Exam. Code: 0432
Sub. Code: 3447

1057

M.Sc. (Applied Chemistry/Pharmaceutical)

2nd Semester

Paper-201: Organic Chemistry-II

Time allowed: 3 Hours Max. Marks: 60

***NOTE**: Attempt <u>five</u> questions in all, including Question No. IX (Unit-V) which is compulsory and selecting one question each from Unit I-IV.*

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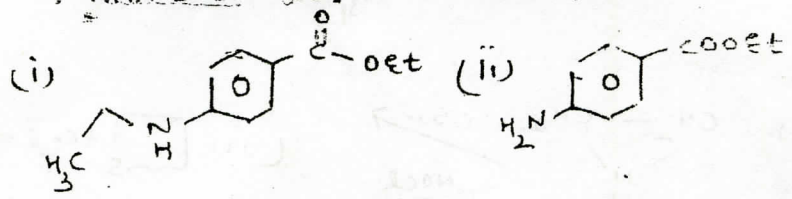
UNIT – I

I. (a) Using disconnection approach, outline the synthesis of:



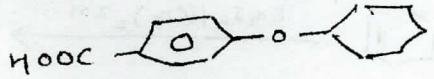
(b) Explain: -

(i) Disconnection approach

(ii) Linear synthesis (8+4)

II. (a) Write a short note on synthesis of esters, halides and sulphides by one group C-X disconnection approach. (8)

(b) What is chemoselectivity and using the concept of chemoselectivity outline the synthesis of



(8+4)

UNIT – II

III. (a) Explain the frontier molecular method for analyzing the cyclisation of $4n\pi$ system and also write down the selection rule for the electrocyclic reactions.

(b) Write a short note on Ene-reaction. (8+4)

IV. (a) Explain:

(i) Sigmatropic rearrangement

(ii) Claisen rearrangement

(b) Draw correlation diagram for [2+2] cycloaddition reaction and explain whether it is thermally/photochemically allowed. (4+8)

UNIT – III

V. (a) Give one method each for the preparation of the following compounds.

(i) Thiirane (ii) Azetidine

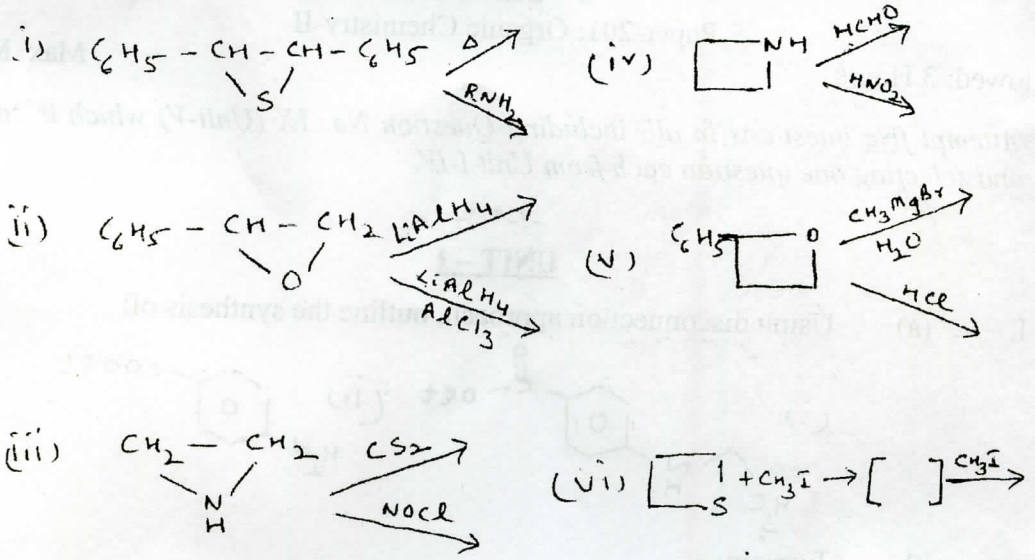
(b) Discuss the medicinal applications of benzophrroles and benzofuranes.

(4+4)

P.T.O.

(c) Discuss the reaction of Indole with proton acids and the stability of the products formed. (4)

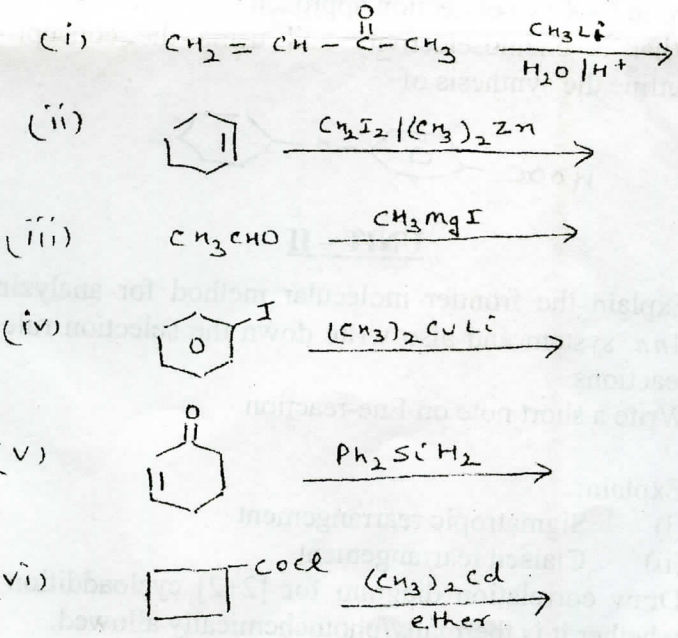
VI. Complete the following reactions: -



(6×2)

UNIT – IV

VII. (a) Complete the following reactions: -



(6×1)

(b) What are enolates and elaborate the conditions for the kinetic control of enolate formation. (6)

VIII. (a) What is Heck reaction? Write down the product and mechanism of the following reaction.

(b) Write down at least two methods of formation of (i) organolithium compounds (ii) organozine compounds (6+6)

UNIT – V

VIII. Attempt all the questions.

(a) Explain the term regioselectivity with example.

(b) Explain (i) Synthon (ii) FGI

(c) Draw the frontier orbitals of 1,3,5-hexatriene.

(d) Out of organolithium and organozine compounds which one acts as a strong nucleophile and why?

(e) Explain cope rearrangement.

(f) Why electrophilic attack in thiophene takes place at 2 and not on 3 position. (6×2)

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