APRIL - 1993

[RS 537]

SECOND B.Pharm. DEGREE EXAMINATION.

(Old Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 100 marks

Answer SIX questions.

Question No.1 and 5 are compulsory.

Give chemical equations wherever necessary.

1. (a) Give a general classification of Heterocyclic compounds with examples, add a note on their nomenclature.

(b) Explain the synthesis of quinoline and main reaction.

(c) Name the compounds of quinoline of medical importance and uses. (8 + 6 + 4)

2. (a) Discuss the synthesis and chemistry of Anthracene, with important reactions.

(b) Give the names and structures of medicinally important compounds of Anthracene. (12 + 4)

3. (a) Discuss the stereochemistry of (i) Diphenyl molecule and (ii) Nitrogen compounds.

(b) Write a brief account of Hybridization of orbitals. (10 + 6)

4. Write short notes on :

(a) Optical isomerism and optical activity.

(b) Geometrical isomerism.

(c) Steric hindrance in organic compounds.

(d) Confirmational analysis. (4 x 4 = 16)

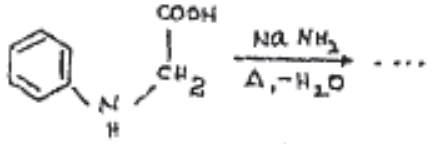
5. (a) What is inversion of configuration? Explain with examples using Walden Inversion reaction.

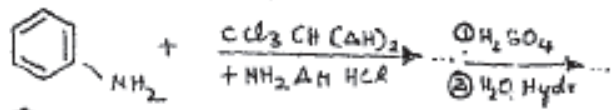
(b) How is resolution of recemic mixtures achieved?

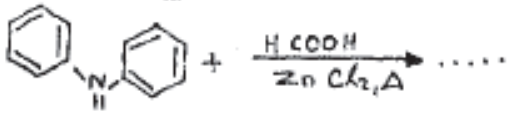
(c) What is asymmetric synthesis? Give example.

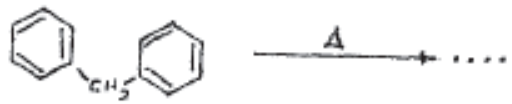
(6 x 3 = 18)

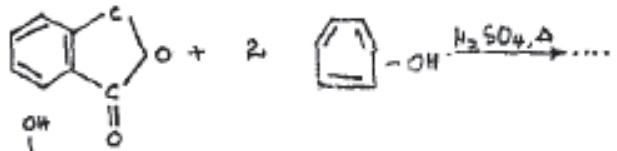
6. Explain the reactions, conditions and name the products in the following cases : (2 x 8 = 16)

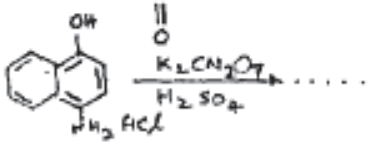
(a) 

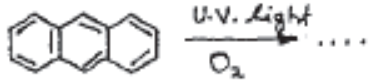
(b) 

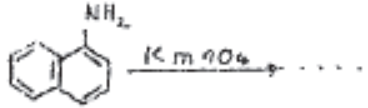
(c) 

(d) 

(e) 

(f) 

(g) 

(h) 

7. (a) What is Keto-enol interconversion? How does it differ from resonance structures?

(b) Why Mesotartaric acid does not show optical activity? How does it differ from dil. tartaric acid?

(c) What is Diels Alder Reaction? Explain its mechanism with example. (4 + 6 + 6)

8. (a) Give all possible isomers of the following compounds :

(i) CH_3--CH(OH)COOH.

(ii)
CHOH COOH
|
CHOH COOH

(iii)
CH–COOH
‖
CH–COOH

(b) Discuss the stereochemistry of cyclohexane derivatives. (8 x 2 = 16)

APRIL - 1993

[RS 542]

SECOND B.Pharm. DEGREE EXAMINATION.

(New Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours — Maximum : 90 marks

Two and a half hours for Sections A and B — Sections A and B : 60 marks.

Answer Sections A and B in separate answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. What do you understand by the term chirality? Explain with suitable examples. What are the factors that make a molecule dissymmetric? Give one method for asymmetric synthesis.

2. Outline two methods each for the synthesis of the following :
   (a) Indole
   (b) Imidazole
   (c) Isoquinoline.

3. What type of compounds exhibit geometric isomerism? Explain how the configuration of geometric isomers can be established in the case of oximes, with suitable examples.

4. What is resolution? Give different methods that are employed with suitable examples. Write a note on Walden inversion.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Give three reactions for the following :
   (a) Thiophen
   (b) Acridine
   (c) Pyridine.

6. Explain and compare the aromaticity of the following :
   (a) Pyridine
   (b) Pyrimidine
   (c) Pyrrole.

7. Discuss in brief the conformational isomers arising out of cyclic compounds.

8. Explain the following terms with suitable examples :
   (a) Absolute configuration.
   (b) R & S forms.
   (c) Epimers.

9. Give the preparation and reactions of
   (a) Triphenyl methane.
   (b) Phenothiazine
   (c) Thiazole.

10. Write a note on stereochemistry of biphenyls.

11. Write down the Fisher projection formula for lactic acid. Indicate the different isomers of tartaric acid by drawing structures. What is a diastereomer? Define and explain.

12. Describe the various conformational isomers of n-butane and with energy diagram and Newman's projection formula explain their stabilities.

13. Give the synthesis of phenanthrese. Give examples of medicinally useful compounds belonging to this group.