

مصطلحات كيمياء 110

المصطلحات مقسمة بالألوان:

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المصطلحات كلها نقلت من سلايدز دكتورة هدى الغامدي.

لو فيه أخطاء نحوية أو كتابية أو املائية أرجو السموحة
لأني كتبه في استعجال
وأعتذر لأني ما ترجمت او سهلت التعاريف بكلمات
مفتاحية تحتها خط زي ما قلت كتبت في استعجال ، ان
شاء الله أكون أفتدكم وسهلت عليكم شوية
والله يسهل ويفتح عليكم ، بإذن الله الفل مارك للجميع.
وشكراً

أختكم: إبتهاال راشد #تحضير_١٧

- 1- Chemistry: is a study of matter and change it undergoes.
- 2- Mass: Measure of quantity of matter in an object.
- 3- Weight: force that gravity exerts on an object .
- 4- Atoms: element is composed of extremely small particles. \ Basic unit of an element that can enter chemical combination.
- 5- Atomic number (Z): number of protons in nucleus and it's determined the chemical identity of an atom also in neutral atom.
- 6- Mass number (A): Proton + neutron or atomic number neutron.
- 7- Isotopes: are atoms of the same elements with different numbers of neutrons in the nucleus and the have similar chemistries.
- 8- Allotropes: of an element differ on the structure of the same atom.
- 9- The periodic table: is a chart which elements having similar chemical and physical properties are grouped together.
- 10- Periods: Horizontal rows in periodic table.
- 11- Group\Family: vertical columns; elements have similar properties.
- 12- Metal: good conductor of heat and electricity

- 13- Nonmetal: poor conductor of heat and electricity
- 14- Metalloids: has properties that are intermediate between nonmetal, metal.
- 15- Molecule: is an aggregate of two or more atoms in a definite arrangement held together by chemical forces.
- 16- Diatomic: elements exist as diatomic molecule.
- 17- Polyatomic: molecule that contain more than 2 atoms.
- 18- ion: is an atom or group of atoms, that has a net positive or negative.
- 19-Cation: Is an ion with net + charge. (lose electrons)
- 20- Anion: is an ion with – charge. (gain electrons)
- 21- Molecular formula: shows the exact number of atoms of each element in smallest unit of substance.
- 22- Empirical formula: shows the simplest whole number ratio of the atoms in a substance.
- 23- Ionic compound: consist of combination of cation or anion.
- 24- Binary compound: are compound consisting of 2 elements.
- 25- Ternary compound: are compounds consisting of 3 elements.
- 26- Naming molecular compound: is similar to naming binary ionic compounds, Greek prefixes are used to denote the number of atoms of each element present.

27- Mole: is the SI system the mole (mol) is the amount of a substance that contain as many elementary entities as there are atoms.

28- Average atomic mass: elements have more than one isotope.

29- Molecular mass\ Molecular weight: is the sum of the atomic masses (in amu) in a molecular.

30- Percent Composition: of an element in a compound = is the percent by mass of each element in a compound.

31- Chemical Reaction: is a process in which one or more substance is changed into one or more new substance.

32- A chemical equation: uses chemical symbols to show what happens during a chemical reaction.

33- Stoichiometry: is a quantitative study of reactants and products in a chemical reaction.

34- Limiting reagents: is the reactant used up first in a reaction. \ will yield the smaller amount of the product.

35- Excess reagents: are the reactants present in quantities greater than necessary to react with the percent quantity of the limiting reagent.

36- Theoretical yield: is the amount of product that would result if all the limiting reagent reacted.

37- Actual yield: is the amount of product actually
Obtained from reaction.

38- The percent yield: is the proportion of the yield to
the theoretical yield which can be obtained.

39- A solution : is a homogenous mixture of 2 or more
substance.

40- the solute: is (are) the substance present in the
smaller amounts.

41- the solvent: is the substance present in the large
amount.

42- the concentration: of a solution is the amount of
solute present in each quantity of solvent of solution.

43- The molarity: is number of moles of solute per liter
of solution.

44- Dilution: is the procedure for preparing a less
concentrated solution from a more concentrated one.

45- Atmospheric pressure: is the pressure exerted by
Earth's atmosphere.

46- Barometer: is the most familiar instrument for
measuring atmospheric pressure.

47- Standard atmospheric pressure (1 atm): is equal to
the pressure that supports a column of mercury exactly
760 mm (or 76 cm) high at 0 C at sea level.

- 48- Manometer: is a device used to measure the pressure of gasses other than atmosphere.
- 49- Boyle's law: the pressure of a fixed amount of gas at a constant temperature is inversely proportional to the volume of the gas.
- 50- Charles's law: the volume of a fixed amount of gas at a constant pressure is directly proportional to the temperature of the gas.
- 51- Gay-Lussac's law: the pressure of a fixed amount of gas at a constant volume is directly proportional to the temperature of the gas
- 52- The volume – Amount Relationship Avogadro's law: at the same temperature and pressure, equal volumes of different gases contain the same number of molecules (or atom if the gas is monatomic).
- 53- Avogadro's law: at constant pressure and temperature, the volume of a gas is directly proportional to the number of moles of the gas present.
- 54- An ideal gas: is a hypothetical gas whose pressure - volume – temperature behavior can be completely accounted for the ideal gas equation.
- 55- Dalton's law of partial pressure: the total pressure of a mixture of gases is just the sum of the pressures that
- 56- Partial pressures: the pressures of individual gas components in the mixture.

57- Mole fraction: is a dimensionless quantity that expresses the ratio of the number of moles of one component to the number of moles of all component present.

58- Frequency: is the number of waves that pass through a particular point in 1 second (Hz = 1 cycles/s).

59- Speed: the speed depends on the type of waves and nature of the medium through which the wave is traveling.

60- Wavelength: is the distance between identical points on successive waves (m, cm, nm).

61- amplitude: is the vertical distance from the midline of a wave to peak or trough.

62- Electromagnetic wave: has an electric field component and a magnetic field component. These two components have the same wavelength and frequency, and speed but they travel in mutually perpendicular planes.

63- Electromagnetic radiation: is the emission and transmission of energy in the form of electromagnetic waves.

64- Quantum: is the smallest quantity of energy that can be emitted or absorbed in the form of electromagnetic radiation.

65- Plank's quantum theory: atoms or molecules could emit or absorb energy only in discrete quantities (Quantum)

66- Line spectra: are the light emission only at specific wave lengths.

67- bohr's model : electrons only have specific (quantized) energy values and the light is emitted as electrons moves from energy level to a lower energy level.

68- ground state\Ground level: is the lowest energy state of a system (in this case is the atom).

69- Excited state\Excited level: is the higher level in energy than ground state.

70- Principal quantum number: the average distance of electrons from the nucleus values of n .

71- Angular momentum (secondary) quantum number: the shape of the orbitals in space (subshell) values of L .

72- Magnetic Quantum number M_L : specifies the orientation of the orbitals in space. For a given value L .

73- Spin quantum number M_S : specifies the orientation of the spin axis of an electron.

74- Pauli exclusion principle: No two electrons in an atom can have the same 4 quantum numbers.

75- Paramagnetic substances: they contain net unpaired spins and are retracted by a magnet.

76- diamagnetic substance: they don't contain net unpaired spins and are slightly repelled by a magnet.

78- Hund's rule: the most stable arrangement of electrons in subshells is the one with the greatest number of parallel spins.

79- Monoatomic species: All noble gases (Group 8)

80- Isoelectronic: is the ions have the same number of electrons, and hence the same ground- state electrons configuration.

81- Effective nuclear charge (Z_{eff}): is the nuclear charge felt by an electron when both the actual nuclear charge (Z) and the repulsive effects (shielding) of the other electrons are taken account.

82- Atomic radius: is one-half the distance between the 2 nuclei in 2 adjacent metal atoms or in a diatomic molecule.

83- Ionization energy: is the minimum energy ($\text{kJ}\backslash\text{mol}$) required to remove an electron from a gases atom in ground state. > the alkali metal has the lowest first ionization energy of all the elements.

84- Electron affinity: is the negative of the energy change that occurs when an electron is accepted by an atom in the gaseous state to form an anion.

85- Valence electrons: are the outer shell electrons of an atom. The valence electrons are the electrons that participate in chemical bonding.

86- Lewis Dot symbols: consists of the symbol of an element and one dot for each valence electrons in an atom of the element.

87- The octet rule: in forming chemical bonds, atoms usually gain, lose or share electrons until they have 8 in the outer shell to reach the same electronic configuration of the noble gases.

88- The ionic bond: is the electrostatic force that holds ions together in an ionic compound.

89- a Covalent Bond: is a bond in which 2 electrons are shared by 2 atoms.

90- Covalent compounds: are compounds that contain only covalent bonds.

91- Lone pairs: pairs of valance electrons that are not involved in covalent bond formation.

92- a Lewis structural: is a representation of covalent bonding in which shared electron pairs are shown either as lines or as pairs of dots between 2 atoms, and lone pairs are shown as pairs of dots on individual atoms.

93- Single bond: 2 atoms are held together by one electron pair.

94- Double bond: 2 atoms share 2 pairs of electrons.

95- Triple bond: 2 atoms share two pairs of electrons.

96- Bond length: is a defined as the distance between the nuclei of 2 covalently bonded atoms in molecule.

- 97- Chemical bonds: the force that holds the atoms together in a molecule.
- 98- Intermolecular forces: attractive forces between molecules.
- 99- Electronegativity: is the ability of an atom to attract toward itself the electrons in a chemical bond.
- 100- The oxidation number: the number of charge an atom would have if electrons were transferred completely in to the more electronegative of the bonded atoms in molecule.
- 101- Formal Charge: shows how the charge distributed in a molecule.
- 102- Resonance structure: is one of 2 or more Lewis structures for a single molecule that can't be represented accurately by only one Lewis structure. \ differ only in the arrangement of electrons, not the arrangement of atoms.
- 103- Incomplete octet: the number of electrons surrounding the central atom in stable molecule is less than 8.
- 104- Coordinate covalent bond: is a covalent bond in which one of the atoms donates both electrons.
- 105- Reversible chemical reaction: it's a reaction where the reactants form products which react together to give the reactants back.

- 106- Physical equilibrium : equilibrium between 2 phases of the same substance.
- 107- Chemical equilibrium: equilibrium between 2 or more different chemical substances.
- 108- Homogeneous: All reacting species are in the same phase.
- 109- Heterogeneous equilibria: Reaction species are in the different phases.
- 110- Reaction quotient: Reaction quotient is the ratio of the concentrations of the products of a reaction to the concentrations of the reactants.
- 111- Le chatelaine's principle: if (an external stress) is applied to a system at equilibrium, the system adjusts in such a way that the stress is partially offset as the system reaches a new equilibrium position.
- 112- Acid: Substance that products hydrogen ions in water solution.
- 113- Base: substance that products hydroxide ions in water solution.
- 114- Organic Chemistry: is the study of the structure, properties, composition, reaction and preparation of carbon containing compounds.
- 115- Aliphatic Hydrocarbon: don't contain the benzene rings.
- 116- Aromatic hydrocarbon: contain one or more benzene rings.

117-Hydrocarbon: made up of only carbon and hydrogen.

118- Saturated Hydrocarbon: contain the maximum number of hydrogen atoms that can bond with the number of carbon atom in the molecule.

119- Structural isomers: Molecules that have the same molecular formula but different structure.

120- Cycloalkane: alkanes whose carbon atoms are joined in rings.

121- Alkenes: at least one C-C double bond is present.

122-Geometric isomers: The molecule can exist as one of the two geometric isomers called cis- or trans-

123- Unsaturated hydrocarbon: are compounds with double or triple carbon-carbon bonds that enable them to add hydrogen atoms.

124- Alkynes: they have at least C-C triple bond.

125- Functional Group: Groups that are responsible for most of the reactions of the parent compounds.

126- Alcohols: contain the hydroxyl -OH

127-Ethers: contain the R-O-R' linkage, where R and R' are a hydrocarbon (aliphatic or aromatic)group.

128- Aldehydes and ketones: in an aldehyde, at least one hydrocarbon atom is bonded to the carbon in the carbonyl group.

129- Ketones: in a ketone, the carbon atom in the carbonyl group to hydrocarbon group.

130- carboxylic acids: contain the carboxyl group (-COOH)

131- Esters: have the general formula $R'COOR$, where R' can be H or hydrocarbon group and R is a hydrocarbon group.

132- Amiens: are organic bases having the general formula R_3N . Where R may be H or hydrocarbon group.

133-Proteins: are polymers of amino acids

134- Polymers: are large molecules made up of repeating units called monomers.

135- Amino Acid: is a compound that contain at least one amino group (-NH₂) and at least one carboxyl group (-COOH)

The END