



IV Semester M.Sc. Examination, June 2017
(Semester Scheme) (NS 2010 – 11 Scheme) (Repeaters)
CHEMISTRY
C – 403 – OC Organic Synthesis – II

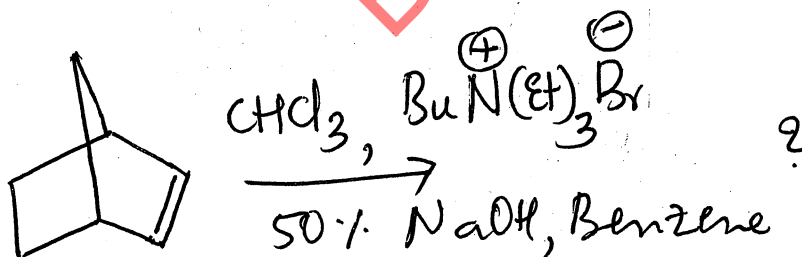
Time : 3 Hours

Max. Marks : 80

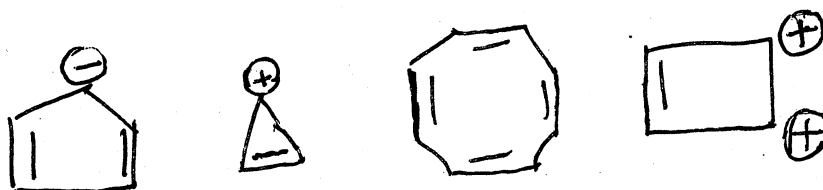
Instruction: Answer Question No. 1 and **any five** of the remaining questions.

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

- What are ionic liquids ? Give the synthesis of any two ionic liquids.
- What is enantiomeric excess ? Give any one method of determination of "ee".
- Give the synthesis of parathion.
- Propose a synthesis of [15] – crown – 5.
- Identify the major product formed in the following react.

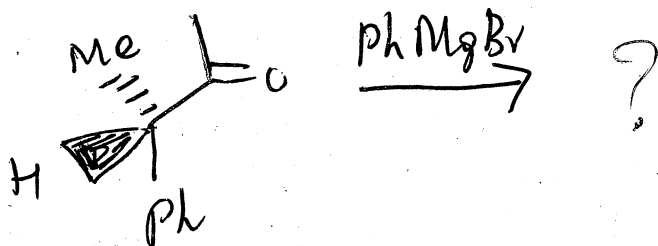


- With a suitable reason, explain the importance of polymer-supported AlCl_3 catalysis in acetal formation reactions.
- Which of the following is not aromatic and why ?

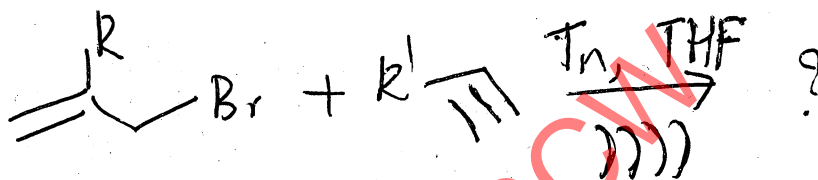




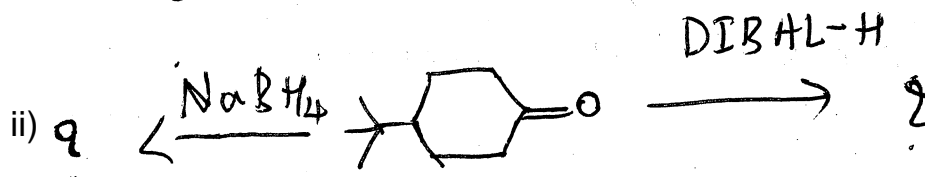
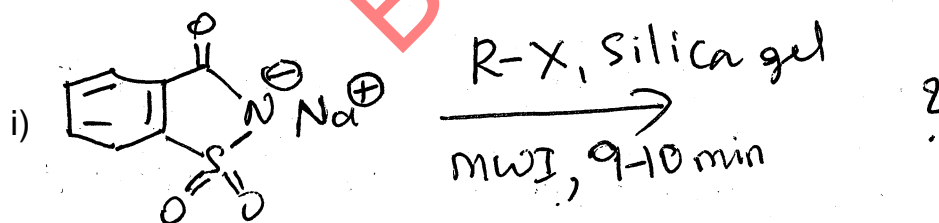
- h) Explain the dipole moment in azulene.
- i) Give the mechanism for a substitution reaction that is catalyzed by a phase-transfer catalyst.
- j) What is dia stereo selectivity ? Explain with an example.
- k) Predict the major product for the following



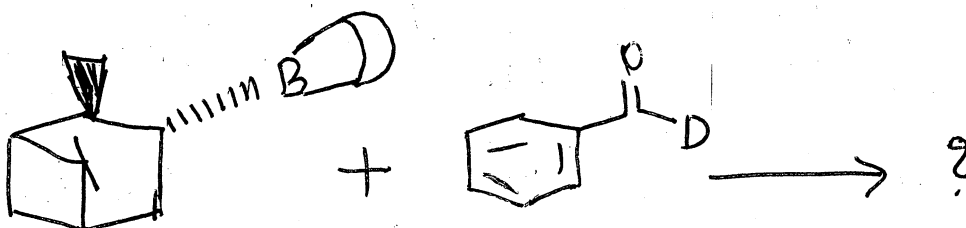
- l) Predict the product for the following.



2. a) Explain the term “% atom utilization” considering suitable example.
- b) Predict the major product for the following :

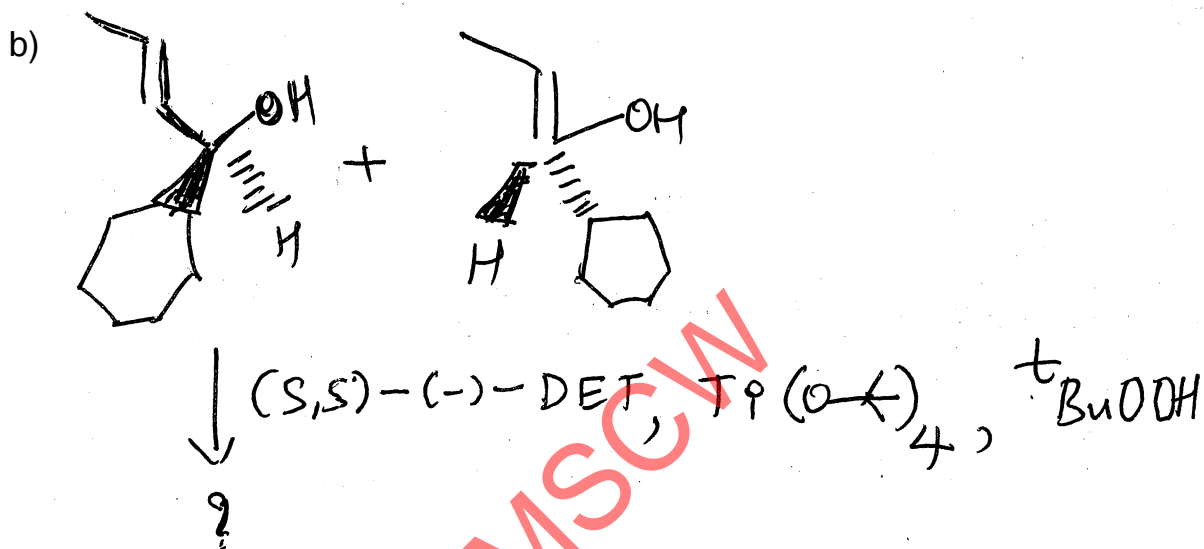


- c) Give the synthesis of IPC–BNN. Predict the major product and propose a mechanism for : (4+4+4=12)



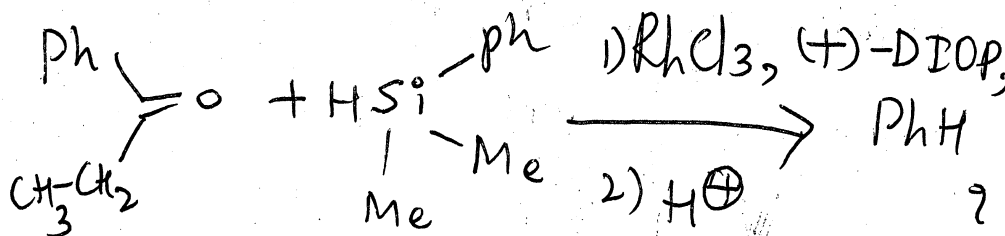


3. a) What is acoustic cavitation ? Give the mechanism of cavitation near the surface of the solid in liquid phase reactions and predict the product for the following reaction



The above reaction is enantio selective. Draw the structure of the product and propose a mechanism.

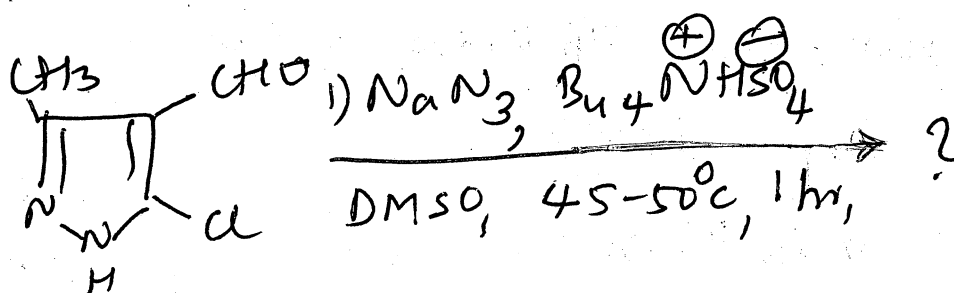
- c) Predict the product and out line the mechanism. (4+4+4=12)



4. a) Outline the preparation of 1,6 – methano [10] – annulene using naphthalene .
b) Give the synthesis of phenanthrene via Burdhan-Sen Gupta method.
c) Using 4– methyl–Chloro benzene as a starting material, outline the synthesis of 20– methyl– cholanthrene. (4+4+4=12)



5. a) Explain the method for the degradation peptides via “solid state Edman degradation process”.
- b) Give the preparation of polymer-supported polystyryl boronic acid and its use in diol protection.
- c) i) Predict the products for the following reactions.



- ii) Write the structures of IPC-BBN and S-BINAL-H. (4+4+4=12)
6. a) Outline the method for the preparation of [2, 2, 2] cryptand crown-ether.
- b) Write a short note on the following :
- cation deactivation using crown ether.
 - applications of S, S- CHIRAPHOS in asymmetric synthesis.
- c) How is R- BINAL-H synthesized ? Illustrate its use in the stereoselective synthesis of alcohols. (4+4+4 =12)
7. a) Give the synthesis of the following :
- heptachlor
 - Malathion.
- b) Write a short-note on the following in the control of pests and insects.
- Juvenile hormone
 - Nematicides.
- c) i) Explain Olefin metathesis reactions using ion liquids as a solvent.
- ii) Describe the synthesis of DDT- and explain its applications. (4+4+4 =12)
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