

Q.P. Code : 60789

Fourth Semester M.Sc. Degree Examination,  
September/October 2020

(CBCS Scheme)

Chemistry

Paper C 403 OC — ORGANIC SYNTHESIS

[Max. Marks : 70]

Time : 3 Hours]

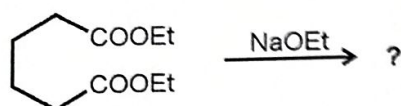
Instructions to Candidates : Answer Question No. 1 and any FIVE of the remaining.

(10 × 2 = 20)

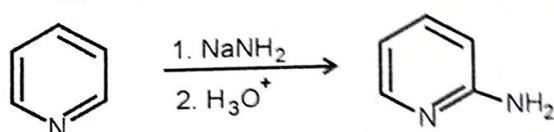
1. Answer any TEN of the following :

(a) Outline acyloin condensation with an example.

(b) Predict the product with possible mechanism :



(c) Suggest suitable mechanism for the following conversion :



(d) Give any two synthetic applications of DCC.

(e) What is Yamaguchi reagent? Give its applications.

(f) Write any two applications of selenium dioxide in organic synthesis.

(g) Highlight Dess-Martin oxidation with suitable example.

(h) Sketch the steps involved in Birch reduction of benzene.

(i) Highlight Wolf-Kishner reduction with mechanism.

(j) Give an example for asymmetric epoxidation.

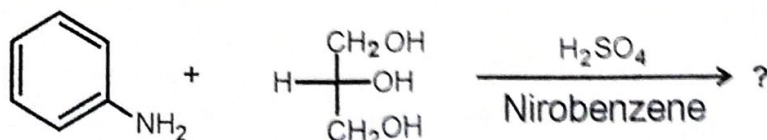
(k) What is Sharpless asymmetric aldol condensation?

(l) Write two reduction reactions of (S)-BINAL-H.

2. (a) Discuss the mechanism of Hofmann-Loeffler-Freytag reaction.

(b) Give the product and propose plausible mechanism.

(5 + 5)



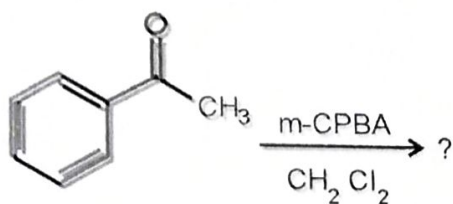
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3. (a) Give an account on synthetic applications of DDQ.

(b) Discuss the oxidation reactions of  $\text{OsO}_4$ .

(6 + 4)

4. (a) Predict the product and suggest suitable mechanism :



(b) Discuss homogeneous and heterogeneous catalytic hydrogenation reactions.

(4 + 6)

5. (a) What is enantiomeric excess? Explain the various methods used for the determination of enantiomeric excess.

(b) Comment on enantioselective Michael addition.

(5 + 5)

6. (a) Describe the various steps involved in the Robinson annulation.

(b) Discuss the synthetic applications of NBS.

(5 + 5)

7. (a) Give an account on organoboranes as reducing agents.

(b) Sketch the mechanism of Clemmensen reduction.

(5 + 5)

8. Write notes on :

(a) Stork enamine reaction

(b) 1,2-Dithiane

(c) (S,S)-CHIRAPHOS

(3 + 4 + 3)

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