تعاريف شابتر 4 + 3:-

- Elements are the simplest form of matter, they can combine together to make a limitless number of compounds.
- A Compound is a distinct substance that is composed of bonded atoms of two or more elements.
- Molecular Formula: gives the actual number of atoms of each element in a molecule of a compound.
- Empirical Formula: gives the relative number of atoms of each element in a compound.
- Structural Formula: is a sketch or diagram of how the atoms in the molecule are bonded to each other.
- Atomic Elements: elements whose particles are single atoms, most of the elements in the periodic table are “atomic elements”
- Molecular Elements: elements whose particles are multi-atom molecules.
- Molecular Compounds: compounds whose particles are molecules made of only nonmetals,
- Ionic Compounds: compounds whose particles are composed of cations (of metals) and anions (of nonmetals).
- Formula Mass (amu): The mass of an individual molecule or formula unit, expressed in

"amu" (atomic mass unit).

- Molar Mass (g/mol): The mass of one mole of a substance, expressed in "g/mol".
- Chemical Reactions:- involve chemical changes in matter resulting in new substances.
- Chemical Equation: is a shorthand way of describing a chemical reaction.
- Chemical bonds:- are forces of attraction between atoms.
- Ionic bond: results when electrons have been transferred between atoms, resulting in oppositely charged ions that attract each other. **Method**: electron transfer
- Covalent bond: results when two atoms share some of their electrons:**Method**: electron sharing
- Metallic Bond: occurs in metals. Since metals have low ionization energies, they tend to lose electrons easily,**Method**: electron pooling.
- Lewis Structures: simple diagrams to visualize the number of valence electrons in atoms of main-group elements by dots.
- Lattice Energy: The energy required to completely separate a mole of a solid ionic compound into its gaseous ions.
- Electrons that are shared between two atoms are called bonding pairs (or shared pairs) of electrons.
- Electrons that are only on one atom are called lone

pairs (or unshared pairs) electrons.

- Electronegativity: is the relative ability of atoms to attract shared electrons.
- Bond Energy: the amount of energy, in the gaseous state, needed to break one mole of a bond in a compound.
- Bond Length: the distance between the nuclei of bonded atoms.
- Stoichiometry: calculations of the quantities of reactants and products in a chemical reaction.
- Limiting Reactant: Consider this food analogy, making cheese sandwiches.
- Limiting Reactant: is the reactant that is completely consumed in a chemical reaction and limits the amount of product.
- Excess Reactant: is any reactant that occurs in a quantity greater than is required to completely react with the limiting reactant.
- Theoretical Yield: is the calculated amount of product that can be made in a chemical reaction based on the amount of the limiting reactant.
- Actual Yield: is the amount of product actually produced in a chemical reaction.
- Solution: A homogenous mixture of two or more substances.
- Solvent: material present in largest amount.

- Solute: all other materials present.
- Concentration: is the amount of solute in the solution.
- Molarity: is a method to express the concentration.
- Strong Electrolyte: • Chemical substances that completely ionize into their ions.
- Weak Electrolyte:

  • Chemical substances that partially ionize into their ions.
- Nonelectrolytes:

  • Chemical substances that dissolve in water but do not ionize.
- Acid: a substance that produces H+ ions (also known as H-protons) in aqueous solutions.
- Base :(Also known as Alkali): a substance that produces OH−ions (hydroxide ions) in aqueous solutions.
- Oxidation: is the loss of electrons.
- Reduction: is the gain of electrons.

Last modified: 4:17 PM