

Question Paper

Exam Date & Time: 02-May-2024 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

~~IV Year Pharm D / Pharm D Post Baccalaureate~~

University Examination April 2023

Pharmaceutical Organic Chemistry [PCH 1.4T-S1]

Marks: 70

Duration: 180 mins.

A: Long Answer Questions

Answer all the questions.

Draw diagrams wherever necessary

- 1) Explain Anti-Markovnikov addition with an example. (4)
 - a)
 - b) Explain the mechanism of dehydration of alcohols to alkenes. (6)
- 2) Explain the mechanism for free radical substitution reaction. (4)
 - a)
 - b) Explain the structural isomerism in detail with examples. (6)
- 3) a) Discuss the chlorination of aniline via Electrophilic Aromatic Substitution, including its mechanism. Predict the major products and provide justification for your answer. 08 marks (10)

b) Give an example for Michael addition reaction. 02 marks

B: Short Answer Questions

Answer all the questions.

- 4) Give the preparation, assay and uses of dimercaprol. (5)
- 5) Discuss with an example the mechanism and any three evidences for S_N1 reactions. (5)
- 6) Define with an example and an equation of the following: (5)
 - a) Hofmann rearrangement
 - b) Kolbe-Schmitt reaction
- 7) a. Why the aldehyde and ketones are reactive for nucleophilic addition reaction? (5)
b. What is the addition product when a Grignard reagent reacts with formaldehyde?
- 8) Give the preparation and uses of Methyl salicylate and Chlorbutol. (5)
- 9) What are oxidation reactions? Explain with any two examples. (5)

C. Give Reasons for the Following

Answer all the questions.

- 10) Methyl chloride is an ideal substrate whereas the tertiary butyl bromide is the worst choice for S_N2 reactions. (2)
- 11) Potassium permanganate is used for testing unsaturation in organic compounds. (2)
- 12) Benzene is more stable, whereas benzyne is not stable as a reactive intermediate (2)
- 13) A primary amine is a strongly activating, whereas a quaternary amine is a deactivating group towards electrophilic aromatic substitution reactions. (2)
- 14) Dehydration of alcohols by $POCl_3$ is more advantageous than by concentrated H_2SO_4 . (2)

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