APRIL - 2001

[KD 730] **Sub. Code : 4221**

FOURTH B.Pharmacy DEGREE EXAMINATION.

(Revised Regulations)

CHEMISTRY OF NATURAL PRODUCTS

Time : Three hours — Maximum : 90 marks

Two and a half hours for Sec. A and 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) How do you prepare glucosazone from glucose? Give the mechanism of formation of glucosazone.

(2 + 3 = 5)

(b) What are the drawbacks of the open chain structure of glucose? How does the ring structure of glucose overcomes these drawbacks? Determine the size of the ring of glucose by periodic acid oxidation method.

(3 + 3 + 4 = 10)

2. (a) Elucidate the structure of estrone. (8)

(b) Discuss the reaction of the synthesis of progesterone from sapogenin. (7)

3. (a) Discuss the skeleton structure of streptomycin. (5)

(b) Give the synthesis of chloramphenicol. (5)

(c) What are the advantages of semi synthetic penicillins over natural penicillins? Write the structures of two semi synthetic penicillins. $(1 + 1 + 1\frac{1}{2} + 1\frac{1}{2} = 5)$

4. Discuss the methods of analysis of fats, oils and waxes of pharmacopoeia of India. (15)

SECTION B — $(6 \times 5 = 30$ marks)

Answer any SIX questions.

5. Discuss the interrelationship between caffeine, theophylline and theobromine. (5)

6. Elucidate the structure of nicotine. (5)

7. Discuss the general procedure for ascertaining the functional nature of oxygen in natural products. (5)

8. Discuss the general characteristics of proteins. (5)

9. Give the test for purity and medicinal uses of gelatin and gelatin sponge. (5)

10. Write a note on cholesterol. (5)

11. Discuss the chemistry of amygdalin and salicin. (5)

12. Write the names and structures of three most important members of tetracyclines. (5)

13. Write the structures of thiamine, riboflavin and pyridoxine. (5)

NOVEMBER - 2001

[KE 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION

(Revised Regulations)

CHEMISTRY OF NATURAL PRODUCTS

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 Section 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) Write the chemistry of cholesterol.

(b) Give the chemical inter–relationship of Estrogens.

(c) Give the synthesis of Hexestrol.

2. (a) Explain the chemistry and conformation of cardiac glycosides.

(b) Which are the rare sugars present in cardiac glycosides and explain the importance of sugars in these glycosides.

(c) Give the structure of (i) g–Strophanthin (ii) Scillaren (iii) Digoxin .

3. (a) Give the classification of terpenoids with example.

(b) Explain the chemistry of geraniol.

(c) How camphor is synthesised?

4. (a) Explain the chemistry of Ephedrine.

(b) Explain the Hoffmann's exhaustive methylation Emde modification and Vonbraun's methods for opening the rings containing Nitrogen in alkaloids with suitable examples.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. (a) Define acid value saponification value and iodine value.

(b) How iodine value is determined? (3 + 2)

6. How the following are tested

(a) Test for absence of Arachis oil in other oils.

(b) Test for absence of linseed oil in other oils.

7. Explain the different types of oral contraceptives.

8. Explain the chemistry of Vitamin A.

9. Write four general methods of synthesis of Amino acids.

10. Define and classify Antibiotics. Give examples with chemical structure.

11. Elucidate the structure of uric acid.

12. Write the synthesis of progesterone from diosgenin.

13. Give the chemical structure of the following :

(a) Bile acids (cholic acid)

(b) Stigomasterol

(c) Stilbostrol

(d) Chloramphenicol

(e) Carvone.

MARCH - 2002

[KG 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

CHEMISTRY OF NATURAL PRODUCTS

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 — ($2 \times 15 = 30$ marks)

Answer any TWO questions.

1. (a) How do you prove that ascorbic acid contains :

(i) One double bond

(ii) Five carbon atoms in a straight chain

(iii) Two alcoholic groups, one of them is primary in nature. (1 + 2 + 2 = 5)

(b) Give the method of conversion of β -carotene to Vitamin A. (5)

(c) Give a synthesis of Vitamin A. (5)

2. (a) Discuss the synthesis of amino acids by

(i) Gabriel phthalimide method

(ii) Streaker method. (2 × 3 = 6)

(b) Describe briefly the properties exhibited by amino acids. (5)

(c) Discuss any two methods of amino end degradation of a protein. (4)

3. (a) Discuss the stereo chemistry of menthol. (4)

(b) Give a synthesis of camphor. (4)

(c) Discuss the constitution of geramol. (7)

4. (a) Give an account of the skeleton structure of the important natural and synthetic gluco-corticoids. (7)

(b) Give the structures of cardiac glycosides and bring out the salient features. (5)

(c) Write a note on anthraquinone glycoside. (3)

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Give the structure and synthesis of ephedrine. (5)

6. Write the principle involved in the assay of caffeine citrate. (5)

7. Give the structure of maltose. Discuss its pharmaceutical use. (5)

8. Discuss the synthesis of uric acid. (5)

9. Write a note on cellulose and its derivatives. (5)

10. Write the names and structures of three non-steroidal estrogenic compounds. (5)

11. Write a note on the test of adulteration of fats and oils as per I.P. (5)

12. Discuss the general tests to differentiate alkaloids, protein and fats. (5)

13. Describe briefly the properties, exhibited by amino acids. (5)

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SEPTEMBER - 2002

[KH 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

Time : Three hours — Maximum : 90 marks

Two and a half hours for Sec. A and Sec. B — Sec. A & Sec. B : 60 marks; Section C : 30 marks

Answer Sections A and B in the **SAME** Answer Book and Answer Section C in the Answer Sheet provided.

SECTION A — ($2 \times 15 = 30$ marks)

Answer any TWO questions.

1. Elucidate the structure of caffeine, giving proof for the following :

(a) Two methyl groups at 1 and 3, and an oxygen at 2 position.

(b) Third methyl group at position 7.

(c) The position of other oxygen atom at 6th position. (5 + 5 + 5)

2. (a) What is the physiological role of progesterone? Give its synthesis from diosgenin.

(b) Name the aglycone from strophanthus and Squill and give their structure. (9 + 6)

3. (a) Briefly discuss the chemistry of ascorbic acid.

(b) Outline a method of synthesis of ascorbic acid

(c) Give the chemistry of assay of riboflavine. (6 + 5 + 4)

4. (a) Explain the synthesis of uric acid.

(b) Write a brief note on the general characteristics of proteins.

(c) Explain how you determine acid value. (8 + 3 + 4)

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

All questions carry equal marks.

5. Write a note on semisynthetic penicillins giving suitable examples.

6. Give an account on the isomerism in Ephedrine.

7. What are oils, fats and waxes? Explain their relationship.

8. Describe briefly the properties, exhibited by amino acids.

9. Write a note on antifungal antibiotics.

10. Describe the source and salient structural features of the molecule of papaverine.

11. Describe the pharmaceutical uses of starch and its derivatives.

12. Write a note on anthraquinone glycosides.

13. Explain the chemistry of streptomycin.

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APRIL - 2003

[KI 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

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 — ($2 \times 15 = 30$ marks)

Answer any TWO questions.

1. (a) Write the synthesis, assay and use of Thiamine.

(b) What are terpenoids? Classify them with examples.

(c) Outline a method of synthesis for carvone. (6 + 4 +5)

2. (a) How will you determine Iodine Value? Mention its significance.

(b) Write the synthesis of Thymol.

(c) Write notes on chemistry of amygdalin. (5 + 6 + 4)

3. (a) What are purines and xanthins? Give examples. Elucidate the structure of caffeine.

(b) How do you determine the hydroxyl groups in natural products? (10 + 5)

4. (a) Elucidate the structure of Atropine.

(b) How do you determine the nature of nitrogen in natural products? (10 + 5)

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

All questions carry equal marks.

5. Name the major alkaloids present in opium with structures.

6. Explain the principle involved in the assay of Ascorbic acid by Iodimetry.

7. Name the synthetic non-steroidal oestrogens. Explain the synthesis of any one of them.

8. What is saponification value? How do you determine the saponification value?

9. Write briefly the chemistry of contraceptive agents.

10. Explain Hoffman's exhaustive methylation. Give its significance.

11. Elucidate the structure of salicin.

12. Explain the degradation products of penicillin.

13. Write the synthesis of chloramphenicol.

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OCTOBER - 2003

[KJ 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

Time : Three hours — Maximum : 90 marks

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

Twenty minutes for Section C — Section C : 20 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) What are Alkaloids? How are they isolated from natural sources? (7)

(b) Discuss the chemistry of Morphine. (8)

2. (a) Explain how Caffeine, Theophylline and Theobromine are interrelated. (8)

(b) Discuss the structure of Vitamin A. (7)

3. (a) What are antibiotics? Give the chemical classification of antibiotics with suitable examples to each class. (8)

(b) Discuss the synthesis and chemistry of chloramphenicol. (7)

4. (a) Explain the interrelationship of Oestrone, Oestriol and Oestradiol. (8)

(b) Discuss the chemistry of progesterone. (7)

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

5. Discuss the chemistry and biological significance of semisynthetic penicillins.

6. Explain the structure of Ephedrine.

7. Discuss the chemistry and biological significance of digitalis glycosides.

8. Give an account of the methods employed for determining the sequence of amino acids in proteins and polypeptides.

9. Indicate the importance of Vitamins B_1, B_2, D and E. What are the sources of these vitamins?

10. Explain the salient structural features of Rauwolfia alkaloid.

11. Discuss the chemistry of amygdalin.

12. Write a note on primary, secondary and tertiary structure of proteins.

13. Write a note on the general methods for the determination of structure of Terpenoids.

14. Discuss the structure of cholesterol.

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APRIL - 2004

[KK 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

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. (a) Define Alkaloids. How the structure of an alkaloid is determined generally. (7)

(b) Discuss the chemistry of Atropine. (8)

2. (a) What are purines? Explain the chemistry of Caffeine including its synthesis. (8)

(b) How Vitamin A is synthesized from β–carotene? (7)

3. (a) Discuss the chemistry of Cholesterol. (8)

(b) Define terpenoids. How they are obtained from the natural sources? (7)

4. (a) Explain the chemistry of penicillin. (8)

(b) Discuss the synthesis and chemistry of streptomycin. (7)

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

5. Discuss the stereochemistry of morphine and codeine.

6. Describe the cardiac glycosides.

7. Discuss the chemistry of oral contraceptives.

8. Explain the interrelationship of oestrone, oestriol and oestradiol.

9. Write short notes on semisynthetic penicillins.

10. Indicate the significance of primary, secondary and tertiary structure of proteins.

11. Discuss the chemistry of chloramphenicol.

12. Discuss the methods involved in determining the size of sugar rings.

13. Indicate the therapeutic uses of Vitamins B_6, B_{12}, Vitamin A and K.

14. Give an account of the general methods employed for determining the structure of terpenoids.

AUGUST - 2004

[KL 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCT

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. (a) What are β-lactam antibiotics? Give the skeletal structure of penicillins? Write the degradation of penicillin.

(b) Give the advantages of semisynthetic penicillins.

(c) Write the synthesis of chloramphenicol. (6 + 4 + 5)

2. (a) Define steroids. Elucidate the structure of cholesterol.

(b) What are sex hormones? Give their structures with examples for each class.

(c) Write a note on steroidal antiinflammatory drugs and their therapeutic uses. (6 + 4 + 5)

3. (a) What are alkaloids? Classify them with examples. Write the method of isolation and identifying tests for alkaloids.

(b) How can the methoxy group in an alkaloid be determined? (10 + 5)

4. (a) Define a glycoside. Classify them. Write a note on cardiac glycosides.

(b) Describe the assay of digitalis. (8 + 7)

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

5. Discuss in brief the chemistry of purine alkaloids.

6. Write the general characteristics of proteins.

7. Write short notes on vitamins? Classify them and give their uses.

8. Write the structure and state the importance of three important tetracyclines.

9. Discuss the structure of glucose.

10. Elucidate the structure of papaverine.

11. Write briefly the methods used in the structural elucidation of Natural Products.

12. Give the constitution of Geraniol.

13. Write the structures of thiamine, riboflavine and pyridoxine.

14. Give a synthesis of vitamin A.

FEBRUARY - 2005

[KM 730] Sub. Code : 4221

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

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. (a) Write the structure and discuss the importance of (i) adenine (ii) guanine (iii) theophylline (iv) xanthine.

(b) Elucidate the structure of uric acid.

(c) Explain the relationship between caffeine, theophylline and theobromine. (6 + 5 + 4)

2. (a) How will you determine Iodine Value? Mention its significance.

(b) Write the synthesis of thymol.

(c) Write notes on chemistry of amygdalin. (5 + 6 + 4)

3. (a) What are vitamins? Classify them with examples.

(b) Explain the various steps involved in the determination of the structure of THIAMINE. What are its biochemical functions? (5 + 10)

4. (a) Write the general methods of isolation and classification of terpenes.

(b) Explain the constitution of menthol and thymol. (8 + 7)

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

5. Write a note on antifungal antibiotics.

6. Give the constitution Geramol.

7. Elucidate the structure of glucose emphasising its stereochemistry.

8. Write notes on cardiac glycosides.

9. Classify proteins and write their properties.

10. Write the methods of analysis of oils.

11. Give the structures of oestrogenic hormones and write their physiological properties.

12. Give the structures of cholesterol, ergosterol, stigmasterol, and bile acids.

13. Describe the synthesis of chloramphenicol.

14. Discuss synthesis of Vitamin A.

AUGUST - 2005

[KN 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

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) Give the chemical classification of antibiotics with relevant examples.

(b) Write a brief account of the structure, outline the synthesis and stereochemistry of chloramphenicol.

(c) Discuss the chemistry and advantages of semisynthetic penicillins. (5 + 6 + 4)

2. (a) What are alkaloids? Classify them with examples. Write the method of Isolation and write identification tests for alkaloids.

(b) What products are obtained when the following are subjected to Hoffman Exhaustive Methylation?

(i) Tropine (ii) Ephedrine. (9 + 6)

3. (a) Classify vitamins with suitable examples with structure.

(b) Discuss the salient features in the structural elucidation of vitamin A.

(c) Suggest a method for the synthesis of Riboflavin. (5 + 5 + 5)

4. (a) Discuss the chemistry of cardiac glycosides.

(b) Elucidate the structure of Amygdaline. (8 + 7)

II. Short Notes : **(8 × 5 = 40)**

Answer any EIGHT questions.

1. Give the evidence for the ring structure of Glucose.

2. Discuss the chemistry of purine alkaloids. Give the synthesis of caffeine.

3. Write the classification and general characteristics of proteins.

4. Write any four general methods of synthesis of amino acids.

5. Write the SAR and skeleton structures of important progesterone derivatives used as oral contraceptives.

6. Describe the synthesis of

(a) Diethyl Stilbosterol and

(b) Cortisone.

7. Explain Isoprene and special Isoprene rules with examples. Give the synthesis of menthol.

8. Write the chemistry involved in the determination of Methoxyl and N-Methyl groups present in alkaloids.

9. Chemically differentiate between fixed oil, volatile oil, paraffin oil, bus wax and soft soap. Give one example each.

10. Define Iodine value. How is it determined? Give its significance.

FEBRUARY - 2006

[KO 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

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) Write the structure of pyridoxine and ascorbic acid. (5)

(b) Give one method of synthesis of thiamin. (5)

(c) How will you convert β – ionone to vitamin A? (5)

2. (a) What are essential amino acids? Enumerate them. Give the structure of any one of them. (5)

(b) Give the synthesis of phenyl alanine. (5)

(c) Write the official tests for purity of gelatin. Mention the medicinal uses of gelatin. (5)

3. (a) Give a brief account on the nomenclature of steroids. (4)

(b) Give a method of synthesis of cortisone from diosgenin. (5)

(c) Discuss briefly the structure–activity relationship among the oestrogens. Explain how the SAR studies where used in the development of synthetic oestrogens. (6)

4. (a) With the help of structures show the chemical degradation of penicillins in acid and alkaline media. (5)

(b) Write the synthesis of chloramphenicol. (5)

(c) Enumerate the antifungal antibiotics. Give the structure of any one them. (5)

II. Short notes : **(8 × 5 = 40)**

Answer any EIGHT questions.

1. Give the structure and synthesis of atropine. (5)

2. What is muta rotation. Explain its structural background. (5)

3. Write the structure of any one cardiac glycoside. Write a brief note on Deoxy sugars. (5)

4. Give a method of synthesis of camphor. (5)

5. Define iodine value, saponification value and acid value. Mention the importance of these parameters. (5)

6. Write the principle involved in the official method of assay of vitamin A. (5)

7. Elucidate the structure of menthol. (5)

8. Give a method of synthesis of caffiene from dimethyl urea. (5)

9. Enumerate the opium alkaloids. Give the structure of any two of them and their therapeutic uses. (5)

10. Discuss the chemistry of amygdaline. (5)

AUGUST - 2006

[KP 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

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 alkaloids. Elucidate the structure of atropine and outline a synthetic method for atropine.

(b) Write a note on Hoffmann's degradation.

2. (a) Explain the inter relationship of oestrone, oestradiol and oestriol.

(b) Explain the synthesis of progesterone from diosgenin.

(c) Write a note on non–steroidal oestrogens.

3. (a) Explain the salient structural features of β–lartam antibiotics.

(b) Discuss the hydrolysis studies of penicillin.

(c) Write a note on semi synthetic penicillins.

4. (a) Define and classify vitamins. Discuss the structure of vitamin A.

(b) Explain the chemistry of amygdalin.

II. Short notes on : **(6 × 5 = 30)**

Answer any SIX questions :

1. Explain the inter relationship of caffeine, theophylline and theobromine.

2. Write a note on the chemistry and significance of anti cancer antibiotics.

3. Write a note on chemistry of anthraquinone glycosides.

4. What are terpenes and terpenoids? Explain the constitution of Menthol.

5. Give the structures of Reserpine, Morphine, Salicine and Griseofulvin.

6. Explain the structure of glucose and discuss its stereochemistry.

7. Give the classification of proteins and list out essential amino acids with structures.

8. Explain the chemistry of alkaloids containing benzyl isoquinoline ring system.

FEBRUARY - 2007

[KQ 730] Sub. Code : 4221

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

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. Write about structure and degradation of penicillin. Write briefly about synthetic penicllines – chloramphenicol and streptomycin.

2. Define Glycoside. Classify them and brief about cardiac glycosides.

3. Write briefly about progestrone with its SAR and add note about oral contraceptives.

4. Write briefly about classification and synthesis of proteins and amino acids.

II. Short notes : (6 × 5 = 30)

Write any SIX questions

1. Classify carbohydrates and write about its configuration

2. Inter relationship of caffeine, theobromine and theophylline. Add note about their medicinal importance.

3. Classify vitamins and note about structure and conversion of vitamin A.

4. Write briefly about estrogens.

5. Write short notes about different methods of analysis of fats, oils and waxes. Add note about tests of adulteration.

6. Outline the synthesis and biological role of riboflavine.

7. Classify corticosteroids with examples. Write the synthetic source for cortisone.

8. Describe the chemistry of amygdaline.

August-2007

[KR 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

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) What are alkaloïds? How are they isolated from natural sources? Give their classification with one example from each.

(b) Explain the salient structural features of Rauwolfia alkaloids, and their biological significance.

2. (a) Give the analytical evidence to prove the structure of Vitamin A. explain it synthesis.

(b) Discuss the structure of Vitamin C.

(c) Outline the important structural features of vitamin B_1.

3. (a) What are Antibiotics? Classify them based on their chemical nature. Outline an example for each group.

(b) Explain the salient structural features and their significance in the biological activity of Penicillins.

4. (a) How do you establish the configurational formula for D-glucose?

(b) Write equations showing why D(+) glucose and D (+) fructose produce the same phenyl osazone. Use configurational formulae.

II. Short Notes : $(8 \times 5 = 40)$

Answer any EIGHT questions.

1. Explain the synthesis of uric acid.

2. Discuss the different methods used to ascertain N – terminal and C – terminal amino acid residues in proteins.

3. Discuss the chemistry of Mosphine.

4. Explain the inter relation ship between oestriol, oestradiol and oestrone.

5. Explain the synthesis of camphor.

6. Discuss the structure of Amygdalin.

7. Explain the significance of progesterone derivative (as oral contraceptive agents).

8. Discuss the synthesis of Chloramphenicol.

9. Write a note on non-steroidal, synthetic oestrogens.

10. Explain the structural relationship between Caffeine, theophylline and theobromine.

February-2008

[KS 730] **Sub. Code : 1221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

Q.P. Code : 564221

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) Write the structure of thiamin and ergocalciferol. (5)

(b) Give one method of synthesis of ascorbic acid. (5)

(c) How will you convert β–ionone to Vitamin A? (5)

2. Using examples of each method, give the evidences obtained in the structure of a natural product by : (15)

(a) Babier – Wieland degradation

(b) Emde's – degradation

(c) Conversion to aromatic skeletons.

3. (a) Give an account of the Hofmann's exhaustive methylation method. (5)

(b) Write a note on the general methods of extraction of alkaloids. (4)

(c) Write the structure of three alkaloids having different heterocyclic rings. (6)

4. (a) What are xanthine bases? Give their occurrence and medicinal uses.

(b) Give their structural relations with uric acid.

(c) Describe synthesis of uric acid. (15)

II. Short notes on : (8 × 5 = 40)

Answer any EIGHT questions.

1. Give the structure and synthesis of ephedrine. (5)

2. How will you establish the ring structure of glucose? (5)

3. Give an account on the various parameters used for the determination of purity of fixed oils. (5)

4. What are the different methods for the assay of ascorbic acid? Write the principle behind any one of them. (5)

5. Elucidate the structure of thymol. (5)

6. Illustrate with structures how diosgenin can be converted into cortisone. (5)

7. Discuss the chemistry of salicin.

8. Discuss the skeletal structure of penicillins.

9. Explain the analytical methods to establish the purity and freshness of fat.

10. Give the synthesis of the following :

(a) Nicotine from ethyl nicotinate

(b) Reserpine from Bento quinone.

August 2008

[KT 730] **Sub. Code : 4221**

FOURTH B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper I — CHEMISTRY OF NATURAL PRODUCTS

Q. P. Code : 564221

Time : Three hours Maximum : 90 marks

I. Long Essay : (2 × 20 = 40)

Answer any TWO questions.

1. (a) Define Alkaloids. Give the chemical classification of Alkaloids. (5)

(b) Elucidate the structure of Atropine. (10)

(c) Give the identification test for morphine, caffeine and Atropine. (5)

2. (a) Classify terpenoids with suitable examples. (6)

(b) Discuss the constitution of menthol. (8)

(c) Give two methods of synthesizing camphor. (6)

3. (a) Elucidate the structure of oestrone. (13)

(b) How will you identify a steroidal compound? (4)

(c) Give the inter-relationship between oestrone, oestrodiol and oestriol. (3)

II. Short notes on : (8 × 5 = 40)

Answer any EIGHT questions.

(1) Give the structure and synthesis of Ephedrine.

(2) Elucidate the structure of salicin.

(3) How will you synthesize uric acid?

(4) Give the synthesis and deficiency of retinol.

(5) Define acid value. How will you determine the same?

(6) What are the degradation products of penicillin?

(7) Write any five structures of Tetracycline analogs.

(8) Give the synthesis of progesterone from one sapogenin.

(9) Explain any two methods of synthesizing amino acids.

(10) Briefly explain the two forms of Glucose.

III. Short answers : (5 × 2 = 10)

Answer any FIVE questions.

(1) Give the identification test for cardiac Glycosides.

(2) Write the structures of

(a) Thiamine

(b) Riboflavine

(c) Pyridoxine

(d) Ascorbic acid.

(3) Give two examples for

(a) Anti fungal Antibiotics

(b) Anticancer Antibiotics.

(4) How will you identify ascorbic acid?

(5) Mention the medicinal uses of

(a) Folic acid

(b) Cyanocobalamin

(c) Theo bromine

(d) Senna Glycosides.

(6) What are the Toxic effects of

(a) Chloramphenicol

(b) Streptomycin

(c) Penicillin

(d) Tetracycline

(7) Write the structures of

(a) Cholesterol

(b) Reserpine

(c) Morphine

(d) Chloramphenicol.

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February 2009

[KU 730] **Sub. Code: 4221**

FOURTH B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper I – CHEMISTRY OF NATURAL PRODUCTS
Q.P. Code : 564221

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

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

1. **a)** What are vitamins? Explain the source, chemistry and uses of ascarbic acid.
   b) Describe the constitution and synthesis of carotinoids.
   c) How will you convert β – ionone to vitamin A.
2. **a)** Explain the skeletal structures of progesterone derivatives used as oral contraceptives.
   b) Give the method of synthesis of papavarine and epthicin.
3. **a)** Define glycosides classify with examples, write the chemistry of cardiac glycosides.
   b) El ucidate the structure of cholesterols.

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

1. How to identity and differentiate the carbohydrates by chemical test.
2. Explain the chemistry of reserpine.
3. Elucidate the structures of terpenoids.
4. Enumerate the quantitative evaluations of fats and oils.
5. Write a note on degradations of proteins.
6. Elucidate the structure of amygdalin.
7. Describe the synthesis of camphor.
8. What are anti cancer and antifungal anti biotics.
9. Write note on Isoprene units.
10. Give the structure and degradation of penicillin.

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

1. Mention the constitution of menthol.
2. Give the chemical composition of fixed oils and fats.
3. Write the structure of chloramphenicol and tetra cycline.
4. Name the hormones secreted in adrenal cortex.
5. What are saponins? Give examples.
6. Name any two synthetic non-steroidal oestrogens with structure.
7. Write the identification tests for steroids.

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August 2009

[KV 730] **Sub. Code: 4221**

FOURTH B.PHARM. DEGREE EXAMINATION

(ReRevised Regulations)

Candidates Admitted upto 2003-04

Paper I – CHEMISTRY OF NATURAL PRODUCTS

Q.P. Code : 564221

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

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

1. **a)** Define alkaloid.
   b) How will you determine the structure of alkaloid generally?
   c) Discuss the chemistry of atropine.
2. **a)** What is carbohydrate?
   b) Classify it with suitable examples.
   c) Elucidate the ring structure of glucose empharizing its stereochemistry.
   d) Write the chemical nature of starch.
3. **a)** Define antibiotics? Classify them.
   b) Discuss the hydrolysis studies of penicillin.
   c) Write a note on semi synthetic penicillin.

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

1. Give the synthesis of uric acid.
2. Write about isoprene rule and special isoprene rule. Give the uses of camphor geranial and menthol.
3. Write about Gabriel pthalamide syntheris.
4. Write the chemical nature of cellulose and mention its pharmaceutical importance.
5. Inter relationship between linonence, αdipentene, α terpeniole, terpine hydrate and cineole.
6. Give the synthesis of progesterone.
7. Give the synthesis of camphor.
8. Write the synthesis of chloramphenicol.
9. Write the chemistry of cardiac glycosides.
10. Describe the properties exhibited by amino acids.

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

1. Write the structure of any two antifungal antibiotics.
2. How will assay riboflavin?
3. Give any two structures of opiumalkaloids.
4. What are saponin glycosides Give example.
5. Give the general tests for alkaloids.
6. Classify terpenoids with examples.
7. Write the identification test for cardiac glycosides.

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February 2010

[KW 730] **Sub. Code: 4221**

FOURTH B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper I – CHEMISTRY OF NATURAL PRODUCTS
Q.P. Code : 564221

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

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

1. **a)** What are essential amino acids? Enumerate and give the structure of any one of them. **(5)**
   b) Give the synthesis of phenyl alanine. **(5)**
   c) Give the test for purity and medicinal uses of Gelatin, Gelatin sponge, zinc gelatin and silver protein. **(10)**
2. **a)** Discuss the stero chemistry of menthol. **(6)**
   b) Give the synthesis of camphor. **(6)**
   c) Discuss the constitution of geraniol. **(8)**
3. **a)** Give the method of conversion of β carotene to vitamin A. **(6)**
   b) Give the chemistry and assay of riboflavine. **(8)**
   c) Outline the methods of synthesis of ascorbic acid and mention its uses. **(6)**

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

1. Write a note on anti fungal antibiotics.
2. Write a note on anthraquinone glycosides.
3. Define acid value, saponification value and iodine value. Mention their importance.
4. Enumerate the opium alkaloids. Give the structure of any two of them and their therapeutic uses.
5. How is progesterone synthesized?
6. Give the chemistry and synthesis of ephedrine.
7. Give the Inter relationship between theobromine, theophylline and caffeine.
8. What are terpenes and terpenoids? Classify terpenes with suitable example.
9. Give the synthesis of chloramphenicol.
10. Explain Iso electric point and ninhydrin reaction.

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

1. Give the medicinal importance of caffeine, theobromine, theophylline.
2. How will you assay Vitamin A?
3. Give the test for cholesterol.
4. Chemical composition of fixed oil and fat.
5. Give structure of any two anticancer antibiotics.
6. Name two oral contraceptives with relevant structure.
7. Give the test of adulteration for waxes.

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September 2010

[KX 730] **Sub. Code: 4221**

FOURTH B.PHARM. DEGREE EXAMINATION

(Re-Revised Regulations)Candidates Admitted upto 2003-04

Paper I – CHEMISTRY OF NATURAL PRODUCTS

Q.P. Code : 564221

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

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

1. a) Elucidate the structure of ephedrine.
   b) Explain the inter relationship between theobromine, theophyline and caffeine.
   c) Give the synthesis of ascorbic acid.
2. a) Classify proteins. Write a note on essential amino acids.
   b) Write a note on degradation of penicillin.
   c) Give the structure of and uses of non steroidal estrogenic compounds.
3. a) Write the synthesis of progesterone from diosgenin
   b) Write a note on constitution of menthol
   c) Give the structure of important synthetic corticosteroids

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

1. Write a note on tests for purity and medicinal uses of Silver protein.
2. Give the structure and uses of (a) thiamine (b) cortisone (c) camphor
3. Classify the alkaloids obtained from opium. Give the structure of one representative from each class.
4. Explain the ring structure of glucose.
5. Write a note on anthraquinone glycosides.
6. Explain about anti fungal antibiotics.
7. Give the skeleton structures and uses of Vitamin D.
8. Write a note of Salicin.
9. Chemical composition of fixed oils.
10. Write a note on oral contraceptives.

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

1. Keller Kilani Test.
2. Give the structure and use of chloramphenicol.
3. Define Saponification value.
4. Enumerate the Rauwolfia alkaloids.
5. Define isoprene rule.
6. Define Isoelectric point.
7. How will you assay Vitamin A?

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FEBRUARY 2011

[KY 730] **Sub. Code: 4221**

FOURTH B.PHARM. DEGREE EXAMINATION

(Re-Revised Regulations)Candidates Admitted upto 2003-04

Paper I – CHEMISTRY OF NATURAL PRODUCTS

Q.P. Code : 564221

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

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

1. a) What are essential amino acids? Enumerate them. Write the structure of any one of them. **(5)**
   b) Give the synthesis of Tyrosine. **(5)**
   c) Write the official test for purity of Gelatin and Silver protein. Mention the medicinal uses of Gelatin and Silver protein. **(10)**
2. a) Define Glycosides. Classify them with examples. **(7)**
   b) Write briefly about cardiac glycosides. **(13)**
3. a) Elucidate the structure of cholesterol. **(13)**
   b) Give the inter relationship of oestron, oestrodial and oesteriol. **(3)**
   c) Write the medicinal uses of synthetic non-steroid estrogenic compounds. **(4)**

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

1. Write the structures and uses of (a) Thiamine (b) Retinol (c) Ascorbic acid (d) Pyridoxine (e) Riboflavin.
2. Give the constitution of Menthol.
3. Write any five structures of Tetracycline analogs.
4. Give the synthesis of Caffeine.
5. Give the synthesis of Chloramphenicol.
6. Classify terpenoids with suitable examples.
7. Give an account on the various parameters used for the determination of purity of fixed oils.
8. Classify carbohydrates with suitable examples.
9. Write a note anti-cancer antibiotics.
10. Write the official test for purity of Zinc Gelatin.

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

1. Define Saponification value.
2. How will you identity Ascorbic acid?
3. Give two examples of Anti-fungal antibiotics.
4. Write the structure and uses of Morphine.
5. Define Mutarotation.
6. Give the identification test for anthraquinone Glycosides.
7. Give any two biological functions of Riboflavin.

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February 2012

[LA 4221] **Sub. Code: 4221**

FOURTH B.PHARM. EXAMINATION
(Re-Revised Regulations)
Candidates Admitted upto 2003-04
PAPER I – CHEMISTRY OF NATURAL PRODUCTS
Q.P. Code : 564221

Time: Three Hours **Maximum: 100 marks**

Answer ALL questions

I. Elaborate on: **(2 x 20 = 40)**

1. a) Explain the general methods used for structural elucidation of natural products (15)
   b) Give the identification tests for alkaloids (5)

2. a) Establish the structure of penicillin (15)
   b) Write a note on anti fungal antibiotics (5)

II. Write notes on: **(8 x 5 = 40)**

1. Explain Hoffmann exhaustive methylation and Vanbraun methods with examples
2. Classify alkaloids and explain general methods of isolation of alkaloids from natural products
3. Write the interrelationship of caffeine, theophylline and theobromine.
4. What are carotenoids and write its conversion into vitamin A?
5. Explain the determination of configuration of glucose
6. Write any two methods of synthesis of amino acids
7. Give a method of preparation and uses of synthetic non-steroidal estrogens.
8. Explain the degradation of penicillin.

III. Short Answers : **(10 x 2 = 20)**

1. Define Alkaloids
2. Write the structure and uses of any two purines
3. Give any two structure of fat soluble vitamins
4. Name any four essential amino acids
5. Write any two qualitative tests for steroids
6. Write any two structures and uses of anthraquinone glycosides
7. Define antibiotics
8. Write structures of any two antifungal antibiotics
9. Differentiate volatile oils from fixed oils
10. Name four tests used for the determination of adulterants in oils and fats

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[LB 4221] **AUGUST 2012** **Sub. Code: 4221**

FOURTH YEAR B.PHARM. EXAM

(Re-Revised Regulations) Candidates Admitted up to 2003-04

Paper I – CHEMISTRY OF NATURAL PRODUCTS

Q.P. Code : 564221

Time: Three Hours **Maximum: 100 marks**

(180 Min) **Answer ALL questions in the same order.**

I. Elaborate on:	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. a) Establish the structure of riboflavin. b) Write the synthesis of vitamin C.	19	33	20
2. a) Establish the structure of uric acid. b) Write a note on important progesterone derivatives used as oral contraceptives.	19	33	20

II. Write notes on:			
1. Establish the structure of ephedrine.	3	8	5
2. Write the synthesis of theophylline.	3	8	5
3. Write the classification of proteins.	3	8	5
4. Explain the chemistry of cardiac glycosides.	3	8	5
5. Explain the sterochemistry of chloramphenical.	3	8	5
6. Give a constitution of Geraniol.	3	8	5
7. Write the synthesis of camphor.	3	8	5
8. Explain any two methods for analysis for fats, oils and waxes.	3	8	5

III. Short Answers:			
1. What type of compounds will undergo Hoffmann exhaustive methylation?	1	5	2
2. What is Ziesal method and what for it is used?	1	5	2
3. Give any four examples of moderate oxidising agent.	1	5	2
4. Write the uses of cellulose derivatives.	1	5	2
5. Write general characteristics of proteins.	1	5	2
6. Write the medicinal uses of gelatin, gelatin sponge and zinc gelatin.	1	5	2
7. What are glucocorticoids and give two examples.	1	5	2
8. Write the structures of cholesterol and stigmosterol.	1	5	2
9. Explain isoprene rule.	1	5	2
10. Write the structure and uses of geraniol and menthol.	1	5	2

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[LD 4221] **AUGUST 2013** **Sub. Code: 4221**

FOURTH YEAR B.PHARM. EXAM

(Re-Revised Regulations) Candidates Admitted up to 2003-04

Paper I – CHEMISTRY OF NATURAL PRODUCTS

Q.P. Code : 564221

Time: Three Hours **Maximum: 100 marks**

I. Elaborate on: **(2X20=40)**

1. a) Define alkaloids. Give the chemical classification of alkaloids.
   b) Explain the salient structural features of Rauwolfia alkaloids and their biological significance.
   c) Write the method of isolation and identifying test for alkaloids
2. a) Classify terpenoids with suitable example
   b) Discuss the constitution of Menthol.
   c) Give the methods for synthesizing camphor

II. Write notes on: **(8X5=40)**

1. How will you synthesize uric acid.
2. Define acid value. How will you determine.
3. Write a note on antifungal antibiotics.
4. Write notes on cardiac glycosides.
5. Classify carbohydrates and write about its configuration.
6. Write briefly about estrogens.
7. Write general characteristics of proteins.
8. Discuss the structure of Amygdalin.

III. Short Answers: **(10X2=20)**

Write the structure and medicinal uses of

1. Thiamine
2. Reserpine
3. Retinol
4. Salicin
5. stilbestrol

Define the following terms with example:

6. vitamin
7. Steroids
8. Glycosides
9. Amino acids
10. Purines

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