

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

[BPHARM 1221]

**DECEMBER 2021
(MARCH 2021 EXAM SESSION)**

Sub. Code: 2071

**B. PHARMACY DEGREE EXAMINATION
PCI Regulation SEMESTER - VII
PAPER I – INSTRUMENTAL METHODS OF ANALYSIS
Q.P. Code : 562071**

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Write the principle and instrumentation of double beam UV spectrophotometer with a neat diagram.
2. Define electrophoresis. Explain in detail about gel electrophoresis and capillary electrophoresis.
3. Write the principle and instrumentation of Gas chromatography.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Explain about the preparation and activation of TLC plates.
2. Describe the types of ion exchange resins used in ion exchange chromatography?
3. Explain the principle and instrumentation involved in flame emission spectroscopy.
4. Write about the different development techniques used in Paper chromatography.
5. What are the different types of vibrations in IR spectroscopy?
6. Discuss the factors affecting the fluorescence intensity.
7. Write in short about paper electrophoresis.
8. Write the principle and instrumentation of Nephelometry.
9. Write the applications of atomic absorption spectroscopy.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Define Beers-Lamberts Law.
2. What is Bathochromic shift?
3. Define the term Luminescence.
4. What is R_f value? How it is determined?
5. Write any two applications of affinity chromatography.
6. What is silicagel GF?
7. Mention the light source used in Atomic Absorption Spectroscopy.
8. What is tailing and fronting peak?
9. Define Isosbestic point.
10. What is HETP?

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[BPHARM 0522]

**MAY 2022
(SEPTEMBER 2021 EXAM SESSION)**

Sub. Code: 2071

**B. PHARMACY DEGREE EXAMINATION
PCI Regulation SEMESTER - VII
PAPER I – INSTRUMENTAL METHODS OF ANALYSIS
Q.P. Code : 562071**

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Explain the principle, and instrumentation in Gel chromatography.
2. (a) Define and derive a mathematical expression for combined Beer's–Lamberts law.
(b) Add a note on deviations from Beer's –Lamberts law.
3. Write in detail about principle, types of ion exchangers used and applications of ion exchange Chromatography.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Explain the principle involved in fluorimetry with Jablonski diagram.
2. Write a brief note on detecting agents used in paper chromatography.
3. Describe the working principle of hollow cathode lamp with neat diagram.
4. Write the principle and applications of Gas chromatography.
5. Explain about the different types of detection techniques in TLC.
6. Write about different system suitability parameters used in HPLC.
7. Explain the sampling techniques for solids in IR spectroscopy.
8. Write the principle and applications of nephelo-turbidimetry.
9. Explain the different types of electronic transitions involved in UV spectroscopy.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Describe the terms Bathochromic shift and hypsochromic shift.
2. Define the term static quenching.
3. What is ODS?
4. What is normal phase chromatography?
5. What are auxochromes?
6. What is capacity factor?
7. Write the applications of affinity chromatography.
8. Mention the light source used in IR spectroscopy.
9. What is edge effect?
10. What is derivatisation?

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[BPHARM 1022]

**OCTOBER 2022
(MARCH 2022 EXAM SESSION)**

Sub. Code: 2071

**B. PHARMACY DEGREE EXAMINATION
PCI Regulation SEMESTER - VII
PAPER I – INSTRUMENTAL METHODS OF ANALYSIS
Q.P. Code : 562071**

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Derive Beer-Lamberts law and explain the reasons for deviation from the law.
2. Explain the principle, instrumentation and application involved in nephlo-turbidimetry.
3. Write the principle and instrumentation of HPLC with a neat diagram.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. What are different regions of the IR spectrum? Explain various types of stretching and bending vibrations.
2. Write note on solvent effect on Absorption spectra.
3. Give the principle and applications of Gel filtration chromatography.
4. Explain the interferences involved in Atomic absorption spectroscopy.
5. Explain Dervatization techniques in Gas Chromatography.
6. Write short notes on Ion exchanges techniques in Ion exchange chromatography.
7. Explain the principle and applications of Affinity chromatography.
8. Write a shote notes on Gel Electrophoresis.
9. Explain Detectors used in Gas chromatography.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Define Capacity factor.
2. What is Finger print region?
3. What is phosphorescence?
4. What is Hypochromic shift?
5. List out the factors affecting quenching.
6. State Lambert's Law.
7. What are the sampling techniques used in IR spectroscopy?
8. Give the sources of radiation in UV-visible spectroscopy.
9. Give the Advantages of Photomultiplier tube.
10. What is meant by Reverse phase chromatography?

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[B.PHARM 0323]

**MARCH 2023
(SEPTEMBER 2022 EXAM SESSION)**

Sub. Code: 2071

**B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 - SEMESTER -VII
PAPER I – INSTRUMENTAL METHODS OF ANALYSIS**

Q.P. Code: 562071

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Describe the principle and instrumentation involved in Flame emission spectroscopy.
2. Explain about the theory and instrumentation of fluorimeter.
3. Discuss the different types of radiation sources used in UV and IR spectroscopy.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Explain the Electronic transitions involved in UV spectroscopy.
2. Write a brief note on factors effecting fluorescence.
3. What are the factors that influence vibrational frequencies? Explain.
4. Give the principle in paper chromatography. What are the detecting agents used in this technique?
5. Write the principle and Instrumentation of Capillary electrophoresis.
6. Give short notes on method of preparation and activation of TLC plates.
7. Explain the temperature programming in Gas Chromatography.
8. Write principle and Instrumentation of Ion Exchange chromatography.
9. Write a short note on partition column chromatography.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. What is capacity factor?
2. Name the Detectors used in Gas chromatography.
3. What is Resolution?
4. What is tailing effect?
5. What are Chromophores?
6. State Beer's Law.
7. What is finger – print region?
8. Write any two applications of HPLC.
9. Mention any two applications of Gel electrophoresis
10. What is quenching?
