Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

M.Pharm Semester –I Examination Feb. - 2012

Subject code: 910207 **Date: 15/02/2012**
Subject Name: Advanced Spectroscopic Techniques
Time: 10.30 am – 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)	Write note on Instrumentation of Photoacoustic Spectrometry.	**06**
	(b)	Discuss the application of Electron spin resonance spectrometry.	**05**
	(c)	How will be the Photoacoustic signal if (A) sample is transparent (B) sample is optically opaque.	**05**
Q.2	(a)	Write note on Spin-spin splitting observed in Electron spin resonance spectroscopy.	**06**
	(b)	Discuss following terms with respect to Electron spin resonance spectrometry (A) ENDOR and ELDOR (B) Relaxation.	**05**
	(c)	What are different types of luminescence? Write principle of Chemiluminescence.	**05**
Q.3	(a)	Write note on Off resonance decoupling.	**06**
	(b)	Explain Raman scattering and its selection rules.	**05**
	(c)	Write note on Nuclear overhauser enhancement.	**05**
Q.4	(a)	Explain principle and classification of Laser.	**06**
	(b)	Give a detail account of instrumentation of Raman spectroscopy.	**05**
	(c)	Explain basic difference between proton NMR and ^{13}C NMR.	**05**
Q.5	(a)	Discuss the instrumentation of ^{13}C NMR.	**06**
	(b)	Give an account of Proton decoupling.	**05**
	(c)	Discuss the applications of Raman spectroscopy in Pharmacy.	**05**
Q. 6	(a)	Give an account of various pulse sequences for NMR.	**06**
	(b)	Discuss in detail Attached proton test.	**05**
	(c)	Describe DEPT spectrum for citronellol.	**05**
Q.7	(a)	Discuss NOESY experiment in detail.	**06**
	(b)	Describe COSY spectrum of isopentyl acetate.	**05**
	(c)	Write a note on Cross polarization.	**05**

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