This question paper contains 3 printed pages]

PPM—04—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M. Pharma (First Semester) EXAMINATION

JUNE, 2025

MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

Paper–MPL (101 T)

(Tuesday, 17-6-2025) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right to indicate full marks.

(*iii*) Draw neat labelled diagram wherever necessary.

1. Answer the following : 10×2=20

(*a*) What is effect of hydrogen bonding on U.V. spectrum ?

(*b*) Give the range of vacuum U.V. region.

(*c*) Give the application of Finger print I.R. Region.

(*d*) Differentiate between retention time and retention volume and their uses in GC.

P.T.O.

(*e*) Why is it important to select the buffer pH for electrophoresis ?

(*f*) What is transverse relaxation ?

(*g*) Give the application of Isotopic peaks in Mass Spectrum.

(*h*) Why X-rays are used in crystallography ?

(*i*) Write a short note on TGA.

(*j*) Give ring rule with example in Mass Spectroscopy.

2. Solve any *two* of the following : 2×10=20

(*a*) Give the principle, instrumentation and application of NMR spectroscopy.

(*b*) Discuss in detail about different ions formed in Mass Spectrophotometer and give Mac-Lafferty rearrangment.

(*c*) Discuss about rate theory and plate theory in GC.

3. Solve any *seven* : 7×5=35

(*a*) What is HPTLC ? Give the steps involved in HPTLC.

(*b*) Give the principle, instrumentation and application of Gel electrophoresis.

(*c*) Give a short note on X-ray powder technique.

(*d*) Give the principle, instrumentation and application of DSC.

(*e*) Explain factor affecting vibrational frequencies in I.R. spectroscopy.

(*f*) Give a note on Derivative spectroscopy.

(*g*) Explain detectors used in the HPLC.

(*h*) Compare FES and AAS. Which *one* is superior ? Why ?

(*i*) What is chemical shift ? Give the factors affecting the chemical shift.

PPM-13-2025

FACULTY OF SCIENCE AND TECHNOLOGY

M.PHARMACY (First Year) (FIRST Semester)

SUMMER-2025 PCI PATTERN EXAMINATION

Subject: ADVANCED PHARAMOCOLGY - I (MPL – 102T)

(Thursday, 19-06-2025)

Time – Three Hours | Maximum Marks-75

N.B. : 1. All Question are compulsory
2. Answer to the point only
3. Draw neat labelled diagram whenever necessary.

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Q.1) Answer the following: 10x2=20

a. Define pharmacokinetics and Name the four main process involved.
b. What is drug distribution and what factor affect it?
c. Explain the concept of protein binding in pharmacokinetics.
d. Define pharmacodynamic & explain its importance in drug therapy.
e. What are receptors and why are they important in pharmacology?
f. List the steps involved in neurotransmission.
g. What is the role of Acetylcholine in autonomic Nervous system.
h. Name the two Neurotransmitters involved in Neurohumoral transmission in CNS.
i. What is NANC transmission.
j. Differentiate between sympathonimetic & sympatholytics.

Q.2) Solve any two as the following. 02x10=20

1. Explain the mechanism of action, pharamacokinetic and therapeutic uses of drugs used to treat depression.
2. Discuss the pharamacology of antihypertensive drugs including their mechanism of action and therapeutic applications.
3. Describe the physiological and pathological role of serotonin and explain the pharmacology of SHT anatagonist.

Q.3) Solve any seven of the following. 07x05=35

1. Describe the pharmacokinetic of drug absorption and factor affecting it.
2. What are the structural and functional families of receptors provide examples.
3. Explain the role of GABA and dopamine in central Neurotransmission.
4. Discuss the mechanism of action of sedative and hypnotics.
5. Write short note on narcotic and non – narcotic analgesics.
6. Describe the pharmacology of diuretics and their clinical uses.
7. What are co – transmission and its significance in Neurotransmission.
8. Explain the therapeutic uses and advance effect of fibrinolytics.
9. Discuss the physiological role of Histamine and its pharmacological antagonist.

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PPM—25—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M. Pharm (First Year) (First Semester) EXAMINATION

JUNE, 2025

PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING METHOD-I

Paper-MPL103T

(Saturday, 21-06-2025) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Answer to the point only.

1. Answer the following : 10×2=20

(*a*) Enlist common laboratory animals.

(*b*) What is transgenic animal ?

(*c*) What is Anaesthesia and Euthanasia ?

(*d*) What is GLP ?

(*e*) Write principle of CPC5EA.

P.T.O.

(*f*) List the modes for screening antiepileptics.

(*g*) Define Nootropics and name the modes for evaluating antiemetics.

(*h*) Categorize model for screening analgesics.

(*i*) Euthanasia of Experimental model-write applications.

(*j*) Enlist types of Bioassays.

2. Answer any *two* of the following : 2×10=20

(*a*) Explain the in-vitro methods used for screening anti-cancer drug.

(*b*) Discuss CPCSEA guidelines to conduct experiments on animals.

(*c*) Discuss different pre-clinical pharmacologial screening models for anti-ulcer agents.

3. Answer any *seven* of the following : 7×5=35

(*a*) Explain the production and application of transgenic animals.

(*b*) Describe methods used for screening anti-Parkison drugs.

(*c*) Describe different in-vivo pre-clinical screening models of anxiety.

(*d*) What are the main requirements of GLP ?

(*e*) Explain any *two* in-vivo methods for the screening of anti-inflammatory drugs.

(*f*) Describe immunoassay for digitoxin in detail.

(*g*) Differentiate between anticancer agents models and antiulcer models.

(*h*) Write about different methods of drug administration in laboratory animals.

(*i*) Discuss the animal models for screening anti-psychotics.

This question paper contains 3 printed pages]

PPM—37—2025

FACULTY OF SCIENCE & TECHNOLOGY

M. Pharm. (First Year) (First Semester)

EXAMINATION JUNE, 2025

CELLULAR AND MOLECULAR PHARMACOLOGY

MPL 104T

(Tuesday, 24-06-2025) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Answer to the point only.

(*iii*) Draw a neat labelled diagram wherever necessary.

1. Answer the following : 10×2=20

(*a*) Define the term genomics and proteonomics.

(*b*) Enlist factors are needed for cell survival.

(*c*) Classify different types of gene.

(*d*) What are the stages of cell cycle ?

P.T.O.

(*e*) Define autophagy and necrosis.

(*f*) Define cryopreservation.

(*g*) Give classification of receptors.

(*h*) Enlist difference between RTPCR and realtime PCR.

(*i*) Enlist the role of phosphodiestrase.

(*j*) Give classification of receptor.

2. Answer any *two* of the following : 2×10=20

(*a*) Discuss in detail cell cycles and its regulation.

(*b*) Give principle and applications of cell viability assay.

(*c*) Define gene therapy. What are the various techniques of gene transfer ?

3. Answer any *seven* of the following : 7×5=35

(*a*) Explain the principle and applications of DNA electrophoresis.

(*b*) Explain the following secondary messengers :

(*i*) cyclic AMP

(*ii*) diacylglycerol.

(*c*) Write a short note on ELISA and western blotting.

(*d*) Write a note on glucose uptake assay.

(*e*) Give comment on genetic polymorphism affects drug metabolism.

(*f*) Define rDNA technology. What is the basic principle and applications of rDNA technology ?

(*g*) Write a note on gene mapping.

(*h*) Write a note on nitrogen activated protein kinase pathway.

(*i*) Write about intrinsic pathway of Apoptosis.