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: PHARMACEUTICAL ANALYSIS
Subject: ADVANCED PHARMACEUTICAL ANALYSIS

Subject Code : MPA102T **QP Code: MPAI02TE26**
Time: 03 Hours **Max Marks: 75**

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

S. No	Questions
1	Classify the impurities as per ICH and mention in detail the Listing, Qualification of degradation products in new drug Product
2	Explain the stability testing protocols, including selection of batches, container orientation, test parameters, sampling frequency, specifications, storage conditions, and recording of results in pharmaceutical studies
3	Demonstrate in detail the steps involved in the Impurity Profiling and degradation Characteristics
4	List the classification of elements and discuss the control of elemental impurities, their potential sources and the analytical procedures used for their determination in pharmaceutical substances.
5	Discuss the Photostability testing guidelines and stability guidelines for biological products in pharmaceutical studies.
6	Explain the stability testing protocol, interactions and complexity of Phytopharmaceuticals
7	Elaborate the Bioassay procedures for the Oxytocin, Adsorbed Tetanus vaccine, Heparin sodium in detail
8	Summarize the Quantification and Applications of Optical IA, Fluro IA and , Luminescence IA with examples

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M. PHARM FIRST SEMESTER (PCI) REGULAR EXAMINATIONS, APRIL – 2026
Branch: PHARMACEUTICAL ANALYSIS
Subject: PHARMACEUTICAL VALIDATION

Subject Code : MPA103T **QP Code: MPAI03TE26**
Time: 03 Hours **Max Marks: 75**

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

S. No	Questions
1	Define qualification and validation and Explain different phases of Instrumentation qualification
2	Describe the principles and steps involved in cleaning validation, including sampling techniques and acceptance criteria.
3	Summarize the qualification of pH meter and UV–Visible spectrophotometer.
4	Explain the validation of pharmaceutical water systems, including critical quality attributes and microbial limits.
5	Discuss the process of filing a patent application. Mention the essential forms and guidelines to be followed.
6	Discuss about analytical method validation parameters as per ICH guidelines Q2 (R2)
7	Evaluate the importance of Computerized System Validation (CSV) with respect to 21 CFR Part 11 and GAMP 5.
8	Describe the concepts of Intellectual Property Rights (IPR) and their importance in the pharmaceutical industry.

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M. PHARM FIRST SEMESTER (PCI) REGULAR EXAMINATIONS, APRIL – 2026
Branch: PHARMACEUTICAL ANALYSIS
Subject: FOOD ANALYSIS

Subject Code : MPA104T **QP Code: MPAI04TE26**
Time: 03 Hours **Max Marks: 75**

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

S. No	Questions
1	a). Classify proteins and explain the Secondary structure of proteins? b). Explain Kjeldahl method and Dumas method for estimation of proteins? (8M)
2	Write about Hydrogenation of fats in detail and explain Reichert Meissl (RM) Value, Saponification value and Acetyl Value (15M)
3	a). Explain the role of Bureau of Indian Standards in maintaining food quality. (7M) b). Explain the functions and responsibilities of Food and Drug Administration in ensuring food safety. (8M)
4	Apply appropriate analytical methods to determine a suitable technique for estimation of water-soluble vitamins in a pharmaceutical formulation. (15M)
5	Write about the following a. Analysis of antioxidants b. Detection of permitted and non-permitted dyes.
6	Assess the functional roles of various food additives and justify their appropriate application in maintaining food quality and stability. (15M)
7	Critically evaluate different analytical techniques used for milk products and discuss their advantages and limitations. (15M)
8	Formulate a strategy to minimize pesticide residues in food products from farm to consumption. (15M)