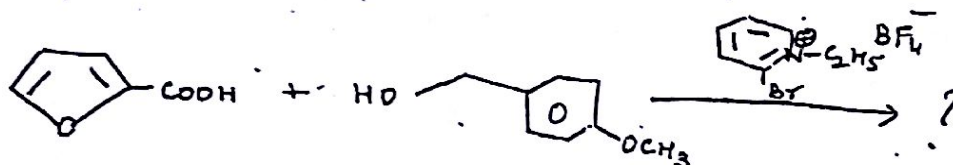
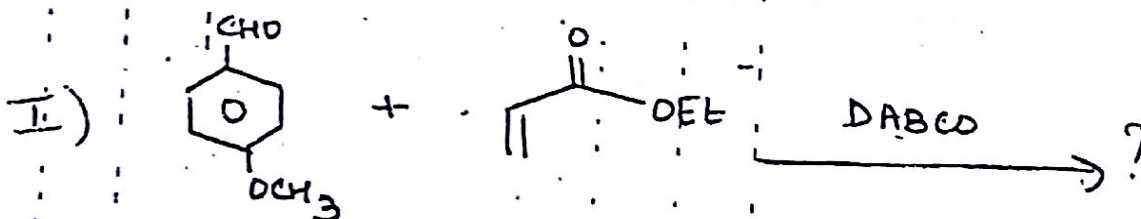


- N.B. : (1) All questions are compulsory.
(2) Figures to the right indicate full marks.

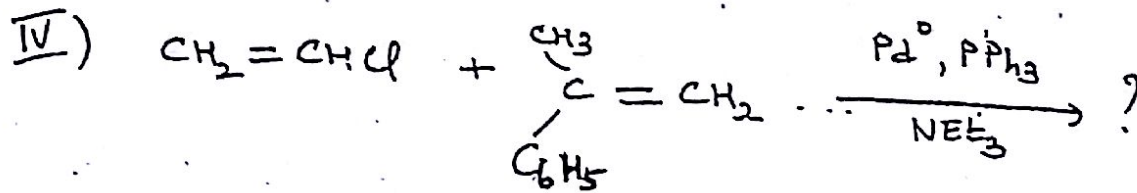
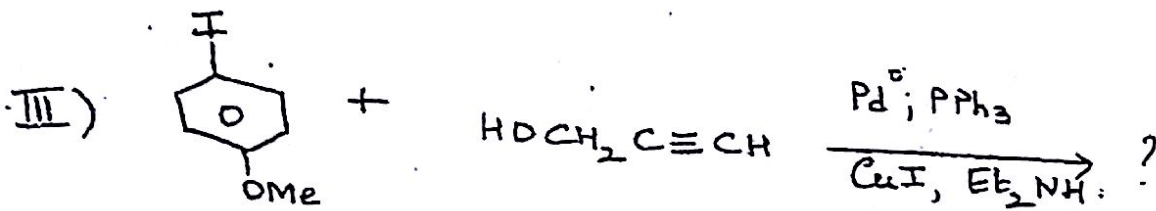
- I. (a) Attempt any two of the following:-
- (i) Discuss the mechanism and one application of the Mitsunobu reaction.
 - (ii) Discuss cascade reactions with a suitable example.
 - (iii) Give the product, name and mechanism of the following reaction.



- (iv) Give the product and name of the following reactions.



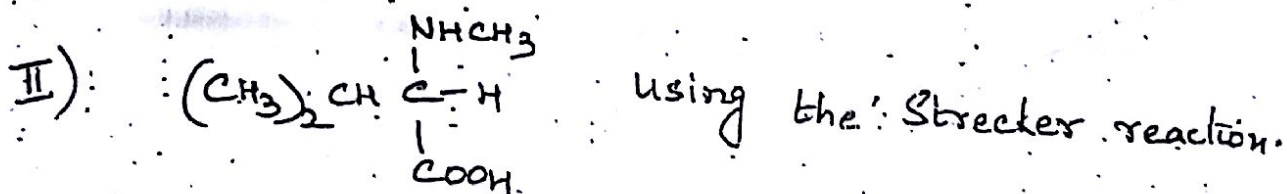
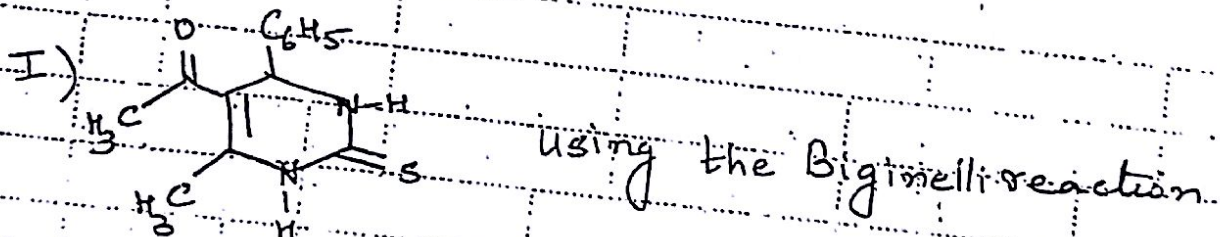
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(b) Attempt any one of the following :-

(i) Discuss the mechanism and one application of Ugi-4-component reaction.

(ii) How will you synthesise the following:



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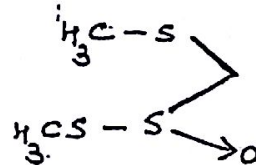
2. (a) Attempt any two of the following :-

(i) What is umpolung? How will you prepare

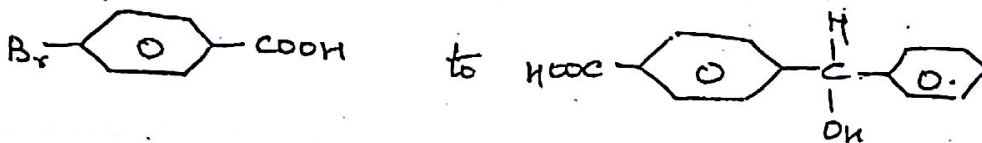
8

3-cyclopentenone

from



(ii) Using the protection / deprotection protocol how will you convert



(iii) Discuss the generation of acyl anion equivalent via nitro compounds, with suitable examples.

(iv) Give equations for the protection and deprotection of

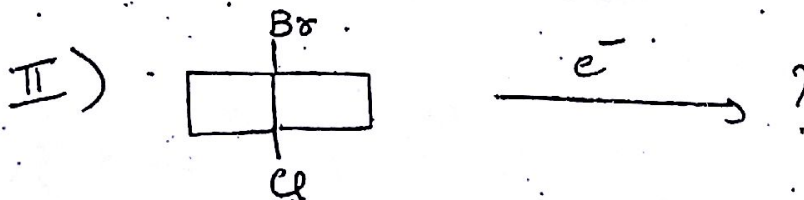
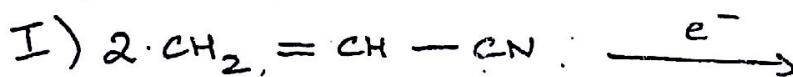
(i) $-\text{NH}_2$ group as carbamate

(ii) Carbonyl group as 1,3-oxathiolane.

(b) Attempt any one of the following :-

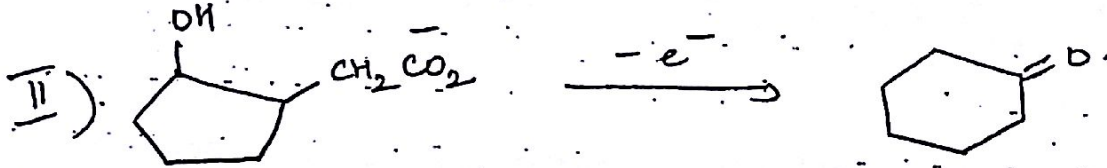
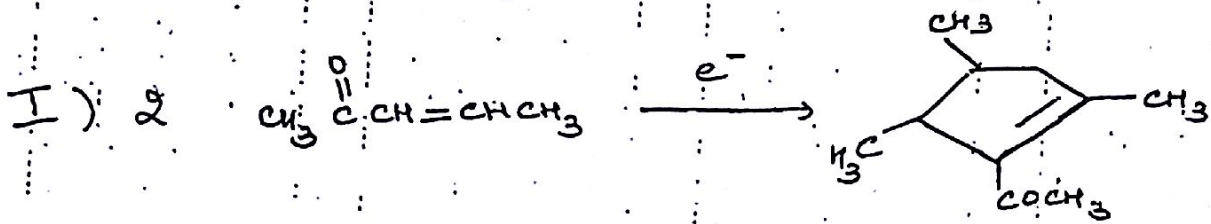
(i) Give the product and mechanism of the following reactions

4



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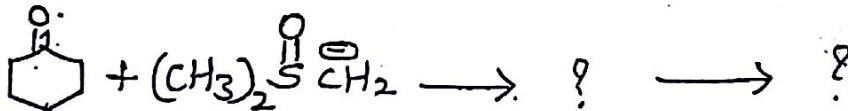
(ii) Provide a mechanism for the following reactions.



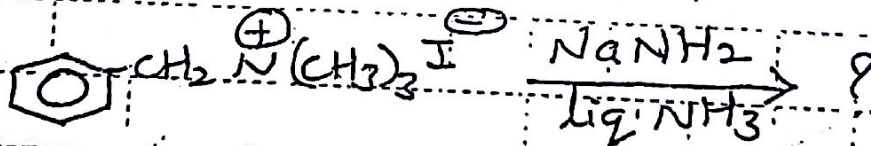
3. (a) Attempt any two of the following :-

8

- (i) Discuss C-C bond formation using sulfones and sulfoxides.
- (ii) Explain synthesis of but -2- ene using phosphorous ylide with its mechanism.
- (iii) Discuss various applications of Bestmann Ohira reagent.
- (iv) (I) Complete the following reaction-



(II) Predict the product and name the reaction-



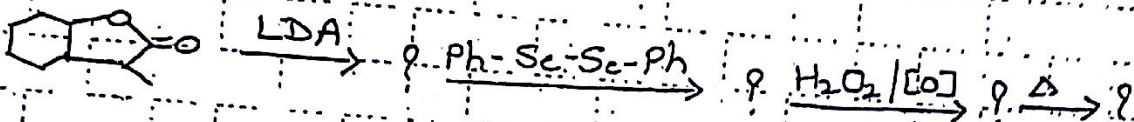
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(b) Attempt any one of the following:-

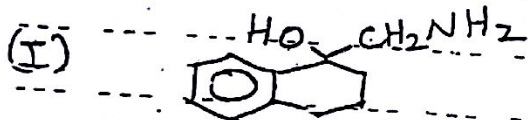
- (i) Write a brief note on Bamford Stevens reaction
 (ii) What are enamines? Explain with mechanism formation of enamine using cyclopentanone and morpholine.

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

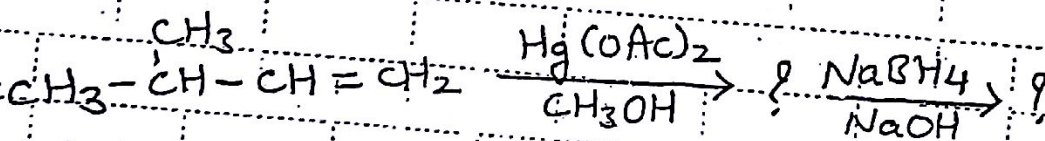
- (i) Give two methods of preparation and two reactions of allyl silane
 (ii) Complete the following sequence of reactions-



- (iii) Give conversion of α -tetralone to the following compounds using trimethyl silyl cyanide-

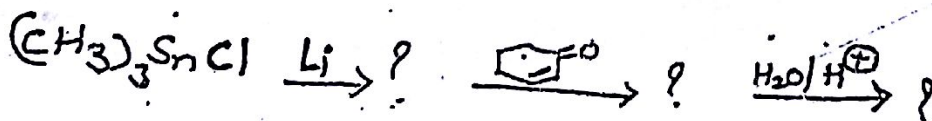


- (iv) Complete the following reaction, explain its mechanism and stereochemistry-

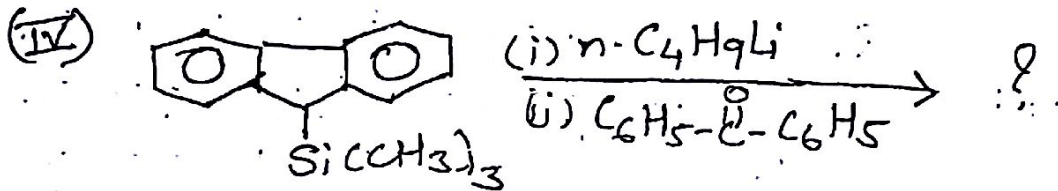
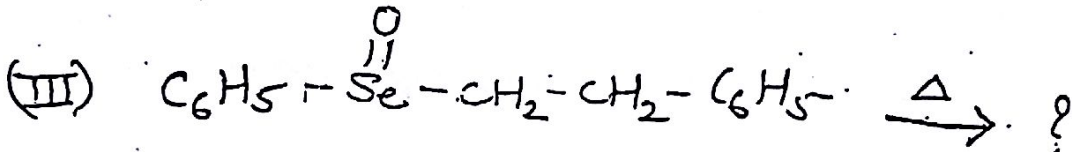
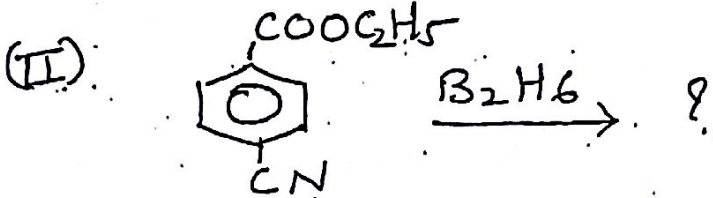
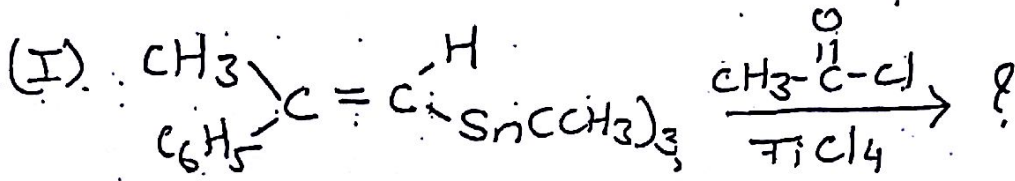


(b) Attempt any one of the following:-

- (i) (I) Give two methods of preparation of organotin compounds.
 (II) Complete the following reaction-



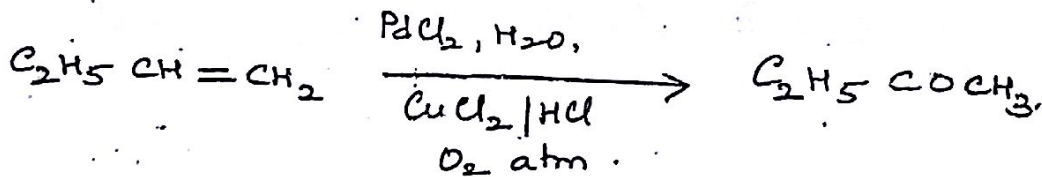
(ii) Complete the following reactions-



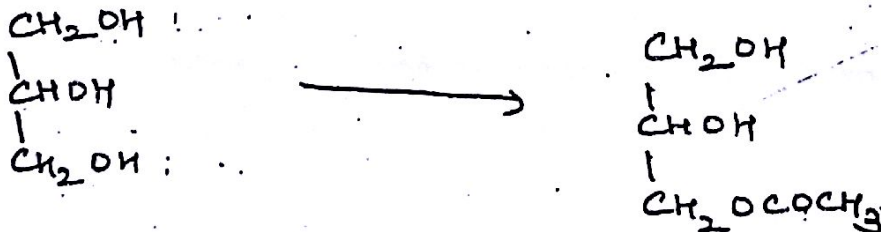
5. Attempt any four of the following :-

- (a) Discuss the mechanism of Passerini reaction.
 (b) Give the name and mechanism of the following reaction.

12



- (c) How will you bring about the following transformation using the protection / deprotection protocol.

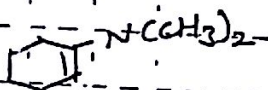


(d) Explain.

- (i) Electrochemistry
- (ii) Synthons
- (iii) Synthetic equivalent.

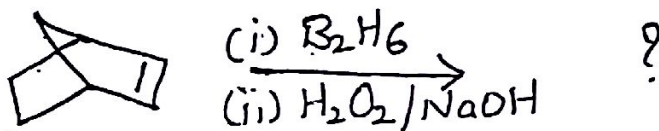
(e) What is nitrogen ylide? Give its structure and method of preparation.

(f) What is the action of the following compounds on



- (i) CH_3Br (ii) CH_3COCl (iii) $CH_2=CH-CHO$

(g) Complete the following reaction and explain its mechanism



(h) Complete the following reactions-

