Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.PHARM - SEMESTER–1 EXAMINATION – SUMMER-2019

Subject Code: 910001 **Date: 28/05/2019**

Subject Name: Modern Analytical Techniques

Time: 02:30 PM TO 05:30 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)**	Enlist various ionization techniques used in mass spectroscopy and discuss difference of soft and hard ionization techniques with example along with brief discussion about MALDI	**06**
	(b)	Explain characteristic peak of mass spectrum	**05**
	(c)	Discuss Fourier transform ion cyclotron resonance spectrometer	**05**
Q.2	**(a)**	Explain main principle of IR spectroscopy. Explain instrumentation of FT NIR and give its advantages.	**06**
	(b)	Explain following terminologies 1. ATR 2. Fermi resonance	**05**
	(c)	Write a note on reference standards	**05**
Q.3	**(a)**	Discuss principle and instrumentation of NMR	**06**
	(b)	What is chemical shift and discuss factors affecting NMR signal	**05**
	(c)	Write a note on C13 NMR	**05**
Q.4	**(a)**	Write a note on modern applications of UV spectroscopy and discuss correlation of molecular structure and spectral conjugation	**06**
	(b)	Explain various multicomponent methods of analysis	**05**
	(c)	What is principle of atomic absorption spectroscopy and give brief account on various interference in AAS	**05**
Q.5	**(a)**	Explain properties associate with X ray radiation and discuss Brag's law	**06**
	(b)	Explain various methods for x ray diffraction studies	**05**
	(c)	What is circular dicroism and discuss about cotton effect	**05**
Q. 6	**(a)**	Classify various thermal methods of analysis and write a note on DSC	**06**
	(b)	Write a note on Isoelectric focusing	**05**
	(c)	Write a note on Radioimmunoassay and differentiate RIA and ELISA	**05**
Q.7	**(a)**	Explain various factors affecting chromatographic separation	**06**
	(b)	Explain in brief about 1. Supercritical Fluid Chromatography 2. Affinity chromatography	**05**
	(c)	Write a note on Hyphenated chromatographic technique	**05**

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