

Reg. No.

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**CHH 552**

Fourth Semester M.Sc. Degree Examination, September/October 2022
(CBCS : 2016-17 Syllabus) (Freshers and Repeaters)
CHEMISTRY
Organic Synthetic Methods

Time : 3 Hours

Max. Marks : 70

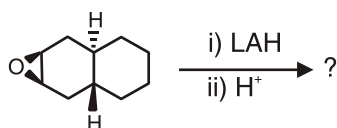
Instruction : Answer Part – A and **any four full** questions from Part – B.

PART – A

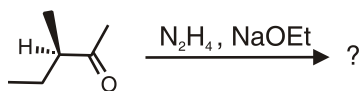
1. Answer the following questions :

(9×2=18)

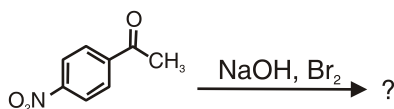
a) Identify the product formed in the following reaction :



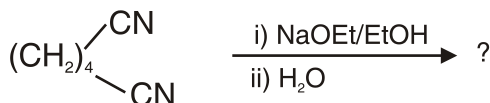
b) Write the product and comment on the stereochemistry of the product.



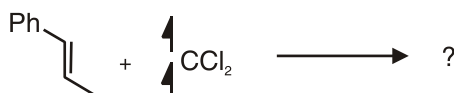
c) Predict the product(s) of the following reaction :



d) Write the product of the following reaction :



e) Predict the product(s) and justify the stereochemistry of product.

**P.T.O.**



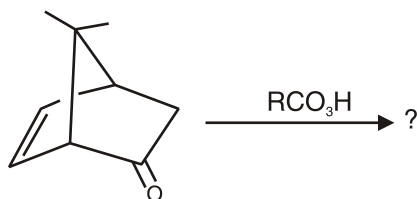
- f) Write the structure of the penicillin V.
- g) Illustrate 'Synthetic equivalents' and 'Reagents' with suitable example(s).
- h) Illustrate how cation is stabilized in RSA of acetone cyanohydrin.
- i) Show the possible disconnection approach for p-Methoxyacetophenone.

PART – B

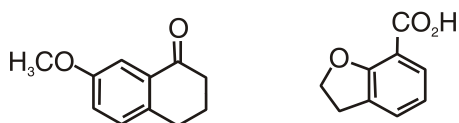
Answer **any four** of following :

(4×13=52)

2. a) Write the product(s) and mechanism of the following reaction. Justify your answer.

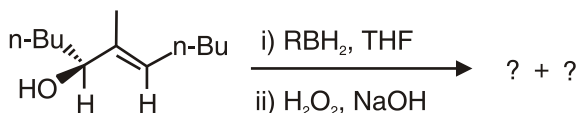


- b) Predict the products of Birch reduction of the following aromatic compounds and propose the mechanism.

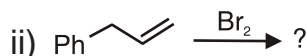
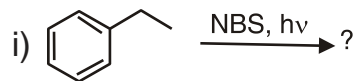


- c) Identify the products with mechanism and comment on the stereochemistry.

(4+5+4=13)



3. a) Discuss the heterogeneous catalytic hydrogenation.
b) Predict the product(s) with mechanism. Justify the product formation.

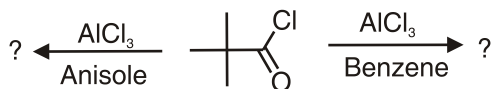


- c) Outline the bimolecular reduction of esters.

(5+5+3=13)



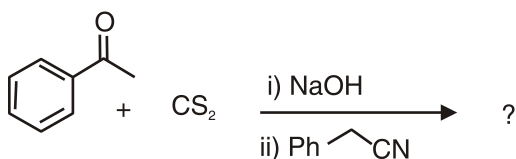
4. a) Predict the products with mechanism for the following reactions. Justify your answer.



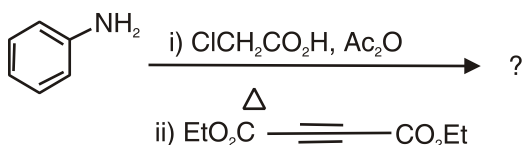
- b) Write the key intermediate the synthesis of Cubane.

- c) Identify the ring forming product with mechanism in the following reaction.

(5+4+4=13)



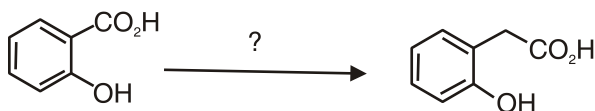
5. a) Write the intermediate and cycloaddition product of the following reaction.



- b) Discuss the stereoselectivity in Ene reaction with suitable example.

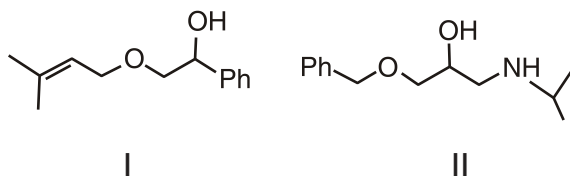
- c) Suggest the suitable reagents for the following transformation and write the mechanism.

(5+4+4=13)



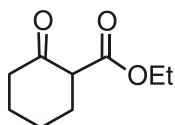
6. a) Discuss the advantageous role of tert-Butyldimethyl silyl (TBDMS) in the protection of hydroxyl groups.

- b) Suggest the order of disconnection and synthesis of following compounds.



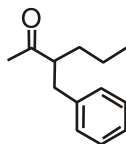
- c) Discuss the retrosynthetic analysis and synthesis of the following compound.

(3+6+4=13)





7. a) With suitable example explain two group C-C disconnections.
b) For the following compound discuss the regioselectivity using disconnection approach.



- c) Carry out the RSA of 6-methoxy indole-3-acetic acid and suggest the possible route for the synthesis. **(4+4+5=13)**
