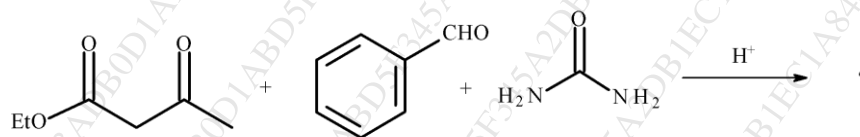


Time: 2.30 Hrs

Marks: 60

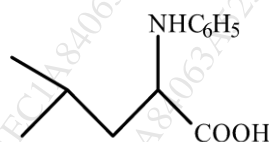
1. A. Attempt **any two** of the following: 8

i) Complete the following reaction



Name the reaction and explain its mechanism.

ii) Which multicomponent reaction can be used for the synthesis of the following compound?



Name the reaction and write a complete mechanism for it.

iii) Primary or secondary alcohols on treatment with carboxylic acid in the presence of diethylazodicarboxylate and triphenyl phosphine are converted to esters. Write one example of this reaction, its name and the mechanism.

iv) What are the components of the Darzen's glycidic ester condensation? Write a suitable example of this reaction and explain its mechanism.

B. Attempt **any one** of the following: 4

i) Give one example each of the following

Ritter reaction

Yamaguchi reaction

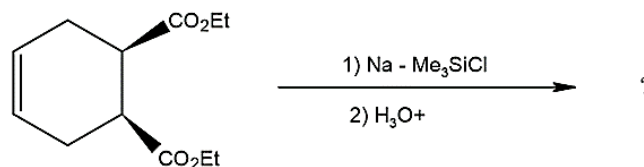
Mukaiyama reaction

Hantzsch synthesis

ii) What are domino reactions? Give an example of a domino reaction and explain their characteristics.

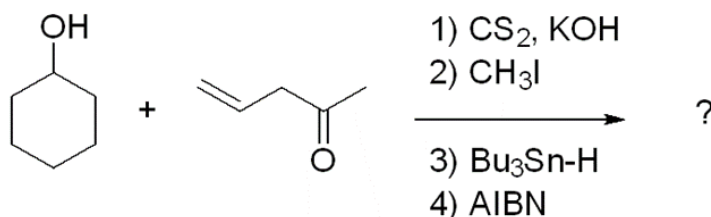
2. A. Attempt **any two** of the following: 8

i) Give the product and mechanism of the following reaction.



ii) Discuss with example, intramolecular C-C bond formation using thiol donors.

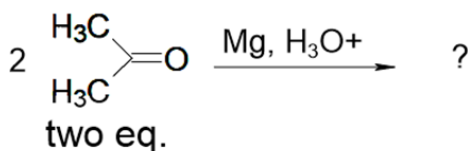
iii) Predict the product and suggest the mechanism.



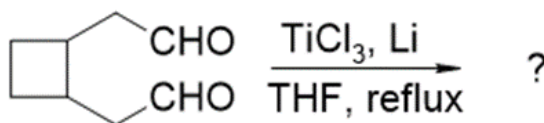
iv) Explain persistent radical with its stability and radical initiator with suitable examples.

B Attempt **any one** of the following: **4**

i) Predict the product, name and suggest the mechanism



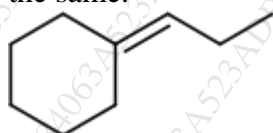
ii) Predict the product, name the reaction and suggest the mechanism.



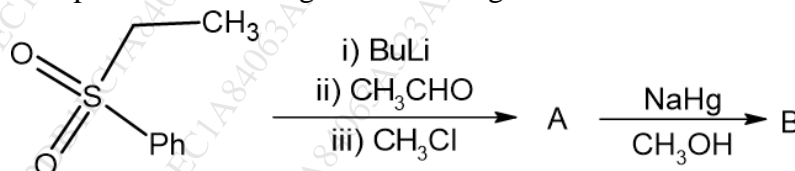
3. A Attempt **any two** of the following: **8**

i) Explain with mechanism, formation of enamine by condensation of secondary amine and carbonyl compound. Give two examples.

ii) Using phosphorous ylide, suggest synthesis of the following compound. Name the reaction involved and provide a mechanism for the same.



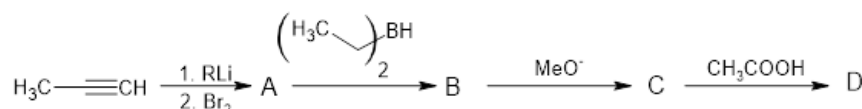
iii) Complete the following reaction and give its name and mechanism



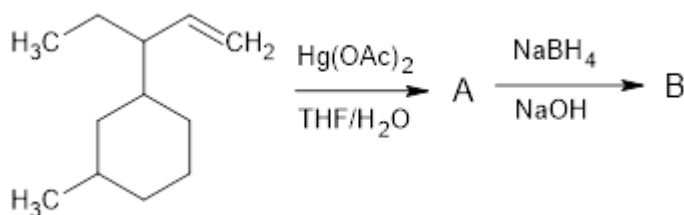
iv) Explain the generation of carbanions in nitro compounds and phosphonates and give one application of each in C-C bond formation.

- B** Attempt **any one** of the following: **4**
- Write note on Bamford -Stevens reaction.
 - Explain the structures and relative stabilities of phosphorus ylides, sulphur ylides and nitrogen ylides.

- 4. A** Attempt **any two** of the following: **8**
- Trialkylborane when reacted with NaCN in presence of $(CF_3CO)_2O$ at low temperature gives ketone while in excess of $(CF_3CO)_2O$, H_2O_2/OH^- and higher temperature gives tertiary alcohol. Explain with a suitable example.
 - Identify A, B, C and D in the following reaction.



- Complete the following reaction and predict its name and mechanism.

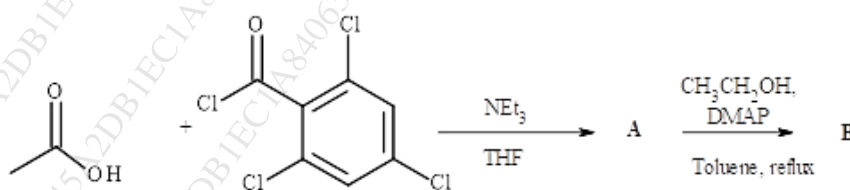


- Write a note on use of silyl enol ethers as precursors of enolates and give suitable examples.

- B** Attempt **any one** of the following: **4**
- Discuss salient features of silicon governing reactivity of organosilicons and give applications of allylsilanes in organic synthesis.
 - Give the mechanism of the following conversion via selenoxide.



- 5.** Answer **any four** of the following: **12**
- Complete the following reaction by drawing suitable structures for A and B.

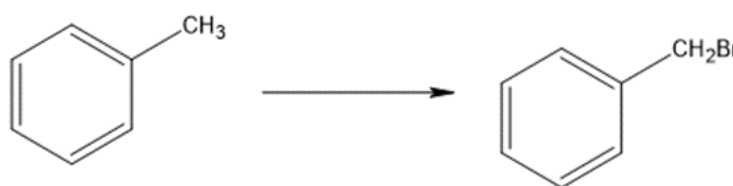


What is the name of this reaction?

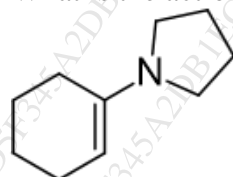
- (b) Discuss the mechanism of the Ugi 4-component reaction.
 (c) Write the reagent and byproduct and name of the following reaction.



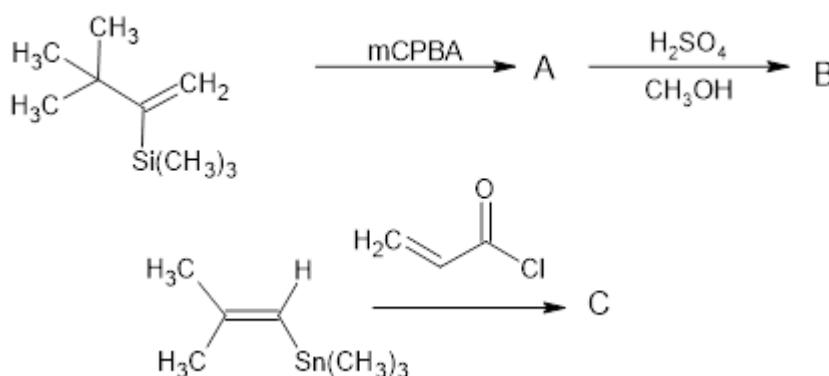
- (d) Write the reagent and name the reaction.



- (e) What is the action of following reagents on



- i) CH_3Br
 ii) CH_3COCl
 iii) $CH_2=CH-CH_2Cl$
 (f) Give three applications of S-yield in organic synthesis.
 (g) Identify A, B and C in the following reaction.



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

