MAY 2011

[KY 345] **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION

(Regulations 2010)

Candidates admitted from 2010-2011 onwards

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions: **(6 x 10 = 60)**

1. Explain the role of G-Protein Coupled Receptor in the Cell Signaling Pathway.
2. What is meant by Analog Design? Explain in detail Bioisoteric Replacements and Rigid Analogs.
3. Discuss the various physico-chemical parameters that affect biological activity.
4. Explain how enzyme inhibitors are used against microorganisms and the body's own enzymes to produce effective therapeutic agents. Give examples.
5. Outline the synthesis of Omeprazole and Clonidine.
6. Discuss the importance of enantio selectivity in drug absorption , metabolism, distribution and elimination.

II. Write Short Notes **(8 x 5 = 40)**

1. Outline the steps involved in the manufacture of Pheniramine Maleate.
2. Explain the mechanism of action of intercalating agents.
3. Explain Craig Plot.
4. Give five applications of Pro-drug design with suitable examples.
5. Inhibitors of viral reverse transcriptase.
6. Monte Carlo method of conformational Analysis.
7. Interferons.
8. Explain how proton pump inhibitors act.

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October 2011

[KZ 345] **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

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 various stearic substituent constants commonly used in QSAR. Explain the effect of stearic and electromeric parameters on lipophilicity.	17	40	20
b) Classify antiviral agents. Explain the mechanism of action and synthesis of one drug form 2 different classes.			
2. Define Prodrug. Elaborate various types of prodrug design with suitable example.	17	40	20
II. Write notes on :			
1. Pyrimidine antimetabolites.	4	10	6
2. Manufacturing process of Diphenhydramine.	4	10	6
3. Enantio-selectivity in drug absorption.	4	10	6
4. Immuno response.	4	10	6
5. Design of enzyme inhibitors as drugs.	4	10	6
6. Molecular mechanics in molecular modeling.	4	10	6
7. Gastric acid secretion and its inhibitors.	4	10	6
8. Antihypertensive agents.	4	10	6
9. How does rigid analog and alteration of chain branching help in Analog design.	4	10	6
10. What are Prostaglandins? How are they useful in the design of new drugs?	4	10	6

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[LA 345] **MAY 2012** **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code: 262906

Time: 3 hours **Maximum: 100 marks**

(180 Min)

Answer ALL questions in the same order.

I. Elaborate on:	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. a) Explain the analog design and detail on bioisosteric replacement with examples. b) Discuss the rational of prodrug design and practical consideration.	17	40	20
2. a) Explain the importance of enantio selectivity in drug absorption, metabolism, distribution and elimination. b) Write briefly about gastric proton pump inhibitors.	17	40	20

II. Write notes on:

1. Explain the chemistry and biological significance of prostaglandins.	4	10	6
2. Explain 3D QSAR approaches.	4	10	6
3. Give detailed account of alkylating agents as anti-neoplastic drugs.	4	10	6
4. Write briefly on Quantum mechanism.	4	10	6
5. Write a note on immuno stimulants.	4	10	6
6. Outline the Steps involved in the manufacture of Diphenhydramine.	4	10	6
7. Write a note on covalently binding enzyme inhibitors.	4	10	6
8. Discuss about drug receptor interactions.	4	10	6
9. Explain pharmacophore models.	4	10	6
10. Give the application of Craig plot.	4	10	6

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[LB 345] **NOVEMBER 2012** **Sub. Code: 2906**

M.PHARM. DEGREE EXAMS

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : 3 hours **Maximum : 100 marks**

(180 Min)

Answer ALL questions in the same order.

I. Elaborate on :	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. a) Describe the medicinal aspects and SAR of alkylating agents. b) Describe the types of drug receptor interactions.	17	40	20
2. a) Describe various concepts involved in quantum mechanics. b) Explain various stereochemical aspects involved in drug action.	17	40	20

II. Write Notes on :

1. Describe various physicochemical parameters involved in QSAR studies.	4	10	6
2. Explain the medicinal chemistry aspects of reverse transcriptase inhibitors as antiviral agents.	4	10	6
3. Write a note on the manufacture of pheniramine maleate.	4	10	6
4. Explain the design of covalently binding enzyme inhibitors.	4	10	6
5. Explain the mechanism involved in gastric acid secretion.	4	10	6
6. Explain the pharmacokinetic and biopharmaceutical aspects of prodrug design.	4	10	6
7. Explain the rigid analog design strategy in analog design.	4	10	6
8. Write a note on the medicinal applications of prostaglandins.	4	10	6
9. Write a note on immune modulators.	4	10	6
10. Briefly explain the medicinal aspects of Angiotensin converting enzyme inhibitors.	4	10	6

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[LC 345] **APRIL 2013** **Sub. Code: 2906**

M.PHARM. DEGREE EXAMS

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : 3 hours **Maximum : 100 marks**

I. Elaborate on : **(2x20=40)**

1. a) Write in detail accounts QSAR models.
   b) Classify the covalently binding enzyme inhibitors with example.
2. a) Define analog design . Explain in detail rigid analog and fragments of leads molecule.
   b) Discuss the various test assays for studying gastric acid inhibition.

II. Write notes on : **(10x6=60)**

1. Outline the steps involved in the manufacture of the sulphamethoxazole.
2. Classify Antihypertensive drugs and explain the mechanism of ACE inhibitors.
3. Write a note on immune response.
4. Write briefly on known receptors sites on molecular modeling.
5. Discuss the role of chirality in the receptors and specific therapeutic agents.
6. Writes briefly about drugs receptors interactions.
7. Give the application of Hansch analysis.
8. Explain pharmacophore models.
9. Writes a note on regression analysis and partial least square analysis.
10. Explain the biological significance of leukotrienes.

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[LD 345] **OCTOBER 2013** **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATIONS

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

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

Answer ALL questions in the same order.

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

1. a) Describe in details about receptor types and sub types.

   b) Classify antihypertensive drugs with examples. Give the mechanism of action and synthesis of one drug form two different classes.

2. a) Define prodrug. Explain with examples the different aspects of prodrugs in drug designing.

   b) Discuss in detail about different approaches in drug design from lead molecule.

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

1. Hansch analysis in QSAR studies.
2. Molecular mechanics.
3. 3D QSAR approaches in drug design.
4. How partition coefficient affect the biological activity of a drug with example
5. Enzyme inhibitors in basic research.
6. Role of chirality in selective and specific therapeutic agents.
7. Method of manufacture of paracetamol.
8. Irreversible gastric proton pump inhibitors.
9. Immuno stimulants.
10. Synthesis and mode of action of anti viral agent.

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[LE 345] **APRIL 2014** **Sub. Code: 2906**

M.PHARM. DEGREE EXAMS
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : 3 hours **Maximum : 100 marks**

I. Elaborate on : **(2x20=40)**

1. a) Discuss in detail about drug receptor interaction
   b) Classify antineoplastic agents with examples. Give the mode of action and synthesis of one drug form two different classes.

2. a) Explain the rational design of covalently binding enzyme inhibitors.
   b) Explain the importance of prodrug design with suitable examples.

II. Write notes on : **(10x6=60)**

1. Merits and demerits of Hansch analysis and Free Wilson analysis.
2. Pharmacophore models in drug design.
3. Mechanism of action and synthesis of ACE inhibitors.
4. Enantio selectivity in the distribution of drugs.
5. Industrial method of manufacture of indomethacin.
6. How bio-isosterism effects the biological activity of drugs.
7. Immuno suppressants.
8. Various approaches of drug design from lead molecule
9. Gastric proton pump inhibitors.
10. Regression analysis and partial least square analysis.

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[LF 345] **OCTOBER 2014** **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 marks**

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

1. a) Explain the biosynthesis of Prostaglandins.
   b) Give the mechanism of action of prostaglandins.
   c) Write a note on clinically approved prostaglandins.

2. Explain (with case study) the role of chirality in drug absorption, metabolism, distribution and elimination.

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

1. Explain the SAR, mechanism of action and synthesis of irreversible proton pump inhibitors.
2. What do you mean by 3D QSAR? Write a short note on CoMFA.
3. What is IC50? Give the general mechanism of reversible and irreversible enzyme inhibitors.
4. Explain the method of manufacture of sulphamethoxazole.
5. Explain briefly the various forces involved in the non-covalently binding enzyme inhibitors.
6. Explain the disorders associated with elevated gastric acid secretions.
7. Give the structure and synthesis of following:
   a) Nifedipine b) Prazosin c) Hydralazine
8. What is immune response? Discuss briefly about immuno-stimulants.
9. How does prodrug help to overcome the pharmacokinetic problems associated with the drug discovery process?
10. Antiviral agents

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[LG 345] **APRIL 2015** **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

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

Answer ALL questions

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

1. Explain in detail various strategies utilized in analog design.

2. Briefly explain the medicinal chemistry aspects of antihypertensive agents with special emphasis to classification, mechanism of action, structure and synthesis of any one drug from each class.

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

1. Briefly account on molecular mechanics in molecular modeling.

2. Write a note on steric factors in a QSAR study.

3. Write a brief note on pharmacophore models.

4. Briefly explain the manufacture of Paracetamol.

5. Describe in detail about the biosynthesis of prostaglandins.

6. Outline various approaches in prodrug design.

7. Write a note on antineoplastic antimetabolites.

8. Describe various theories involved in drug receptor interactions.

9. Outline the aspects of enantioselectivity in drug absorption and elimination.

10. Briefly explain with examples on noncovalent enzyme inhibitors.

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[LH 345] **OCTOBER 2015** **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 marks**

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

1. Enumerate briefly various approaches for the design of enzyme inhibitors in medicine.

2. Discuss in detail the types of receptors and various forces involved in drug receptor interactions.

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

1. Write a note on the role of chirality in medicinal agents.
2. Explain in detail about the bioisosteric approach of analog design with examples.
3. Briefly explain the concept of quantum mechanics in molecular modeling.
4. Write a note on irreversible proton pump inhibitors.
5. Explain briefly the industrial method of manufacture of Indomethacin.
6. Give a brief account on Hansch analysis and Free Wilson analysis.
7. Give the medicinal chemistry aspects on clinically approved prostaglandins.
8. Brief out the pharmacokinetic and biopharmaceutical aspects involved in prodrug designing.
9. Write a note on immune response.
10. Explain in detail about the development of anti HIV agents with examples.

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[LI 345] APRIL 2016 **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 Marks**

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

1. Discuss in detail the medicinal chemistry aspects of Alkylating agents with special emphasis to SAR, mechanism of action, structure and synthesis of any one drug from each class.

2. a) Explain various physicochemical parameters involved in a QSAR study.
   b) Outline the application of Craig Plot in QSAR design.

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

1. Explain the types of Noncovalently binding enzyme inhibitors.
2. Discuss briefly about various classes of antiviral agents.
3. Briefly give an account on the influence of fragments of a lead molecule and variation in inter atomic distance in analog design.
4. Outline various aspects on gastric proton pump inhibitors.
5. Explain the role of immuno modulators with examples.
6. Explain the industrial method of preparation of Pheniramine Maleate.
7. Discuss briefly about calculation of affinity and unknown receptors in molecular modelling.
8. Brief out the practical applications of prodrug design.
9. Explain the importance of regression analysis and 3D-QSAR.
10. Outline the influence of Enantio selectivity in the distribution and metabolism of drugs.

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[LJ 345] OCTOBER 2016 **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 Marks**

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

1. a) Explain the importance of Enantio selectivity in drug absorption, metabolism, distribution and elimination.
   b) Discuss the rationale of Prodrug design and its practical consideration.
   c) Explain with suitable examples how partition coefficient and hydrogen bonding affect the biological activity of a drug.

2. a) Discuss rational design of non covalently and covalently binding enzyme inhibitors.
   b) Classify anti-neoplastic agents with examples and discuss the mechanism of action and synthesis of Methotrexate.
   c) Explain in detail about Immuno stimulants.

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

1. Outline the synthesis of Clonidine and Chlorambucil.
2. Molecular mechanics in molecular modeling.
3. Monte Carlo method of conformational analysis.
4. Interferons.
5. Synthesis of any two drugs from nitrogen mustards.
6. Merits and demerits of Hansch analysis and Free Wilson analysis.
7. Immuno suppressants.
8. SAR of ACE inhibitors.
9. Give the structure and synthesis of following:
   a) Hydralazine b) Nifedipine
10. Explain Eicosanoids.

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[LK 345] MAY 2017 **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 Marks**

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

1. Explain various strategies utilized in analog design.

2. Explain the types of receptors and various theories involved in drug receptor interactions.

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

1. Briefly explain the rationale of prodrug design with the applications.
2. Discuss briefly about the mechanism of action, structure and synthesis of any one ACE inhibitors.
3. Explain the industrial method of preparation of diphenhydramine.
4. Outline various aspects on irreversible gastric proton pump inhibitors.
5. Briefly discuss about immune stimulants.
6. Outline the medicinal chemistry aspects of anticancer plant drugs.
7. Discuss the electronic parameters involved in QSAR.
8. Write a note on quantum mechanics.
9. Elaborate briefly about covalent enzyme inhibitors.
10. Explain the importance of stereo selectivity in drug action.

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[LL 345] OCTOBER 2017 **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 Marks**

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

1. Discuss in detail various techniques and approaches utilized in molecular modelling studies.

2. a) Enumerate elaborately the medicinal chemistry aspects of gastric proton pump inhibitors.
   b) Write a detailed note on the role of chirality in drug action in therapeutic agents.

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

1. Explain briefly about types of noncovalent enzyme inhibitors.
2. Discuss on various concepts involved in analog design.
3. Enumerate QSAR study by Free Wilson method and Hansch analysis.
4. Briefly explain various steps involved in the manufacture of sulphamethoxazole.
5. Write a note on calculation of affinity and pharmacophore models.
6. Discuss the medicinal chemistry aspects of newer anti HIV agents with examples.
7. Briefly elaborate the pharmacokinetic and biopharmaceutical aspects prodrug chemistry.
8. Discuss the mechanism of action and SAR of alkylating agents.
9. Describe briefly on drug receptor interactions.
10. Write a note on immune response.

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

[LM 345] MAY 2018 **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 Marks**

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

1. a) Elaborate various QSAR techniques like Free Wilson analysis, Hansch approach and mixed analysis.
   b) Explain elaborately the stereo-chemical aspects in drug action.

2. Discuss in detail about the medicinal chemistry aspects of Anti-hypertensive agents.

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

1. Brief out analog design based on bio-isosterism and alteration of chain branching.
2. Explain in detail about the manufacture of sulphamethoxazole.
3. Write a note on Anti-neoplastic anti-metabolites.
4. Explain briefly the importance of Enantio-selectivity in absorption, distribution, metabolism and elimination of drugs.
5. Briefly discuss about the medicinal importance of prostaglandins.
6. Discuss the role of molecular mechanics in drug design techniques.
7. Write a note on regression analysis and partial least square analysis.
8. Brief on immune response.
9. Explain briefly about irreversible proton pump inhibitors.
10. Explain the rationale of prodrug design with emphasis to the medicinal applications.

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

[LN 345] OCTOBER 2018 **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 Marks**

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

1. Explain elaborately the medicinal chemistry aspects of anti-neoplastic agents with emphasis to classification, mechanism of action, structure and synthesis of any two from each class.

2. Discuss in detail about the rational design of non covalently and covalently binding enzyme inhibitors.

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

1. Write a brief account on 3D-QSAR studies.
2. Explain in detail about the industrial method of manufacture of paracetamol.
3. Write a note on the types of receptors.
4. Briefly discuss about immune stimulants.
5. Brief out the design of analogs on the basis of alteration of chain branching and from fragments of lead molecule.
6. Discuss briefly about molecular mechanics in molecular modelling studies.
7. Define pro-drugs and discuss its types and advantages.
8. Discuss the mechanism of gastric acid secretion.
9. Explain briefly the clinically approved prostaglandins.
10. Write a note on the role of enantio selectivity in drug ADME.

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

[LO 345] MAY 2019 **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 Marks**

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

1. a) Explain various physiochemical parameters involved is a QSAR Study.
   b) Write a note on 3D QSAR approaches.

2. Briefly explain the medicinal chemistry aspects of anticancer agents with special emphasis of classification, mechanism of action, structure and synthesis of any one drug from each class.

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

1. Explain in detail about the bio-isomeric approach of analog design with examples.
2. Discuss briefly about various classes of antiviral agents.
3. Immunosuppressants.
4. Elaborate briefly about covalent enzyme inhibitors.
5. SAR of ACE inhibitors.
6. Outline various aspects on gastric proton pump inhibitors.
7. Describe briefly on drug receptor interaction.
8. Brief out the practical applications of prodrug design.
9. Explain the biosynthesis of prostaglandins.
10. Explain manufacturing methods of pheniramine maleate.

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

[LP 345] OCTOBER 2019 **Sub. Code: 2906**

M.PHARM. DEGREE EXAMINATION
FIRST YEAR
BRANCH II – PHARMACEUTICAL CHEMISTRY
PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code : 262906

Time : Three hours **Maximum : 100 Marks**

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

1. Describe in detail the various approaches of pro drug design.

2. a) Define antiretroviral agent. Classify them with suitable example.
   b) Discuss the mechanism of action, synthesis of anyone drug from any 3 category of Antiretroviral agents

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

1. Write a note on molecular mechanics.
2. Discuss the role of enantioselectivity in drug absorption.
3. Give an account of strategy involved in fragments of lead molecule in analogue design.
4. Briefly explain the Hansch analysis.
5. Explain the manufacturing method of paracetamol.
6. Describe the test assay for studying the gastric acid inhibitors.
7. Brief note on theories of receptors.
8. Write a note on enzyme inhibitors in medicine.
9. Write the structure and uses of any two clinically useful prostaglandins.
10. Write a note on immuno stimulants.

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

[LQ 0121] JANUARY 2021 Sub. Code: 2906

(APRIL 2020 EXAM SESSION)

M.PHARMACY DEGREE EXAMINATION

FIRST YEAR

BRANCH II – PHARMACEUTICAL CHEMISTRY

PAPER III – ADVANCED MEDICINAL CHEMISTRY

Q.P. Code: 262906

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

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

1. a) Define enzyme inhibitors and classify them.
   b) Explain in detail the design of rapid reversible enzyme inhibitors and transition state analogues.

2. Discuss the concept and strategies involved in analogue design from lead molecule.

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

1. Explain the forces involved in drug receptor interactions.
2. Classify anti-neoplastic agents with example and give the mechanism of alkylating agents.
3. Explain the manufacturing methods of diphenhydramine.
4. Write a note on pharmacophore modelling.
5. Discuss the chemistry and biosynthesis of prostaglandins.
6. Brief note on physico chemical parameters involved in QSAR study.
7. Write the structure and synthesis of anyone proton pump inhibitors.
8. Add a note on Immunosuppressant.
9. Write a note on Enantioselectivity in metabolism.
10. Describe the approach of gastrointestinal absorption by prodrug design.

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