60787

Reg. No. | | | | | | | | |

IV Semester M.Sc. Degree Examination, September/October - 2022

CHEMISTRY

Organometallic and heterocyclic Chemistry

Paper : C - 401- OC

(CBCS Scheme 2014-2015) (Repeaters)

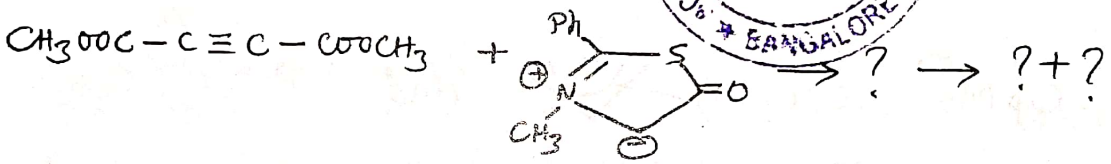
Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates:

Answer question No. **1** and any **five** of the remaining.

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

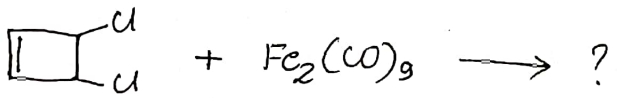
a. Identify the product of the reaction :



b. Explain Green rules.

c. Give any two reactions of azetidine.

d. Write the product formed and account for its stability in the following reaction :



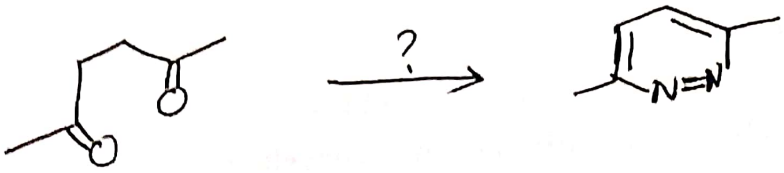
e. Discuss Felkin reaction with proper example.

f. What is hydrocyanation? Propose an example.

g. Define type - B mesoionic compounds with suitable examples.

[P.T.O.

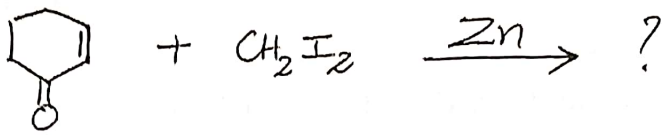
h. Propose suitable reagents and write mechanism for the following transformation:



i. Mention any two methods for the synthesis of organolithium compounds.

j. What is Heck reaction? Suggest a plausible mechanism.

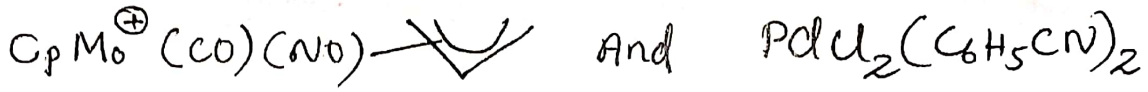
5. k. Predict the product and propose a mechanism of the following reaction :



l. Suggest any two methods for preparation of organo - cerium compounds.

2. a. Write any one method of complexation and decomplexation of η^3 and η^4 complexes.

b. Compute the EAN value for the below given organometallic complexes :



c. Discuss solvomercuatation and demercuration reactions. **(4+3+3=10)**

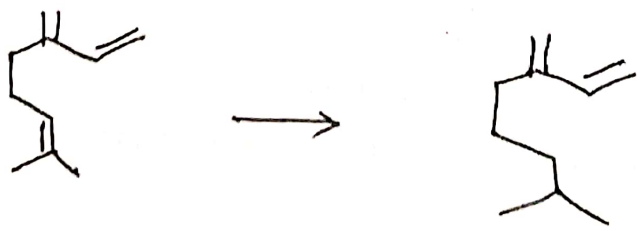
3. Write note on :

a. azepines.

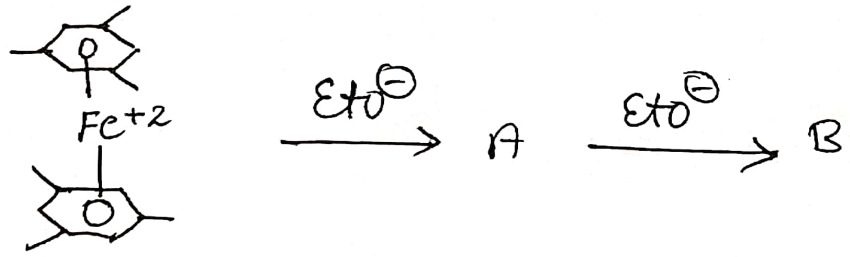
b. diazines.

c. benzoxazoles. **(4+3+3=10)**

4. a. Predict the reagents and write steps involved in the following transformation :



b. Judge the products of the below given reaction :



c. Illustrate Wacker process with suitable example. **(4+3+3=10)**

5. Write note on :
   a. Sydnone.
   b. Thirane.
   c. Organotin compounds. **(4+3+3=10)**

6. a. What is Reformatsky reaction? Give an example.
   b. Describe Barton decarboxylation reaction.
   c. Propose any two methods for the synthesis of triazines. **(4+3+3=10)**

7. Giv a brief note on
   a. Phosphole.
   b. Organo aluminium compounds.
   c. Peterson reaction. **(4+3+3=10)**

8. a. Formulate carbonylation reaction with zirconium compounds.
   b. Discuss Gilmann reagents and its applications.
   c. Propose any two methods for the synthesis of triazines. **(4+3+3=10)**