

January 2024Inorganic Chem. — Acid & Bases, HSAB concept.

Aarhenius, Bronsted, Lowry, Lux Flood system & Lewis concept, relative strength of Acid & Bases

Organic Chem. — organic synthesis via Enolates.Acidity of α hydrogens, alkylation of malonate and acetoacetate
Claisen Condensation, keto-enol tautomerism in acetoacetatePhysical Chem. — Introduction to Statistical Mechanics

Need for statistical thermodynamics, probability, Maxwell Boltzmann distribution, Born Oppenheimer approximation, Partition function its significance & Factorization of partition function

February 2024Inorganic Chem. — Organometallic chemistry — definition, nomenclature and classification, Preparation, properties, bonding of alkyls of Li, Hg & Sn, metal-ethylene complexes, carbonyl & nature of bonding in $M(CO)_n$ Physical Chem. — Photochemistry — Interaction of radiation with matter, difference b/w thermal & chemical processes, Law of photochemistry, Jablonski diagram, quantum yield, photosensitized reaction, energy transfer processes, description of fluorescence, phosphorescence, internal conversion, ISC.Organic Chem. — Heterocyclic compounds — MO picture, characteristics of pyrrole, furan, thiophene, pyridine.

Organic Chem. -

(amino acids, peptides & proteins)

Classification of AA, isoelectric point, electrophoresis,

Preparation of α amino acids

Structure & nomenclature of peptides & proteins -

Classification, peptide structure, hydrolysis,

structure of proteins 1^o & 2^o st.Physical Chem - solution, dilute solⁿ and colligativeproperties - Ideal & non ideal solⁿ, Raoult's

law, Colligative properties - relative lowering of VP

elevation in B.Pt., depression in freezing point,

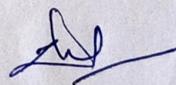
Osmotic Pressure, Thermodynamic relation b/w

amount of solute & elevation in B.Pt & depression

in freezing point, Applications in calculating

molar mass of normal, dissociated and

associated solute in solutions.

May 2024Revision work &
numerical practice.

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