Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm- SEM-VII• EXAMINATION – WINTER-2021

Subject Code:BP701TP Date: 24/11/2021

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)**	Explain Principle and applications of HPLC	**06**
	(b)	Discuss various Detectors and Pumps used in HPLC	**05**
	(c)	Define: (i) Retention time (ii)Tailing factor (iii)Capacity factor (iv)Selectivity factor (v)Resolution	**05**
Q.2	**(a)**	Explain instrumentation with Schematic diagram and applications of HPTLC	**06**
	(b)	What is gas chromatography? Explain different stationary phases used in gas chromatography	**05**
	(c)	Enlist various detectors used in Gas chromatography. Explain any one in detail.	**05**
Q.3	**(a)**	Explain the principle and Instrumentation of affinity chromatography	**06**
	(b)	Explain terms HETP, Peak asymmetry factor, Retention volume, Resolution	**05**
	(c)	Write a brief note on Nephlometry and Turbidimetry with its applications	**05**
Q.4	**(a)**	Explain instrumentation with Schematic diagram and applications of HPTLC	**06**
	(b)	Define: (i) Limit of detection (ii) Accuracy (iii) Precision (iv) Rf value (v) Calibration	**05**
	(c)	Explain in detail flame and nebulizer burner system in flame photometry	**05**
Q.5	**(a)**	Write application, advantages and limitation of atomic absorption and atomic emission spectroscopy	**06**
	(b)	Discuss about interferences in AAS. Write merits and demerits of AAS over AES	**05**
	(c)	What is the Pharmacopoeial application of IR spectroscopy, how it helpful in identification	**05**
Q. 6	**(a)**	Explain the principle, working and advantages of FTIR with labeled diagram.	**06**
	(b)	Explain HOOK'S LAW for prediction of IR frequency. Discuss factor affecting IR frequency.	**05**
	(c)	Draw a well labeled diagram of Spectrofluorimeter. Write an instrumentation advantages, Limitation and application of fluorescence spectroscopy	**05**
Q.7	**(a)**	Write a note on Radiation Source, detectors and monochromators used in UV – VIS spectrophotometer	**06**
	(b)	Discuss the effect of solvent and pH on spectral characteristic in UV visible spectroscopy	**05**
	(c)	Explain the terms with reference to EMR: Diffraction, Reflection and Refraction	**05**

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