

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Structure, Stereochemistry and Reactivity of Organic Co

Subject Co-ordinator - Prof. A. Basak

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to structure and stereochemistry of organic molecules: salient features of symmetry
Lecture 2 - Introduction to point group notation, classification, symmetry number and order
Lecture 3 - Examples of various point group notations, chiral and achiral point groups, examples of various p
Lecture 4 - Solving problems on point groups (C_n , C_{nv} , C_{nh} , D_{nd})
Lecture 5 - Conformational Analysis of Perhydrophenanthrene
Lecture 6 - Concept Clearing Session on Achiral Point Groups
Lecture 7 - Axial, Planar and Helical Chirality, assignment of absolute configuration to such molecules
Lecture 8 - Concept of pseudoasymmetry; Reflection variance/invariance problem; methods of nomenclature syste
Lecture 9 - Conformational analysis of bicyclic systems: the Decalins
Lecture 10 - Conformational analysis of Perhydrophenanthrene
Lecture 11 - Conformational analysis of Perhydroanthracene
Lecture 12 - Revisiting conformational analysis of Perhydrophenanthrene
Lecture 13 - Revisiting conformational analysis of Perhydroanthracene
Lecture 14 - Introduction to Linear Polarized light and interaction with chiral materials; Circular Birefring
Lecture 15 - ORD, CD and Cotton Effect (CE); Empirical rule to determine the sign of CE, 2-axial haloketone r
Lecture 16 - Octant rule: application to substituted cyclohexanone and decalone system
Lecture 17 - Application of Octant rule to tricyclic system; drawing of octant projection
Lecture 18 - Application of Octant rule to steroidal ketones; drawing of octant projection
Lecture 19 - Stereoelectronic effects on conformation and reactivity
Lecture 20 - Examples of anomeric effect and Stereoelectronic effect
Lecture 21 - Baldwin rules
Lecture 22 - Cyclization in enolic systems
Lecture 23 - Problem solving on Baldwin rules
Lecture 24 - Reactive Functionalities: Chemistry of Alkynes
Lecture 25 - Reactive Functionalities: Chemistry of Alkynes (Continued...), arynes and enediynes
Lecture 26 - Reactive Functionalities: Eneidyne (Continued...), allenes and Ketenes
Lecture 27 - Beta - Lactam Synthesis
Lecture 28 - Chemistry of radicals
Lecture 29 - Reactivity of radicals: Frontier orbital approach.

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- Lecture 30 - Radical mediated C-C bond formation
- Lecture 31 - Radical mediated C-C bond formation (Continued...).
- Lecture 32 - Radical mediated decarboxylation and deoxygenation
- Lecture 33 - Dynamic Stereochemistry: Conformationally rigid and mobile systems
- Lecture 34 - Dynamic Stereochemistry: Conformational analysis of elimination and addition
- Lecture 35 - Dynamic Stereochemistry: Stereoselectivity in carbonyl reduction
- Lecture 36 - Dynamic Stereochemistry: Reactivity of unsaturated carbonyl and enolate systems
- Lecture 37 - Dynamic Stereochemistry: Enolate as nucleophile
- Lecture 38 - Dynamic Stereochemistry: stereochemical issues in cyclohexenone reduction and alpha-electrophilic
- Lecture 39 - Dynamic Stereochemistry: Asymmetric aldol reactions
- Lecture 40 - Dynamic Stereochemistry: Asymmetric aldol reaction (Continued...)