

Date 06.01.2019

Migration of Electron over organic Compound

Resource Person - Mr Sanjaya Ku Sahu
Lect in chem, D.K.N College, Etna

Principal - Mr Dhiren Kumar Mishra.

HOD - Mr. Bonkita Satapathy

It is the movement of electrons with in the molecule. And it facilitated by delocalization, Resonance or conjugation. It can occur through

(i) Sigma Bond (σ) - Electron can migrate through single bonds

(ii) Pi - Bond (π) - Electron can migrate through double & triple bond

(iii) Conjugation System: Alternating double & single bond

(iv) Aromatic System - Migration over ring compound

(v) Redox reaction: Electron transfer from one molecule to another molecule

Factors influencing:-

(i) Molecular Structure (ii) Substituent effects. (iii) Solvent effect (iv) Temp

(v) Photo induction (Light absorption)

Essential field

(i) organic synthesis

(a) inductive effect

(b) Electromeric effect

(c) Resonance

(d) Hyperconjugation

(ii) Photo Chemistry - eg Solar cells

(iii) Bio Chemistry:-

eg Electron transport chain

(iv) Materials Science:-

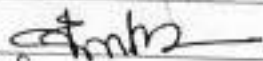
eg Conductive polymers

(v) Electro Chemistry

eg Batteries, Fuel cells

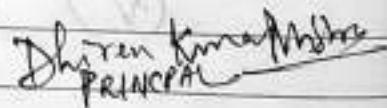
HOD

Bandita Satpathy



Sanjaya Kumar

Principal
D.K.N. College
Branch, Cuttack
Principal


PRINCIPAL

Date - 04.01.2020

Application of Spectroscopy

Resource Person - Smt. Snehalata Mohapatra

Principal - Pravoker Sahoo

HOD - Mani Bandita Satapathy

Application in various fields:

- (i) Chemistry - Identifying molecules and Structure
- (ii) Physics - Studying atomic and Sub-atomic particle
- (iii) Biology - Analyzing biomolecules
Analysis of protein Structure
- (iv) Environmental Science: - Monitoring pollution & detecting hazardous substance
- (v) Medical Diagnostics: - Identifying diseases
- (vi) Pharmaceuticals - Developing of new drugs.
- (vii) Food Science Monitoring food quality
- (viii) Materials Science: - Detecting defects and optimizing processes

TYPE OF SPECTROSCOPY

- (i) Infrared IR
 - (ii) Nuclear magnetic Resonance (NMR)
 - (iii) Mass Spectrometer (MS)
 - (iv) X-ray Spectroscopy
 - (v) Raman Spectroscopy
- [HOD] Bandita Satapathy
Sonjaya Kumar Sahu

Principal
D.K. Mohapatra
Principal
Pravoker Sahoo
Principal
Mani Bandita Satapathy

Date 29.01.2022

Thermodynamic Stability of Co-ordination Compounds

Introduction:-

Thermodynamic stability of
Co-ordinate compounds refers to key
factors as

- (i) Gibbs Free energy (ΔG):-
-ve ΔG indicates stability
- (ii) Enthalpy (ΔH):-
Energy change during formation
- (iii) Entropy (ΔS):- Low ΔS leads to high stability
- (iv) Bond strength:-
Stronger Bond b/w Metal-Ligand high stability
- (v) Chelate effect:-
More chelating linkage is more stability
- (vi) Crystal field stabilization energy (CFSE)
Higher value of CFSE, more stable
- (vii) Solvate effects
Solvent-solute interaction can
more impact stability
- (viii) Resist to decomposition
- (ix) Maintain structure and composition

Essential in fields:-

- (i) Catalysis
- (ii) Materials Science
- (iii) Pharmaceuticals
- (iv) Environmental Chemistry

Resource Person - Dr Sugand Kumar Prasad

Principal - Mr J.K. Mishra

H.O.D - Mani Bandita Satapalli

H.O.D

Bandita Satapalli

Sanjay Kumar

Principal
Principal
D. K. College
Eranakulapuram

Fuel cell used in Satellite
Resource Person - Dr Gadadhar Mishra
Principal - Mr J.K. Mishra
HOD - Mr. Bandita Satapathy

It has been used in satellites for decades because

- (i) High energy density
- (ii) Long-duration capability
- (iii) powering Critical System
- (iv) Low maintenance.

TYPE OF Fuel Cell

- (i) Alkaline fuel cell
- (ii) Proton exchange membrane (PEM)
- (iii) Solid oxide fuel cells.

Advantage:-

- (i) Improved efficiency
- (ii) Reduced weight and space required
- (iii) Enhanced reliability
- (iv) Lower maintenance cost

HOD
Bandita Satapathy

Sanjaya K. Sahu

Principal
Principal
D.K.M. Mishra
Branch, Cuttack