

MSc II - Sem. II - Oct. 2016,
Organic chem. - paper II

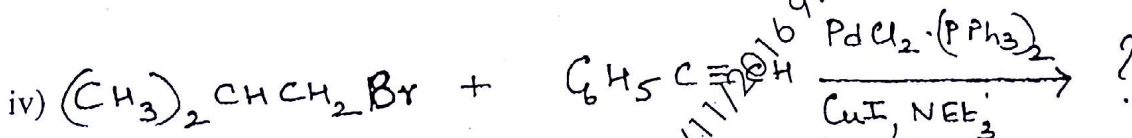
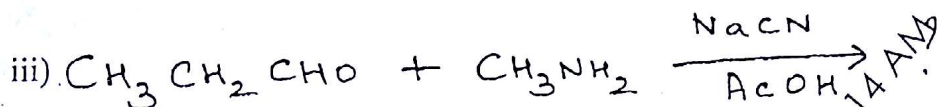
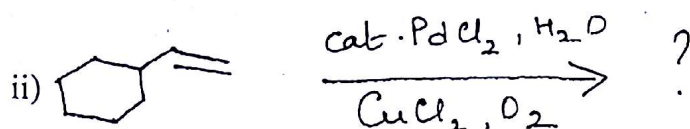
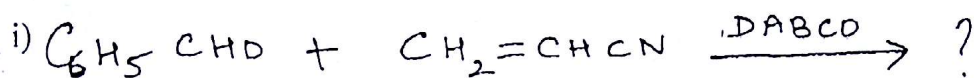
Q.P. Code : 77642

(2½ Hours)

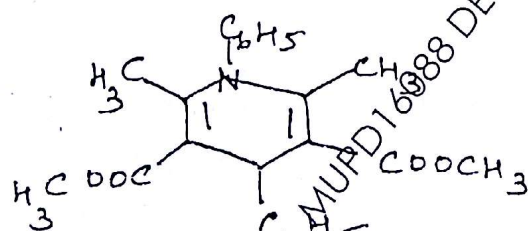
Total Marks : 60

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

1. a. Give the product, name and mechanism of the following :- (any Two)



b. How can the following compound be prepared via a multicomponent reaction? 4



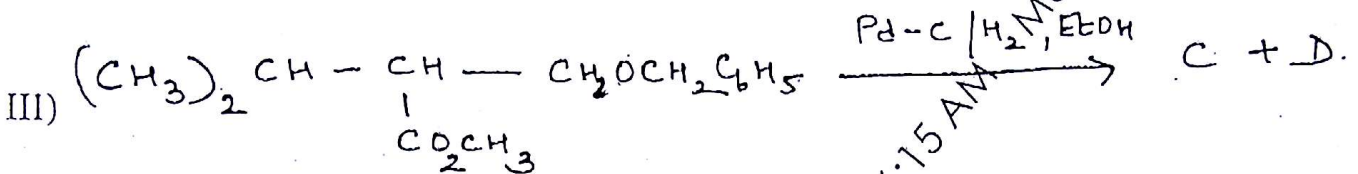
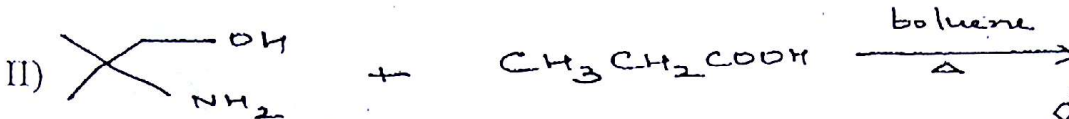
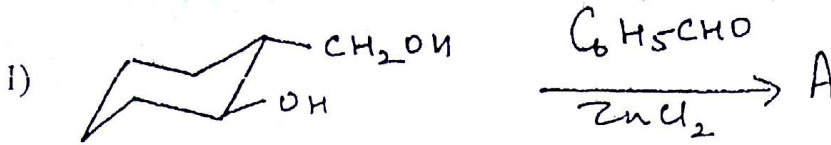
OR

b. Give the mechanism and one application of Suzuki coupling. 4

[TURN OVER]

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

i) Complete the following reactions by identifying A-D



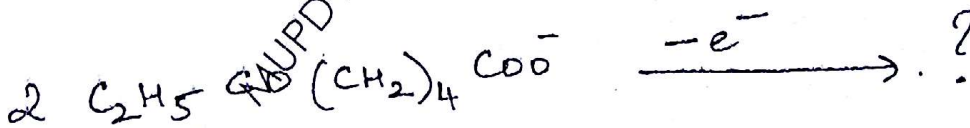
ii) Give the equations for the protection and deprotection of

I) -OH as THP ether

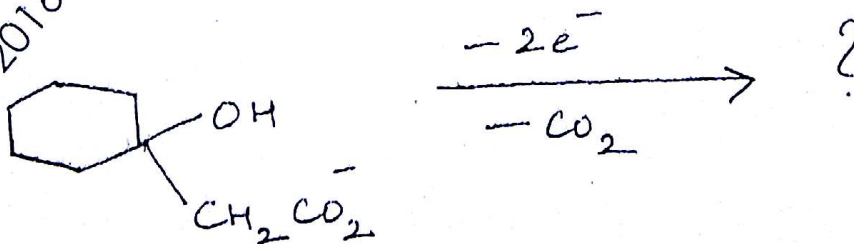
II) -NH₂ as benzyloxycarbonyl

iii) What is umpolung? How will you convert $(\text{CH}_3)_2\text{CHCH}_2\text{CHO}$ to $(\text{CH}_3)_2\text{CHCH}_2\text{COCOCH}_2\text{C}(\text{CH}_3)_3$?

iv) Give the product name and mechanism of the following reaction :



2. b) Give the product and mechanism of the following reaction :



OR

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b) Discuss the use of cyanide ions as acyl anion equivalent with suitable examples. 4

3. a) Attempt any two of the following -

i) Complete the following reactions and explain the mechanism involved

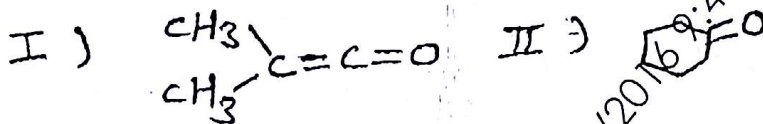
I) 3-hexyne + morpholine \longrightarrow ?

II) cyclopentanone + piperidine \longrightarrow ?

ii) Explain with suitable examples C-C bond formation by generation of carbanions in phosphonates and sulfones.

iii) Discuss with mechanism Stevens rearrangement.

iv) What is the action of $\text{Ph}_3\text{P}^+\text{CH}_2^-$ on the following compounds?



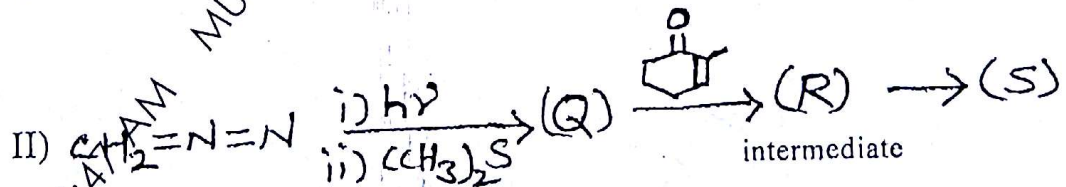
Give the mechanism.

b) Attempt any one of the following : 4

i) Write a note on Barton Kellogg olefination.

ii) Complete the following reactions identifying P, Q, R & S-

I) Dimethyl sulfide + Benzyne \longrightarrow (P)



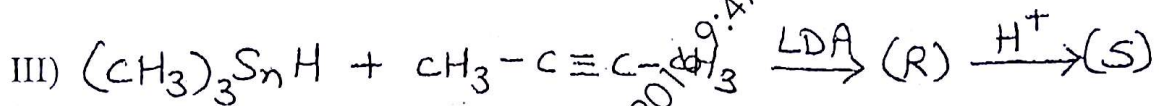
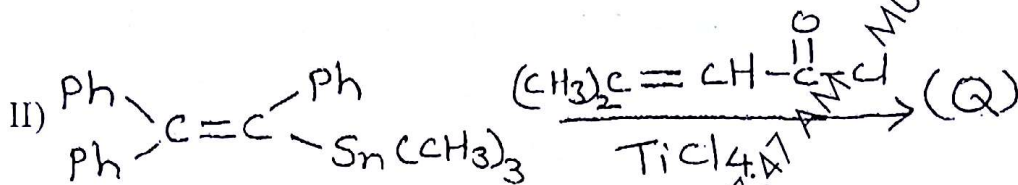
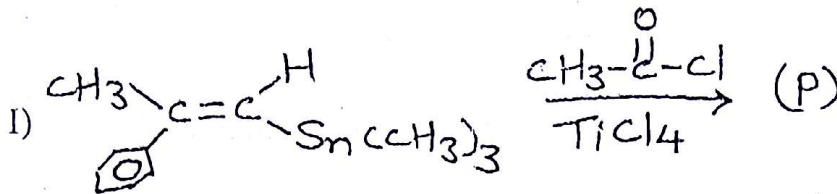
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4. a) Attempt any two of the following -

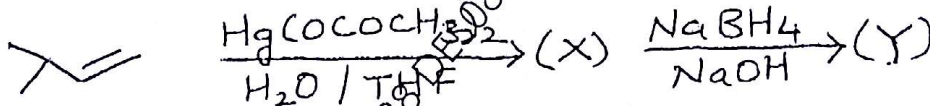
i) Give the steps involved in the following conversion via selenoxide



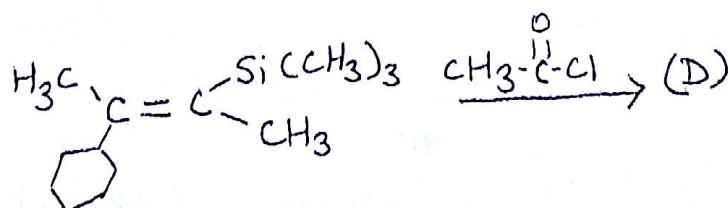
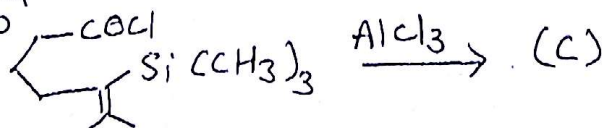
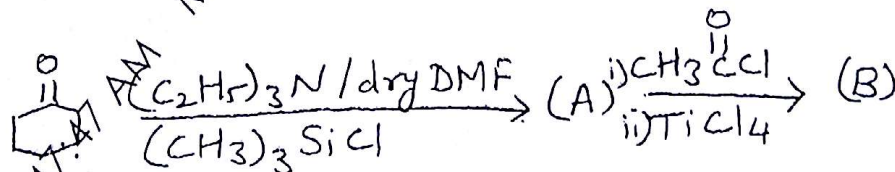
ii) Complete the following reactions identifying P, Q, R and S-



iii) Complete the following reaction giving structures of X and Y. Explain the mechanism and selectivity.



iv) Complete the following reactions identifying A, B, C and D:-



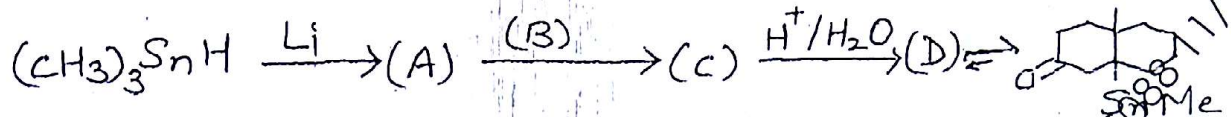
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4 b) Attempt any one of the following :-

4

i) Explain with stereochemistry and mechanism hydroboration of styrene

ii) Complete the following reaction sequence identifying A, B, C and D :-



5. Attempt any four of the following :-

12

a) Give the mechanism and one application of Passerini reaction.

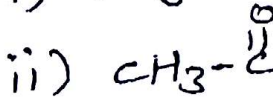
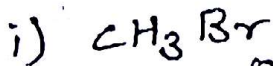
b) Discuss cascade reactions with a suitable example.

c) Using the protection - deprotection protocol how will you convert:



d) Discuss any two basic parameters required for electrochemical synthesis.

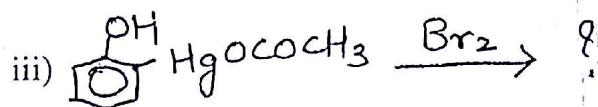
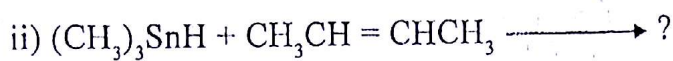
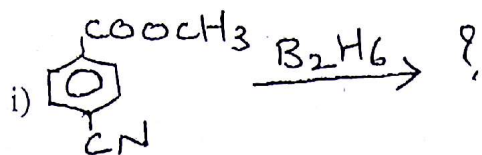
e) What is the action of the following reagents on 



f) Give structures of phosphorous ylide and nitrogen ylide. Why are phosphorous ylides more stable than nitrogen ylides?

[TURN OVER]

g) Complete the following reactions-



h) Complete the following reaction sequence identifying A, B and C-

