



P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY

(AUTONOMOUS)

Awarding University: JNTU Anantapur, Anantapuramu. Approved by PCI, New Delhi & Govt. of A.P.

Recognized u/s 2(f) & 12(b) of the UGC Act, 1956, New Delhi. Accredited by NAAC.

Code: 25S01101

R25

M.Pharm I Semester Regular Examinations February/March 2026

MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

(Common to Pharmacology, Pharmaceutics, Pharmaceutical Analysis and Pharmacognosy)

Time: 3 hours

Max. Marks: 60

Answer all the questions

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|-----------|--|----------|-----|----|
| 1 | (a) Explain the Beer-Lambert's law and its deviation. | CO1111.1 | II | 6M |
| | (b) Select the choice of solvents and solvent effect in UV. | CO1111.1 | III | 6M |
| OR | | | | |
| 2 | (a) Explain the principle involve in UV spectroscopy. | CO1111.1 | IV | 6M |
| | (b) Discuss monochromators and gratings in UV spectroscopy. | CO1111.1 | II | 6M |
| 3 | (a) Discuss sampling techniques for IR spectroscopy. | CO1111.1 | II | 6M |
| | (b) Write modes of molecular vibrations in IR spectroscopy. | CO1111.1 | I | 6M |
| OR | | | | |
| 4 | (a) Explain the instrumentation of Dispersive IR spectrometer. | CO1111.1 | II | 6M |
| | (b) Write the interpretation of IR spectroscopy. | CO1111.1 | IV | 6M |
| 5 | (a) Define chemical shift and its factors influencing in NMR. | CO1111.2 | I | 6M |
| | (b) Enumerate spin-spin coupling and coupling constant. | CO1111.2 | II | 6M |
| OR | | | | |
| 6 | (a) Describe the Principle involve in FT - NMR spectroscopy. | CO1111.2 | II | 6M |
| | (b) Write a note on Nuclear magnetic double resonance. | CO1111.2 | II | 6M |
| 7 | (a) Compare & contrast ionization techniques APCI and ESI. | CO1111.3 | IV | 6M |
| | (b) Discuss quadrupole and time of flight mass analyzers. | CO1111.3 | IV | 6M |
| OR | | | | |
| 8 | (a) Write the applications involve in Mass spectroscopy. | CO1111.3 | I | 6M |
| | (b) Elaborate the principle and theory in Mass spectroscopy. | CO1111.3 | II | 6M |
| 9 | (a) Discuss principle and instrumentation of Gel chromatography. | CO1111.4 | I | 6M |
| | (b) Enumerate instrumentation of Gas chromatography. | CO1111.4 | II | 6M |
| OR | | | | |
| 10 | (a) Differentiate TLC and paper Chromatography. | CO1111.4 | IV | 6M |
| | (b) Write the applications of HPLC and HPTLC. | CO1111.4 | I | 6M |
