

MAY 2011

[KY 346]

Sub. Code: 2907

M.PHARM. DEGREE EXAMINATION

(Regulations 2010)

Candidates admitted from 2010-2011 onwards

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST

Q.P. Code : 262907

Time : Three hours

Maximum : 100 marks

Answer All questions

I. Essay Questions :

(6 x 10 = 60)

1. Write the application of IR, NMR and mass spectroscopy in the structural elucidation of natural product.
2. Enumerate the role of recombinant DNA Technology in drug discovery.
3. Write the general method of structural elucidation of alkaloids.
4. Write the synthesis and uses of reserpine.
5. Enumerate aminoglycoside antibiotics .Write any four compound.
6. Write the steroidal drug in plant constitution.

II. Write Short Notes :

(8 x 5 = 40)

1. Write short note on psoralene.
2. Give an account of diosgenin.
3. Write note on antibody production.
4. Detail about oligonucleotide therapy.
5. Write SAR of penicillin.
6. Write the structure and uses of
 - a) clindamycin
 - b) Erythromycin
7. Outline the steps involved in preparation and purification of Insulin.
8. Explain the therapeutic applications of Swertia and phyllanthus niruri.

October 2011

[KZ 346]

Sub. Code: 2907

M.PHARM. DEGREE EXAMINATION

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST

Q.P. Code : 262907

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

	Pages (Max.)	Time (Max.)	Marks (Max.)
1. Define alkaloid. Classify them with examples. Elucidate the structure of quinine.	17	40	20
2. (a) Explain the importance of GLC and HPLC in separation. (b) Write in detail about currently used synthetic hormones.	17	40	20

II. Write notes on :

1. Give the application of IR in structural determination of natural products.	4	10	6
2. Explain the stereochemistry of steroids.	4	10	6
3. Explain the chemistry of rutin.	4	10	6
4. Explain briefly about Cepham and Penam ring systems.	4	10	6
5. Degradation of Penicillin's.	4	10	6
6. Give the general structural elucidation of Terpenoids.	4	10	6
7. Give an account of DNA technology.	4	10	6
8. Explain the chemistry of Psorlene.	4	10	6
9. Explain the role of <i>Gymnema sylvestre</i> .	4	10	6
10. Macrolide antibiotics.	4	10	6

[LA 346]

MAY 2012

Sub. Code: 2907

M.PHARM. DEGREE EXAMINATION

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST

Q.P. Code: 262907

Time: 3 hours
(180 Min)

Maximum: 100 marks

Answer ALL questions in the same order.

I. Elaborate on:

	Pages (Max.)	Time (Max.)	Marks (Max.)
1. (a) Discuss the salient features involved in the isolation, identification and purification of terpenoids.			
(b) Explain the application of IR, NMR, MAS, CD and ORD in the structural elucidation of terpenoids.	17	40	20
2. (a) Give a detailed account of the structural elucidation of cholesterol.	17	40	20
(b) Write a note on cardiac sugars.			

II. Write notes on:

1. Briefly explain the chemistry of rutin.	4	10	6
2. Outline the mechanism of beta – lactamase inhibitors.	4	10	6
3. Write a note on cannabinoids.	4	10	6
4. Outline the various methods adopted to clone fragments of DNA.	4	10	6
5. Discuss the synthetic modifications and S.A.R. of macrolides.	4	10	6
6. Enumerate and write the significance of pharmaceutical products based on rDNA technology.	4	10	6
7. Explain the structural constitution of reserpine.	4	10	6
8. Write briefly on the natural products used as antitumour agents.	4	10	6
9. Give the structure and uses of five currently used glucocorticoids.	4	10	6
10. What is P-UVA? Write the chemistry of xanthotoxin.	4	10	6

[LB 346]

NOVEMBER 2012
M.PHARM. DEGREE EXAMS
FIRST YEAR

Sub. Code: 2907

BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST

Q.P. Code : 262907

Time : 3 hours
(180 Min)

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

	Pages	Time	Marks
	(Max.)	(Max.)	(Max.)
1. a) Give the structural elucidation of Reserpine.			
b) Discuss in detail about Terpenoids.	17	40	20
2. Give the structural elucidation of sterols.	17	40	20

II. Write notes on :

1. Cephalosporins.	4	10	6
2. Polypeptide antibiotics.	4	10	6
3. Write notes on the drugs used in indigenous System or Antitumour & liver.	4	10	6
4. What are antibodies? Write about them.	4	10	6
5. Transformation of phytosterols into steroidal drugs.	4	10	6
6. Quercetin.	4	10	6
7. Cannabinoids.	4	10	6
8. Application of HPLC to plant constituents.	4	10	6
9. Aminoglycosides.	4	10	6
10. Semi synthetic pencillines.	4	10	6

[LC 346]

APRIL 2013

Sub. Code: 2907

M.PHARM. DEGREE EXAMS

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST

Q.P. Code : 262907

Time : 3 hours

Maximum : 100 marks

I. Elaborate on :

(2x20=40)

1. Discuss the constitution of morphine.
2. Give the mechanism of action and a detailed note on β - Lactam antibiotics.

II. Write notes on :

(10x6=60)

1. Etoposide and teniposide.
2. Give the general methods for determining
 - a) Hydroxyl group
 - b) Nature of nitrogen in alkaloids
3. Write a note on Quercetin
4. Novel biotechnology derived pharmaceutical products
5. Aminoglycosides
6. Drugs for liver dysfunction in indigenous system
7. Short notes on coumarins
8. Sapogenins
9. Application of IR in Natural products
10. General methods of structural determination of terpenoids

M.PHARM. DEGREE EXAMINATIONS**FIRST YEAR****BRANCH II – PHARMACEUTICAL CHEMISTRY****PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST***Q.P. Code : 262907***Time: Three Hours****Maximum: 100 marks****Answer ALL questions in the same order.****I. Elaborate on :****(2 x 20 = 40)**

1. (a) Outline the methods of isolation & separation of flavonoid.
(b) Explain the application of IR, NMR, MASS in the structural elucidation of natural products
2. (a) Discuss the chemistry & S.A.R. of glucocorticoids.
(b) How do you convert ergosterol to any one of currently used steroid drugs?.

II. Write notes on :**(10 x 6 = 60)**

1. Discuss the chemistry & mechanism of action of cephem antibiotics.
2. Outline the general chemistry of terpenoids..
3. Write a note on polypeptide antibiotics.
4. Give the therapeutic applications of curcumin.
5. Write a note on synthetic & semisynthetic derivatives of asperlicin & cannabinoids.
6. Define vector and explain their role in rDNA technology.
7. How will you establish the presence of quinoline nucleus and vinyl group in quinuclidine nucleus?
8. Give reasons for using rDNA to alter DNA sequence with relevant example?
9. Write the skeletal structure mechanism and use of
 - a) Thienamycin
 - b) Sulbactan sodium.
10. Briefly explain the structural constitution of quercetin?

[LE 346]

APRIL 2014

Sub. Code: 2907

**M.PHARM. DEGREE EXAMS
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : 3 hours

Maximum : 100 marks

I. Elaborate on :

(2x20=40)

1. a) Write the structural elucidation of cholesterol.
b) Write a detailed note on penicillins with their mechanism of action.
2. a) Give the constitution of Quinine.
b) Write a detailed note on cardiac glycosides.

II. Write notes on :

(10x6=60)

1. Write about the application of countercurrent extraction in the separation and analysis of plant constituents.
2. Write notes on Asperlicins.
3. Give the general chemical treatment of terpenoids.
4. Write a note on antisense oligonucleotide therapy.
5. Give a note on Aminoglycosides.
6. Briefly explain about the crude drugs used as antitumour agents.
7. Write a note on cloning of DNA.
8. Explain the transformation of phytosterols into steroidal drugs.
9. Write a short note on Psoralene.
10. How cannabinoids are used as leads for pharmaceuticals.

[LF 346]

OCTOBER 2014

Sub. Code: 2907

**M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : Three hours

Maximum : 100 marks

I. Elaborate on:

(2 x 20 = 40)

1. a) Give the general method of isolation, identification and purification of steroids.
b) Discuss the S.A.R of corticosteroids and their synthetic modifications with relevant examples.
2. Elucidate the structure of morphine with various degradation reaction.

II. Write notes on:

(10 x 6 = 60)

1. Write the chemistry and significance of semi synthetic penicillins.
2. Explain the role of antisense oligo nucleotide in the treatment of human disease.
3. Write a note on isoprene rule with example.
4. Outline the applications of HPLC and GLC in the isolation and identification of plant constituents.
5. Give an account of the therapeutic application of quercetin.
6. Briefly explain the role of pterocarpus Marsupium and salacia reticulata in diabetic therapy.
7. Give the structure, chemistry, mechanism and use of Streptomycin.
8. Write the general chemical test to identify the flavonoid and alkaloid.
9. Give the method of isolation and purification of psoralen.
10. Give an account of etoposide and teniposide.

[LG 346]

APRIL 2015

Sub. Code: 2907

M.PHARM. DEGREE EXAMINATION

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST

Q.P. Code : 262907

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Elaborate on :

(2 x 20 = 40)

1. Enumerate in detail on various natural products as lead for new pharmaceuticals.
2. Constitution of α -pinene.

II. Write notes on :

(10 x 6 = 60)

1. Aminocyclitol antibiotics and its derivatives.
2. Biological activity of monobactams
3. Explain how Aspercillin is associated with G-protein coupled receptors.
4. Topoisomerase II inhibitor.
5. Clavulanic acid as β -lactamase inhibitors.
6. Gene therapy in nervous system disorders.
7. Structural elucidation of an acyclic monoterpenoid from *ocimum basilum*.
8. Mechanism involved with oligonucleotides interacting with nucleic acid targets.
9. Epitope mapping.
10. Instrumental analysis in natural products analysis.

[LH 346]

OCTOBER 2015

Sub. Code: 2907

**M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : Three hours

Maximum : 100 marks

I. Elaborate on:

(2 x 20 = 40)

1. With suitable evidence elucidate the structure of Diosgenin.
2. Give details on the heterocyclic modifications in oligonucleotide therapy.

II. Write notes on:

(10 x 6 = 60)

1. Biological activity and structural activity relationship of Nocardicin A.
2. Explain in detail about drug discovery tools in genetical engineering.
3. Chemistry of Progesterone.
4. Hoffmann's exhaustive methylation method for degradation of alkaloids.
5. Explain the nature and method to estimate hydroxyl group in Morphine.
6. Stereochemistry of Camphor.
7. Cardenolides and Bufadienolides.
8. How Optical Rotatory Dispersion employed in structural elucidation?
9. Brief a note on Steroid receptor.
10. Explain in detail about the drugs of Cholecystokinin-A antagonist.

[LI 346]

APRIL 2016

Sub. Code: 2907

**M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain about Drug targets with respect to Receptor and enzymes.
2. Explain various steps involved in Structural elucidation of Triterpenoids.

II. Write notes on:

(10 x 6 = 60)

1. What is Invitro Evolution? How it is useful in drug discovery?
2. How Phage display can be used as identification of therapeutic novel peptides?
3. Write short notes on Echinocandins.
4. Explain the structural constitution of Rutin.
5. Explain how you will elucidate the N-Methyl group present in morphine?
6. Explain nature and position of side chain with evidence in cholesterol.
7. Write short notes on polypeptide Antibiotics.
8. Explain in detail about the Resistance to β -lactam Antibiotics.
9. Explain the chemistry of Digitoxin.
10. Write short notes Stereochemistry of Borneol.

[LJ 346]

OCTOBER 2016

Sub. Code: 2907

**M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain the general methods in structural elucidation of alkaloids.
2. a) Summarize the various steps involved in cloning DNA.
b) Explain the approaches of Gene therapy including the problems associated.

II. Write notes on:

(10 x 6 = 60)

1. Compare Oestrone, Oestriol and Oestrodinol.
2. Give a note on mycotoxin derived from *Aspergillus alliaceans*.
3. Explain the importance of IR in structural elucidation of natural product.
4. Write short notes on glycopeptide antibiotic.
5. What are semisynthetic macrolides? Explain.
6. Give a note on Androgens as Aromatase inhibitor.
7. Give a note on *Phyllanthus niruri*.
8. Explain in detail about isolation and purification of Xanthotoxin.
9. Give the mechanism of β -lactamase inhibitors.
10. Explain about the natural products as antitumour agents.

[LK 346]

MAY 2017

Sub. Code: 2907

**M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. The application of the following analytical techniques in the isolation, identification and analysis of plant constituents-GLC, HPLC, MS, ORD and CD.
2. The following methods of employed in structure elucidation of natural products.
 - a) Hoffmann's exhaustive methylation.
 - b) Herzig Meyer method.
 - c) Ziesel's method of determination of methoxy groups.
 - d) Zerewitinoff's method.

II. Write notes on:

(10 x 6 = 60)

1. Steroid receptors.
2. Milbenmycins as lead for new pharmaceuticals.
3. Polypeptide antibiotics.
4. Lincomycins.
5. Mechanism of action of Nocardicins.
6. New biological targets for drug development.
7. Stereo chemistry of the steroid nucleus.
8. Mechanism of action of Beta lactamase inhibitors.
9. Acute constituents in pterocarpus marsupiam.
10. Constitution of streptomycin.

[LL 346]

OCTOBER 2017

Sub. Code: 2907

**M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. The structural elucidation of morphine.
2. a) Discuss the significance of natural products as leads for new pharmaceuticals.
b) Discuss the chemistry of natural hormones derived from steroids.

II. Write notes on:

(10 x 6 = 60)

1. The structural determination of Psoralene.
2. Structural features of streptomycin.
3. Macrolide antibiotics.
4. Application of HPLC to separation and analysis of plant constituent.
5. The significance of pharmaceutical products based on novel bio-technology.
6. The mechanism of action and chemistry of penicillins.
7. Carbapenems and penems.
8. Antisense oligonucleotide therapy.
9. The chemistry of quercetin.
10. *Gymnema sylvestre*.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LM 346]

MAY 2018

Sub. Code: 2907

**M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Describe the constitution of quinine.
2. a) Give the general method of isolation, identification and purification of cholesterol.
b) Discuss the S.A.R of corticosteroids with suitable examples.

II. Write notes on:

(10 x 6 = 60)

1. Describe structural elucidation of triterpenoids.
2. Give an account of teprotide and khellin.
3. Write a note on amino glycoside antibiotics.
4. Application of ORD and NMR in natural products.
5. Write the significance of pharmaceutical products based on rDNA technology.
6. Write the mechanism of action and chemistry of β -lactum antibiotics.
7. Write briefly on the natural products used as anti-diabetic agents.
8. Write short notes on psoralene.
9. Describe the chemistry of Rutin.
10. Provide a detailed note on Curcuma Longa Linn.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LN 346]

OCTOBER 2018

Sub. Code: 2907

**M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain the role of recombinant DNA technology in the development of new drugs.
2. Classify alkaloids and establish the structure of morphine.

II. Write notes on:

(10 x 6 = 60)

1. Brief out in detail about antisense therapy.
2. Write a brief note on the plant drugs used in diabetic therapy.
3. Discuss the chemistry of macrolides.
4. Give a brief account on beta lactamase inhibitors.
5. Explain the SAR of glucocorticoids.
6. Briefly discuss the chemistry of cannabinoids and etoposide.
7. Brief out the stereochemistry of steroids.
8. Write a note on cardiac glycosides.
9. Briefly write the chemistry of quercetin.
10. Write a note on the active constituents of phyllanthus niruri.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LP 346]

OCTOBER 2019

Sub. Code: 2907

**M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER IV – NATURAL PRODUCTS OF MEDICINAL INTEREST**

Q.P. Code : 262907

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Define hormone and explain in detail about natural hormone and synthetic derivatives.
2. Enumerate in detail on modifications in base, sugar and phosphate moiety of Oligonucleotide.

II. Write notes on:

(10 x 6 = 60)

1. Explain the application of recombinant D.N.A. technology.
2. Elucidate the presence of Phenanthrene in Morphine with evidence.
3. How chromatography technique is useful in the separation of natural products?
4. Define alkaloids with classification and its various functions.
5. Give the source and molecular formula of Reserpine. How will you confirm the presence of methoxy group and nitrogen in Reserpine?
6. Explain the steps in isolation of alkaloids.
7. What are therapeutic application of *Gymnema sylvestre* and *Curcuma longa*?
8. Give a note on natural products as lead in drug discovery.
9. Write short notes on Sapogenin.
10. Compare Azithromycin, Erythromycin and Flurithromycin.
