



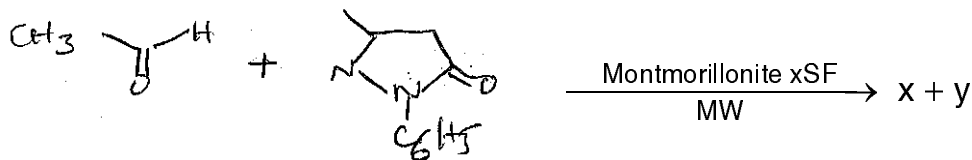
I Semester M.Sc. Examination, January 2017
(CBCS) (Semester Scheme)
CHEMISTRY
C 105 : Green Synthesis (Soft Core)

Time : 3 Hours

Max. Marks : 70

Instructions: Answer question no. 1 and **any five** of the remaining questions.

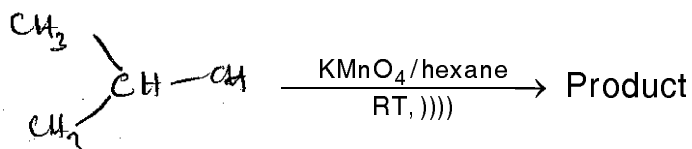
1. Answer **any ten** of the following : (10×2=20)
- What are ionic liquids ? Give an example for an acidic ionic liquid.
 - What is atom efficiency ? Explain with an example.
 - Draw the structure of [18] – Crown – [6]. Give its applications.
 - What are multicomponent reactions ? Explain with an example.
 - Explain sonochemical esterification reaction with suitable example.
 - Mention the advantages of polymer supported reagents in organic synthesis.
 - List out the limitations of phase transfer catalysts used in organic synthesis.
 - Mention the advantages and disadvantages of multicomponent reactions.
 - How is superoxide anion generated ? Explain with an example.
 - Explain the phenomenon of acoustic cavitation on sonication.
 - What are the properties of a supporting polymer required to attach a reagent ?
 - What are the components of Biginelli reaction for the synthesis of pyrimidine ?
2. a) With the help of mechanism, predict the products in the following reaction.



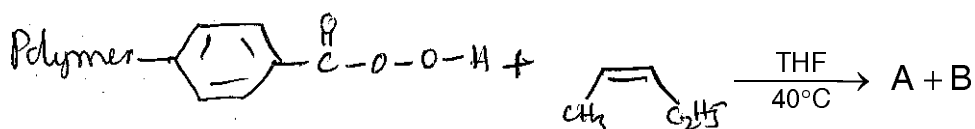
- Mention the advantages and limitations of microwave synthesis.
- Discuss with an example, microwave assisted addition reaction. (4+3+3=10)



3. a) With suitable mechanism, predict the product in the following reaction.



- b) Discuss the synthesis of polystyryl boronic acid and mention its action in diol protection reaction. **(5+5=10)**
4. a) Discuss the classification of ionic liquids giving suitable examples for each.
 b) With suitable example, illustrate the separation of metal ions using crown ethers based on the size and nature of donor site.
 c) Explain the generation of carbenes and their application in organic synthesis. **(3+4+3=10)**
5. a) Illustrate the mechanism of Passerini – Ugi reaction giving an appropriate example.
 b) Explain the oxidation of cyclohexane with H_2O_2 under PTC conditions.
 c) What is meant by cation deactivation? Explain with a suitable example. **(3+4+3=10)**
6. a) How are multicomponent reactions considered to be green reactions? Explain with suitable examples.
 b) Sketch the mechanism of sulfonazide polymer catalysed diazo transfer reaction.
 c) Give an account of types of phase transfer catalysts. **(3+4+3=10)**
7. a) Predict the product in the following reaction with suitable mechanism.



- b) Give any two methods of synthesis of crown ethers. **(5+5=10)**
8. a) Sketch the mechanism of Hantzsch reaction.
 b) Write a note on the following with respect to polymer supported synthesis.
 i) Choice of solvent
 ii) Polymer supported reagent. **(4+6=10)**