Total No. of Questions :6]

SEAT No. :

P1900

[Total No. of Pages : 4

[5323] - 313

M.Sc. - II

ORGANIC CHEMISTRY

CHO - 353 : Photochemistry, Pericyclic Reactions and Heterocyclic Chemistry

(2014 Pattern) (4 Credit) (Semester - III)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Answer to the two sections should be written in separate answer book.***

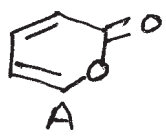
SECTION - I

Q1) Explain the following (all sub questions are compulsory). **[10]**

a) Norrish type II reaction.

b) Irradiation of benzophenone in the presence of $(ph)_2$ CHOH gives benzpinacol as the only product.

c) Compound 'A' gives cyclobuta -1, 3-diene and carbondioxide on irradiation. Show the reaction and explain.

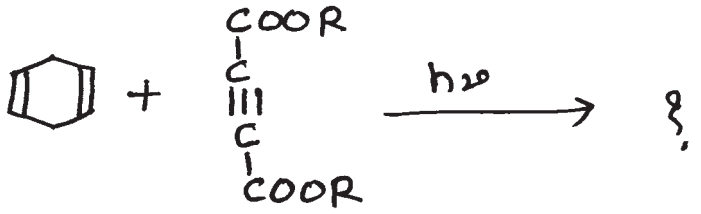


d) Draw the π molecular orbitals of $H_2C = CH\text{-}\overset{\ominus}{C}H$. Indentify the Homo and LUMO and find out their symmetry elements.

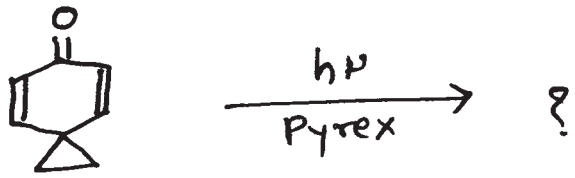
e) Ene reaction.

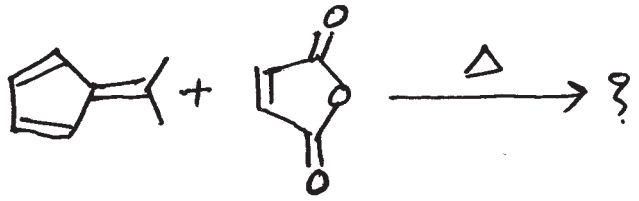
P.T.O.

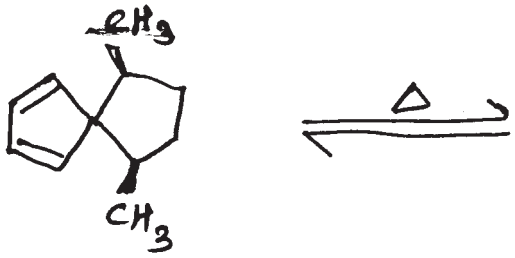
Q2) Predict the products and suggest the mechanism. **[10]**

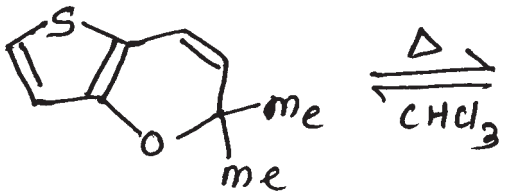
a) 

b) 

c) 

d) 

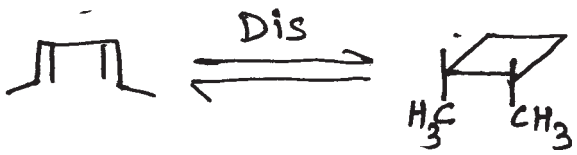
e) 

f) 

Q3) Answer Any Two. **[5]**

a) Photochemical reactions in cedrene synthesis.

b) Construct the correlation diagram for the following transformation.



c) Explain with the help of FMO approach whether suprafacial [1, 5] sigmatropic Hydrogen shift is thermally or photochemically allowed.

SECTION - II

Q4) Answer all the questions in brief. **[10]**

a) N - Methyl imidazole has lower boiling point than imidazole.

b) Diazines are more resistant to electrophilic attack than pyridine.

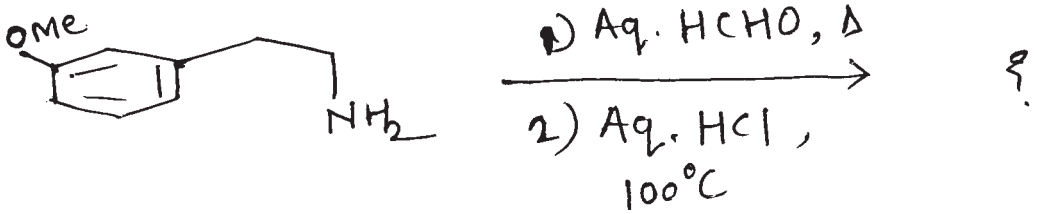
c) Reactivity of pyrrole is much higher than pyridine & Pyrimidine in electrophilic substitution reactions.

d) Pyridine N-Oxide readily undergoes electrophilic substitution at 4 - position.

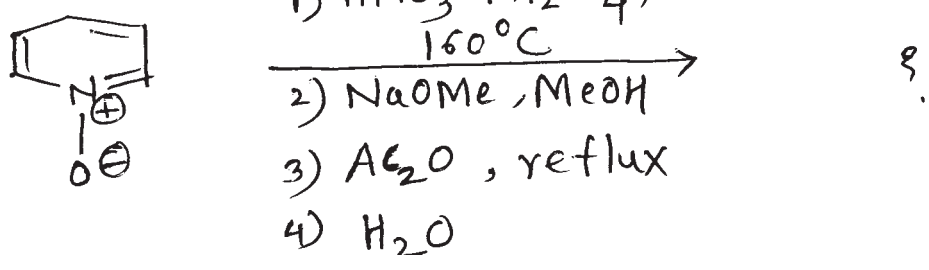
e) Furan is less aromatic than pyrrole and thiophene.

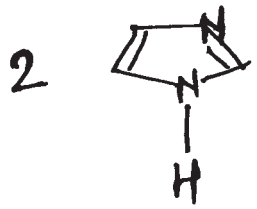
Q5) Predict the products suggesting suitable mechanism for any two of the following. **[10]**

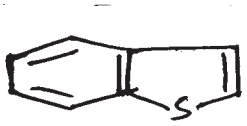
a)



b)



c)  1) NaH, 0°C, THF → 2) Cl–C(=O)–Cl → ?

d)  1) BuLi, ether, reflux → 2) C_6H_5–N(CH$_3$)–CHO, Ether, reflux → ?

Q6) Write short note on <u>any two</u> of the following. **[5]**

a) Hantzsch synthesis

b) Reissert synthesis

c) Hinsberg synthesis

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