

{'General Organic Chemistry': {'1. Introduction to Organic Chemistry': {'Description': ['Study of carbon-containing compounds and their properties.']], '2. Nomenclature': {'IUPAC Rules': {'Rules for naming organic compounds': ['"1. Names of complex substituents are enclosed in parentheses."', '"2. Prefixes are used to denote the number of carbon atoms."', '"3. Suffixes are used to denote the functional group.']]}, 'Functional Groups': {'Definition': ['Atoms or groups of atoms that determine the chemical properties of an organic compound.'], 'Examples': ['"-OH (Hydroxyl)', '-COOH (Carboxyl)', '-CHO (Aldehyde)', '-CO- (Ketone)']}}}, '3. Isomerism': {'Structural Isomerism': {'Definition': ['Compounds with the same molecular formula but different structures.'], 'Types': ['"Chain Isomerism', 'Position Isomerism', 'Functional Isomerism', 'Metamerism'"]}, 'Stereoisomerism': {'Definition': ['Compounds with the same molecular formula and bond order, but differing in 3D arrangement of atoms in space.'], 'Types': ['"Geometric Isomerism', 'Optical Isomerism'"]}}}, '4. Chemical Bonding': {'Sigma (σ) Bond': {'Definition': ['A covalent bond formed by end-to-end overlap of atomic orbitals.']], 'Pi (π) Bond': {'Definition': ['A covalent bond formed by lateral overlap of atomic orbitals.']], 'Hybridization': {'Definition': ['The process of mixing atomic orbitals to form new hybrid orbitals suitable for bonding.'], 'Types': ['"sp³', 'sp²', 'sp'"]}}, '5. Inductive and Electromeric Effects': {'Inductive Effect (I effect)': {'Definition': ['A permanent polarity effect transmission through a σ -bond.'], 'Types': ['" +I effect', '-I effect'"]}, 'Electromeric Effect (E effect)': {'Definition': ['A temporary polarity effect transmission through a π -bond.'], 'Types': ['" +E effect', '-E effect'"]}}}}}