

M.Sc. (P)

Printed Pages : 4

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Chem(P)-II

M.Sc. (Previous) Examination, 2019

CHEMISTRY

Paper - II (CH-402)

(Organic Chemistry)

Time : 3 Hours

Maximum Marks : 100

- Note:** (i) No supplementary answer-book will be given to any candidate. Hence the candidates should write the answer precisely in the main answer-book only
- (ii) All the parts of one question should be answered at one place in the answer book. One complete question should not be answered at different places in the answer book
- (iii) Attempt Five Questions in all, selecting at least one question from each Unit. All questions carry equal marks.

Unit-I

1. Write short notes on the following:

- (i) Aromaticity in non-benzenoid compounds
- (ii) Bonding in fullerenes
- (iii) Application of PMO approach to Huckel's rule

5+5+10

(1)

P.T.O.

- 2 Explain briefly the following with suitable examples
- (i) Optical activity in biphenyles
 - (ii) Conformational analysis of cycloalkanes
 - (iii) Effect of conformation on reactivity
 - (iv) Stereochemistry of the compounds containing nitrogen

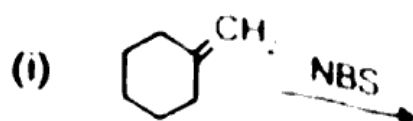
4×5

Unit-'II'

- 3 (a) Elaborate the application of Taft equation 5
- (b) Briefly explain the transition state and intermediate with suitable examples 5
- (c) Discuss the structure stability of carbenes Give two important reactions involving carbenes with their mechanism. 10
4. Write short notes on the following
- (i) Norbornyl system
 - (ii) Nucleophilic substitution at allylic position
 - (iii) Ambident nucleophiles
 - (iv) Regioselectivity
- 4×5

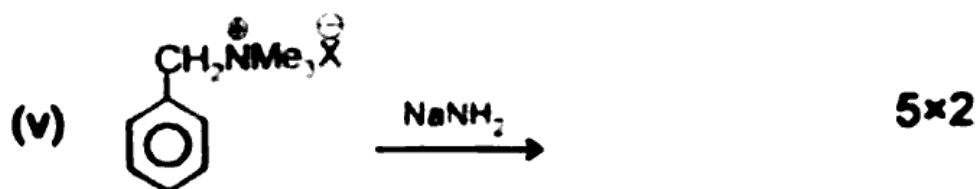
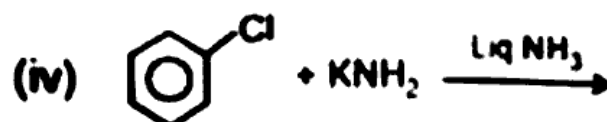
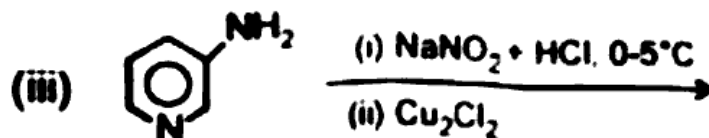
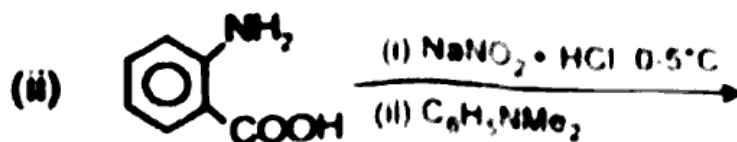
Unit-'III'

5. (a) Explain the factors affecting reactivity of aliphatic electrophilic substitution reactions 10
- (b) Complete the following reactions



(2)

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6. (a) Write short notes on the following:

(i) **Smile's Rearrangement**

(ii) **Neighbouring group assistance** 2×5

(b) **Discuss the elimination-addition reaction mechanism with suitable examples and provide evidences in support of this mechanism.** 10

Unit-'IV'

7 Explain the mechanism of following reactions with suitable examples:

(i) **Perkin reaction**

(ii) **Michael reaction**

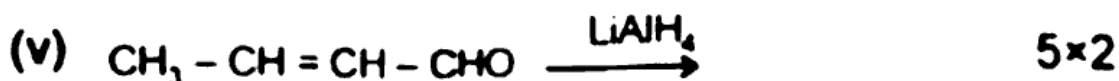
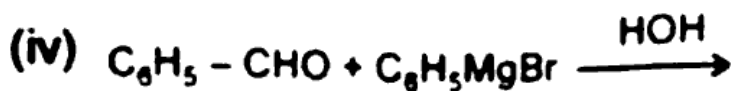
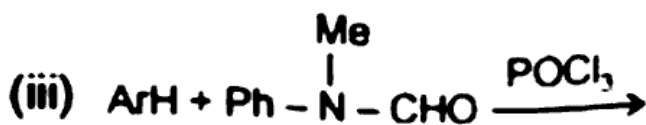
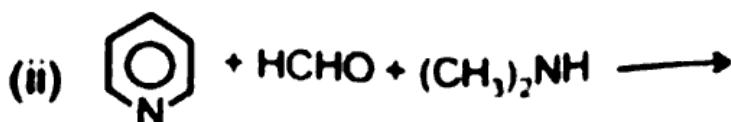
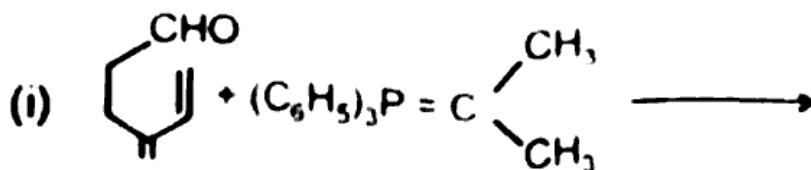
(iii) **Wittig reaction**

(iv) **Benzoin Condensation** 4×5

(3)

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8. (a) Complete the following reactions



(b) Briefly discuss the following

(i) Regio and chemoselectivity

(ii) Orientation and reactivity 2 × 5

Unit-'V'

9. Write short notes on the following:

(i) 1, 3-dipolar cycloaddition

(ii) Claisen Rearrangement

(iii) Cope Rearrangement 10+5+5

10. (a) Explain the suprafacial and antarafacial shift of H. 5

(b) Draw correlation diagram for the cycloaddition of two ethylene molecules. 5

(c) What are pericyclic reactions? Drawing correlation diagram discuss disrotatory and conrotatory interconversion of cyclobutene and butadiene

10