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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

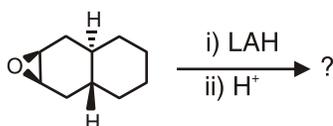
**Instruction : Answer Part – A and any four full questions from Part – B.**

## PART – A

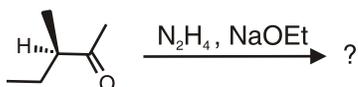
1. Answer the following questions :

(9×2=18)

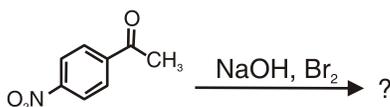
a) Identify the product formed in the following reaction :



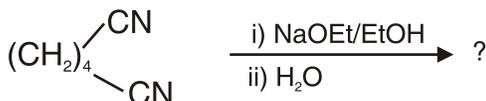
b) Write the product and comment on the stereochemistry of the product.



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.



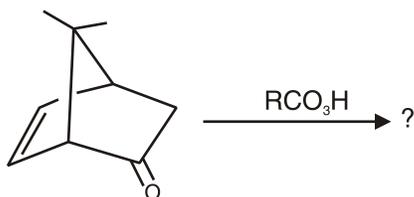
- f) Write the structure of the penicillin V.  
 g) Illustrate 'Synthetic equivalents' and 'Reagents' with suitable example(s).  
 h) Illustrate how cation is stabilized in RSA of acetone cyanohydrin.  
 i) Show the possible disconnection approach for p-Methoxyacetophenone.

## PART – B

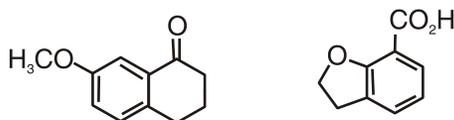
Answer **any four** of following :

(4×13=52)

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

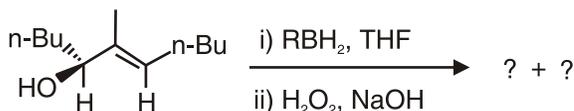


- b) Predict the products of Birch reduction of the following aromatic compounds and propose the mechanism.



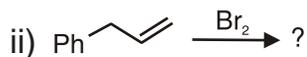
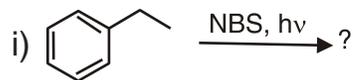
- c) Identify the products with mechanism and comment on the stereochemistry.

(4+5+4=13)



3. a) Discuss the heterogeneous catalytic hydrogenation.

- b) Predict the product(s) with mechanism. Justify the product formation.

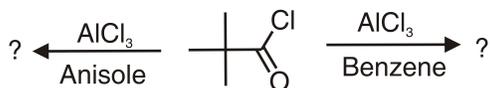


- c) Outline the bimolecular reduction of esters.

(5+5+3=13)



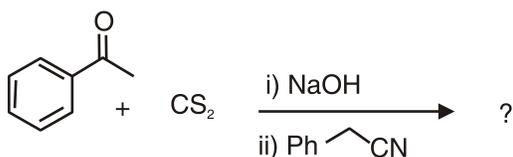
4. a) Predict the products with mechanism for the following reactions. Justify your answer.



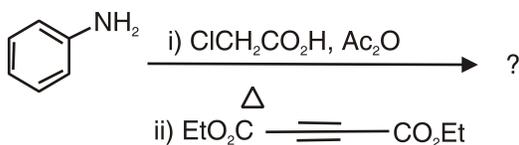
- b) Write the key intermediate the synthesis of Cubane.

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

(5+4+4=13)



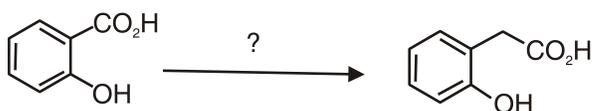
5. a) Write the intermediate and cycloaddition product of the following reaction.



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

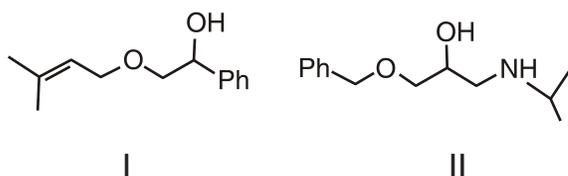
- c) Suggest the suitable reagents for the following transformation and write the mechanism.

(5+4+4=13)



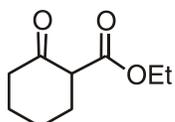
6. a) Discuss the advantageous role of tert-Butyldimethyl silyl (TBDMS) in the protection of hydroxyl groups.

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



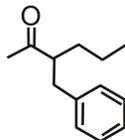
- c) Discuss the retrosynthetic analysis and synthesis of the following compound.

(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)**

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