G. PULLA REDDY COLLEGE OF PHARMACY
AUTONOMOUS
Affiliated to **Osmania University** Approved by **PCI** & Accredited by **NAAC**
Mehdipatnam, Hyderabad - 500028. Telangana State.

M. PHARM FIRST SEMESTER (PCI) REGULAR EXAMINATIONS, APRIL – 2026
Branch: PHARMACEUTICAL ANALYSIS, PHARMACEUTICS, PHARMACOLOGY
COMMON PAPER FOR ALL STREAMS
Subject: MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

QP Code: MPI01TE26
Time: 03 Hours **Max Marks: 75**

Note: Answer Any **FIVE** Questions. **5 X 15 = 75M**

S. No	Questions
1	Describe the principle, instrumentation, and applications of Flame Emission Spectroscopy. State and explain Beer's law and its deviations in applicability (8+7)
2	Explain the principle of High Performance Liquid Chromatography (HPLC). Discuss the chromatographic parameters used to ensure system suitability.
3	Define Spin-Spin coupling and Coupling constant in NMR spectroscopy. Briefly explain the principle of ^{13}C NMR.
4	What is Mass fragmentation? Discuss the general rules of fragmentation and the significance of metastable ions.
5	Explain the principle, technique, and pharmaceutical applications of Thin Layer Chromatography (TLC).
6	Discuss the principle and applications of Radio Immuno Assay (RIA) and Bioluminescence assays.
7	Explain the theory of vibrations & factors affecting vibrational frequencies in IR spectroscopy. Describe the methods used for sample handling in IR.
8	Discuss the principles of Capillary Electrophoresis and Isoelectric focusing. How do these differ from moving boundary electrophoresis?

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M. PHARM FIRST SEMESTER (PCI) REGULAR EXAMINATIONS, APRIL – 2026
Branch: PHARMACOLOGY
Subject: ADVANCED PHARMACOLOGY-I

Subject Code : MPL102T **QP Code: MPLI02TE26**
Time: 03 Hours **Max Marks: 75**

Note: Answer Any **FIVE** Questions. **5 X 15 = 75M**

S. No	Questions
1	Define pharmacodynamics. Explain dose-response relationships and factors affecting drug action.
2	Apply compartment models to explain drug distribution and elimination kinetics.
3	Describe neurotransmission in CNS with emphasis on dopamine, GABA, and glutamate.
4	Analyze the mechanism of action of sedatives and hypnotics with suitable examples.
5	Discuss pharmacotherapy of epilepsy including classification and mechanism of antiepileptic drugs.
6	Evaluate drugs used in heart failure and their clinical significance.
7	Compare anticoagulants and antiplatelet drugs with mechanisms and therapeutic uses.
8	Describe a therapeutic approach for managing hyperlipidemia using available drug classes.

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M. PHARM FIRST SEMESTER (PCI) REGULAR EXAMINATIONS, APRIL – 2026
Branch: PHARMACOLOGY
Subject: PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING METHODS-I

Subject Code : MPL103T **QP Code: MPLI03TE26**
Time: 03 Hours **Max Marks: 75**

Note: Answer Any **FIVE** Questions. **5X15 = 75M**

S. No	Questions
1	a) Analyse the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) guidelines governing the conduct of animal experiments, with emphasis on their ethical principles, regulatory requirements, and implementation procedures.
	b) Analyse the various physical euthanasia techniques used in experimental animals, highlighting their advantages, and limitations.
2	Formulate a comprehensive framework for the evaluation of anti-Parkinsonian drugs by integrating a definition of Parkinsonism, systematically categorizing available experimental models used for drug screening, and designing detailed methodologies for any two selected models with appropriate justification.
3	a) Explain the screening methods used to evaluate a compound for anti-inflammatory activity, any two methods.
	b) Describe the methods used to screen a compound for anti-asthmatic activity, including their fundamental principles and general procedures.
4	Evaluate the experimental approaches used to induce Diabetes Mellitus, including a critical appraisal of the Streptozotocin and Alloxan-induced models with respect to their mechanism, advantages, and limitations.
5	a) Apply your knowledge to illustrate the principles and practical aspects of the immunoassay of insulin.
	b) Demonstrate the use and significance of alternative animal experiments in research.
6	List the screening methods used for evaluation and explain any two methods in detail of the following: a) Nootropics
	b) Anxiolytics.
7	a) Critically evaluate the screening methods used to assess antifertility activity, detailing their principles, advantages, and limitations. (8 M)
	b) Interpret the screening methods employed to evaluate the analgesic activity of a compound.
8	a) Design a comprehensive experimental strategy to evaluate the hepatoprotective activity of a compound, incorporating appropriate screening methods, underlying principles, and justified methodological approaches.
	b) Develop a detailed experimental plan to assess the diuretic effect of a compound, integrating suitable screening methods, core principles, and well-justified methodologies.

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M. PHARM FIRST SEMESTER (PCI) REGULAR EXAMINATIONS, APRIL – 2026
Branch: PHARMACOLOGY
Subject: CELLULAR AND MOLECULAR PHARMACOLOGY

Subject Code : MPL104T **QP Code: MPLI04TE26**
Time: 03 Hours **Max Marks: 75**

Note: Answer Any **FIVE** Questions. **5 X 15 = 75M**

S. No	Questions
1	a) Discuss in detail about structure and function of cell ad its organelles with diagram 9M b) Write a note on cell cycle and autophagy 6M
2	a) Define cell signalling. Write a note on intrinsic and extrinsic pathways. 8M b) Write a brief note on cycle AMP, IP3 and MAPK signalling 7M
3	Define and classify receptor. Write descriptive note on G protein coupled receptors 15M
4	a) Discuss the principle and applications of rDNA technology and PCR 8M b) Explain gene sequencing. Write principle and applications of proteomic tools 7M
5	a) Write about types of immunotherapeutic with clinical practice 8M b) Explain gene mapping. Write a note on polymorphism affecting drug metabolism. 7M
6	a) Analyse the concept of pharmacogenomics and evaluate how genetic variation influences health outcomes. 8M b) Analyse the different types of vectors used in recombinant DNA technology and evaluate their applications in medicine, agriculture, and industry 7M
7	a) Evaluate the importance of basic equipment used in a cell culture laboratory 6M b) Evaluate the processes of cryopreservation and characterization of cells, and justify their applications. 9M
8	a) Apply your understanding of cell viability assays by explaining their principle 7M b) Explain in detail about Biosimilars 8M