Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm - SEMESTER– VI EXAMINATION – WINTER 2021

Subject Code: 2260003 Date: 25/11/2021

Subject Name: Pharmaceutical Analysis IV

Time: 02:30PM TO 05:30PM 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 the principle and instrumentation of Super Fluid Chromatography.	**06**
	(b)	Describe Flame Ionization Detector.	**05**
	(c)	Explain the principle and applications of RIA. Explain Enzyme immuno assay-ELISA.	**05**
Q.2	**(a)**	Explain different types of IPR and write the steps for patent filing.	**06**
	(b)	Write a note on GLP.	**05**
	(c)	What is analytical method validation and explain various validation parameters as per ICH guideline.	**05**
Q.3	**(a)**	Explain Bragg's law equation for diffraction of X-rays by crystals and list applications of X-ray diffraction.	**06**
	(b)	Explain technique of Affinity chromatography.	**05**
	(c)	Explain principle and applications of ion exchange chromatography.	**05**
Q.4	**(a)**	Explain hyphenation technique: LC-MS.	**06**
	(b)	Explain various stationary phases used in gas chromatography.	**05**
	(c)	Write a note on mobile phase used in HPLC.	**05**
Q.5	**(a)**	Differentiate: 1. Reverse and Normal phase chromatography 2. HPTLC and HPLC 3. Capillary and Open tubular column	**06**
	(b)	Write a note on Turbidimetry.	**05**
	(c)	Write a brief note on Size exclusion chromatography.	**05**
Q. 6	**(a)**	List ideal requirements of detector for HPLC and explain UV-Visible detector in HPLC.	**06**
	(b)	What are the various steps for chromatographic development in HPTLC.	**05**
	(c)	Explain isotope dilution analysis and liquid scintillation counter.	**05**
Q.7	**(a)**	Differentiate: HPLC and GC.	**06**
	(b)	Give an overview of GC-MS.	**05**
	(c)	Explain objective and advantages of ISO 9001 standards. Also explain quality management system in pharmaceutical industry.	**05**

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