

April-2001

[KD 128]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

Branch VI — Pharmacology

(New/Revised Regulations)

**Paper I — GENERAL PHARMACOLOGY,
EXPERIMENTAL PHARMACOLOGY AND BIOASSAY**

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Outline the role of nitric oxide in signal transduction in health and disease. List its implication for new drug development and pharmacotherapy. (25)
 2. Briefly outline the various experimental methods for evaluating gastric anti-ulcer activity of drugs. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Use of transgenic animals in Pharmacology.
 - (b) Use of inbred strains of animals for experimentation.
 - (c) Principles of radio immune assay.
 - (d) Leukotriene antagonists.
 - (e) Role of placebo in clinical trials and its ethical aspects.
-

November-2001

[KE 128]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

(New/Revised Regulations)

Branch VI — Pharmacology

**Paper I — GENERAL PHARMACOLOGY,
EXPERIMENTAL PHARMACOLOGY AND BIOASSAY**

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Explain the aims of BIOTRANSFORMATION of drugs. Describe the biotransformation reactions with suitable examples. What are the practical implications of these reactions? (25)
 2. Define the term DRUG DEPENDENCE. Discuss the pharmacological aspects of drug dependence, with special emphasis on mechanisms of its development. Write a note on the drug management of dependence. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Epidural administration of drugs.
 - (b) Drug antagonism.
 - (c) Environmental toxins.
 - (d) Phase IV clinical trials – relevance
 - (e) Drug induced allergic reactions.
-

March-2002

[KG 128]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

(Old/New/Revised Regulations)

Branch VI — Pharmacology

Paper I — GENERAL PHARMACOLOGY,
EXPERIMENTAL PHARMACOLOGY AND BIOASSAY

Time : Three hours ,

Maximum : 100 marks

Answer ALL questions.

1. Discuss Drug Receptors and methods of discovery of new receptors. Explain the signalling mechanisms and drug action. (25)
 2. Discuss the experimental methods for evaluation of antidiabetic drugs. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Rational therapeutics.
 - (b) Phase I clinical trials.
 - (c) Student 't' test.
 - (d) Four point assay.
 - (e) Furchgott.
-

September-2002

[KH 128]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VI — Pharmacology

Paper I — GENERAL PHARMACOLOGY,
EXPERIMENTAL PHARMACOLOGY AND
BIO ASSAY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss G-proteins in detail. Critically discuss the role of G-proteins in signal transduction in various cells. (25)
 2. Briefly explain the experimental models for evaluating anti-seizure drugs. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Uses of isolated smooth muscle preparations in pharmacology.
 - (b) Merits and demerits of levers used in experimental pharmacology.
 - (c) Radio-immuno assay.
 - (d) Pharmacological importance of PGE₂ and PGI₂.
 - (e) Sequential analysis in clinical trial-
-

April-2003

[KI 128]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VI — Pharmacology

**Paper I — GENERAL PHARMACOLOGY,
EXPERIMENTAL PHARMACOLOGY AND BIOASSAY**

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss in detail the molecular mechanism of drug action with suitable illustrations. (25)
 2. Discuss the experimental models for screening the anti-psychotic drugs. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Sympathectomy
 - (b) Pre-synaptic receptors
 - (c) Phase IV clinical trials
 - (d) Chromatography
 - (e) Assay methods of polypeptides.
-

[KJ 128]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VI — Pharmacology

Paper I — GENERAL PHARMACOLOGY,
EXPERIMENTAL PHARMACOLOGY AND BIOASSAY

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

M.C.Q. must be answered **SEPARATELY** on the
answer sheet provided as per the instructions on the
first page.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

1. Describe the mechanism of drug action through receptors. (15)
2. Describe the experimental models for screening Anti-inflammatory drug and their basis. (15)

3. Write briefly on : (5 marks each) (10 × 5 = 50)
 - (a) Pharmacogenetics.
 - (b) Importance of CyP 450 enzymes in therapy.
 - (c) Area under curve.
 - (d) Drug potency and efficacy.
 - (e) Teratogenicity.
 - (f) Pharmacovigilance.
 - (g) Plasma protein binding.
 - (h) Essential drugs in therapy.
 - (i) New/special drug delivery systems.
 - (j) Immunoassay.

[KL 128]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VI — Pharmacology

Paper I — GENERAL PHARMACOLOGY,
EXPERIMENTAL PHARMACOLOGY AND BIOASSAY

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) Describe G-Protein linked transduction mechanisms, which are responsible for receptor mediated drug effects with suitable examples of receptors and their ligands.

(2) Discuss the experimental methods used to evaluate anticonvulsant drugs.

II. Write short notes : (10 × 5 = 50)

- (a) History of General anaesthesia
- (b) Elimination of life
- (c) Acute toxicity studies
- (d) Bioavailability and Bioequivalence
- (e) Ethical committee
- (f) Students T test
- (g) Spectrophotometer
- (h) Bioassay of 5-Hydroxy triptamine
- (i) Null hypothesis
- (j) Hypertensive animal models.

[KM 128]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VI — Pharmacology

Paper I — GENERAL PHARMACOLOGY,
EXPERIMENTAL PHARMACOLOGY AND BIOASSAY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

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

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) Discuss the historical developments in introduction of drugs in the management of Diabetes mellitus.

(2) Give an overview of pharmacokinetics of drugs based on passage of drugs across biological membranes.

II. Write Short notes : (10 × 5 = 50)

(a) **Bioavailability.**

(b) Writing levers.

(c) Experimental methods in screening antidepressant drugs.

(d) Volume of distribution.

(e) Drug interactions involving microsomal enzymes.

(f) Drug induced polymorphic ventricular tachycardia.

(g) Preclinical drug toxicity studies.

(h) Pharmacogenetics.

(i) Experimental methods in evaluating an anticonvulsant drug.

(j) Bioassay of Acetyl choline.

[KO 128]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

Branch VI — Pharmacology

Paper I — GENERAL PHARMACOLOGY,
EXPERIMENTAL PHARMACOLOGY AND BIOASSAY

Time : Three hours Maximum : 100 marks

Theory : Two hours and Theory : 80 marks
 forty minutes

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

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) Describe drug efficacy at G-Protein coupled receptors.

(2) Describe the mechanisms in Hepato Biliary and renal excretion of drugs and drug-drug interactions.

II. Write short notes on : (10 × 5 = 50)

(a) Computer aided drug design.

(b) Role of drug transporters at the blood brain barrier.

(c) Sex differences in pharmacokinetics.

(d) Transporters involved in renal elimination of drugs.

(e) Role of metabolic activation in drug induced hepatotoxicity.

(f) Experimental methods to evaluate a diuretic agent.

(g) Bio Assay using intact animals.

(h) Induction of drug metabolising enzymes and its consequences.

(i) Anti tussives – screening methods.

(j) Rat uterus as an experimental method.

[KQ 124]

Sub. Code : 2025

M.D. DEGREE EXAMINATION.

Branch VI — Pharmacology

**GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Common to

Paper I — (Old/New/Revised Regulations)
(Candidates admitted from 1988–89 onwards)

and

Paper I — (For candidates admitted from 2004–2005
onwards)

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay :

1. Discuss the functional and structural families of physiological receptors in relation to mechanism of action of common, important drugs in each family. (20)

2. Give an overview of pharmacokinetics of drugs based on passage of drugs across biological membranes.

(15)

3. Discuss briefly the New Drug Development and Approval process. (15)

II. Short notes : (6 × 5 = 30)

(a) P glycoprotein.

(b) Nonlinear Pharmacokinetics.

(c) Principles of HPLC.

(d) Iatrogenic Cardiotoxicity.

(e) Pharmacogenomics.

(f) Therapeutic Drug Monitoring.

[KR 126]

Sub. Code : 2023

M.D. DEGREE EXAMINATION.

Branch VI — Pharmacology

GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY

Common to

Paper I — (Old/New/Revised Regulations)

(Candidates admitted from 1988-89 onwards)

and

Paper I — (For candidates admitted from 2004–2005
onwards)

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

I. Long Essay :

1. (a) What is pharmacogenomics?

(b) Discuss its role in drug discovery and
development. (20)

2. (a) What are the common laboratory animals
used for experimentation?

(b) Mention any two experiments in which each
animal is used.

(c) Add a note on the use of transgenic animals
in drug research. (15)

3. Discuss in detail the clinical implications of
plasma proteins binding of drugs. (15)

II. Short notes : (6 × 5 = 30)

(a) Patient compliance

(b) Graded dose response

(c) Randomization

(d) Non-neuronal transporters as drug targets

(e) Clinical importance of taking drug history

(f) Chronic toxicity tests.

MARCH 2008

Wk 14

[KS 125]

Sub. Code : 2022

M.D. DEGREE EXAMINATION.

Branch VI — Pharmacology

GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY

Common to all candidates

Q.P. Code : 202022

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

- I. Long Essay : (2 × 20 = 40)
1. Discuss the transmembrane signaling mechanisms and drug action. (20)
 2. Discuss the methods used for evaluating a drug for use as an analgesic agent both in animals and humans. (20)
- II. Write short notes on : (10 × 6 = 60)
- (1) Pharmacological basis of drug interactions
 - (2) Post license studies
 - (3) Modified declaration of Helsinki
 - (4) Transgenic animals in experimental pharmacology
 - (5) Controls
 - (6) Newer drug delivery system
 - (7) Drug dependence
 - (8) Antagonism
 - (9) Ion channels
 - (10) Prodrugs.
-

March 2009

[KU 125]

Sub. Code: 2022

M.D. DEGREE EXAMINATION

**Branch VI – PHARMACOLOGY
(Common to all candidates)**

**Paper I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code : 202022

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions : (2 x 20 = 40)

1. Explain how drugs undergo changes in the body before they are excreted. Discuss the clinical relevance.
2. Enumerate the methods of bioassay of 5 hydroxytryptamine. Describe the experimental details of one of the most sensitive preparations.

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

1. Therapeutic drug monitoring.
2. Randomisation.
3. Cytoplasmic second receptors.
4. Acute toxicity studies.
5. Spurious drugs.
6. Drug-drug interactions.
7. Pharmacovigilance.
8. Radio immunoassay.
9. Non receptor mediated drug actions.
10. Drugs and pregnancy.

September 2009

[KV 125]

Sub. Code: 2022

M.D. DEGREE EXAMINATION

**Branch VI – PHARMACOLOGY
(Common to all candidates)**

**Paper I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code : 202022

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions : (2 x 20 = 40)

1. Describe how a drug crosses cell membranes in the body and the factors influencing the same.
2. Describe experimental models available to screen a potential immunosuppressant agent.

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

1. Different compartment pharmacokinetic models.
2. Drug induced hepatotoxicity.
3. Experimental evaluation of a potential diuretic agent.
4. Toxicity testing in animal models for teratogenicity.
5. Substance abuse in sports.
6. Enzyme linked receptors.
7. General anaesthetics used on laboratory animals.
8. Interpolation and matching bioassay methods.
9. Influence of age on drug action.
10. Experimental set up for isolated tissue preparations.

March 2010

[KW 125]

Sub. Code: 2022

M.D. DEGREE EXAMINATION

**Branch VI – PHARMACOLOGY
(Common to all candidates)**

**Paper I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code : 202022

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions :

(2 x 20 = 40)

1. Explain the aims of biotransformation of drugs. Describe the biotransformation reactions with suitable examples. What are the practical implications of these reactions?
2. Illustrate with examples the various procedures of assaying of drugs.

II. Write short notes on :

(10 x 6 = 60)

1. Drugs and subarachnoid space.
2. Spurious drugs.
3. Apoptosis and its therapeutic implications.
4. First and zero order kinetics.
5. Chromatographic techniques - clinical interpretation with examples.
6. Pharmacogenetics.
7. Exploratory therapeutic trials.
8. Paired 't' test.
9. Acute tolerance.
10. Experimentally induced diabetes.

September 2010

[KX 125]

Sub. Code: 2022

M.D. DEGREE EXAMINATION

Branch VI – PHARMACOLOGY

**Paper I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

(Common to all candidates)

Q.P. Code : 202022

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions :

(2 X 20 = 40)

1. Discuss the Pharmacokinetic and Pharmacodynamic considerations in dermatological pharmacotherapy.
2. What is clearance of a drug? How is it calculated? Describe its clinical importance.

II. Write short notes on :

(10 X 6 = 60)

1. Polymorphism.
2. Street Drugs.
3. FDA Drug formulary during pregnancy.
4. Drug modifiers of G-protein coupled receptors.
5. Pre systemic metabolism.
6. Toxicity testing in animal models for teratogenicity.
7. Exploratory therapeutic trials.
8. Computer aided drug design.
9. Drug prescribing in renal insufficiency.
10. Substance abuse in sports.

MAY 2011

[KY 125]

Sub. Code: 2022

M.D. DEGREE EXAMINATION
BRANCH VI – PHARMACOLOGY
GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY

Q.P. Code : 202022

Time : 3 hours
(180 Min)

Maximum : 100 marks

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Write in detail about Pharmacogenetics.	6	15	10
2. Discuss evaluation techniques for analgesic agents.	6	15	10
II. Short Questions:			
1. Half life.	3	8	5
2. Hepatic transporters.	3	8	5
3. G-protein coupled receptors.	3	8	5
4. Radioimmunoassay.	3	8	5
5. Excretion of drugs.	3	8	5
6. Alternatives to animal experiments. v			
7. Role of polygraph in pharmacology research.	3	8	5
8. Transgenic animals.	3	8	5
III. Reasoning Out:			
1. Value of non-parametric statistical tests.	4	10	5
2. Preclinical testing of new drugs.	4	10	5
3. Post-marketing surveillance of new drugs.	4	10	5
4. Randomization in clinical trials.	4	10	5
IV. Very Short Answers :			
1. Define normal distribution.	1	4	2
2. Define clearance.	1	4	2
3. Define standard deviation.	1	4	2
4. List four drugs used to anaesthetize lab animals.	1	4	2
5. Define C _{max} .	1	4	2
6. Define bioavailability.	1	4	2
7. Simple lever versus frontal lever.	1	4	2
8. List drugs used for chemical euthanasia.	1	4	2
9. Define volume of distribution.	1	4	2
10. Define therapeutic index.	1	4	2

April 2012

[LA 125]

Sub. Code: 2022

**M.D. DEGREE EXAMINATION
BRANCH VI – PHARMACOLOGY
GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY AND
BIOASSAY
Q.P. Code : 202022**

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

Maximum : 100 marks

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Discuss briefly the new – drug development and approval Process.	9	15	10
2. Describe in detail transmembrane signaling mechanism.	9	15	10
II. Short Questions:			
1. Apoptosis.	3	8	5
2. Various techniques used in gene therapy.	3	8	5
3. Randomization.	3	8	5
4. Compartment models.	3	8	5
5. Therapeutic window.	3	8	5
6. Drug antagonism.	3	8	5
7. Chemical sympathectomy.	3	8	5
8. Radio – Immuno Assay.	3	8	5
III. Reasoning Out:			
1. Rational use of drugs.	5	10	5
2. Safe drugs in pregnancy.	5	10	5
3. Spare receptors.	5	10	5
4. Fixed dose combination.	5	10	5
IV. Very Short Answers :			
1. Mention four gene transfer vectors.	1	4	2
2. Write the significance of plasma proteins.	1	4	2
3. Write the consequence of microsomal enzyme induction.	1	4	2
4. Discuss the merits and demerits of Bio assay.	1	4	2
5. Define Tachyphylaxis with suitable examples.	1	4	2
6. What is plasma half life?	1	4	2
7. Write the advantages of prodrug.	1	4	2
8. Role of Transgenic animals in evaluation of drugs.	1	4	2
9. Common laboratory animals for experimentation.	1	4	2
10. Advantages of log dose response curves.	1	4	2

(LC 125)

APRIL 2013

Sub. Code: 2022

**M.D. DEGREE EXAMINATION
BRANCH VI-PHARMACOLOGY
GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY
AND BIOASSAY**

Q.P. Code : 202022

Time: Three Hours

Maximum: 100 marks

I. Essay:

(2X10=20)

1. Discuss in detail about pharmacogenomics.
2. Significance of Biotransformation in pharmacotherapy.

II. Short Questions:

(8X5=40)

1. Chronopharmacology
2. Therapeutic Drug Monitoring
3. Drug allergy
4. Tyrode solution
5. Pharmacovigilance
6. Anova
7. Alternatives to animal experiments
8. Drugs in pregnancy and lactation

III. Reasoning Out:

(4X5=20)

1. Immunological tolerance
2. Drugs and blood brain barrier
3. Significance of liposomal drug delivery
4. Blinding in clinical trials

IV. Very Short Answers:

(10X2=20)

1. Rabbit as experimental animal
2. Lead compound
3. Orphan drug
4. Chirality
5. Mention 4 alkaloids and their uses
6. Saturation kinetics
7. Suicide inhibitors
8. Physiological antagonism
9. Surrogate markers
10. Hofmann elimination

[LD 125]

OCTOBER 2013

Sub. Code: 2022

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY

AND BIOASSAY

Q.P. Code : 202022

Time: Three Hours

Maximum: 100 marks

I. Essay:

(2 x 10 = 20)

1. Discuss briefly the biotransformation of drugs.
2. Describe in detail transmembrane signaling mechanism .

II. Short Questions:

(8 x 5 = 40)

1. Drug synergism.
2. Randomization.
3. Drug Tolerance.
4. Drug Accumulation.
5. Techniques used in gene therapy.
6. Idiosyncratic reactions.
7. Radio-Immuno Assay.
8. Volume of Distribution.

III. Reasoning Out:

(4 x 5 = 20)

1. Spare receptors.
2. Drugs used in Pregnancy Hypertension.
3. Pharmacogenomics.
4. Structure activity relationship.

IV. Very Short Answers:

(10 x 2 = 20)

1. Define Tachyphylaxis with suitable examples.
2. Advantages of log dose response curves.
3. Describe competitive antagonism.
4. Describe G protein coupled receptors.
5. Discuss Therapeutic drug monitoring.
6. Tyrosine kinase blockers as drugs.
7. Discuss Glucuronide conjugation reactions.
8. Preclinical toxicity screening.
9. Drug enantiomer.
10. Bio equivalence.

(LE 125)

APRIL 2014

Sub. Code:2022

**M.D. DEGREE EXAMINATION
BRANCH VI - PHARMACOLOGY
GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY
AND BIOASSAY**

Q.P.Code: 202022

Time: Three Hours

Maximum: 100 marks

I. Essay:

(2X10=20)

1. Write in details about the Drug Interactions. Mention the advantages and disadvantages of fixed drug combinations.
2. Write in detail about the various preclinical & clinical screening procedures for anti epileptics.

II. Short Questions:

(8X5=40)

1. Phase II clinical trial
2. Clearance
3. Small animal anesthesia methods
4. DNA recombinant technique
5. Elisa use in pharmacological research
6. Randomization
7. Ion channel
8. Levers in preclinical research.

III. Reasoning Out:

(4X5=20)

1. 5HT and vascular headache
2. Dopamine and acute renal failure
3. Pharmacogenetics in therapy
4. Physiological antagonism

IV. Very Short Answers:

(10X2=20)

1. Solvents/vehicle
2. Body weight in drug treatment
3. Hoffman elimination
4. Apparent volume distribution
5. Pro drug
6. Micro dose
7. Nucleic acid receptor
8. Therapeutic paradox
9. Implants
10. Steady state concentration

(LF 125)

OCTOBER 2014

Sub. Code:2022

**M.D. DEGREE EXAMINATION
BRANCH VI - PHARMACOLOGY**

**PAPER I - GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P.Code: 202022

Time: Three Hours

Maximum: 100 marks

I. Essay:

(2 x 10 = 20)

1. Discuss the process of new drug development and its approval.
2. Give a detailed account of the screening methods for evaluating an analgesic agent.

II. Short Questions:

(8 x 5 = 40)

1. Spectrophotometer and its uses.
2. Transgenic animals.
3. Evidences for Neurohumoral transmission.
4. Plasma protein binding of drugs.
5. Pharmacovigilance.
6. Cytoplasmic second messengers.
7. Tyrosine kinase inhibitors.
8. Matching bioassay method.

III. Reasoning Out:

(4 x 5 = 20)

1. Importance of sample size calculation in clinical trials
2. Preclinical testing of a drug.
3. Transdermal therapeutic systems.
4. Sustained release formulations.

IV. Very Short Answers:

(10 x 2 = 20)

1. Ehrlich and Langley.
2. Ceiling effect in a Dose Response curve.
3. Define precision.
4. Students 't' test.
5. Chirality.
6. Spare receptors.
7. First order kinetics
8. List four drugs that attain high concentration in bile.
9. Define C max.
10. Inverse agonist.

[LG 125]

APRIL 2015

Sub. Code: 2022

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code : 202022

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Essay:

(2 x 10 = 20)

1. Discuss the methods used to screen a potential antipsychotic drug.
2. Give a detailed account of Pharmacogenetics.

II. Short Questions:

(8 x 5 = 40)

1. Bioavailability and Bioequivalence.
2. Spurious drugs.
3. Post marketing surveillance.
4. Tyrosine phosphatases as targets.
5. Gene knock out mice.
6. Immunoassay.
7. Modified declaration of Helsinki.
8. Therapeutic implications of Apoptosis.

III. Reasoning Out:

(4 x 5 = 20)

1. Therapeutic drug monitoring for Immunosuppressants.
2. Restriction of drug use in pregnancy.
3. Use of placebo in clinical trials.
4. Novel drug delivery system.

IV. Very Short Answers:

(10 x 2 = 20)

1. Steroid Receptors.
2. Orphan drugs.
3. Allosteric receptors.
4. Informed consent.
5. Inbred animal strains.
6. Microdose.
7. Steady state.
8. Implants.
9. Redistribution.
10. Loading dose.

[LH 125]

OCTOBER 2015

Sub. Code: 2022

M.D. DEGREE EXAMINATION
BRANCH VI – PHARMACOLOGY
PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY

Q.P. Code : 202022

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Essay: (2 x 10 = 20)

1. Describe the various screening methods for evaluation of anti inflammatory drugs.
2. Discuss briefly about membrane transporters and drug response.

II. Short Questions: (8 x 5 = 40)

1. Transgenic animals.
2. Enzyme inhibition.
3. Therapeutic drug monitoring.
4. Cell culture techniques.
5. Screening methods for anti anxiety agents.
6. Therapeutic exploratory trials.
7. p A2 value.
8. Assay of adrenaline.

III. Reasoning Out: (4 x 5 = 20)

1. Ethical consideration of animal use in Indian scenario.
2. Role of biotechnology in therapeutics.
3. Clinical importance of plasma protein binding.
4. Michelis Menten kinetics.

IV. Very Short Answers: (10 x 2 = 20)

1. Knock in vs knock out mice.
2. Iontophoresis.
3. Somersault test.
4. Molar solution.
5. PSUR.
6. Difference between isotonic and isometric levers.
7. Advantages of isolated tissues over intact animals.
8. Redistribution.
9. Biophase.
10. Methods for delaying drug absorption.

(LI 125)

APRIL 2016

Sub. Code:2022

**M.D. DEGREE EXAMINATION
BRANCH VI – PHARMACOLOGY**

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P.Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 10 = 20)

1. Describe the various screening methods for evaluating drugs used in gastric ulcers.
2. Define Adverse drug reaction. Explain the various mechanisms of drug toxicity.

II. Short Questions:

(8 x 5 = 40)

1. Sample size.
2. Rational drug therapy.
3. Enzyme linked receptors.
4. Non competitive inhibition.
5. Physiological salt solution.
6. Graded response assay.
7. Screening methods for diuretics.
8. HPLC.

III. Reasoning Out:

(4 x 5 = 20)

1. Guinea pig as an experimental animal.
2. Role of hybridoma technology.
3. Role of informed consent in clinical research.
4. Euthanasia methods in experimental animals.

IV. Very Short Answers:

(10 x 2 = 20)

1. Enema as a route of drug administration.
2. Methods for delaying drug absorption.
3. High extraction drugs.
4. MDR1 transporter.
5. Lead compound.
6. Inverse tolerance.
7. Student 't' test.
8. Langendorff heart.
9. Nude mice vs. Beige mice.
10. Somersault test.

(LJ 125)

OCTOBER 2016

Sub. Code:2022

**M.D. DEGREE EXAMINATION
BRANCH VI – PHARMACOLOGY
PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P.Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 10 = 20)

1. Write in detail about second messengers.
2. Principles of the treatment of Poisoning.

II. Short Questions:

(8 x 5 = 40)

1. Chromatographic techniques.
2. Paired 't' test.
3. Compartment models.
4. Double blind clinical trials.
5. Transgenic animals.
6. Ion channels.
7. Xenobiotic metabolizing enzymes.
8. Rational use of antibiotics.

III. Reasoning Out:

(4 x 5 = 20)

1. Loading dose and maintenance dose.
2. Fixed dose combinations with examples.
3. N- acetyl cysteine in paracetamol poisoning.
4. Lipid solubility and drug action.

IV. Very Short Answers:

(10 x 2 = 20)

1. Microsomal enzyme induction.
2. Drug efficacy and potency.
3. Cohort study.
4. Iatrogenic diseases.
5. Street drugs.
6. Orexin receptors.
7. Clearance.
8. Receptor malfunction and diseases.
9. Toxicokinetics.
10. Mention drugs used to anaesthetize lab animals.

(LK 125)

MAY 2017

Sub. Code:2022

**M.D. DEGREE EXAMINATION
BRANCH VI – PHARMACOLOGY
PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P.Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 10 = 20)

1. Describe the screening methods for drugs used as antifertility agents.
2. Explain principles of drug absorption and distribution.

II. Short Questions:

(8 x 5 = 40)

1. Cumulative dose response curve.
2. P” drug concept.
3. Pharmacoepidemiology.
4. Protein based therapies.
5. Acute toxicity test.
6. Principles of bioassay.
7. Screening methods for antihypertensive agents.
8. Methods of blood collection from experimental animals.

III. Reasoning Out:

(4 x 5 = 20)

1. Enteric coating in solid dosage forms.
2. Importance of physiological salt solutions in bioassay.
3. Role of pharmacoeconomic concepts.
4. Urinary pH and drug poisoning.

IV. Very Short Answers:

(10 x 2 = 20)

1. Chromatography.
2. Meta analysis.
3. Toll like receptors.
4. Lead compound.
5. JAK – STAT receptors.
6. Inverse tolerance.
7. Biophase.
8. Advantages of isolated tissues over experimental animals.
9. Student organ bath.
10. Clinical implications of pharmacogenomics.

(LM 125)

MAY 2018

Sub. Code: 2022

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P.Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 15 = 30)

1. Discuss the evaluation techniques for anticancer agents.
2. Describe in detail about the biotransformation reactions and clinical relevance of enzyme inhibition.

II. Short notes:

(10 x 5 = 50)

1. Herbal drug interactions.
2. Receptor regulation.
3. Bioassay of oxytocin.
4. Breast milk excretion of drugs.
5. Schild plot method.
6. Mass spectrometry.
7. Langendorff's preparation.
8. Schedule H drug.
9. Ethnopharmacology.
10. Types of error.

III. Reasoning Out:

(4 x 5 = 20)

1. Pharmacokinetic types of pharmacogenetic variations.
2. Special formulation of subcutaneous routes.
3. Clinical importance of protein binding.
4. Novel Ophthalmic drug delivery system.

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 15 = 30)

1. Enumerate the role of membrane transporters in Therapeutic drug response and in adverse drug response.
What are the basic mechanisms of membrane transport?
What is the Pharmacokinetic role of hepatic transporters?
2. Enumerate the types of therapeutic drug toxicity.
Epidemiology of pharmaceutical poisoning. Prevention of poisoning.
Principles in treatment of poisoning.

II. Short notes:

(10 x 5 = 50)

1. Evaluation of drugs used in peptic ulcer.
2. High throughput screening for drug discovery.
3. Teratogenicity.
4. Nuremberg code.
5. aVd.
6. Evaluation of antipsychotic drugs.
7. New drug delivery systems in cancer chemotherapy.
8. Nuclear hormone receptors.
9. Methods of disposal of expired drugs.
10. Pharmacoepidemiology.

III. Reasoning Out:

(4 x 5 = 20)

1. Drug delivery by parenteral infusion pumps.
2. Tachyphylaxis to nitroglycerin.
3. Iontrapping of aspirin.
4. Loading dose in digoxin therapy.

(LO 125)

MAY 2019

Sub. Code: 2022

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 15 = 30)

1. a) Write in detail the various animal models for screening hypolipidemic drugs.
b) Mention the different types of levers and their uses.
2. a) Discuss how various genetic factors can influence drug action?
b) Write briefly about Gene therapy.

II. Short notes:

(10 x 5 = 50)

1. Sources of drug information.
2. Evaluation of drug safety.
3. SAR in drug design.
4. RadioImmunoAssay.
5. Cytochrome P450 super family.
6. Assay of catecholamines.
7. Sanctuary compartments.
8. BA/BQ studies.
9. Drug dependence.
10. ANOVA.

III. Reasoning Out:

(4 x 5 = 20)

1. Presynaptic receptors and therapeutic significance.
2. Role of Institutional Ethics Committee in research.
3. Mouse as an experimental animal.
4. Role of ADR monitoring in pharmacotherapy.

(LP 125)

OCTOBER 2019

Sub. Code: 2022

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 15 = 30)

1. a) Explain in detail how the pharmacokinetic parameters influence the target concentration strategy.
b) Write a note on TDM.
2. a) What are the different screening methods of antiepileptic drugs?
b) Add a note on Euthanasia in animals.

II. Short notes:

(10 x 5 = 50)

1. Genetic polymorphisms in drug metabolism.
2. Food and drug administration.
3. Merits and Demerits of Bioassay.
4. Meta-analysis.
5. Chi-square test.
6. Novel methods of drug delivery.
7. Therapeutic paradox.
8. Cytokine receptors.
9. Phase III clinical trials.
10. Antibiotic policy.

III. Reasoning Out:

(4 x 5 = 20)

1. Role of plasma proteins in drug disposition.
2. Nanotechnology in Biomedical science.
3. Apoptosis in therapeutics.
4. Membrane transporters in drug resistance.

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY AND
BIOASSAY**

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay: (2 x 15 = 30)

1. a. Describe in detail about the structural and functional families of physiological receptors
b. Explain the role of second messenger systems in signaling pathways
2. Describe the invivo and invitro methods employed in the screening of antifertility agents

II. Short notes: (10 x 5 = 50)

1. Randomization
2. Targeted drug delivery system
3. Drug utilization studies
4. Pharmacoinformatics
5. Principles of bioassay
6. Cell line studies
7. Invivo models for preclinical screening of antidepressant agents
8. Types of reporting in pharmacovigilance
9. Elimination kinetics
10. Advantages and disadvantages of Fixed Dose Combination of drugs

III. Reasoning Out: (4 x 5 = 20)

1. Importance of Drug Promotional Literature
2. Guinea pig as an experimental animal
3. Significance of parametric tests in research
4. HPLC as an analytical instrument

[MD 0721]

**JULY 2021
(MAY 2021 SESSION)**

Sub. Code: 2022

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 15 = 30)

1. a) Explain the methods for screening anti-inflammatory agents.
b) Describe the role of actophotometer in experimental pharmacology.
2. a) Explain the mechanisms of tolerance to drugs.
b) Explain the principles of therapeutic drug monitoring.

II. Short notes:

(10 x 5 = 50)

1. Pharmacopoeia.
2. Dose ratio.
3. t – test.
4. Prevention of adverse drug reactions.
5. Phase II clinical trial.
6. Factors affecting drug metabolism.
7. Assay of acetyl choline.
8. Enzyme inhibition.
9. Spectrophotometry.
10. Sequential trial.

III. Reasoning Out:

(4 x 5 = 20)

1. Advantages of using partial agonists.
2. Clinical status of respiratory stimulants.
3. Metformin for insulin resistance.
4. Urinary pH and excretion of poisons.

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

[MD 1121]

**NOVEMBER 2021
(OCTOBER 2021 SESSION)
M.D. DEGREE EXAMINATION**

Sub. Code: 2022

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY
AND BIOASSAY**

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 15 = 30)

1. Discuss in detail how you will evaluate a drug with anti-depressant property in experimental animal models.
2. Explain in detail with appropriate examples about the genetic polymorphisms influencing drugs response.

II. Short notes:

(10 x 5 = 50)

1. Controlled release Medication.
2. Drug induced hepatotoxicity.
3. Explain Receptor antagonism with appropriate graphs.
4. Ethical Considerations in animal Experiments.
5. How will you reduce medication administration errors?
6. Inhalation Toxicity studies.
7. Methods to improve bioavailability of a drug.
8. Non- parametric Tests.
9. Rational drug Designing.
10. Zebra fish as an animal model.

III. Reasoning Out:

(4 x 5 = 20)

1. Pharmacoeconomics is needed. Why?
2. Drug Distribution is not equal in all tissues.
3. Eliciting drug history is important.
4. Age Differences in pharmacokinetics.

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

[MD 0522]

MAY 2022

Sub. Code: 2022

**M.D. DEGREE EXAMINATION
BRANCH VI – PHARMACOLOGY**

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY
AND BIOASSAY**

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay: **(2 x 15 = 30)**

1. a. Describe the basic mechanism of membrane transport.
b. Explain the role of membrane transporters in therapeutic drug response.
2. Discuss the various screening methods for anticancer agents.

II. Short notes: **(10 x 5 = 50)**

1. Pharmacoeconomics.
2. Medication errors.
3. Multiple point assay.
4. Cell culture techniques.
5. Experimental models for screening of drugs used in peptic ulcer.
6. Small molecule drugs.
7. High throughput screening.
8. Serious Adverse Event.
9. Pharmacogenomics.
10. Induction of drug metabolism.

III. Reasoning Out: **(4 x 5 = 20)**

1. Importance of preclinical data in calculating first human dose.
2. Role of physiological salt solution in bioassay.
3. Research misconduct and its implications.
4. Significance of sample size in clinical trials.

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

[MD 1022]

OCTOBER 2022

Sub. Code: 2022

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 15 = 30)

1. a) Explain the screening methods for diuretic activity.
b) Write briefly about cumulative dose response curve.
2. a) Discuss how various genetic factors can influence drug action?
b) Write briefly about Gene therapy.

II. Short notes:

(10 x 5 = 50)

1. National formulary of India.
2. pA₂ value.
3. Cytokine receptors.
4. Dose fixing strategies.
5. Bioavailability studies.
6. Placental barrier.
7. Assay designs.
8. ANOVA.
9. Meta-analysis.
10. Combinatorial chemistry.

III. Reasoning Out:

(4 x 5 = 20)

1. Advantages of rectal route.
2. Advantages of using prodrugs.
3. Use of beta blockers for hypertension.
4. Use of erythropoietin for anaemia in renal failure.

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

[MD 0723]

**JULY 2023
(MAY 2023 EXAM SESSION)**

Sub. Code: 2022

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay: (2 x 15 = 30)

1. Write in detail on Ion Channels as molecular target of drug action with examples.
2. Evaluation of Anti-inflammatory and Analgesic effect in animal models.

II. Short notes: (10 x 5 = 50)

1. Brief on Quantal Dose – Response Curves. Add a note on methods to overcome its limitations.
2. Uses of Guinea Pig as an Experimental Animal.
3. High Performance Liquid Chromatography.
4. Write in detail on Nuclear Receptors as target of drug action with examples.
5. Principles and indications of Bioassay.
6. Write in detail on alternatives to Animal Experiments.
7. Euthanasia.
8. Chronopharmacology.
9. Isobologram.
10. Therapeutic Drug Monitoring implications and limitations.

III. Reasoning Out: (4 x 5 = 20)

1. Pharmacokinetics versus Toxicokinetics.
2. Apparent volume of distribution justify.
3. Matching Assay versus Bracketing Assay.
4. Role of Partial agonists in drug therapy.

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

[MD 1223]

**DECEMBER 2023
(OCTOBER 2023 EXAM SESSION)**

Sub. Code: 2022

M.D. DEGREE EXAMINATION

BRANCH VI – PHARMACOLOGY

**PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL
PHARMACOLOGY AND BIOASSAY**

Q.P. Code: 202022

Time: Three Hours

Maximum: 100 Marks

I. Essay:

(2 x 15 = 30)

1. Enumerate different types of Receptors. Explain the various signal transduction mechanisms.
2. Write about the Animal models for the study of Anti Obesity drugs.

II. Short notes:

(10 x 5 = 50)

1. Toxicokinetics.
2. Drug Antagonism and its clinical relevance.
3. Beneficial Drug Interactions.
4. Pharmacoepidemiology.
5. Certain Safety factor.
6. Rational Drug Designing.
7. Patch Clamp Technique.
8. Stress Ulcer models for Anti Gastric Ulcer evaluation.
9. Factorial Anova.
10. Spectrophotometry.

III. Reasoning Out:

(4 x 5 = 20)

1. Discuss about the techniques helpful to reduce Poly Pharmacy.
2. Applications of Transgenic animals.
3. Role of Placebo in clinical Trials.
4. Compare Graded Dose Response Curve with Quantal Dose Response Curve.
