Seat 1	No.: _	Enrolment No	
		GUJARAT TECHNOLOGICAL UNIVERSITY	
		M. Pharm. – SEMESTER – I • EXAMINATION – WINTER • 2014	
Subject Code: 910207		Code: 910207 Date: 09-01-2015	
Subj	ect]	Name: Advanced Spectroscopic Techniques	
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		Attempt any five questions.	
		Make suitable assumptions wherever necessary.	
	3.	Figures to the right indicate full marks.	
Q.1	(a)	What is Luminescence? Discuss basic principle of Chemiluminescence.	08
	(b)		08
Q.2	(a)	Write Principle of Electron spin resonance spectrometry.	06
~	(b)		05
	(c)	Discuss applications of Chemiluminescence.	05
Q.3	(a)	Give advantages and disadvantages of Raman spectroscopy? Discuss the	06
		applications of Raman spectroscopy in brief.	
	(b)		05
	(c)	Discuss the quantum theory of Raman effect.	05
Q.4	(a)	Write note on apparatus used in Raman Spectroscopy?	06
	(b)	•	05
	(c)	Write the basic principle of Photoacoustic spectroscopy. Explain terms:	05
		Thermally thick sample and thermally thin sample.	
Q.5	(a)	Write note on Neutron activation method.	06
	(b)		05
	(c)	What is laser? Classify it. Give applications of Laser.	05
Q. 6	(a)	What is two dimensional NMR? Write note on COSY NMR.	06
	(b)	1	05
	(c)	Write note on shift reagent used in NMR.	05
Q.7	(a)	What is Nuclear overhauser enhancement and off resonance decoupling in C ¹³	08
	/ - `	NMR?	~ =
	(b)	Discuss the spin-spin coupling in C^{13} NMR.	08
