Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.PHARM- SEM-I–EXAMINATION – JULY 2012

Subject code: 910001 Date: 03/07/2012

Subject Name: Modern Analytical Techniques

Time: 02:30 pm – 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)	Give principle of NMR spectroscopy. How NMR spectroscopy helps in the structure elucidation of compounds.	**06**
	(b)	Write short notes on 2D NMR.	**05**
	(c)	Define the following terms : (Any Two) (i) Chemical shift (ii) Spin-spin decoupling (iii) Shielding effect	**05**
Q.2	(a)	Give brief account about different techniques of ion generation in Mass spectrometry.	**06**
	(b)	Explain principle and working of Quadrupole mass analyzer.	**05**
	(c)	Define the following terms : (Any Two) (i) Mc-Lafferty rearrangement (ii) Base Peak (iii) Metastable peak	**05**
Q.3	(a)	What is Attenuated Total Reflectance (ATR). Give principle of IR spectroscopy. What is FT –IR.	**06**
	(b)	How IR spectroscopy is helpful in Pharmacy.	**05**
	(c)	Give applications of atomic absorption spectroscopy in Pharmacy.	**05**
Q.4	(a)	Explain principle of UV-Vis. Spectroscopy.	**06**
	(b)	What is derivative spectroscopy? Explain in brief.	**05**
	(c)	What do you mean by X-ray diffraction? Explain Bragg's law.	**05**
Q.5	(a)	What is HPLC.? Explain the principle of HPLC.	**06**
	(b)	What detectors are used in Gas chromatography. Explain working of any one detector.	**05**
	(c)	Write short notes on (Any One) (i) Super fluid chromatography (ii) LC-MS	**05**
Q. 6	(a)	Give principle of electrophoresis. Explain Zone Electrophoresis.	**06**
	(b)	What is Radioimmuno- assay technique. Give its application in Pharmacy.	**05**
	(c)	Write in brief about reference standards.	**05**
Q.7	(a)	What are different methods of Thermal analysis. Explain DSC in detail.	**06**
	(b)	Classify chromatographic methods on the basis of mechanism of separation.	**05**
	(c)	Discuss Optical Rotatory Dispersion with suitable examples. What is Octant rule.	**05**

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