



NCC-003-010202 Seat No. _____

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

April / May - 2017

Chemistry : C-202

(Organic Chemistry)

(Old Course)

Faculty Code : 003

Subject Code : 010202

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

[Total Marks : 70

1 Answer the following : (any seven out of ten) 14

- (a) Describe electron occupancy in allyl carbocation and allyl anion system.
- (b) Define Quantum yield and Quantum efficiency. Give reason for high and low Quantum yield.
- (c) Define pericyclic reaction and classify with two suitable examples.
- (d) Explain Grotthus Draper law and Einstein law of photochemical equivalence.
- (e) Define the following term :
 - (1) Conrotatory motion
 - (2) LUMO
- (f) Define the term 'photosensitization', Give the name of the compounds which act as Photosensitizer.
- (g) Give conditions of a compound to be aromatic.
- (h) Discuss pericyclic reaction and classify them with suitable example.
- (i) Explain the term photochemistry with suitable example.
- (j) Give the symmetry properties of HOMO and LUMO of 1,3-Butadiene

- 2** Answer the following : (any **two** out of three) **14**
- (1) Discuss Norrish-I and Norrish-II cleavage giving at least one example of each.
 - (2) Discuss Barton reaction and Photochemistry of smog.
 - (3) Explain Photoisomerization of cis and trans-stilbenes.

- 3** Answer the following : (1,2,3 or 1,2) **14**
- (1) Discuss $(2s+2s)\pi$ cyclo addition reaction of ethylene by FMO or Correlation diagram or PMO method.
 - (2) Explain Photo Fries reaction of Anilides.
 - (3) Give The types of Photochemical reaction and explain Photo dissociation.

OR

- (1) Explain $(4n+2)\pi$ electrocyclic reaction of 1,3,5-hexatriene to cyclohexadiene by co-relation method.
 - (2) Explain photo addition and photo substitution reaction citing suitable example.
- 4** Answer the following : (any two out of three) **14**
- (1) Explain correlation diagram of the electrocyclic reaction between 1,3-butadiene and cyclobutene.
 - (2) Write the empirical formula of annulene. Discuss aromaticity of annulene.
 - (3) Explain suprafical and antrafical addition in cycloaddition reactions.
- 5** Answer the following : (any **two** out of four) **14**
- (1) Explain interaction of electromagnetic radiation with matter and give the type of excitation.
 - (2) Explain effect of light intensity on the rate of photo chemical reaction.
 - (3) Discuss the synthesis of tropolone.
 - (4) Give the classification of photochemical reaction and discuss gas phase photolysis.