

March 2009

[KU 315]

Sub. Code: 2851

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

(For candidates admitted from 2006-2007 onwards)

FIRST YEAR

**Paper I – MODERN PHARMACEUTICAL ANALYTICAL
TECHNIQUES**

(Common to all Branches)

Q.P. Code : 262851

Time : Three hours

Maximum : 100 marks

Answer All questions

I. Essay Questions : (3 x 20 = 60)

1. a) Explain Beer Lambert's Law and discuss about the deviations from Beer's Law.
b) Discuss about Various components of UV Spectrophotometer?
2. a) Explain the principle and instrument of a spectrofluorimeter with a neat diagram.
b) Explain the terms : Singlet, triplet stator and quenching.
3. a) Enumerate the differences between FTIR and a dispersive IR instrument, draw neat labelled diagrams of a dispersive IR instrument and a FTIR.
b) Enumerate various pharmaceutical applications of NMR Spectroscopy.

II. Write Short Notes : (8 x 5 = 40)

1. Write a brief note on Bragg's law.
2. Explain how HPLC is very useful in Bio pharmaceutical analysis.
3. Write the basic principles of Radio Immuno assay.
4. Discuss the advantages of HPTLC over TLC.
5. Explain the terms probability, normal distribution, regression, variance and degree of freedom.
6. Write differences between ESR and NMR .
7. Write a note on moving boundary electrophoresis.
8. Enumerate different types of detectors used in GLC-analysis.

September 2009

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I. Essay Questions :

(3 x 20 = 60)

1. a) Explain in detail about the fragmentation rules in electron impact mass spectrometry. Give suitable examples?
b) Explain different analysers used in mass spectroscopy.
2. a) What are the basic requirements for absorption of IR radiation?
Explain with suitable examples.
b) Write an account on chromophores with suitable examples. Discuss the choice of solvents and solvent effects in absorption.
3. a) Explain the principle and working procedure of the GLC with its limitations and strength.
b) What are the different detectors used in GLC?

II. Write Short Notes :

(8 x 5 = 40)

1. Discuss spin-spin coupling and factors affecting spin-spin coupling.
2. X-ray powder diffraction and its applications.
3. Students T test?
4. What is derivative spectra and write the applications of UV-spectra with suitable examples?
5. Affinity chromatography techniques and its applications.
6. Explain the factors affecting theoretical plate height based on van deemeter equation.
7. Circular dichroism and its applications.
8. Working principle of differential thermal analysis (DTA) and its applications.

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Q.P. Code : 262851

Time : Three hours

Maximum : 100 marks

Answer All questions

I. Essay Questions : (3 x 20 = 60)

1. a) Discuss the important principles and instrumentation of nuclear magnetic resonance spectroscopy.
- b) Explain the techniques of decoupling interaction between ¹³C-NMR and ¹H-NMR (Nuclear magnetic resonance) spectroscopy.
2. Enumerate the detectors used in the UV – spectroscopy, IR – spectroscopy and HPLC (High Performance Liquid Chromatography) techniques. Explain any one with neat diagram.
3. a) Explain the principle and methodology of differential scanning calorimetry.
- b) Discuss the working principle and applications of HPTLC (High Performance Thin Layer Chromatography) technique with instrumentation.

II. Write Short Notes : (8 x 5 = 40)

1. Discuss the wood-ward's rule and its applications.
2. Explain the working principle and applications of fast atom bombardment mass spectroscopy.
3. Write a note on flame emission spectroscopy and its applications.
4. Explain the principle of flurometry with one suitable example and its applications.
5. Write a brief note on electron spin resonance spectroscopy and its limitations.
6. Write a brief note on LC-MS.
7. Write the principle and applications of Radio immuno assay.
8. Students – T- test.
