Model Questions
DSPMU, RANCHI
END SEMESTER EXAMINATION – 2022
M.Sc. SEMESTER-IV
Subject-Chemistry
Paper CC-IX
Synthetic Organic Chemistry
Unit II-Pericyclic Reactions

Sub – **Synthetic Organic Chemistry** **II. Pericyclic Reactions**
Paper – **CC-IX**

Section-A
Multiple choice questions.

1. (i) Diel's Alder reaction is
(a) [2+2]-Cycloaddition reaction
(b) [4+2]-Cycloaddition reaction
(c) [4+4]-Cycloaddition reaction
(d) [6+2]-Cycloaddition reaction

(ii) Claisen rearrangement is
(a) 1,3-Sigmatropic reaction
(b) 3,3-Sigmatropic reaction
(c) 1,5-Sigmatropic reaction
(d) 1,7-Sigmatropic reaction

(iii) Which one is correct as per selection rule of Electrocyclic reactions
(a) 4n, Thermally → Conrotatory
(b) 4n, Thermally → Disrotatory
(c) 4n+2, Thermally → Conrotatory
(d) 4n+2, Photochemically → Disrotatory

(iv) HOMO for hexa-1,3,5-triene under thermal condition is
(a) Ψ_1
(b) Ψ_2
(c) Ψ_3
(d) Ψ_4

(v) During conrotatory process which symmetry is maintained
(a) C_2 - Symmetry
(b) *m* - Symmetry
(c) C_3 Symmetry
(d) C_4 Symmetry

(vi) Reaction between ozone and alkene to give an ozonide is
(a) Ene reaction
(b) 1,3-Dipolar cycloaddition

(c) Cheletropic reaction
(d) Barton reaction **2x10**

Section-B
Short answer type questions.

2. Draw the π-MO diagram of 1,3-butadiene and 1,3,5-hexatriene. **5**

3. Discuss selection rule for [4+2]-cycloaddition reaction using FMO method. **5**

4. Discuss mechanism of Nazarov reaction?

5. Discuss mechanism and stereochemistry of Diel's Alder reaction. **5**

Section-C
Long answer type questions.

6. Discuss mechanism of following reactions.
(a) Claisen rearrangement
(b) Cope rearrangement **10**

7. Explain Woodward-Hoffmann rule for electrocyclic reactions using correlation diagram method. **10**

8. Write notes on any two :
(a) Mislow-Evans rearrangement
(b) Sommelet-Hauser rearrangement
(c) Ene reaction **10**

xxxxx