

# SHREE H.N. SHUKLA GROUP OF COLLEGES

(AFFILIATED TO SAURASHTRA UNIVERSITY & GTU)



2-vaishali nagar, Near  
Amrapali railway  
crossing,  
Raiya road, Rajkot-  
360001. Ph.No.-  
(0281)2440478, 2472590

3-vaishali nagar, Near  
Amrapali railway  
crossing,  
Raiya road, Rajkot-  
360001. Ph.No.-  
(0281)2471645

Behind marketing yard,  
Near Lalpari lake,  
Between Amargadh-  
Bhichri, Rajkot-360002.  
Ph.No.-90990 63150

## M. Sc. SEMESTER-II

### C-202: ORGANIC CHEMISTRY

#### 1. Photo Chemistry

Fundamental of photochemistry, principles of photo chemistry, singlet and triplet states, properties and nomenclature of excited states. Physical properties of excited molecules as explained by improved Jablonskii diagram, photo chemistry of carbonyl compounds. Pphoto chemistry of olefins. Recent reactions in photochemistry

#### 2. Pericyclic Reactions

Orbitals, molecular orbital symmetry, molecular orbital of ethylene, 1,3- butadiene, 1,3,5-hexatriene and allyl systems, concerted reactions, classification of pericyclic reactions, derivation of selection rules through construction of correlation diagrams for cyclo-addition reactions and for electrocyclic reactions with  $4n$  and  $4n+2$  electrons, conrotatory and disrotatory motions for electrocyclic ring opening and ring closure.

FMO approach for derivation of Woodward-Hoffman selection rules for cycloaddition and electrocyclic reactions, suprafacial and antarafacial cycloadditions. 1,3-Dipolar cycloaddition reactions, classification and applications. Sigmatropic reactions, suprafacial and antarafacial

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rearrangements, [1,j], sigmatropic rearrangement of hydrogen, [1,j] and [i,j] Sigmatropic reactions of carbon, selection rules for [i,j]-sigmatropic rearrangements using FMOs. The Cope and the Claisen rearrangements.

### 3. Aromaticity

Concept of aromaticity, non-aromaticity and anti-aromaticity, Huckel's rule and its applications to simple and non-benzenoid aromatic compounds, cyclopentadiene, azulene, tropolone system, annulenes, hetero annulenes, and fullerenes (C<sub>60</sub>).

### Reference Books

1. Organic Chemistry by G. Marc. Loudon, Oxford University
2. Organic Chemistry by J. Clayden, N. Greeves, S. Warren, P. Wothers, Oxford University Press.
3. Advanced Organic Chemistry (4 edition) by Jerry March.
4. Organic Chemistry by Morrission and Boyd, Prentice Hall Pvt.Ltd (6th edition),(2003).
5. A Text Book of Organic Chemistry – R.K.Bansal, New Age International (P) Ltd.