



NCC-003-1102002 Seat No. _____

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

April / May - 2017

C - 202 : Organic Chemistry

Faculty Code : 003

Subject Code : 1102002

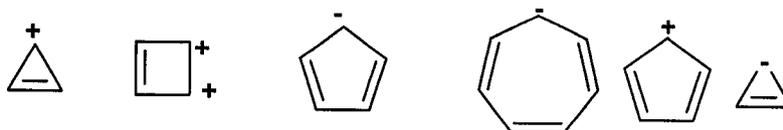
Time : $2\frac{1}{2}$ Hours]

[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) Draw the pie (π) M.O. orbital of the pentadienyl system.
(b) Define annulene and give the example of it which shows the aromatic behaviour.
(c) Arrange the following compounds in decreasing order to their stability



- (d) Explain photo-oxidation giving a suitable example.
(e) Explain Quasi aromatic compounds with suitable example.
(f) Define Quantum yield and First law of photochemistry.
(g) Explain, how pericyclic reaction has no reaction mechanism.
(h) Give difference between excited singlet and triplet states.
(i) Which NMR technique is useful to predict the aromaticity. Justify your answer.
(j) Define the terms : (1) HOMO, (2) Photochemically allowed reaction

- 2 Answer any **two** of the Following : 14
- (a) Explain electro-cyclic reaction of 1,3butadiene to cyclobutylene by FMO or PMO approach.
 - (b) Explain $(2s+2s)\pi$ cyclo addition reaction with the help of co-relation diagram or FMO or PMO methods.
 - (c) Give brief account on FMO approach with suitable example.
- 3 Answer any **two** of the Following : 14
- (a) Discuss photochemistry of Olefins with suitable example.
 - (b) Explain photo addition reaction giving at least two examples.
 - (c) Draw a Jablonski diagram and explain it briefly.
- 4 Answer the Following : 14
- (a) Draw the structures of annulene. Discuss internal proton and its importance with respect to [14], [16], [18] and [22] annulenes.
 - (b) Explain Paterno Buchi reaction in detail.
 - (c) Explain the term pericyclic reaction, classify them with each suitable example.
- 5 Answer any two of the following : 14
- (a) Discuss the Huckel's rule for aromatic and antiaromaticity behaviour of compounds with suitable example.
 - (b) Define Craig's empirical rule and explain aromaticity of pentalene & heptalene.
 - (c) Discuss the synthesis of tropolone and their aromatic behaviour.