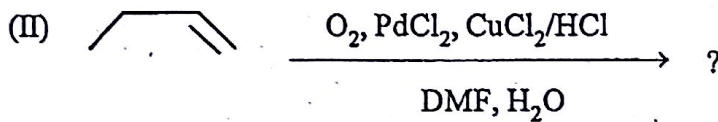
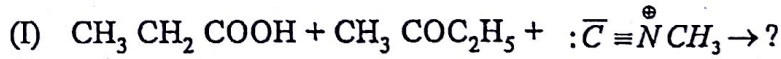


(2½ Hours)

[Total Marks : 60]

- N.B. : (1) All questions are compulsory.
 (2) Figures to the right indicate full marks.

1. (a)(i) Give the product, name and mechanism of any one of the following : 4

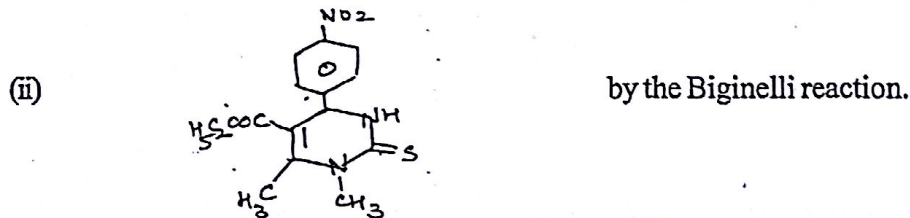


(ii) Give the mechanism and one application of any one of the following : 4

(I) Hantzsch pyridine synthesis.

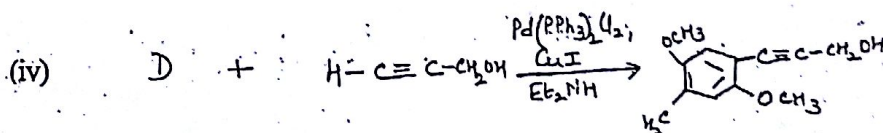
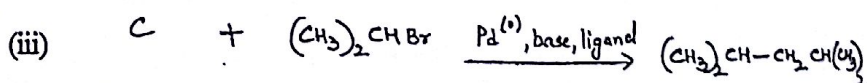
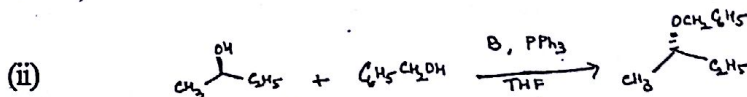
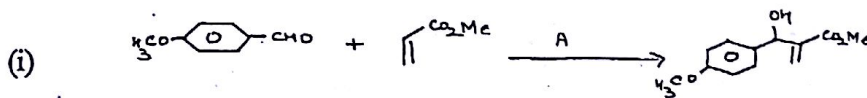
(II) Heck reaction.

(b) How will you prepare :.. 4



OR

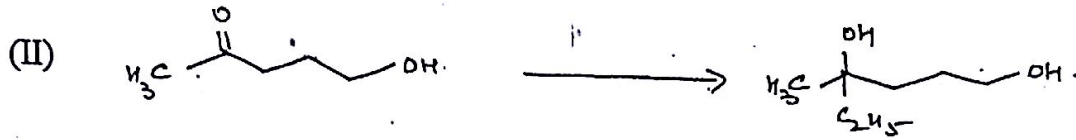
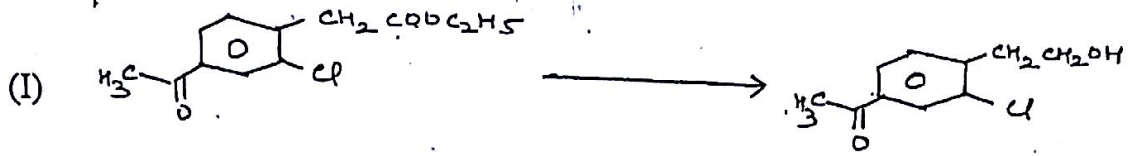
(b) Identify A-D in the following reactions and name the reaction involved. 4



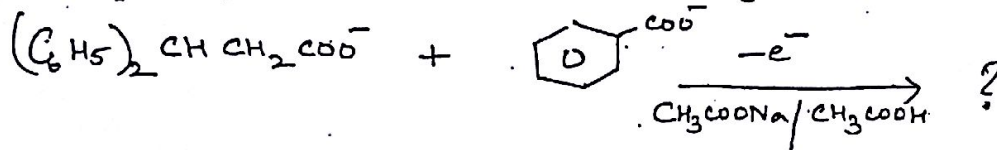
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2. (a) Attempt any two of the following :

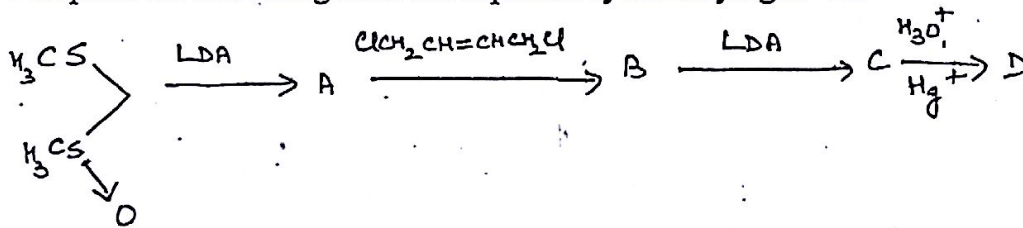
(i) Suggest synthesis of the following using the protection-deprotection protocol.



(ii) Give the product, name and mechanism of the following reaction.



(iii) Complete the following reaction sequence by identifying A - D.

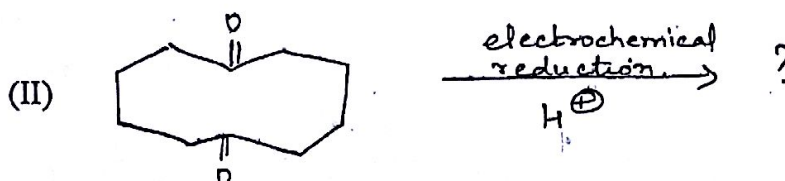
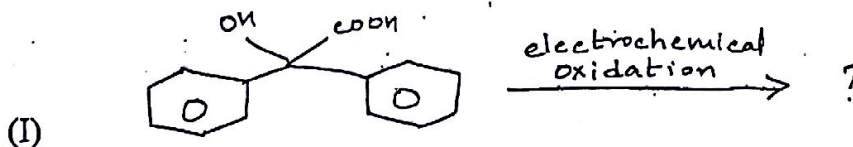


(iv) Give the equations involved in the protection and deprotection of (i) carboxylic acid as amide (ii) -OH as methoxymethyl ether.

(b) Attempt any one of the following :

(i) Discuss the use of dithiane as acyl anion equivalent with suitable examples.

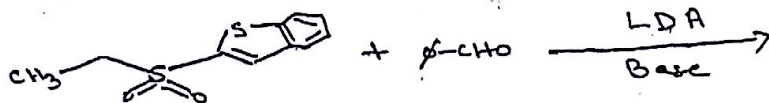
(ii) Give the product of the following reactions.



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3. (a) Attempt any two of the following : 4

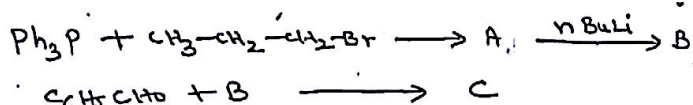
- (i) Discuss with suitable examples C-C bond formation using sulfoxides and phosphonates. 4
 (ii) Give the product, name and mechanism of the following reaction. 4



- (iii) Explain Bamford-Stevens reaction. Give its mechanism and applications. 4
 (iv) Give the various applications of Bestmann-Ohira reagent. 4

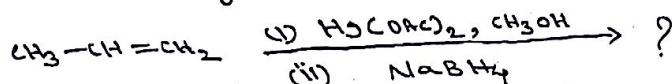
(b) Attempt any one of the following :- 4

- (i) Write an account on nitrogen ylides. 4
 (ii) Identify A, B and C in the following reactions. Provide a mechanism for the formation of C. 4

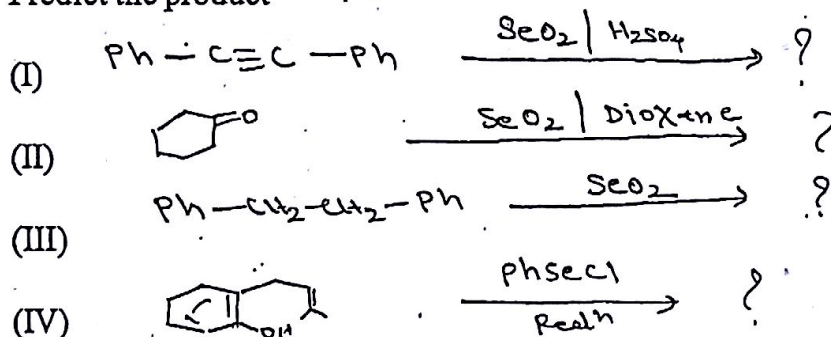


4. (a) Attempt any two of the following : 4

- (i) Give the product and mechanism of the following reaction. 4



- (ii) Give the preparation of alkenyl and allyl silanes and their reactions. 4
 (iii) Explain hydroboration of alkenes and alkynes; Explain its stereochemistry. 4
 (iv) Predict the product

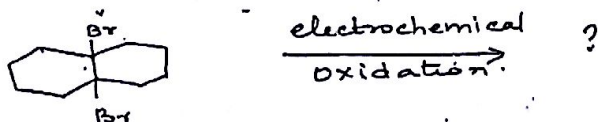


(b) Attempt any one of the following :- 4

- (i) Discuss preparation and applications of allyl tin compounds. 4
 (ii) Give an account of silylenol ethers.

5. Attempt any four of the following :- 3

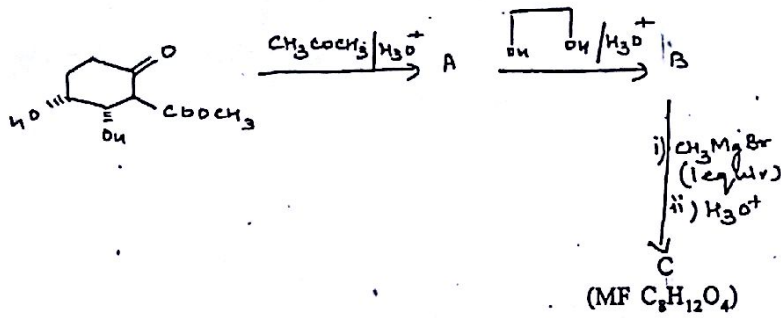
- (a) Explain domino reactions with an example. 3
 (b) How will you convert $(\text{CH}_3)_2\text{CHCH}_2\text{CHO}$ to $(\text{CH}_3)_2\text{CHCH}_2\text{COCH}_2\text{C}_6\text{H}_5$ 3
 (c) Give the product and mechanism of the following reaction. 3



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Con. 4403-14.

(d) Complete the following synthesis by identifying A-C. 3



3

(e) Describe the preparation of the following by enamine method. 3



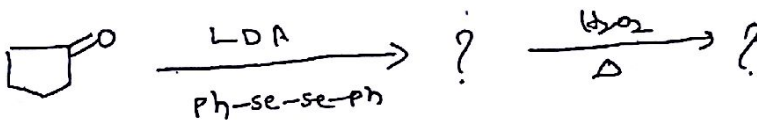
3

(f) Explain : Barton-Kellogg Olefination. 3

(g) Discuss briefly how Silicon controls the reactivity of organo silicon compounds. 3

3

(h) Complete the following sequence. 3



3