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**PAR-003-1102002**

Seat No. \_\_\_\_\_

**M. Sc. (Sem. II) (CBCS) Examination**

**August / September - 2020**

**Organic Chemistry : Paper (C) - 202**

**Faculty Code : 003**

**Subject Code : 1102002**

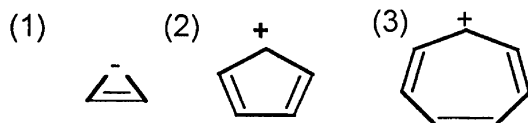
Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :** (1) All the questions carry equal marks.  
(2) Attempt five questions in all.

**1 Answer any seven of the following briefly : 14**

- (a) Enlist the condition for the antiaromatic behavior of compounds.
- (b) Define Photochemistry. Explain the Einstein law of Photochemical equivalence.
- (c) Define the Huckel rule for aromaticity with a suitable example.
- (d) Explain the term Photosensitization.
- (e) Arrange the following in decreasing order of their stability :



- (f) Explain Photoisomerization by giving suitable Examples.
- (g) Explain the Homo aromatic compound with a suitable example.
- (h) Write aza-cope rearrangement with a suitable example.
- (i) Define the pericyclic reaction giving a suitable example.
- (j) Discuss the aromatic character of cyclopropane and their cation and anion.
- (1) Write Craig's empirical formula and explain it with an example.

- 2 Answer any **two** of the following : 14
- (a) Discuss (2+2) cycloaddition reaction with the PMO approach.
  - (b) Give an account of the Group-transfer reaction with a suitable example.
  - (c) Give a brief account of annulene and their aromatic behavior.

- 3 Answer the following : 14
- (a) Write the synthesis of Tropone and discuss their aromatic behavior.
  - (b) Write the synthesis of azulene and discuss their aromatic behavior.

**OR**

- 3 Answer the following : 14
- (a) Discuss the analysis of sigmatropic rearrangement with the help of the FMO approach.
  - (b) Draw Jablonski diagram. Explain ISC and IC.
- 4 Answer the Following : 14
- (a) Explain electro-cyclic reaction of 1,5-cis dimethyl-1,3,5-hexatriene.
  - (b) Explain Norrish-I cleavage and Paterno Buchi reaction

- 5 Answer any **two** of the following : 14
- (a) Draw the molecular orbital diagram of 1,3, butadiene, explain its symmetry, and derive the rule for both conditions.
  - (b) Classify the followings in Aromatic, Antiaromatic and Non aromatic compounds :  
 $C_{10}H_{10}$ ,  $C_8H_9^+$ ,  $C_4H_4$ ,  $C_8H_8$ ,  $C_{12}H_{12}$ ,  $C_{10}H_{12}$ ,  $C_{14}H_{14}$ ,  
 $C_{13}H_{13}^-$ ,  $C_6H_8$ ,  $C_{18}H_{18}$ ,  $C_{12}H_8$ ,  $C_8H_{10}$ ,  $C_8H_8$ ,  $C_7H_8$ ,  $C_5H_5^+$
  - (c) Explain the difference between Fluorescence and Phosphorescence phenomenon.