

Total No. of Questions: 3

Total No. of Printed Pages:2

Enrollment No.....



Faculty of Pharmacy
End Sem (Odd) Examination Dec-2022
PY3CO29 Instrumental Methods of Analysis
Programme: B. Pharm. Branch/Specialisation: Pharmacy

Duration: 3 Hrs.

Maximum Marks: 75

Note: All questions are compulsory. Internal choices, if any, are indicated.

- Q.1
- Define auxochrome and chromophore. 2
 - What is quenching? Give example. 2
 - Write any two differences between nephelometry and turbidimetry. 2
 - Mention the types of interferences in atomic absorption spectroscopy. 2
 - What is the basic principle of electrophoresis? 2
 - Define thin layer chromatography. 2
 - Define gas chromatography. Mention any two gases used as mobile phase in gas chromatography. 2
 - Draw flow diagram of HPLC system. 2
 - Discuss the principle involved in separations by gel chromatography 2
 - Define cation and anion exchange resin 2
- Q.2
- Attempt any two:
- Draw a schematic diagram of UV visible spectrophotometer. Explain in detail the detectors of UV visible spectroscopy. 10
 - Explain the principle, instrumentation and applications of IR spectroscopy. 10
 - Explain various factors affecting fluorescence spectroscopy. 5
 - Write a note on flame photometer. 5

P.T.O.

[2]

Q.3 Attempt any seven: Two questions from each section is compulsory.

Section - A

- Enlist and explain various development techniques in Paper chromatography. 5
- Explain various steps involved in the separation of samples by column chromatography. 5
- What is electrophoresis? Explain the factors affecting electrophoresis. 5

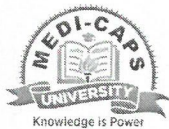
Section - B

- Write construction and working of any two gas chromatography detectors. 5
- Enlist various advantages and disadvantages of gas chromatography. 5
- Explain instrumentation of high-performance liquid chromatography with block diagram. 5

Section - C

- Define and classify ion exchange resins. Add a note on factors affecting ion exchange. 5
- Explain principle and theory of affinity chromatography. 5
- Write a note on instrumentation of gel chromatography. 5

Scheme of Marking



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Note: The Paper Setter should provide the answer wise splitting of the marks in the scheme below.

Q.1	i)	Define Auxochrome and Chromophore	1 mark 1 mark	2
	ii)	What is Quenching? Give example	1 mark 1 mark	2
	iii)	Write the difference between nephelometry and turbidimetry.		2
	iv)	Mention the types of interferences in atomic absorption spectroscopy		2
	v)	What is the basic principle of electrophoresis?		2
	vi)	Define thin layer chromatography.		2
	vii)	Define Gas Chromatography. What are the gases used as mobile phase in Gas Chromatography.	1 mark 1 mark	2
	viii)	Draw flow diagram of HPLC system		2
	ix)	Discuss the principle involved in separations by gel chromatography		2
	x)	Define cation and anion exchange resin	1 mark 1 marks	2
Q.2		Attempt any two:		
	i.	Draw a schematic diagram of UV Visible Spectrophotometer Explain in detail the detectors of UV Visible Spectroscopy.	3 marks 7 marks	10
	ii.	Explain the Principle, Instrumentation and applications of IR Spectroscopy.	2 marks 5 marks 3 marks	10

	iii.	Explain various factors affecting fluorescence spectroscopy.		5
		Write a note on Flame Photometer.		5
Q.3		Attempt any seven: Two questions from each section is compulsory.		
		Section - A		
	i.	Enlist and explain various development techniques in Paper chromatography.	1 mark 4 marks	5
	ii.	Explain various steps involved in the separation of samples by column chromatography.		5
	iii.	What is electrophoresis? Explain the factors affecting electrophoresis.	1 mark 4 mark	5
		Section – B		
	iv.	Write construction and working of any two Gas chromatography detectors.	(2.5 +2.5)	5
	v.	Enlist various advantages and disadvantages of Gas Chromatography.	2.5 marks 2.5 marks	5
	vi.	Explain instrumentation of High-performance Liquid Chromatography with block diagram	3 marks 2 marks	5
		Section – C		
	vii.	Define and classify Ion Exchange resins. Add a note on factors affecting Ion exchange.	1 mark 1 mark 3 marks	5
	viii.	Explain principle and theory of affinity chromatography.	2 marks 3 marks	5
	ix.	Write a note on instrumentation of gel chromatography.		5
