* **differing by proton (H+)**   |
| ***Covalent Bond*** | Involving the **sharing** of one or more pair(s) of **electrons**  |
| ***Dobereiner’s Triads*** | **Elements of similar properties in groups of three**  |
| ***Dynamic*** | Reaction has **not stopped** |
| ***Effective Collision*** | One that **results in a reaction** |
| ***Electronegativity*** | **Measure of relative attraction for shared electrons**  |
| ***Energy Level*** | **Shell which electrons of equal energy** can **occupy** |
| ***Equilibrium*** | **Rate of forward reaction = rate of reverse reaction** |
| ***Excited State*** | **Higher energy** state or in n > **1** level (shell)  |
| ***First Ionisation Energy*** | Minimum energy to **remove most loosely-bound electron** from an **isolated gaseous atom in its ground state**  |
| ***Flocculation*** | **The clumping of suspended solids** in the water  |
| ***Gay Lussac’s Law*** | **The volumes,** measured at the same temperature and pressure, **of reacting gases** and their gaseous products **// are in** small **whole number ratios** |
| ***Greenhouse Factor*** | Stating its influence on the greenhouse **effect compared with carbon dioxide**  |
| ***Greenhouse Effect.*** | **Blocking the escape of radiation by** gases in **the atmosphere** |
| ***Greenhouse Gas*** | Atmospheric **gas that prevents escape of heat**  |
| ***Ground State*** | In **lowest energy** state or in n **= 1** level (shell)  |
| ***Half Life*** | **Time taken for half of the nuclei** in a sample **to decay** |
| ***Hard Water*** | Water which **does not** easily **form lather (forms scum** instead**)** with soap  |
| ***Heat of Combustion*** | Heat change when **one mole** of a substance **is burned completely in excess oxygen** |
| ***Heat of Formation***  | Heat change when **1 mole** of compound **formed from** its **elements in their** **standard states** |
| ***Heisenberg’s Uncertainty Principle*** | **It is not possible to measure the** exact **position and velocity of electron** in atom **at same time**  |
| ***Heterogeneous Catalyst*** | **Reactants & catalyst in different phases**  |
| ***Homogeneous Catalyst*** | **Reactants & catalyst in the same phase**  |
| ***Homologous Series*** | Group of organic chemicals which **have the** **same general formula or differ by CH2 or same functional group**  |
| ***Hydrocarbon*** | Compounds composed of **carbon (C) and hydrogen (H)** only  |
| ***Ideal Gas*** | **A gas that obeys the gas laws at all** values of **temperature and pressure** |
| ***Immiscible Liquids*** | **Do not mix or do not dissolve in each other** |
| ***Isomers*** | Compounds with **same molecular\* formula** but **different structural****formulas** *[\*not ‘chemical’]*  |
| ***Isotopes*** | Atoms of **same element** with **different mass numbers due to different number of neutrons** |
| ***Kw*** | **[H+][OH¯] or [H3O+][ OH¯]**  |
| ***Le Chatelier’s Principle*** | Reactions at **equilibrium oppose applied stresses** |
| ***Mole***  | Contains the **Avogadro number (6 x 1023)** of **particles\* or** the relative **molecular mass in grams (g)**  *[ \* Accept “atoms”, “ions” or “molecules”]*  |
| ***Nitrogen Fixation*** | **Conversion of atmospheric nitrogen to** **compounds that can be used** by plants |
| ***Octane Number*** | Measure of the **tendency of a fuel to auto-ignite**  |
| ***Orbital*** | **Region in which electron is likely to be found**  |
| ***Oxidation***  | **Loss** of electrons**Increase** in oxidation number |
| ***pH.*** | **- log10[H+]**  |
| ***Pi Bond*** | **“Side-on” overlap of p-orbitals**  |
| ***Primary Standard*** | **Pure, stable, high molecular mass substance** from which solutions **of known concentration** can be made  |
| ***Primary Treatment*** ***(of Sewage)*** | **Removal of solids** by **screening and settlement (sedimentation)**   |
| ***Radioactivity*** | **Spontaneous breaking up of a nucleus to release** α, β or γ **radiation** |
| ***Rate of a Chemical Reaction*.** | **Change in concentration** of reactant or product **per unit time**  |
| ***Relative Atomic Mass*** | **Average mass of atoms** of element **relative 1/12 mass of carbon-12 atom** or isotope |
| ***Reversible*** | **Can go in both directions** |
| ***Secondary Treatment*** ***(Sewage)*** | **Biological oxidation** |
| ***Sigma Bond*** | **Head-on (end-on) overlap of orbitals**  |
| ***Strong Acid******(Bronsted-Lowry)*** | **Good proton donor** |
| ***Strong* *Acid******(Arrhenius)*** | **Completely dissociate** into ions in dilute aqueous solution.  |
| ***Sub-Level*** | Sub-division of a main energy level **consisting of** one or more **orbitals of the same energy**  |
| ***Tertiary Treatment*** ***(of Sewage)*** | **Removal of nitrogen compounds (nitrates)** and **phosphorus compounds (phosphates)**  |
| ***Unsaturated*** | **Having** at least **one carbon to carbon double or triple bond**  |
| ***Volatile*** | **Easily vaporised**  |
| ***Weak Acid******(Bronsted-Lowry)*** | **Poor proton donor** |
| ***Weak Acid******(Arrhenius)*** | **Slightly dissociates into H3O+ ions in dilute aqueous solution**. *[Accept “does not readily dissociate.” but not “does not completely (fully) dissociate”]* |