



**MANIPAL COLLEGE
OF PHARMACEUTICAL SCIENCES**

MANIPAL

A constituent institution of Manipal University

MPharm – Pharmaceutical Chemistry

MPharm First Semester- End-Semester Make-up Examination-2023

PCH-MPC102T Advanced Organic Chemistry-I

Date: 18.01.2023

Duration: - 10:00 am to 01:00 pm

Max. Marks: 75

SET NO.: 1

Instructions: Answer ALL questions.

Answer the following

5 Q × 10 marks = 50 marks

Questions

1. a) Differentiate with an example the Suzuki and Heck reaction. Explain Migratory insertion step of Heck reaction mechanism. **6 marks**
b) What is IMCR reaction? Give an example & mention its advantages. **4 marks**
2. Explain the retro synthesis and forward synthesis of Clotrimazole
3. What are aza - indolizines? Write the structures of various aza – indolizines and thiazines.
4. Explain the applications, properties and safety conditions in handling Lawesson's reagent, Lithium aluminium hydride and Boron tribromide.
5. What are reactive intermediates.? Explain the methods of generation, reactions, stability and synthetic applications of carbanions.

Answer the following

5 Q × 5 marks = 25 marks

Questions

- 6A. Write the method of synthesis and reactions of benzo pyrones.
- 6B. Give any one method of synthesis of pyridine. Why only the third position of pyridine is favourable for EAS reaction?
- 6C. Define the following named reactions with an example:
a) Wolff-Kishner reduction b) Michael addition reaction
- 6D. What are protecting groups? Give its application. Explain in detail about protection for carboxyl groups.
- 6E. Draw structures for the following IUPAC names.
a) 2H-1,2-benzoxazine b) thieno[3,4-b]furan
c) furo[3,2-d]pyrimidine d) 4H-[1,3]thiazino[3,4-a]azepine
e) imidazo[2,1-b]oxazole