Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM - SEMESTER– 7 EXAMINATION – WINTER -2024

Subject Code:BP701TP Date: 20-11-2024

Subject Name: Instrumental Methods of Analysis

Time:10.30 AM TO 01.30 PM Total Marks: 80

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Discuss principle and pharmaceutical applications of HPLC.	**06**
	(b)	What is retention mechanism in gas chromatography? Explain different stationary phase and gas is used in gas chromatography.	**05**
	(c)	Explain instrumentation with a schematic diagram and applications of HPTLC	**05**
Q.2	**(a)**	State and explain Beer's law. What are the reasons for deviation from Beer's law?	**06**
	(b)	Draw a well-labeled diagram of fluorimeter and explain function of each component.	**05**
	(c)	Explain the principle of Atomic Absorption Spectroscopy. Discuss applications of AAS.	**05**
Q.3	**(a)**	Discuss the pharmaceutical applications of UV-Visible spectroscopy.	**06**
	(b)	Explain detectors used in UV-Vis spectrophotometer?	**05**
	(c)	Discuss various Detectors and Pumps used in HPLC.	**05**
Q.4	**(a)**	What do you mean by Molecular vibration in IR. Explain types of stretching and bending vibration in IR spectroscopy.	**06**
	(b)	Explain the principle and applications of Ion Exchange chromatography.	**05**
	(c)	Discuss constructions and working of Michelson interferometer.	**05**
Q.5	**(a)**	What is called quenching? Discuss types of quenching of fluorescence with suitable examples.	**06**
	(b)	Explain various types of interferences in flame photometry. Explain flame and nebulizer burner system in flame photometry.	**05**
	(c)	Write applications of paper chromatography. Write different types of paper chromatography.	**05**
Q. 6	**(a)**	What is the principle of turbidimetric and Nephelometric method? Discuss the sample cells and applications of Nephelometric method?	**06**
	(b)	What is the principle of electrophoresis? Write types of electrophoresis and applications.	**05**
	(c)	Explain the terms used in chromatography: (i) Resolution (ii) Capacity factor (iii) Retention time (ii)Tailing factor	**05**
Q.7	**(a)**	What is affinity chromatography? What are the steps of affinity chromatography? Write applications of affinity chromatography.	**06**
	(b)	What is the principle of gel chromatography? What is another name for gel chromatography? What are the classification of gels in gel chromatography?	**05**
	(c)	Explain concept of HETP. Discuss Rate theory of chromatography.	**05**

****