

FEBRUARY 2005

[KM 289]

Sub. Code : 1001

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Paper I — MODERN PHARMACEUTICAL  
ANALYTICAL TECHNIQUES

(Common to all Branches)

Time : Three hours

Maximum : 100 marks

Sec. A & B : Two hours and  
forty minutes

Sec. A & B : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

SECTION A — (2 × 15 = 30 marks)

Long Essay :

1. Write a note on chromophores and their interaction with electromagnetic radiation in U.V. region on the basis of Woodward's rule.
2. Give an account of detectors used in HPLC.

SECTION B — (10 × 5 = 50 marks)

Short notes on :

3. Significance of Ilkovic Equation and Halfwave potential.
4. Principle and applications of affinity chromatography.
5. Different types of conductometric titrations.
6. Qualitative IR spectrophotometry.
7. Instrumentation and working of fluorimeter.
8. Principle involved in the biological assay of Digitalis and Insulin.
9. Chemical shift.
10. Spin-spin splitting.
11. Coupling constant.
12.  $C^{13}$  NMR.

**[KN 289] AUGUST 2005 Sub. Code : 1001**

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**(Revised Regulations)**

**First Year**

**Paper I — MODERN PHARMACEUTICAL  
ANALYTICAL TECHNIQUES**

**(Common to all Branches)**

**Time : Three hours Maximum : 100 marks**

**Theory : Two hours and Theory : 80 marks  
forty minutes**

**M.C.Q : Twenty minutes M.C.Q : 20 marks**

**Answer ALL questions.**

**I. Long Essay : (2 × 15 = 30)**

1. (a) Explain the principles underlying the ionization patterns in the field desorption and fast atom bombardment mass spectrometry. (8)

(b) Describe the general rules of fragmentation in mass spectroscopy. (7)

2. (a) What do you mean by Nuclear Overhauser Effect (NOE)? What are its applications? (7)

(b) Emphasize on the derivatization methods and the principles involved in on-line derivatization process in HPLC and gas chromatography. (4 + 4)

**II. Short Notes : (10 × 5 = 50)**

1. How are X-rays generated? What are the applications of X-ray diffraction?

2. How do you distinguish between 2-pentanone and 3-pentanone on the basis of their mass and nmr spectra?

3. Describe stationary phases in HPLC and GLC.

4. Describe the structural features of molecules responsible for quenching effect in fluorimetry.

5. What is meant by capillary electrophoresis? Discuss the different modes by which the capillary electrophoresis techniques are carried out.

6. Describe the applications of atomic absorption spectroscopy.

7. Classify ion exchangers used in chromatography. Write their applications.

8. Describe the instrumental features of a classical HPTLC.

9. Write construction and working of Electron Capture Detector. (ECD).

10. Explain the principle and methodology of Thermogravimetric analysis.