THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LO 961] MAY 2019 **Sub. Code: 2961**

M.PHARM. DEGREE EXAMINATION
(PCI New regulations 2016)
SEMESTER-I
PHARMACEUTICAL BIOTECHNOLOGY – MPB
PAPER I – MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

Q.P. Code : 262961

Time : Three hours **Maximum : 75 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. a) Explain the construction and functioning of a single beam U.V Spectrophotometer.
   b) Discuss the various techniques employed in the assay of multicomponent mixture by UV spectrophotometer.

2. a) Describe the principle and instrumentation of double beam Spectrofluorimeter.
   b) Write theory of Fluorescence with neat diagram.

II. Write notes on: **(7 x 5 = 35)**

1. Write a note on the theory & applications of IR.
2. Explain the application and various interferences occurring in Flame emission spectroscopy.
3. Write a note on ^{13}C-NMR and coupling constant.
4. Describe the principle involved in mass spectroscopy.
5. Explain the working of any two detectors used in Gas Chromatography.
6. Derive Bragg's law and discuss the applications of X-ray diffraction method.
7. Explain briefly about Zone Electrophoresis.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LQ 0121] JANUARY 2021 Sub. Code: 2961

(APRIL 2020 EXAM SESSION)

M.PHARMACY DEGREE EXAMINATION

SEMESTER-I (PCI New regulations 2016)

PHARMACEUTICAL BIOTECHNOLOGY – MPB

PAPER I – MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

Q.P. Code : 262961

Time : Three hours **Answer ALL Questions** **Maximum : 75 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Compare and contrast atomic absorption spectroscopy with flame emission spectroscopy.

2. a) Explain proton NMR and add a note on spin-spin coupling.
   b) How many NMR signals are expected in ethanol and cyclobutane and Predict the chemical shift positions for protons in methyl acetate?

II. Write notes on: **(7 x 5 = 35)**

1. Explain the theory of electronic spectroscopy.
2. What are the masses of the ions produced in mass spectrum of 4-n-butyltoluene by
   (a) benzylic fission (b) McLafferty rearrangement
3. Briefly explain the principle and applications of HPLC.
4. Describe the moving boundary electrophoresis.
5. Explain X-ray powder diffraction technique.
6. Discuss the different types of column packing and elution techniques in column chromatography.
7. Describe the construction and working of photo diodes and thermocouples.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MPHARM 0422] APRIL 2022 Sub. Code: 2961
(OCTOBER 2021 EXAM SESSION)

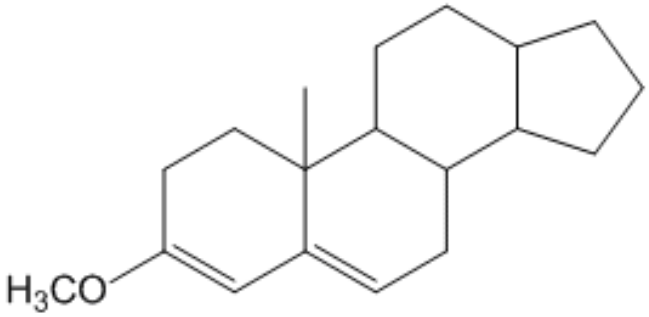
M.PHARMACY DEGREE EXAMINATION
SEMESTER-I (PCI New regulations 2016)
PHARMACEUTICAL BIOTECHNOLOGY - MPB
PAPER I – MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES
Q.P. Code : 262961

Time : Three hours **Answer ALL Questions** **Maximum : 75 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. a) Explain briefly about the Instrumentation of double beam UU Spectrophotometer.
   b) Discuss the types of Detectors used in IR spectroscopy.

2. a) Give the reason for TMS used as reference standard in NMR spectroscopy.
   b) Explain the Factors influencing Chemical shift:
   c) Calculate the λ max using Woodward fisher rule for the compound.



II. Write notes on: **(7 x 5 = 35)**

1. Explain detectors used in Gas chromatography.
2. Write notes on analyzers in mass spectroscopy.
3. Capillary Electrophoresis.
4. Column chromatography.
5. MALDI.
6. Ion Exchange Chromatography.
7. Interferences in Flame emission spectroscopy.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[M.PHARM 0423] APRIL 2023 Sub. Code: 2961
(OCTOBER 2022 EXAM SESSION)

M.PHARMACY DEGREE EXAMINATION
SEMESTER - I (PCI New regulations 2016)
PHARMACEUTICAL BIOTECHNOLOGY - MPB
PAPER I – MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

Q.P. Code: 262961

Time : Three hours **Answer ALL Questions** **Maximum : 75 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. a) Explain the principles of FT-NMR and ^{13}C NMR.
   b) What are the Applications of NMR Spectroscopy?

2. a) Write in detail about Principle, Apparatus and the Instrumentation of HPLC.
   b) What is Affinity Chromatography? What are the factors affecting resolution?

II. Write notes on : **(7 × 5 =35)**

1. Describe about Isotopic peaks and Applications of Mass Spectroscopy.
2. Discuss about the Principles of Electrophoresis.
3. Explain the Bragg's Law with the example.
4. Write note on the solvents and the solvents effect in UV -Visible Spectroscopy.
5. What is the principle of Atomic Absorption Spectroscopy?
6. Write about Ion exchange Chromatography.
7. What are the Analyzers of Quadrupole and Time of flight?

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