PAPER ID-311948

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BPHARM

(SEM IV) THEORY EXAMINATION 2024-25

PHARMACEUTICAL ORGANIC CHEMISTRY III – THEORY

TIME: 3 HRS **M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a.	What is the difference between diastereomers and enantiomers?
b.	Explain the structural features that define a meso compound.
c.	What is the difference between cis and trans isomerism?
d.	What is conformational isomerism in ethane?
e.	How does the presence of sulfur in thiophene affect its reactivity?
f.	What are the common uses of Oxazole?
g.	How is Acridine used in the synthesis of dyes?
h.	How is Quinoline synthesized?
i.	Why is pyridine less basic than alkylamines?
j.	How is a racemic mixture different from a pure enantiomer?

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a.	What is the DL system of nomenclature in stereochemistry, and how is it applied to optical isomers?
b.	Explain the reactivity of pyrrole towards electrophilic substitution reactions. What factors influence the regioselectivity of these reactions?
c.	Explain the concept of atropisomerism in biphenyl compounds. How does it differ from other types of stereoisomerism?

SECTION C

3. Attempt any *five* parts of the following: **7 x 5 = 35**

a.	Explain the role of chirality in optical isomerism and why chiral compounds exhibit optical activity.
b.	What is the Cahn-Ingold-Prelog priority rules, and how is it applied to determine the configuration of isomers?
c.	How can pyrazole be synthesized using 1,3-dipolar cycloaddition reactions, and what are the advantages of this method?
d.	What are the common synthetic methods for preparing furan and its derivatives? Provide a detailed reaction mechanism for one of the methods.
e.	What is a racemic mixture, and how does it differ from an optically active compound?
f.	Define the concept of symmetry in the context of molecular and crystallography studies. How do symmetry operations play a role in understanding molecular structure?
g.	How do the reactivity patterns of chiral molecules differ from those of their achiral counterparts in stereoselective reactions?