CHN – 604(A) Organic Photochemistry

CH-501 (b) Photochemistry **30 Hrs (1 Hr/week)**

I Photochemical Reactions — 4 Hrs

Interaction of electromagnetic radiation with matter, types of excitations, fate of excited molecule, quantum yield, transfer of excitation energy, actinometry.

II Determination of Reaction Mechanism — 4 Hrs

Classification, rate constants and life times of reactive energy states - determination of rate constants of reactions. Effect of light intensity on the rate of photochemical reactions. Types of photochemical reactions - photo-dissociation, gas-phase photolysis.

III Photochemistry of Alkenes — 6 Hrs

Intramolecular reactions of the olefinic bond - geometrical isomerism, cyclisation reactions, rearrangement of 1,4- and 1,5- dienes,

IV Photochemistry of Carbonyl Compounds — 8 Hrs

Intramolecular reactions of carbonyl compounds - saturated, cyclic and acyclic, β,γ-unsaturated and α,β-unsaturated compounds. Cyclohexadienones.
Intermolecular cyloaddition reactions - dimerisations and oxetane formation.

V Photochemistry of Aromatic Compounds — 4 Hrs

Isomerisations, additions and substitutions, di π methane rearrangement

VI Miscellaneous Photochemical Reactions — 4 Hrs

Photo-Fries reactions of anilides. Photo-Fries rearrangement.
Barton reaction. Singlet molecular oxygen reactions. Photochemical formation of smog. Photodegradation of polymers. Photochemistry of vision.

Books Suggested

1. Fundamentals of Photochemistry, K. K. Rohtagi-Mukherji, Wiley- Eastern
2. Essentials of Molecular Photochemistry, A. Gilbert and J. Baggott, Blackwell Scientific Publication.
3. Molecular Photochemistry, N. J. Turro, W. A. Benjamin.
4. Introductory Photochemistry, A. Cox and T. Camp, McGraw-Hill
5. Photochemistry, R. P. Kundall and A. Gilbert, Thomson Nelson.
6. Organic Photochemistry, J. Coxon and B. Halton, Cambridge University Press.