



III Semester M.Sc. Degree Examination, January 2017
(2010 – 11 onwards Scheme) (NS)
CHEMISTRY
C302-OC : Organic Synthesis – I

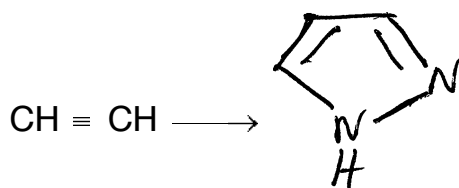
Time : 3 Hours

Max. Marks : 80

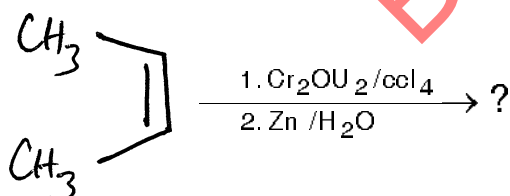
Instruction : Answer question 1 and any five of the remaining.

1. Answer **any ten** of the following. (10×2=20)

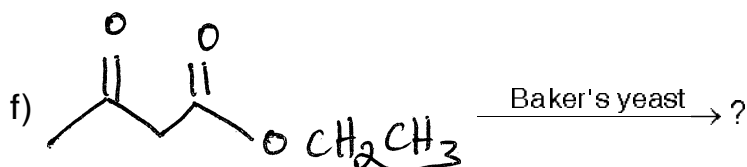
- a) Outline the mechanism of Japp-Klingsmann reaction.
- b) Suggest a suitable reagent for the following transformation and propose a mechanism of its formation :



- c) Formulate the product and propose a suitable mechanism.

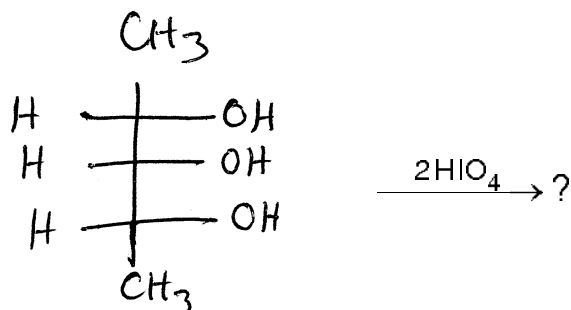


- d) Explain acid catalysed condensation of olefins.
- e) Illustrate ugi reaction with a suitable example.

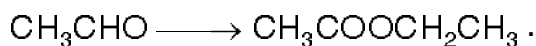




g) Complete the following reaction and identify all the products.

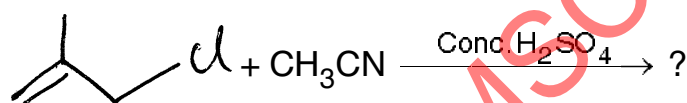


h) How is the following conversion effected ? Propose a mechanism.

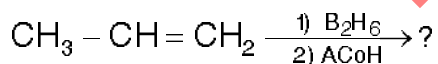


i) Explain the synthetic utility of DDQ.

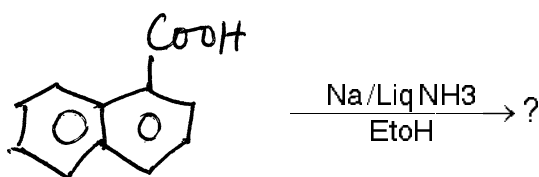
j) Predict the product and explain the mechanism



k) Identify the product and propose a mechanism



l) Predict the product of the following reaction and outline its mechanism



2. Describe mechanism and applications of the following in functional group transformations

a) Trimethyl sulfenonium iodide

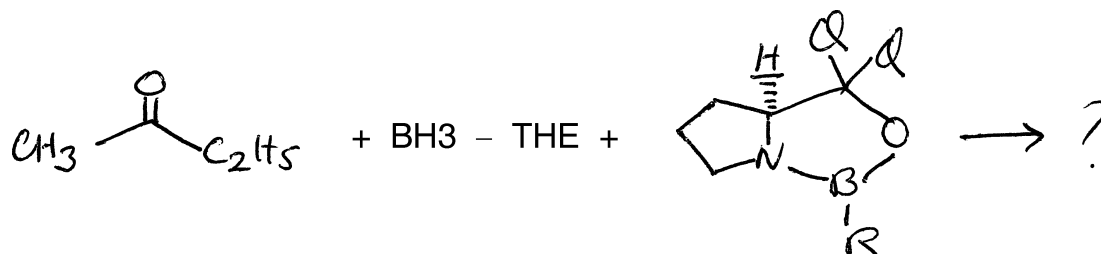
b) 1,3 – Dithiane

c) TMS – Chloride.

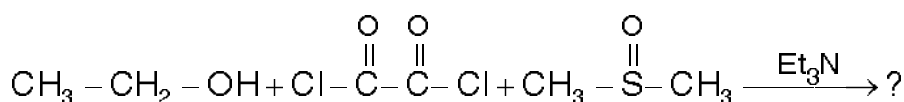
(4+4+4=12)



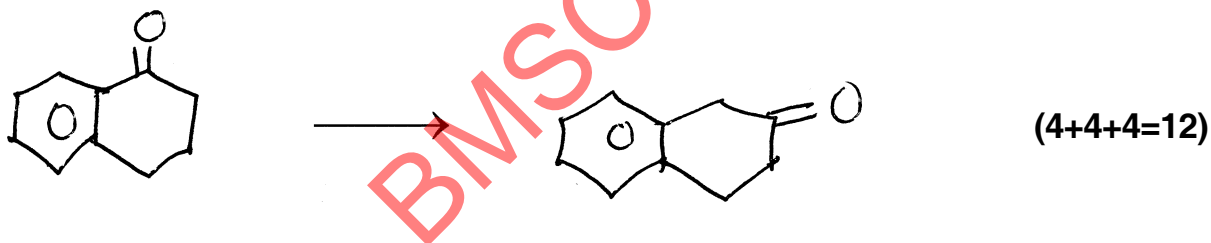
3. a) Identify the product with a proper mechanism.



b) Recognise the products and propose a mechanism



c) How do you achieve the following conversion? Sketch reaction sequence.



4. Outline the mechanism and applications of the following in organic synthesis

- a) Hantzsch reaction
- b) Betti reaction
- c) Bischler – Napieralski reaction. (4+4+4=12)

5. a) Write a note on :

- i) Darzen's reaction
- ii) Meyer synthesis.

b) Using Robinson annulation formulate a strategy for the synthesis of the following :



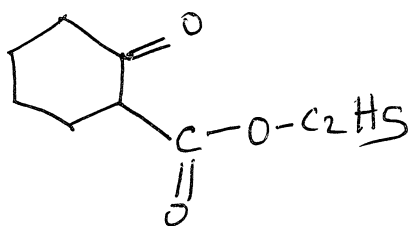


6. a) Write a note on :

- i) N-Nitroaromatic amine rearrangement
- ii) Mitsunobu reaction.

b) Suggest suitable reactants and reagents for the synthesis of following compound by Dieckmann cyclisation.

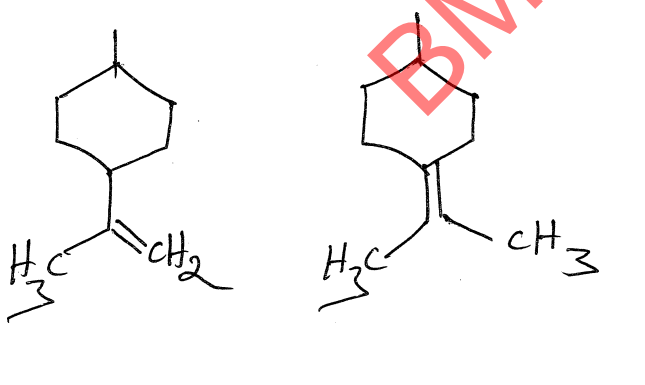
(8+4=12)



7. a) Write a note on the following :

- i) Dess-Martin oxidation
- ii) Differences between Woodward and Prevost hydroxylations.

b) Explain how ozonolysis is useful in distinguishing the following compounds.



(8+4=12)