[KY 755]   **Sub. Code : 4246**

FOURTH B.PHARM. DEGREE EXAMINATION.

(Regulation 2004) Candidates admitted from 2004-05

Paper V — MODERN METHODS OF PHARMACEUTICAL ANALYSIS

Q. P. Code : 564246

Time : Three hours   **Maximum : 90 marks**

I. Essay Questions :   **Answer any TWO questions.**   **(2 x 20 = 40)**

1. (a) Explain the different types of electronic transitions. (10)
   (b) What is the Frank Condon Principle? Explain. (5)
   (c) Describe the working of a photo multiplier tube. (5)

2. (a) Explain the basis for NMR spectroscopy. (5)
   (b) With the aid of a neat diagram explain the various components of a typical NMR instrument. (10)
   (c) Explain nuclear overhauser effect. (5)

3. Explain the following terms :
   (a) Isocratic elution, Reverse phase chromatography, Number of theoretical plates. (6)
   (b) Describe the construction and working of flame ionisation detector and electron capture detector. (8)
   (c) What are the different types of ion exchange resins used in ion exchange chromatography. (6)

II. Write short notes :   **Answer any EIGHT questions.**   **(8 x 5 = 40)**

1. Calculate the vibrational degrees of freedom for a linear molecule like $2\,CO$.
2. Different types of quenching encountered in fluorometry.
3. Formation of metastable ions in a mass spectrometer.
4. Total quality management.
5. Theoretical basis of conductometric titrations.
6. Show a neat diagramatic representation of a Flame photometer assembly.
7. Principles of Nephelometry and Turbidometry.
8. Describe the construction of a hollow cathode lamp.
9. What are the different types of detection technique used in paper chromatography?
10. What are the pharmaceutical applications in X-Ray diffraction?

III. Short Answers :   **Answer any FIVE questions.**   **(5 x 2 = 10)**

1. Define diffusion current and residual current.
2. Define 'Limit of Quantitation'.
3. Define 'Chromophores' and 'Auxochromes'.
4. Name four detectors used in IR spectroscopy.
5. Name four inorganic adsorbents used in TLC.
6. In Amperometry, what is 'Dead Stop End Point Method'?
7. Give four advantages of preparatory HPTLC plates.

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