

Q.P. Code : 26663

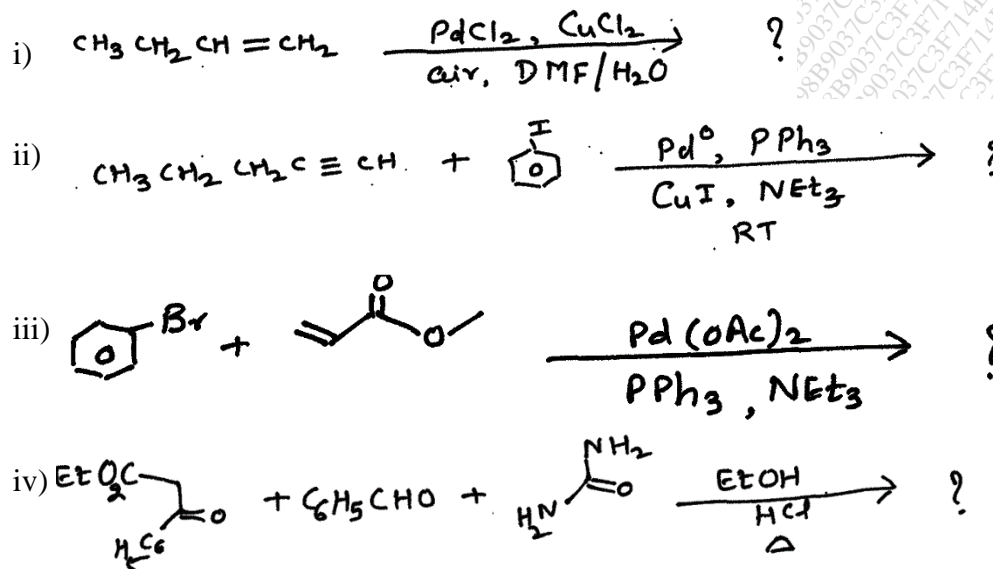
[Time: 2½ Hours]

[Marks: 60]

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

1. a) Give the product, name and mechanism of the following reactions:
(Attempt any two)

08



- b) Attempt any one of the following:

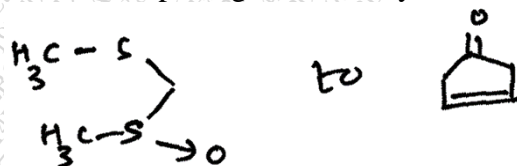
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- i) Explain Domino cascade reaction with a suitable example.
ii) Give the mechanism and one application of Suzuki coupling reaction.

2. a) Attempt any two of the following:

08

- i) Give equations for the protection and deprotection of
A) $-\text{NH}_2$ as carbobenzyloxy (Cbz) group
B) $-\text{OH}$ as tetrahydropyranyl (THP) group
ii) What is Umpolung? How will you convert



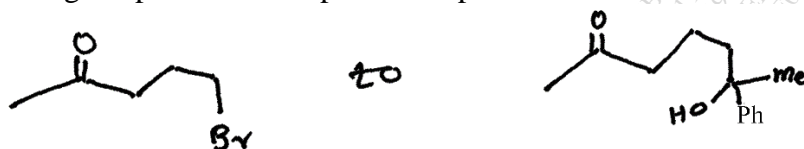
- iii) Discuss the generation of acyl anion equivalent via cyanide ions with suitable examples.

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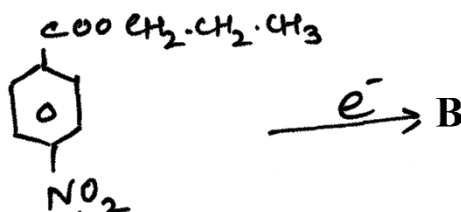
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iv) Using the protection / deprotection protocol convert

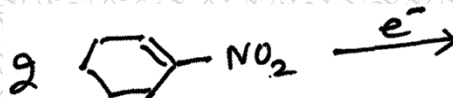
b) Attempt any **one** of the following:

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i) Give the products A & B and explain the mechanism of the following reactions.

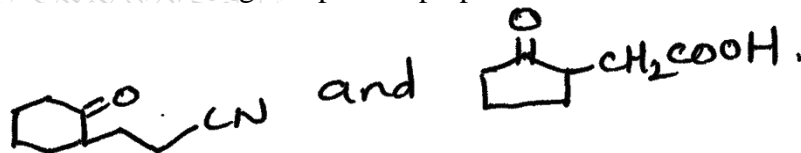


ii) Give the Product and mechanism of the following reaction.

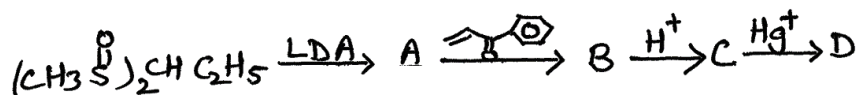
3. a) Attempt any **two** of the following:-

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- Give synthesis of 2-methylbut-1-ene using phosphorus ylide. Explain the mechanism involved and name the reaction.
- Write a note on Barton-Kellogg olefination.
- How are the following compounds prepared via enamine?



iv) Complete the following reaction sequence identifying A, B, C and D.



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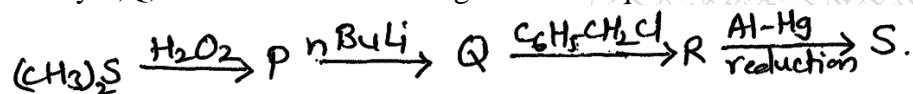
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b) Attempt **any one** of the following:

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i) Identify P,Q,R and S in the following reaction sequence.

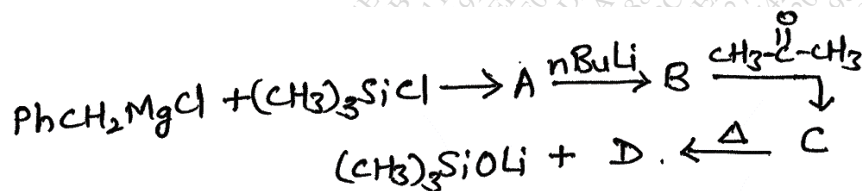


ii) Discuss with mechanism Steven's rearrangement.

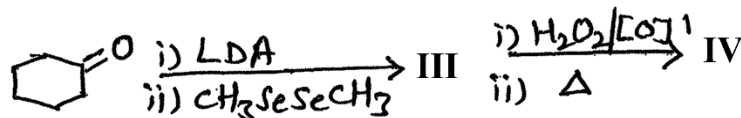
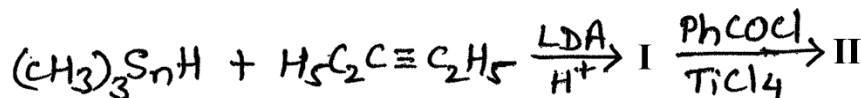
4. a) Attempt **any two** of the following:

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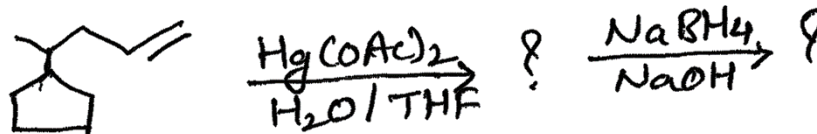
i) Complete the following reaction sequence giving structures for A, B, C and D.



ii) Predict the products I, II, III & IV :



iii) Give the products and explain the mechanism & stereochemistry involved in the following:

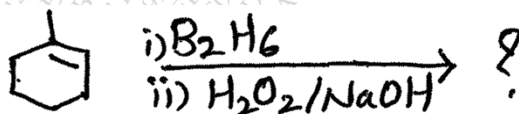


iv) Illustrate four example for silylenol ethers as enolate precursor.

b) Attempt **any one** of the following:-

04

i) Predict the product and explain the mechanism and stereochemistry of the reaction.

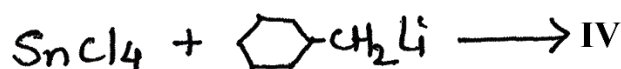
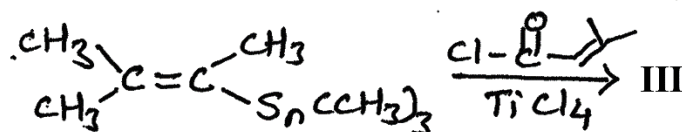
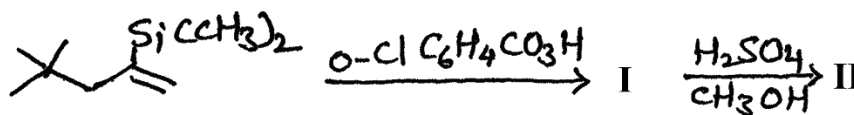


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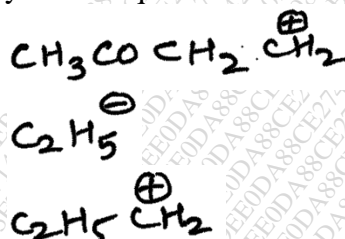
- ii) Complete the following reactions and identify I, II, III & IV.



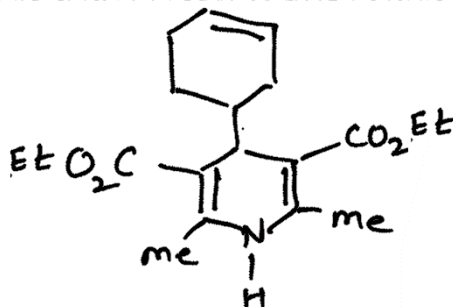
5. Attempt **any four** of the following:

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- Explain Ugi-4-component synthesis with a suitable example.
- Discuss any two basic parameters required for electrochemical synthesis.
- Write synthetic equivalents for the following :



- Using Hantzsch dihydropyridine synthesis, how will you prepare.



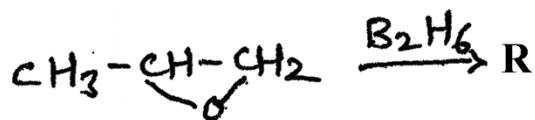
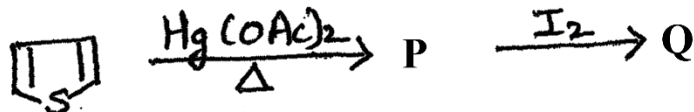
- Give structures of phosphorus ylide and nitrogen ylide. Explain - phosphorous ylides are more stable than nitrogen ylides.
- Explain with mechanism the formation of enamine from 3-hexyne and dimethyl amine.

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- g) Predict the products in the following reactions and identify P, Q and R :



- h) Identify A, B and C in the following.

