HINDU COLLEGE OF PHARMACY (AUTONOMOUS)

Amaravathi Road – GUNTUR -522002. A.P.

Regd. No: …… **MPA/MPC/MPL-101T**

Total No. of Questions: 14 **Total No. of Pages: 2**

I/II M. Pharmacy Regular Degree 1st Semester end Theory Examinations
April, 2026 - (Admitted in 2025-2026 Autonomous Batch)

Common Paper for
Pharmaceutical Analysis/Pharmaceutical Chemistry/ Pharmacology

Subject Code & Name: MPA/MPC/MPL-101T Modern Pharmaceutical Analytical Techniques.

Time Duration: 3.00 Hrs. **Max. Marks: 75 Marks.**

CO1	The analysis of various drugs in single and combination dosage forms
CO2	To Determine the Compounds by Spectroscopy Techniques.
CO3	To Determine the compounds by Chromatography Techniques.
CO4	To Determine the Compounds by Electrochemical and thermal methods.
CO5	To Interpret the Compounds by various analytical Techniques.

Bloom's Taxonomy Levels-(BL) (L1-Remembering, L2-Understanding, L3–Applying, L4-Analysing, L5–Evaluating, L6-Creating)

SECTION – A

ANSWER ANY FIVE QUESTIONS **(5 X 10M = 50 Marks)**

Q. No.	Questions	Marks	CO	BL
1	Explain the construction and working of the UV-Visible spectrophotometer with a neat diagram. Discuss pharmaceutical applications and solvent effects.	10	CO1	L3
2	Describe the NMR spectroscopy principle. Explain chemical shift, spin-spin coupling, and coupling constant with examples and pharmaceutical applications.	10	CO2	L3
3	Discuss ionization techniques in mass spectroscopy (EI, ESI, MALDI). Explain quadrupole and TOF analyzers with diagrams.	10	CO2	L4
4	Define chromatographic parameters affecting resolution. Explain the HPLC principle, instrumentation, and applications with a flow diagram.	10	CO3	L4
5	Describe capillary electrophoresis and isoelectric focusing with labelled diagrams. Discuss separation factors.	10	CO3	L4
6	Explain the DSC principle and instrumentation. Discuss pharmaceutical applications and error sources.	10	CO4	L3
7	a) Compare Flame Emission Spectroscopy and Atomic Absorption Spectroscopy. b) Explain potentiometry with ion-selective electrodes and applications.	10	CO5	L4

SECTION – B

ANSWER ANY FIVE QUESTIONS **(5 X 5M = 25 Marks)**

Q. No.	Questions	Marks	CO	BL
8	Write a note on the FTIR spectrometer and vibrational frequency factors.	5	CO1	L3
9	Explain the role of solvents in NMR and the nuclear Overhauser effect (NOE).	5	CO2	L3
10	Describe mass fragmentation rules and metastable ions.	5	CO2	L4
11	Differentiate TLC and HPTLC with applications.	5	CO3	L3
12	State Bragg's law. Explain the X-ray powder diffraction technique.	5	CO3	L3
13	Write a short note on TGA and its advantages.	5	CO4	L3
14	Enlist spectrofluorimetry quenchers. Differentiate DTA and DDTA.	5	CO5	L4

****All the Best ****

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Regd. No: …… **MPL-102T**

Total No. of Questions: 14 **Total No. of Pages: 2**

I/II M. Pharmacy Regular Degree 1st Semester end Theory Examinations April, 2026 - (Admitted in 2025-2026 Autonomous Batch) Pharmacology Specialization

Subject Code & Name:MPL-102T Advanced Pharmacology - I

Time Duration: 3.00 Hrs. **Max. Marks: 75 Marks.**

CO1	Discuss the pathophysiology and pharmacotherapy of certain disease.
CO2	Explain the mechanism of drug actions at cellular and molecular level
CO3	Understand the adverse effects
CO4	Clinical uses drugs used in treatment of disease
CO5	Pharmacokinetics
CO6	Side effects and contraindications

Bloom's Taxonomy Levels-(BL) (L1-Remembering, L2-Understanding, L3–Applying, L4-Analysing, L5–Evaluating, L6-Creating)

SECTION – A

ANSWER ANY FIVE QUESTIONS **(5 X 10M = 50 Marks)**

Q. No.	Questions	Marks	CO	BL
1	Discuss in detail about GPCR Signaling pathways with examples.	10	CO2	L2
2	Explain the various mechanism involved in drug absorption with examples.	10	CO5	L2
3	a, Discuss the pathophysiology of Parkinson's disease. b. Explain the Pharmacology of Levodopa.	10	CO1	L1
4	Classify sympatholytics with example. Explain the Pharmacology actions, adverse effects, therapeutic uses and contraindications of Propranolol.	10	CO1	L1
5	Explain the pathophysiology of congestive cardiac failure and explain the mechanism of action, pharmacological action and adverse effects of Digoxin.	10	CO1	L1, L2
6	Discuss the pathophysiology of different types of seizures.	10	CO1	L2
7	Discuss the physiological and pharmacological role of Histamine and applications of antihistamines	10	CO1	L1

SECTION – B

ANSWER ANY FIVE QUESTIONS **(5 X 5M = 25 Marks)**

Q. No.	Questions	Marks	CO	BL
8	Explain briefly about protein binding of drugs and its significance.	5	CO5	L1
9	Classify antihypertensives and explain the mechanism of action and adverse effects of ACE inhibitors.	5	CO4	L1, L2
10	Discuss about morphine poisoning and its treatment	5	CO3	L1
11	Explain the various steps involved in the neurohumoral transmission in adrenergic neurons.	5	CO2	L1
12	Classify antiplatelet drugs and explain the mechanism of action, adverse effects and therapeutic uses of Aspirin.	5	CO2	L1, L2
13	Why tricyclic antidepressants are replaced with SSRI and SNRI in the treatment depression? Explain it.	5	CO6	L4
14	Explain the physiological role of Prostaglandins.	5	CO2	L2

****All the Best ****

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Regd. No: …… **MPL-103T**

Total No. of Questions: 14 **Total No. of Pages: 02**

I/II M. Pharmacy Regular Degree 1st Semester end Theory Examinations
April, 2026 - (Admitted in 2025-2026 Autonomous Batch)
Pharmacology Specialization

Subject Code & Name: MPL-103T Pharmacological & Toxicological Screening Methods-I

Time Duration: 3.00 Hrs. **Max. Marks: 75 Marks.**

CO1	Commonly used laboratory animals in various screening Methods.
CO2	General screening methods used in preclinical Evaluation of CNS drugs.
CO3	Respiratory, reproductive & GI Pharmacological screening methods.
CO4	Screening of used Cardiovascular diseases & metabolic Disorders
CO5	To know the principles of immunoassays & Screening of Immunomodulators

Bloom's Taxonomy Levels-(BL) (L1-Remembering, L2-Understanding, L3–Applying, L4-Analysing, L5–Evaluating, L6-Creating)

SECTION – A

ANSWER ANY FIVE QUESTIONS **(5 X 10M = 50 Marks)**

Q. No.	Questions	Marks	CO	BL
1	Explain the role of anesthesia in experimental animal research and describe commonly used anesthetic techniques.	10	CO1	L1, L2
2	Enumerate the experimental methods used for evaluating antiparkinsonism activity and discuss any two methods.	10	CO2	L1, L2
3	Write various methods to evaluate a compound for anti-inflammatory activity. Explain one *in vitro* method and the rat paw edema method.	10	CO3	L1, L2
4	Name the commonly used methods to screen an agent for antihypertensive activity. Discuss one *in vitro* and one *in vivo* method.	10	CO4	L1, L2
5	Explain the limitations of animal experimentation and describe the alternatives available for animal studies.	10	CO5	L1, L2
6	What are transgenic animals? Describe the techniques used to produce transgenic animals and mention their applications.	10	CO1	L1, L2
7	Discuss the experimental models used for screening aphrodisiac agents.	10	CO3	L1, L2

SECTION – B

ANSWER ANY FIVE QUESTIONS **(5 X 5M = 25 Marks)**

Q. No.	Questions	Marks	CO	BL
8	Explain the concept of immunomodulators with suitable examples.	5	CO5	L1, L2
9	Explain any two in vivo models used to evaluate antiepileptic drugs.	5	CO2	L1, L2
10	List the various methods used to screen compounds for antiulcer activity and explain any one method	5	CO3	L1, L2
11	Mention the models used for screening anti-anginal agents and describe any one of them	5	CO4	L1, L2
12	Outline the principles of immunoassay and describe the essential components needed for the assay.	5	CO5	L1, L2
13	Mention and explain any two experimental models used for screening antidepressant agents.	5	CO2	L1, L2
14	List and explain the two screening models used for anticancer drugs.	5	CO4	L1, L2

****All the Best ****

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Regd. No: …… **MPL-104T**
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I/II M. Pharmacy Regular Degree 1st Semester end Theory Examinations
April, 2026 - (Admitted in 2025-2026 Autonomous Batch)
Pharmacology Specialization

Subject Code & Name:MPL-104T Cellular and Molecular Pharmacology.

Time Duration: 3.00 Hrs. **Max. Marks: 75 Marks.**

CO1	Cell biology
CO2	Cell signaling
CO3	Principles & applications of Genomic and proteomic tools
CO4	Pharmacogenomics
CO5	Cell culture techniques & Biosimilars

Bloom's Taxonomy Levels-(BL) (L1-Remembering, L2-Understanding, L3–Applying, L4-Analysing, L5–Evaluating, L6-Creating)

SECTION – A

ANSWER ANY FIVE QUESTIONS **(5 X 10M = 50 Marks)**

Q. No.	Questions	Marks	CO	BL
1	Explain the various events of cell cycle and its regulations.	10	CO1	L2
2	Classify receptors with examples. Explain the MAP kinase and JAK-STAT signaling pathway with examples	10	CO2	L2
3	Explain the principle, procedure & applications of PCR technique.	10	CO3	L3
4	What is polymorphism? Explain the different types of polymorphism	10	CO4	L2
5	Discuss in detail about cell viability assays.	10	CO5	L3
6	Discuss the various steps involved in gene expression.	10	CO1	L2
7	Explain the types of vectors used in rDNA technique.	10	CO3	L3

SECTION – B

ANSWER ANY FIVE QUESTIONS **(5 X 5M = 25 Marks)**

Q. No.	Questions	Marks	CO	BL
8	Explain about Maxam and Gilbert's Method of gene sequencing.	5	CO1	L1
9	Explain the nuclear receptor pathway of cell signaling.	5	CO2	L2
10	Explain the principle, procedure and applications of western blotting	5	CO3	L3
11	Write a note genetic variations in GPCR with example.	5	CO4	L2
12	Explain the principle and applications of calcium influx assay.	5	CO5	L3
13	Write a note on cryopreservation.	5	CO5	L2
14	Write a brief note on Mitochondrial pathway of apoptosis.	5	CO1	L2

****All the Best ****