APRIL - 2001

[KD 707] **Sub. Code : 4182**

SECOND B.Pharmacy DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours — Maximum : 90 marks
Two and a half hours for Sec. A & Sec. B — Sec. A & Sec. B : 60 marks
Section C : 30 marks

Answer Sections A and B in the same Answer Book.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. (a) Explain the modern theory of double bonds.

(b) Explain the sequence rules relating the R and S configuration.

(c) Draw and specify as R or S the enantiomers if any of

(i) 3–bromohexane

(ii) 3–chloro–3 methylpentane

(iii) 1,2–dibromo–2 methylbutane.

2. Write the synthesis and chemical reactions of (i) phenanthrene (ii) diphenylmethane (iii) naphthalene. Give the structure and uses of one medicinally important compound for each of the above series.

3. Explain the stereochemistry of Biphenyl compounds and Amines.

4. (a) What are racemic modifications? Explain the techniques used for resolution of racemic forms.

(b) Explain the conformation of Decalins.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Explain the conformation of cyclohexane.

6. Give the important reactions and synthesis of pyridine.

7. Give the structure and uses of

(a) Phenergan

(b) Sulphathiazole

(c) Tolazoline

(d) Phenytoin

(e) Nikethamide.

8. Give the nomenclature and synthesis of Indole and isoquinoline.

9. Explain the hybridisation of Orbitals.

10. Explain Beckmann rearrangement and Schmidt rearrangement.

11. Explain the reduction of carbonyl compounds using different reagents.

12. Explain the terms (a) Chiral (b) Enantiomers (c) Diastereomers (d) Optical isomers (e) Epimerisation.

13. Explain Walden Inversion with a suitable example.

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NOVEMBER - 2001

[KE 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours — Maximum : 90 marks

Two and a half hours — Sec. A & Sec. B : 60 marks

for Sec. A and Sec. B — Section C : 30 marks

Answer Sections A and B in same Answer Book.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Outline the preparation and chemical reactions of diphenyl methane and triphenyl methane. Illustrate with suitable examples their medicinal importance.

2. (a) Give an account of the theoretical basis of optical and geometrical isomerism giving suitable examples.

(b) Describe the various methods available for the resolution of racemic mixtures.

3. Discuss the following reactions with special reference to their mechanism and synthetic applications :

(a) Birch reduction

(b) Schmidt rearrangement

(c) Meerwin–Pondorff reduction.

4. Describe the preparation and important reactions of (a) Pyrimidine and (b) Quinoline. Write a note on their medicinal importance giving examples.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Describe the Haworttis synthesis of naphthalene.

6. Discuss giving the relevant structures the important chemical reactions of anthracene.

7. Explain the *R* and *S* system of designating the configurations around a chiral centre giving suitable examples.

8. Write a note on the optical activity of biphenyls clearly stating the necessary and sufficient conditions for such molecules to exhibit enantomerism.

9. Discuss the mechanism and significance of Beckmann rearrangement.

10. Explain why electrophilic substitution in furan occurs preferentially at the alpha position.

11. Discuss the basicity of pyridine in comparision to aliphatic and aromatic amines.

12. Give the structure and medicinal uses of isoniazid, Diethyl carbamazine, sulphathizole, mepacrine and nikethamide.

13. How is thiophene synthesised? Account for its aromatic character.

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[KG 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Two and a half hours Sec. A & Sec. B : 60 marks

for Sec. A & Sec. B. Section C : 30 marks

Answer Section A and Section B in same answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. (a) Outline the preparation of Anthracene.

(b) Write the name and structure of the compounds formed when anthracene is

(i) subjected to Diel's–Alder reaction

(ii) subjected to Friedal crafts acylation.

(c) Give the synthesis of phenanthrene and mention the medicinal importance. (4 + 6 + 5 = 15)

2. (a) Explain what happens when the following occur. Also give the relevant equation.

(i) Indole is treated with acetyl chloride in the presence of $SnCl_4$.

(ii) Thiophene is treated with a solution of nitric acid and acetic anhydride.

(iii) Furan is reduced by hydrogen in presence of nickel.

(iv) Pyrrole reacts with chloroform in the presence of alkali.

(v) Pyridine reacts with sodamide in liquid ammonia at 100°C

(b) Comment on the following structures :

(i) Thiophene behaves like an aromatic compound

(ii) Pyridine is more basic than pyrrole.

(10 + 5 = 15)

3. Write notes on : (4 + 4 + 4 + 3 = 15)

(a) Configuration of biphenyl compound

(b) Elements of symmetry

(c) Conformational analysis

(d) Optical activity.

4. (a) What are heterocyclic compounds? Give a brief account of Indole synthesis by various routes.

(b) Write the important reaction of pyridine.

(10 + 5 = 15)

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Give one example of medicinally important compound from each of the following series :

(a) pyridine derivative

(b) pyrimidine derivative

(c) Napthalene derivative

(d) Phenothiazine derivative

(e) Quinoline derivative.

6. Write notes on :

(a) Recemic modification

(b) Meerwin–Pondroff reduction.

7. Write the synthesis

(a) Hantzch pyridine synthesis

(b) Reissert indole synthesis.

8. Write structure and uses of the following :

(a) primidone

(b) chloroquin

(c) methyl thiouracil

(d) nicotinic acid

(e) piperazine.

9. Write notes on :

(a) Metal hydride reduction

(b) Beckmann rearrangement.

10. Write the product of the following reaction stating their condition :

(a) Pyrrole + CH_2I_2 + CH_3ONa $\longrightarrow$

(b) Pyrrole + aq. K_2CO_3 $\longrightarrow$

(c) Furan + $(CH_3CO)_2O$ $\xrightarrow{BF_3}$

(d) Furan $\xrightarrow{\text{(reduction)}}$

(e) Indole + $CHCl_3$ $\xrightarrow{NaOH}$.

11. Explain the modern theory of geometrical isomers.

12. Distinguish between enantiomers and diasteromers.

13. Give an account of the basicity of heterocyclic compound containing one nitrogen atom.

[KH 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Two and a half hours Sec. A & Sec. B : 60 marks

for Sec. A and Sec. B Section C : 30 marks

Answer Sections A and B in the **SAME** Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. (a) Define the following terms and give examples

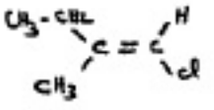
(i) Chirality

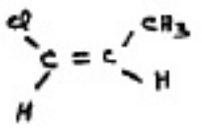
(ii) Enantiomers

(iii) Meso compounds. (6)

(b) Give an account on various methods of resolution of racemic mixture. (6)

(c) Assign absolute configurations for the *followings :* (3)

(i) 

(ii) 

2. (a) Give an account on the structure, synthesis and reactions of Phenanthrene. (9)

(b) Name important medicinal compounds of Phenanthrene derivative along with their structure and use. (2)

(c) Explain Meerwin–Pondorf reduction. (4)

3. (a) Explain the mechanism, various catalyst used and synthetic use of catalytic hydrogenation. (9)

(b) What do you mean by Atropisomerism? Give examples. Explain the reason for the optical activity of such isomers. (6)

4. (a) Give an account on the structure, synthetic methods, reactions and important medicinal compounds of Quinoline. (12)

(b) Write the structure and use of (3)

(i) Nikethamide

(ii) Isoniazide.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Write the synthetic methods for diphenyl methane.

6. Write notes on Walden inversion and its mechanism.

7. Explain the followings with examples :

(a) Racemic mixture

(b) Asymmetric carbon.

(c) Diastereomers.

8. Write notes on the followings :

(a) Schmidt rearrangement

(b) Birch reduction.

9. Explain synthetic methods for acridine. Write the structure and use of medicinal compounds of acridine derivative.

10. Give an account on the aromaticity and basicity of Pyridine.

11. Write notes on the metal hydrides used as reducing agent and their applications.

12. Write the structure and use of

(a) Nikathamide

(b) Piperazine

(c) Tolazoline

(d) Nicotinic acid.

13. Write notes on the use of the following oxidising agents with reactions

(a) Mercuric acetate

(b) Selenium oxide.

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APRIL - 2003

[KI 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Two and a half hours Sec. A and Sec. B : 60 marks

for Sec. A and Sec. B Section C : 30 marks

Answer Sections A and B in **SAME** answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. (a) Give an account on the synthetic methods and reactions of naphthalene. (11)

(b) Explain the reactivity and orientation of electrophilic aromatic substitution in naphthalene. (4)

2. (a) What do you mean by conformations? Give an account on the conformations in cyclohexane and their relative stability. (9)

(b) Write notes on sequence rule and their use in the determination of configuration of optical isomers. (6)

3. (a) What do you mean by catalytic hydrogenation? Explain the groups that can be hydrogenated, various catalyst used and mechanism of catalytic hydrogenation. (8)

(b) Give an account on Atropisomerism. (7)

4. (a) Write notes on the structure, synthetic methods and reactions of pyridine. (11)

(b) Write the structure and use of chloroquine and mepacrine. (4)

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Write any three methods for the synthesis of triphenyl methane.

6. Explain various elements of symmetry with example.

7. Give an account on the isomerism exhibited by oximes. How do you assign configuration for them?

8. Explain the mechanism of Beckman rearrangement.

9. Write notes on aromaticity of pyrrole, furan and thiophene.

10. Write the synthetic methods for isoquinoline.

11. Write the structure and use of the following :

(a) Piperazine

(b) Sulphathiazole

(c) Primaquine

(d) Carbimazole.

12. Write the chemistry and synthetic use of the following.

(a) Birch reduction

(b) Clemmensen reduction.

13. Explain the following with examples.

(a) Meso compounds

(b) Diastereomers.

OCTOBER - 2003

[KJ 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours — Maximum : 90 marks

Two hours and forty minutes for Sections A and B — Sec. A and Sec. B : 70 marks

Twenty minutes for Sec. C — Section C : 20 marks

Answer Sections A and B in **SAME** answer book.

Answer Section C in the Answer Sheet Provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Outline the preparation and chemical reactions of diphenyl methane and anthracene. Illustrate with suitable examples and mention their medicinal importance.

2. What are recemic modifications? Explain the techniques used for the resolution of recemic forms.

3. (a) Explain the modern theory of double bonds.

(b) Explain the sequence rules relating the R & S configuration.

4. What happens when the following occurs? Mention the equation wherever necessary and explain.

(a) Indole is treated with acetyl chloride in the presence of Stannous Chloride.

(b) Thiophene is treated with a solution of nitric acid and acetic anhydride.

(c) Furan is treated with H_2 in the presence of Nickel.

(d) Pyrrole reacts with chloroform in the presence of alkali.

(e) Pyridine reacts with sodamide in liquid ammonia at 100°C.

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

5. Write the important reactions of Pyrrole.

6. Write the synthesis of the following :

(a) Fischer indole synthesis

(b) Hantzch pyridine synthesis.

7. Write the structure and uses of the following :

(a) Chloroquin

(b) Nicotinic acid

8. Write notes on :

(a) Catalytic hydrogenation

(b) Beckmann rearrangement.

9. Distinguish between enantiomers and diasteromers.

10. Explain the hybridization of orbitals.

11. Electrophilic substitution in pyrrole takes place at 2–position, whereas in pyridine at 3 position explain.

12. Write notes on elements of symmetry.

13. Give a brief account of optical isomers of lactic acid.

14. Explain the modern theory of geometrical isomers.

APRIL - 2004

[KK 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer Sections A and B in the **SAME** answer book.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Give one method of preparation and any two chemical reactions of Triphenyl methane and Anthracene. Give the structure and medicinal use of any four drugs containing naphthaline, and phenanthrene. (2 each)

2. What is the difference between the terms configuration and conformation? Explain with examples. Write a detailed account of conformational analysis.

3. Define Waldane inversion with an example. Give its mechanism and mention the factors influencing its mechanism.

4. Mention the different reagents used in oxidation process. Discuss the mechanism of oxidation in each case with the help of one suitable example.

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

5. Give the preparation and one chemical reaction of Diphenyl methane and Anthracene.

6. Describe any two methods for the resolution of racemic modification.

7. Describe the modern theory of double bonds.

8. Define and give one example for asymetric synthesis.

9. With the help of two examples explain the mechanism of reduction by metal hydrides. How is it different from catalytic reduction?

10. Give the mechanism with the help of one example of Schmidt and Beckman rearrangements.

11. What is hybridization? Describe SP^3 hybridization with a suitable example.

12. Give the preparation and any two reactions of thiophene.

13. Give the skeletal structure and medicinal uses of Nikethamide, Chinioform, Phenytoin, Mepacrine and Carbimazole.

14. With the help of one example each give the mechanism of Birch reduction and Clemenson reduction.

AUGUST - 2004

[KL 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer Section A and B in the **SAME** Answer Book.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. (a) Define Stereoisomerism. Distinguish between the two types of stereoisomerism you have studied.

(b) Write notes on Chiral, with suitable example. (10 + 5 = 15)

2. (a) Discuss the utility of the following reagent :

(i) Lithium Aluminium hydride.

(ii) Lead Tetra acetate.

(iii) Selenium oxide.

(b) Write notes on : (9 + 6 = 15)

(i) Catalytic hydrogenation.

(ii) Clemensen reduction.

3. (a) Give one example of medicinally important compound from each of the following series, and mention their structure and uses.

(i) Napthalene.

(ii) Anthracene.

(iii) Phenanthrene.

(b) Give the synthesis of (9 + 6 = 15)

(i) Diphenyl methane.

(ii) Triphenyl methane.

4. Write notes on :

(a) Stereochemistry of nitrogen compounds.

(b) Skraup synthesis of quinoline.

(c) Compare the reactivity of furan and pyrrole towards electrophilic substitution. (5 + 5 + 5 = 15)

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

5. Explain the stability of cis–trans isomerism.

6. Write notes on :

   (a) Dipole moment

   (b) Interconversion of Geometrical isomerism.

7. Give the synthesis of

   (a) Fischer's indole synthesis.

   (b) Hantzsch pyridine synthesis.

8. Write structure and uses of the

   (a) Mepacrine.

   (b) Sulphathiazole

   (c) Phenergan.

   (d) Phenytoin.

   (e) Isoniazid.

9. Write the products of the following reactions stating their condition :

   (a) Phenanthrene $\xrightarrow[H_2SO_4]{K_2Cr_2O_7}$

   (b) Anthracene $\xrightarrow{\text{(Oxidation)}}$

   (c) Pyridine + $NaNH_2$ $\longrightarrow$

   (d) Pyrrole + $CHCl_3$ $\xrightarrow{KOH}$

   (e) Furan $\xrightarrow[Ni, Pt]{H_2}$

10. Enumerate briefly the configuration of Biphenyl molecule.

11. Give atleast three chemical properties of Furan.

12. What are the products, when Napthalene and Furan are subjected to

   (a) Friedal Crafts reaction.

   (b) Halogenation reaction.

13. Give a brief account of optical isomerism of Tartaric acid.

14. Explain modern theory of geometrical isomers.

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FEBRUARY - 2005

[KM 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Outline the preparation and important chemical reactions of Triphenyl methane and Anthracene. Illustrate with suitable examples and their medicinal importance.

2. Discuss giving examples the synthetic utility.

(a) Reduction with hydrazine.

(b) Metal hydride reduction.

(c) Oxidation with perchloric acid.

3. (a) Define Walden inversion. Discuss the factors affecting mechanism of Walden inversion.

(b) Write the stereochemistry of Biphenyl compounds.

4. (a) Outline the preparation and discuss the important chemical reactions of

(i) Indole (ii) Quinoline

Mention their medicinal importance giving example.

(b) Discuss the following reactions with special reference to their mechanism :

(i) Meerwin–Pondroff reduction.

(ii) Beekmann rearrangement.

SECTION B — ($8 \times 5 = 40$ marks)

Answer any EIGHT questions.

5. The elctrophilic substitution in naphthalene predominates at α – position. Explain with example.

6. Describe the preparation of naphthalene from benzene.

7. Give a brief account of optical isomerism of Lactic acid.

8. Explain modern theory of Geometrical isomers.

9. Give the method of synthesis and discuss the aromaticity and orientation in Pyridine.

10. Illustrate, sequence rules for assigning R & S configuration to an optically active compound.

11. How do you synthesis of Anthracene from succinic anhydride? Describe.

12. How furan is synthesized? What will happen when furan is treated acetic anhydride and BF_3.

13. Electrophilic substitution in pyrrole takes place at 2–position, whereas in pyridine at 3–position. Explain.

14. Explain the stereochemistry of amines.

AUGUST - 2005

[KN 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours | Maximum : 90 marks

Theory : Two hours and forty minutes | Theory : 70 marks

M.C.Q. : Twenty minutes | M.C.Q. : 20 marks

I. Long Essay : $(2 \times 15 = 30)$

Answer any TWO questions.

1. Write the preparation and important chemical reactions of Diphenyl methane and naphthalene. Give with suitable examples and their medicinal applications.

2. (a) Write the structure and uses of the following :

(i) Primaquine

(ii) Primidone.

(b) Outline the preparation and mention the important chemical reactions of

(i) Phenothiazine

(ii) Pyrimidine.

3. Discuss the following reactions with special reference to their mechanisms and synthetic application.

(a) Schmidt rearrangement

(b) Darzein reaction

(c) Birch reduction.

4. Write a notes on :

(a) Tetrahedral carbon atom

(b) Conformational analysis

(c) Stereochemistry of cyclic compounds.

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. What happens, when

(a) naphthalene is treated with Acetyl chloride in the presence of $AlCl_3$

(b) naphthalene is treated with sodium and isopentanol and heat it to its boiling point (130°C).

2. Discuss the methods of resolution of recemic mixture.

3. Explain Cahn–Ingold Prelog system, with suitable example.

4. Describe Haworth synthesis of Anthracene.

5. Write a notes on catalytic hydrogenation.

6. Explain Meerwin–Pondroff reduction with suitable example.

7. Write the important properties of thiophene.

8. Write structure and medicinal uses of Phenytoin, nikethamide, chloroquin, piperazine and phenothiazine.

9. Give reason to justify pyridine is more basic than pyrrole.

10. Explain the stability of cis–transisomerism.

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FEBRUARY - 2006

[KO 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours **Maximum : 90 marks**

Theory : Two hours and forty minutes **Theory : 70 marks**

M.C.Q. : Twenty minutes **M.C.Q. : 20 marks**

I. Long Essay :

(2 × 15 = 30)

Answer any TWO questions.

1. (a) Describe with mechanism Skruap quinoline synthesis. (5)

(b) Give two methods of synthesis of pyridine. Explain why pyridine under goes electrophilic substitution only under vigorous conditions. Write the structures and medicinal uses of Nikethamide and Isoniazid. (5 + 2 +3) = 10

2. Write the Haworth's synthesis of naphthalene. Explain the chemical reactions of naphthalene derivatives with their structures and uses. (5 + 7 +3)

3. (a) Define racemic modifications. Describe the methods used for the resolution of racemic modifications. (10)

(b) What is conformational analysis? Explain with an example. (5)

4. (a) What is Walden inversion? Discuss its mechanism with reference to the effects of solvent, reagent and substrate. (10)

(b) How do you define reduction? Give the mechanism involved in Meerwin-Pondoff reduction. (5)

II. Short notes on: (8 × 5 = 40)

Answer any EIGHT questions.

1. Define stereoisomerism. Write a note on elements of symmetry.

2. Give a method of preparation and three chemical reactions of anthracene.

3. What are R and S configurations? Explain with examples.

4. Write the different conformations and their relative stabilities of cyclohexane.

5. Write a brief note on stereochemistry of nitrogen compounds.

6. Define Beckmann rearrangement. Explain its mechanism with an example.

7. Compare and explain the basicities of pyridine, pyrrole and aliphatic amines.

8. Give a method of preparation and a medicinally important derivative with their structures of each of the following.

(a) Indole.

(b) Isoqunidine.

9. What are heterocyclic compounds? Classify them with examples. How are simple heterocyclics named by IUPAC system?

10. Write the structures and medicinal uses of the following:

(a) Sulphathiazole

(b) Methylthiouracil

(c) Piperazine

(d) Phenytoin.

AUGUST - 2006

[KP 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours | Maximum : 90 marks

Theory : Two hours and forty minutes | Theory : 70 marks

M.C.Q. : Twenty minutes | M.C.Q. : 20 marks

I. Long Essay :

Answer any TWO questions. (2 × 20 = 40)

1. (a) Define the term configuration and conformation.

(b) Discuss the stereochemistry of cyclic compounds. (8 + 12 = 20)

2. (a) Write the classification and nomenclature of heterocyclic compounds.

(b) Give the method of synthesis and important chemical reactions of acridine. (8 + 12 = 20)

3. (a) Write notes on :
   (i) Beckmann rearrangement.
   (ii) Darzein reaction.

(b) Write the method of synthesis and two chemical reactions of Naphthalene. Add a note on medicinal derivatives of Naphthalene. (8 + 12 = 20)

4. Write notes on :
   (a) Walden Inversion.
   (b) Stereochemistry of Amines and oximes.
   (c) Skraup synthesis. (6 + 7 + 7 = 20)

II. Short notes on :

Answer any SIX questions : (6 × 5 = 30)

1. Explain the isomerism exhibited by Maleic and fumaric acid.

2. Write skeleton structure and medicinal uses of
   (a) Mepyramine.
   (b) Coramine
   (c) Antazoline
   (d) DEC
   (e) Pyrimethamine.

3. Give the synthesis of
   (a) Phenothiazine
   (b) Isoxazole.

AUGUST - 2006

4. Write notes on :
   (a) Elementary of symmetry.
   (b) Chisality.

5. Write the products of the following reactions :
   (a) Pyridine + $CH_3I \rightarrow$
   (b) Pyrrole + $CHCl_3$ + KOH $\rightarrow$
   (c) Imidazole $\xrightarrow{H_2O_2}$
   (d) Tetrahydrofuran $\xrightarrow{NH_3}$
   (e) Thiophen $\xrightarrow[\text{Ni}]{H_2 \text{ Raney}}$

6. Write notes on :
   (a) Circular dichroism
   (b) Conventions used in stereochemistry.

7. Write synthetic applications of following reagents :
   (a) Lead tetra acetate.
   (b) Aluminium Isopropoxide.

8. Give the method of synthesis of
   (a) Pyridine.
   (b) Diphenylmethane.

AUGUST - 2006

[KP 741] **Sub. Code : 4232**

SECOND B.Pharm. DEGREE EXAMINATION.

(Regulations 2004)

Paper III — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours | Maximum : 90 marks

Theory : Two hours and forty minutes | Theory : 70 marks

M.C.Q. : Twenty minutes | M.C.Q. : 20 marks

I. Long Essay : (2 × 20 = 40)

Answer any TWO questions.

1. Explain any two methods for the synthesis of Indole and comments on their merits and demerits. Discuss the important reactions of pyrrole. Write a notes on configuration of biphenyl molecules. Give an account of geometrical isomerism.

2. Elucidate the structure of Ephedrine. Write any two methods for the preparation of aromatic amino acids. Discuss the chemistry of citral.

3. Discuss with examples the synthetic applications of

(a) Reduction with hydrazine and its derivatives

(b) Meerwin–Pondroff reduction

(c) Metal hydride reduction.

4. (a) Write the general methods of determining tho structure of terpenoids.

(b) Elucidate the structure of tropic acid in an atropine alkaloid.

(c) Write the classification of amino acids.

II. Short notes on any SIX: (6 × 5 = 30)

1. Write the methods of synthesis of pyridine.

2. Discuss with examples of stereo specific and stereo selective synthesis.

3. Write the stereochemistry of cyclic compounds.

4. Stereochemistry of nitrogen compounds.

5. Skraup synthesis of quinoline.

AUGUST - 2006

6. Elements of symmetry.

7. Birch reduction.

8. Synthesis of polypeptides.

9. Chemistry of Digitoxin.

FEBRUARY - 2007

[KQ 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay : (2 × 20 = 40)

Answer any TWO questions.

1. (a) Write the skeletal structure and numbering of following heterocyclic ring systems.

(i) Phenothiazine

(ii) Imidazole

(iii) Acridine

(iv) Thiazole

(v) Pyridine.

(b) Suggest one method for the synthesis of above ring systems.

(c) Write the structure and use of one drug each with above ring system. (5 + 10 + 5 = 20)

2. (a) Define stereoisomerism. Distinguish between the two types of stereoisomerism.

(b) Mention the factors affecting the stability of conformations.

(c) What is a racemic modification? Discuss the properties and methods of resolution of racemic modification. (5 + 5 + 10 = 20)

3. (a) Discuss the utility of the following reagent.

(i) Perchloric acid

(ii) Selenium oxide

(b) Write briefly :

(i) Dehydrogenation

(ii) Birch reduction

(iii) Beckmann rearrangement. (20)

FEBRUARY - 2007

4. (a) Give one example of medicinally important compound from each of the following and mention their structure and uses. (20)

(i) Phenanthrene

(ii) Naphthalene

(iii) Anthracene.

(b) Give the synthesis of

(i) Di phenyl ethane

(ii) Triphenyl methane.

II. Short notes on : (6 × 5 = 30)

Answer any SIX questions.

1. Write the structure and uses of

(a) Diethyl carbamazine

(b) Nikethamide

(c) Chloroquine

(d) Piperazine

(e) Carbimazole. (5 × 1 = 5)

2. Explain the mechanism of Walden Inversion. (5)

3. Write about :

(a) Skraup's synthesis of quinoline

(b) Advantage of metal hydride reduction over catalytic hydrogenation. (3 + 2 = 5)

4. Write a note on hybridisation of orbitals. (5)

5. Write the products of the following reactions stating their condition.

(a) Furan + Malic anhydride →

(b) Quinoline + $NaNH_2$ →

(c) Indole + HCHO + $(CH_3)_2$ NH →

(d) Acetophenone + Zn/Hg – HCl →

(e) Pyrrole + CH_3 Mg I → (5 × 1 = 5)

6. Differentiate confirmation and configuration. How will you arrive at the absolute configuration? (5)

7. Write notes on elements of symmetry.

8. Write on Fischer indole synthesis.

FEBRUARY - 2007

[KQ 741] **Sub. Code : 4232**

SECOND B.Pharm. DEGREE EXAMINATION.

(Regulations 2004)

Paper III — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours | Maximum : 90 marks

Theory : Two hours and forty minutes | Theory : 70 marks

M. C. Q : Twenty minutes | M.C.Q. : 20 marks

I. Long Essay :

Answer any TWO questions. (2 × 20 = 40)

1. (a) Explain the different types of elements of symmetry.

(b) What is racemic modification? Explain the different methods that are utilized for resolution of racemic modification. (6 + 14)

2. (a) Explain the structural elucidation of reserpine along with synthesis.

(b) Write the structures of morphine derivatives and mention their medicinal importance. (16 + 4)

3. (a) Write any two methods of preparation of essential amino acids.

(b) Explain the geometry of peptide linkage.

(c) Write the reactions of pyrrole.

(d) Write the synthesis of phenothiazine and quinoline. (4 + 4 + 7 + 5)

4. (a) Explain the structural elucidation of caffeine along with its synthesis.

(b) Write a note on chemistry of cardiac glycosides. (13 + 7)

II. Short notes on any SIX : (6 × 5 = 30)

(1) Write about any three methods of determination of configuration of geometrical isomers.

(2) Stereochemistry of oximes.

(3) What is Beckmann rearrangement? Write its mechanism.

(4) Write the classification of terpenoids with examples.

(5) Write the synthesis of papaverine and ephedrine.

(6) Write the structures of different fat soluble vitamins and mention their important deficiency diseases.

(7) Write a note on chemistry and medicinal uses of flavanoids.

(8) What is assymmetric synthesis? Give an example.

August-2007

[KR 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours | Maximum : 90 marks

Theory : Two hours and forty minutes | Theory : 70 marks

M.C.Q. : Twenty minutes | M.C.Q. : 20 marks

I. Long Essay : $(2 \times 15 = 30)$

Answer any TWO questions.

1. Describe the methods of preparation and reactions naphthalene and phenanthrene. Name two medicinally important derivatives of each of these systems with their structures and uses.

2. Explain with mechanism of Hantzsch pyridine synthesis. Give four important chemical reactions with equations of pyridine. Write the structures, chemical names and uses of any TWO pyridine derivatives.

3. (a) Define Walden inversion. Explain the factors which affect its mechanism. (8)

(b) What is oxidation? Name four oxidizing agents and give specific examples of reactions in which they are used. (7)

4. (a) What are racemic modifications? Explain the different methods to resolve them. (10)

(b) Write a note on stereochemistry of Nitrogen compounds. (5)

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. Explain the mechanism involved in Skruap quinoline synthesis.

2. What is stereoisomerism? Write a note elements of symmetry.

3. Write two methods of preparations of each of anthracene and diphenyl methane.

4. Write an account of the baricities of pyrrole, pyridine and aliphatic amines.

5. Illustrate the sequence rules for assigning R and S configurations to an optically active compound.

6. Give a method of preparation and a medicinally important derivative with their structures of the following heterocyclics.

(a) Imidazole

(b) Acridine.

7. What is Beckmann rearrangement? Explain its mechanism with a suitable example.

8. Discuss reduction with hydrazine and its derivatives.

9. Write the structures and medicinal uses of the following :

(a) Diethyl carbamazine

(b) Naphazoline

(c) Mepacrine

(d) Sulphathiazole

(e) Mepyramine.

10. Define heterocyclic compounds giving their classification. How are monocyclic heterocyclics named by IUPAC system?

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August-2007

[KR 741] **Sub. Code : 4232**

SECOND B.Pharm. DEGREE EXAMINATION.

(Regulations 2004)

Paper III — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours	Maximum : 90 marks
Theory : Two hours and forty minutes	Theory : 70 marks
M.C.Q. : Twenty minutes	M.C.Q. : 20 marks

I. Long Essay : $(2 \times 15 = 30)$

Answer any TWO questions.

1. (a) Outline the preparation of Anthracene.

(b) Write the name and structure of the compounds formed when anthracene is

(i) subjected to Diel's-Alder reaction

(ii) subjected to Friedal Crafts acylation reaction.

2. What are recemic modifications? Describe the various methods available for the resolution of recemic forms.

3. Discuss the following reactions with special reference to their mechanisms and synthetic applications :

(a) Meerwin – Pondroff reduction.

(b) Birch reduction.

(c) Beckmann rearrangement.

4. Outline the preparation and discuss the important chemical reactions of

(a) Indole

(b) Pyrrole

(c) Quinoline.

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. Write notes on elements of symmetry.

2. Write the synthesis of

(a) Hantzch pyridine synthesis.

(b) Reissert Indole synthesis.

3. Give the resonance forms of Furan.

4. Write a note on :

(a) Metal hydride reduction.

(b) Oxidation with perchloric acid.

5. Write the important reactions of Thiophene.

6. Illustrate the sequence rules for assigning R and S configurations to an optically active compound.

7. Electrophilic substitution in Pyrrole takes place at 2 position, whereas in Pyridine at 3 position – Explain.

8. Write the structure and uses of the following compounds :

(a) Primidone

(b) Nikethamide

(c) Isoniazid

(d) Primaquin.

9. Methods of structural Elucidation and pharmacological activity of Ergot, paperazine.

10. General properties and reaction of essential amino acids.

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February-2008

[KS 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564182

Time : Three hours — Maximum : 90 marks

Theory : Two hours and forty minutes — Theory : 70 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

I. Long Essay : $(2 \times 15 = 30)$

Answer any TWO questions.

1. Explain Beckmann rearrangement with its mechanism and synthetic applications.

2. (a) Write in detail about elements of symmetry. $(7\frac{1}{2})$

(b) Explain stereochemistry of cyclic compounds. $(7\frac{1}{2})$

3. Write the Haworth's synthesis of naphthalene. Derivatives with their structures and uses.

4. (a) Explain synthesis and reaction of Furan and quinoline. (10)

(b) Write the structure; chemical name and use of the following compounds : (5)

(i) Isoniazid

(ii) Histamine

(iii) Phenytoin

(iv) Piperazine

(v) Mepacrine.

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. Explain about tetrahedral carbon atom.

2. Write a note on configuration of Biphenyl compounds.

3. Explain racemic modification and its properties.

4. Explain with mechanism of Clemensen reduction.

5. Write a note on Haworth synthesis of Naphthalene.

6. What are heterocyclic compounds and discuss the orbital structure of pyridine.

7. Explain E and Z nomenclature of geometrical isomerism.

8. Describe two methods used for resolving racemic mixtures into optically active forms.

9. Explain about A tropisomerism.

10. Give a method of preparation and medicinally important derivatives with their structure of the following heterocyclic compounds :

(a) Indole

(b) Pyrrole.

February-2008

[KS 741] **Sub. Code : 4232**

SECOND B.Pharm. DEGREE EXAMINATION.

(Regulations 2004)

Paper III — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564232

Time : Three hours — **Maximum : 90 marks**

Theory : Two hours and forty minutes — **Theory : 70 marks**

M.C.Q. : Twenty minutes — **M.C.Q. : 20 marks**

I. Long Essay : **(2 × 15 = 30)**

Answer any TWO questions.

1. (a) Define Walden inversion. Explain the factor which affect its mechanism.

(b) Explain Hybridisation of orbitals.

2. Discuss the following reaction with their mechanism and synthetic application :

(a) Schmidt rearrangement

(b) Birch reduction

(c) Darzen's reaction.

3. Outline the preparation and discuss the important chemical reaction of

(a) Pyridine

(b) Imidazole

(c) Isoquinoline.

4. Outline the general methods of structural elucidation, chemistry and pharmacological activity of

(a) Reserpine

(b) Caffeine

(c) Menthol.

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. Write a note on stereoisomerism and stereomutation.

2. Explain stereochemistry of cyclic compounds.

3. Write a note on :

(a) Metal hydrate reduction

(b) Oxidation with selenium oxide.

4. Describe the method of preparation and reaction of phenothiazine.

5. Define amino acid and write the classification of amino acid with examples.

6. Write the synthesis of

(a) Friedlander Synthesis of Quinoline

(b) Bischler-Napieralski synthesis of isoquinoline.

7. What are Heterocyclic compounds and explain why pyridine is more basic than pyrrole?

8. Explain method of structural elucidation and pharmacological activity of Ephedrine and Uric acid.

9. Explain method of preparation and reaction of Thiophene.

10. Explain method of structural elucidation and medicinal use of

(a) Theophylline

(b) Vitamin B_6.

August 2008

[KT 707] **Sub. Code : 4182**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564182

Time : Three hours Maximum : 90 marks

I. Long Essays : (2 × 20 = 40)

Answer any TWO questions.

1. (a) Explain Meerwin-Pondroff reduction with its mechanism and synthetic application. (10)

(b) Write the skrup and fried lander's synthesis of quinoline. (10)

2. (a) Write synthesis and reactions of pyridine. (15)

(b) Write the structure, chemical name and use of the following compounds : (5)

(i) Phenergan

(ii) Chloroquin

(iii) Pipelazin

(iv) Phenytoin

(v) Primaquin.

3. (a) Explain stereochemistry of Biphenyl compounds. (10)

(b) Describe methods used for resolving racemic mixtures into optically active compounds. (10)

II. Short Notes : (8 × 5 = 40)

Answer any EIGHT questions.

(1) Write a note on elements of symmetry.

(2) Write Birch reduction with its mechanism.

(3) Describe two methods used for determination of the geometric configuration.

(4) Write a note on stereochemistry of amines and oximes.

(5) How will you synthesize naphthalene from benzene?

(6) Write a note on asymmetric synthesis.

(7) Write two synthesis of furan.

(8) Write a note on metal hydride reduction.

(9) Explain the following terms :

(a) Diastereomers

(b) Meso compounds.

(10) Write a note on modern theory of double bond.

III. Short answer : (5 × 2 = 10)

Answer any FIVE questions.

(1) Explain why pyridine is more basic than pyrrole.

(2) Why pyrrole undergoes electrophilic substitution at 2- position?

(3) Why pyridine undergoes nucleophilic substitution at 2- position?

(4) Define tetrahedral carbon.

(5) Write structure and use of

(a) Nikethamide

(b) Isoniazid.

(6) Pyrrole is more reactive than furan. Suggest a reason.

(7) Write structure and use of Wilkinson's catalyst.

August 2008

[KT 741] **Sub. Code : 4232**

SECOND B.Pharm. DEGREE EXAMINATION.

(Regulations 2004)

Paper III — ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564232

Time : Three hours Maximum : 90 marks

I. Essay : $(2 \times 20 = 40)$

Answer any TWO questions.

(1) (a) What is conformational analysis? Explain different conformers with example.

(b) Explain the stereochemistry involved in six membered cyclic compounds. (6 + 14)

(2) Outline the preparation and discuss the important chemical reactions of

(a) Furan

(b) Indole

(c) Pyrrole. (6 + 6 + 8)

(3) Elucidate the structure of Ephedrine and papaverine with suitable chemical reactions.

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

(1) Write the convention used in stereo chemistry.

(2) Write a note on :

(a) Metalhydride

(b) Oxidation of lead tetra acetate.

(3) Explain the modern theory of double bonds.

(4) Stereochemistry of amines.

(5) Racemization of biphenyl compound.

(6) What is asymmetric synthesis? Explain with example.

(7) Write the synthesis of

(a) Huntzch pyridine synthesis

(b) Reinsert indole synthesis

(8) Write the structure and use of

(a) Resespine

(b) Atropine

(c) Quinine

(d) Camphor and

(e) Citral.

(9) General properties and reaction of amino acids.

(10) Discuss uric acid elucidation.

III. Short answer : (5 × 2 = 10)

Answer any FIVE questions.

(1) Chirality.

(2) Stereo-selective synthesis.

(3) Conformational analysis.

(4) Chemistry of digitoxin.

(5) Perchloric acid

(6) Basicity of pyrrole.

(7) Isoprene rule.

February 2009

[KU 707] **Sub. Code: 4182**

SECOND B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper II – ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY
Q.P. Code : 564182

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. **a)** Briefly explain the systematic method of nomenclature of Heterocyclic compounds, with suitable examples. **(6)**
   b) Explain the synthesis of quinoline and main reaction. **(6)**
   c) Give the preparation and reactions of triphenyl methane**. (8)**
2. Explain the following reactions:
   a) Beckmann – rearrangement**. (5)**
   b) Birch reduction. **(5)**
   c) Meerwin-pondroff reduction. **(5)**
   d) Asymmetric synthesis. **(5)**
3. **a)** Define Walden inversion. Explain the factor which affect its mechanism. **(10)**
   b) What is racemic modification? Explain the different methods that are utilized for resolution of racemic modification. **(10)**

II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)

1. Conventions used in stereochemistry.
2. Write the important properties of thiophen.
3. Explain the stability of cis-trans isomerism.
4. Write note on
   a) Metalhydride reduction **b)** oxidation with selenium oxide
5. Write the structure and uses of following: **a)** Phenytoin **b)** Mepacrine
6. Give three reactions of phenothiazine.
7. Write a note on stereo chemistry of Biphenyls.
8. Medicinally important compounds of phenanthrene.
9. Give methods of preparation of anthracene.
10. Modern concept of double bond.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Define optical isomerism.
2. Chirality.
3. Dehydrogenation.
4. Give the structure and uses of primidone.
5. Atropisomerism.
6. Write the structure of Indole and pyrimidine.
7. What are triphenyl methane dyes?

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August 2009

[KV 707] **Sub. Code: 4182**

SECOND B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper II – ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY
Q.P. Code : 564182

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. Out line the general methods of synthesis and reactions of the following:
   a) Nephthalene. **b)** Triphenyl methane. **c)** Phenanthrene.
2. ,**a)** Classify Heterocyclic compounds with examples.
   b) Give the synthesis and important reactions of the following
   i) Furan **ii)** Acridine **iii)** Pyridine **iv)** Indole.
3. **a)** What are racemic modifications. Explain the various techniques used for the resolution and racemic modifications.
   b) Give a brief account of optical isomerism of tartaric acid.

II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)

1. Write a note on stereochemistry of biphenyls.
2. Enumerate the methods available for resolving a racemic mixture and describe any one of them.
3. Give one method of synthesis and any two reactions of Quinoline.
4. Give the structure and use of the following.
   a) Phenergan **b)** Mepacrine **c)** Phenytoin **d)** Isoniazide **e)** Chlorquine
5. Explain the phenomenon of Walden inversion with examples.
6. Explain the conformation of cyclohexane,
7. Write note on: **a)** Schmidt rearrangement **b)** Metal hydride reduction
8. Explain the sequence rules relating the R and S configuration.
9. Describe the preparation and reactions of Anthnracene.
10. Write notes on : “Oxidation with Perchloric and lead tetra acetate”.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Define: **a)** Catalytic dehydrogenation. **b)** Darzein reaction.
2. Write two synthesis of diphenyl methane.
3. Write the structure and uses of : **a)** Nephazoline **b)** Primidone.
4. Define the following: **a)** Chirality **b)** Allenes and spirans.
5. Define: **a)** Meso compounds **b)** Asymmetric synthesis.
6. Describe the any two reactions of phenothiazine.
7. How will you synthesize the pyrrole?

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February 2010

[KW 707] **Sub. Code: 4182**

SECOND B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper II – ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY
Q.P. Code : 564182

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. Explain the following reactions: **a)** Meerwin – Pondroff reduction. **b)** Clemmensen reduction. **c)** Schmidt rearrangement. **d)** Birch reduction.
2. **a)** What are heterocyclic compounds? Write note on classification, nature and nomenclature of heterocyclic compounds. **(8)**
   b) Outline the general method of synthesis and anytwo reactions of the followings: **a)** Furan **b)** Pyridine **c)** Indole **d)** Quinoline **(12)**
3. **a)** Write the Haworth's synthesis of naphthalene, derivatives with their structure and uses. **(15)**
   b) Give a brief account of optical isomerism of Tartaric acid. **(5)**

II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)

1. Explain Walden inversion with suitable examples.
2. Write any two methods for the synthesis of Triphenylmethane and Diphenylmethane.
3. Explain the mechanism and applications of Beckman rearrangement.
4. Write a notes on elements of symmetry.
5. Write important reactions of pyrrole.
6. Give an account on Asymmetric synthesis.
7. Write the structure and uses of **a)** Phenytoin **b)** Isoniazide **c)** Pyrimethamine **d)** Nikethamide **e)** Primaquine.
8. Explain the synthetic methods for acridine. Write the structure and use of medicinal compounds of acridine derivatives.
9. Discuss the stereochemistry of nitrogen compounds.
10. Give one method of synthesis and any two reactions of thiazole.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Define enantiomer and diastereomer,
2. Write the synthesis of phenothiazine.
3. Write the structure and use of : **a)** Chlorquine **b)** Sulphathiazole.
4. Define the following terms: **a)** Chirality **b)** Meso compounds.
5. Write a note on catalytic hydrogenation.
6. Explain one method for the synthesis of anthracene.
7. Define: **a)** Conformational analysis **b)** Atropisomerism.

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September 2010

[KX 707] **Sub. Code: 4182**

SECOND B.PHARM. DEGREE EXAMINATION

(ReRevised Regulations)Candidates Admitted upto 2003-04

Paper II – ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564182

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions. (2X 20 = 40)

1. a) What is asymmetric synthesis? Give examples.
   b) What are racemic modifications? Explain the difference methods that are utilized for the resolution of racemic modification.
2. a) Illustrate the sequence rules for assigning the R and S configuration to an optically active compound.
   b) Outline the preparation and discuss the important chemical reactions of
   (i) Diphenyl methane (ii) Naphthalene
3. a) Define reduction. Give the mechanism involved in Clemmensen reduction and Meerwin pondroff reduction.
   b) Define and classify heterocyclic compounds. Write the preparation and important reactions of pyrrole and imidazole.

II. Write Short Notes : Answer any EIGHT questions. (8X 5 = 40)

1. What is conformational analysis? Explain with an example.
2. Explain the different types of symmetry.
3. Enumerate briefly the configuration of Biphenyl molecule.
4. Discuss the importance of following reactions as synthetic tools.
   a) Beckmann rearrangement
   b) Schmidt rearrangement
5. Write the structure and medicinal uses of Nikethemide and Isoniazid.
6. Define Walden inversion. Discuss the factors affecting mechanism of Walden inversion.
7. Give an account of the medicinally important compounds of polynuclear hydrocarbons.
8. Define oxidation and discuss the oxidation with perchloric acid and lead tetra acetate.
9. Write briefly about optical isomerism.
10. Mention the structure and uses of the following heterocyclic derivatives.
    a) Diadone b) Mepyramine c) Histamine d) Primaquin

III. Short Answers: Answer any FIVE questions. (5X2 = 10)

1. Give the structure and medicinal uses of Diethyl carbamazine and sulphathiazole.
2. What is meant by Cis and Trans isomers?
3. Distinguish between enatiomers and diasteromers.
4. What happens when pyridine reacts with sodalime in liquid ammonia at 100ºC?
5. Write the structures of oxazole and isoxazole.
6. Define Darzein reactions.
7. Write two examples of piperazine nucleus containing medicinal compounds.

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FEBRUARY 2011

[KY 707] **Sub. Code: 4182**

SECOND B.PHARM. DEGREE EXAMINATION

(ReRevised Regulations)Candidates Admitted upto 2003-04

Paper II – ADVANCED PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564182

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions. **(2 x 20 = 40)**

1. a) Discuss different methods of preparation and chemical reactions of Tri-phenylmethane
   b) Give the skeletal structure and numbering of phenanthrene. Give one method for synthesis and two reactions of phenanthrene.
   c) Give the structure and medicinal uses of any one compound each containing (i) Naphthalene (ii) Anthracene (iii) Phenanthrene. **(8+6+6)**

2. a) Discuss in detail the stereochemistry of Cyclohexane and Biphenyls.
   b) Give one example for Waldane inversion. Describe the various factors which affect the mechanism of Waldone inversion. **(15+5)**

3. a) Give one method of synthesis, any two reactions and anyone medicinal compound along with uses containing following Heterocyclic compounds.
   (i) Phenothiazine (ii) Oxazole (iii) Pyrazole (iv) Acridine (v) Quinoline.
   b) Write a note on Birch reduction. **(15+5)**

II. Write Short Notes : Answer any EIGHT questions. **(8 x 5 = 40)**

1. Explain Diels-Alder reaction.
2. What are the methods available for resolving aracemic mixture and explain any one of them.
3. Write a short note on elements of symmetry.
4. Write a note on the nomenclature of Geometrical isomers with examples.
5. Briefly explain optical activity.
6. Write a short note on a symmetric synthesis.
7. Write a note on Catlytic hydrogenation
8. Discuss briefly stereochemistry of Nitrogen compounds.
9. Write the structure and uses of (i) Carbimazole (ii) Phenytoin (iii) Isoniazid (iv) Sulphathiazole (v) Mepacrine.
10. Give an account of the basicity of heterocyclic compounds containing one nitrogen atom.

III. Short Answers: Answer any FIVE questions. **(5 x 2 = 10)**

1. What are the heterocyclic compounds synthesized by (i) Fried lander's synthesis (ii) Gabriel synthesis.
2. Write the products of the following reactions.
   (i) Pryridine-1-oxide+Acetic anhydride→
   (ii) Pryridine+SO_2Cl_2→
3. Give the structure and medicinal uses of (i) Nikethamide (ii) Histamine.
4. Mention the product formed when furan is subjected to Friedal – Craft's reaction.
5. Name the natural compound having tetrahydro thiophenenuecleus.
6. What are Enantiomers and Diasteneomars.
7. Define Darzein reactions.

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