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MCA-003-1102002 Seat No. _____

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

April / May - 2018

Paper - (C) - 202 : Organic Chemistry

(New Course)

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** from the following : **14**

(a) Define and classify, "Pericyclic reaction".

(b) Distinguish the following compounds in aromatic, non-aromatic and anti-aromatic :

(1) $C_7H_7^+$ (2) $C_8H_8^{+2}$

(3) $C_{12}H_{12}$ (4) C_5H_6

(5) $C_8H_8^{-2}$ (6) $C_9H_{10}^+$

(c) Give definition of aromaticity which is currently prevailing.

(d) Define the following terms :

(1) LUMO,

(2) Thermally allowed reaction

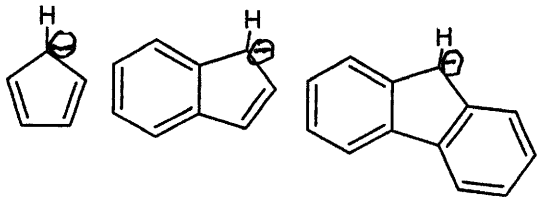
(e) Draw the pie (π) M.O. orbital of the allyl system.

(f) State the smallest possible aromatic systems citing suitable examples.

(g) Explain the term radiationless energy transfer by giving an example.

(h) Explain, any two laws of Photochemistry.

(i) Arrange the following in decreasing order of their acidity :



(j) Give at least two differences between excited singlet and triplet states.

2 Answer any **three** of the following : **14**

(a) Explain PMO approach in electro-cyclic rearrangement citing example of 1,3,5 hexatriene to cyclohexadiene.

(b) Give a brief account on 3,3, Sigmatropic rearrangement with the help of Clasion - Cope rearrangement.

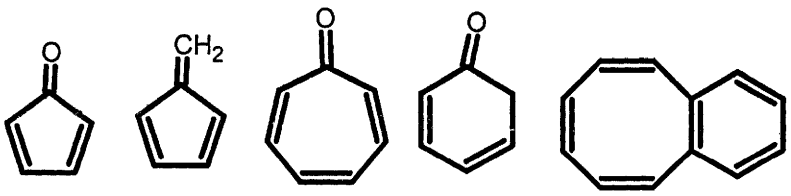
(c) Explain why ψ_3 of butadiene have higher energy than the ψ_2?

(d) Give conclusions of electrocyclic reactions in which polyene have $4n\pi$.

3 Answer any **two** of the following : **14**

(a) State the all the condition for aromatic and antiaromaticity behaviour. Give at least two examples of each.

(b) Identify the following compounds for aromatic, non aromatic and antiaromatic behaviour and justify your answer.



(c) Discuss aromatic behaviour at ten pie (π) electron systems by citing at least two examples.

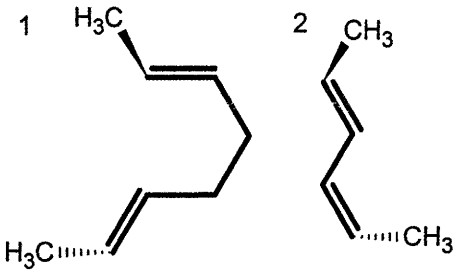
4 Answer the following : 14

(a) Give a brief account on Huckel Mobius Method by citing proper example.

(b) Explain 5,5 Sigmatropic rearrangement with suitable example.

OR

(a) Complete the following reactions using conrotatory and disrotatory motion and say which is the major and minor product.



(b) Explain suprafical and antrafical addition in cyclo-additions reactions.

5 Answer any **two** of the following : 14

(a) Draw the Jablonski diagram and explain all redative and non redative processes - mention in detail.

(b) Explain intramolecular radiationless energy transfer by giving example.

(c) Explain by giving example Photoisomerisation, photo addition and Photo oxidation reactions.
