



PG-244

10283

IV Semester M.Sc. (CBCS) Examination, July - 2019

## CHEMISTRY

## C 403 : OC : Organic Synthesis

Time : 3 Hours

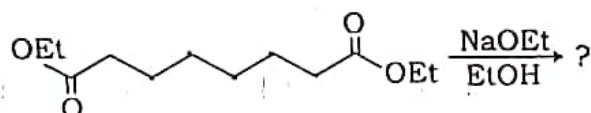
Max. Marks : 70

**Instruction :** Answer question No. 1 and any five of the remaining.

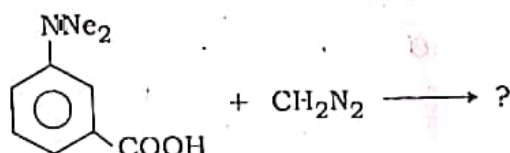
1. Answer any ten of the following :

10x2=20

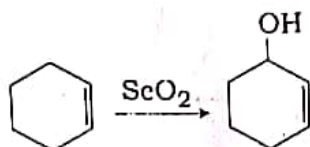
- (a) What is Fischer-Hepp reaction ? Explain with an example.  
 (b) Predict the product and propose a mechanism.



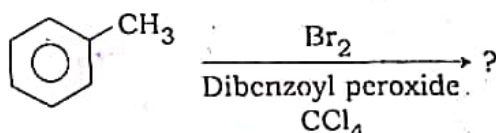
- (c) With a suitable example give the mechanism of Mitsunobu reaction.  
 (d) Give the applications of 1,3-dithione in organic synthesis.  
 (e) Predict the product and propose a mechanism.



- (f) Suggest a suitable mechanism for the following :



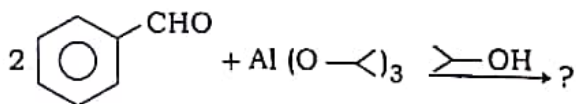
- (g) Give the product and mechanism for the following reaction :



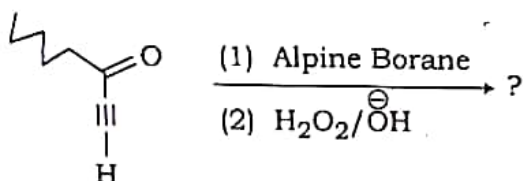
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- (h) What is the product of the following reaction? Propose a mechanism for its formation.

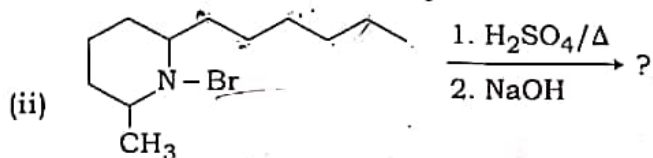
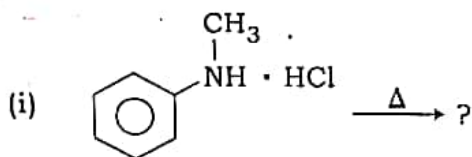


- (i) With a suitable example, give the mechanism of Willgerdt reaction.  
 (j) What is asymmetric induction? Explain with examples.  
 (k) Predict the major product and propose a mechanism.

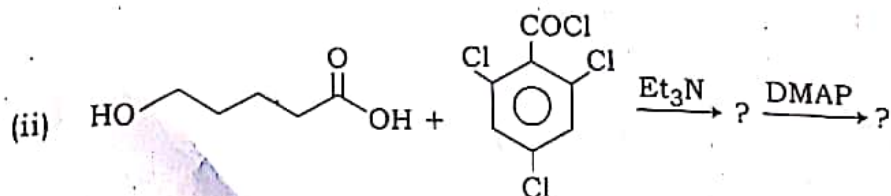
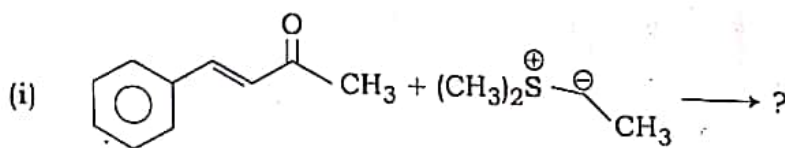


- (l) Draw the structure of (S) - PBMgCl and give its application in asymmetric synthesis.

2. (a) Give a brief account on use of acetylides in C-C bond formation reactions.  
 (b) Predict the products and propose mechanisms. 4+6=10



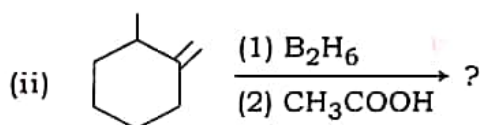
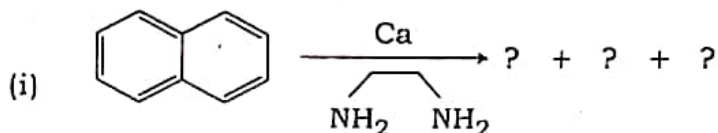
3. (a) Sketch the mechanism of formation of a peptide bond by DCC. 4+6=10  
 (b) Predict the products and propose mechanisms.





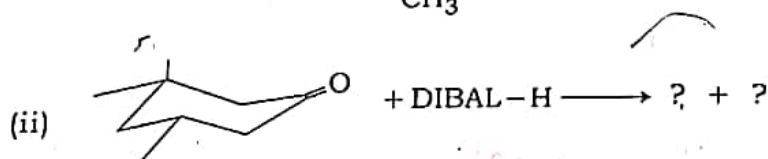
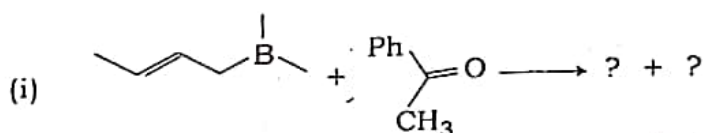
4. (a) Write briefly on the preparation, properties and applications of  $\text{CF}_3\text{COOH}$ . 4+6=10

(b) Predict the products and propose mechanisms.



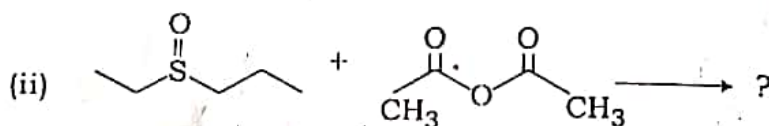
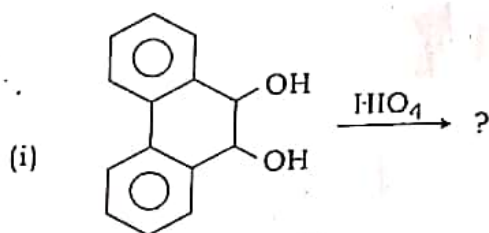
5. (a) What is 'ee'? Give any one physical method of determination of 'ee'.

(b) Predict the products and propose mechanisms. 4+6=10



6. (a) What is Houben - Hoesch reaction? Sketch the mechanism with an example. 4+6=10

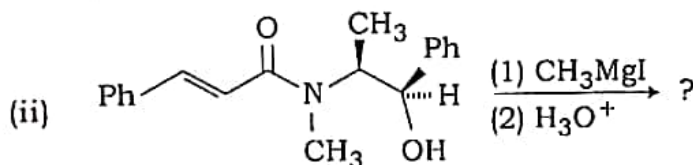
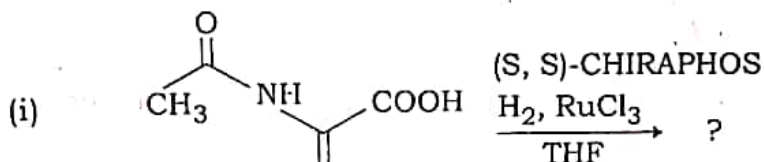
(b) Predict the products and propose mechanisms.



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7. (a) Give an account of the following in organic synthesis : 6+4=10
- (i) Robinson annulation
- (ii) PPA
- (b) With a suitable example, sketch the mechanism of stereoselective cyclization of Polyenes.
8. (a) What is Dess-Martin oxidation ? Give the mechanism and applications. 4+6=10
- (b) Predict the products with correct stereochemistry and propose mechanisms for their formation.



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