

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. Pharm. – SEMESTER – I • EXAMINATION – WINTER • 2014

Subject Code: 910207

Date: 09-01-2015

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.**

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|-------------|---|-----------|
| Q.1 | (a) What is Luminescence? Discuss basic principle of Chemiluminescence. | 08 |
| | (b) Write note on Instrumentation of Electron spin resonance spectrometry. | 08 |
| Q.2 | (a) Write Principle of Electron spin resonance spectrometry. | 06 |
| | (b) Write brief note on Gas phase Chemiluminescence analysis. | 05 |
| | (c) Discuss applications of Chemiluminescence. | 05 |
| Q.3 | (a) Give advantages and disadvantages of Raman spectroscopy? Discuss the applications of Raman spectroscopy in brief. | 06 |
| | (b) What are the applications of Electron spin resonance spectrometry? | 05 |
| | (c) Discuss the quantum theory of Raman effect. | 05 |
| Q.4 | (a) Write note on apparatus used in Raman Spectroscopy? | 06 |
| | (b) Enlist different radioactivity measurement techniques. Discuss any one. | 05 |
| | (c) Write the basic principle of Photoacoustic spectroscopy. Explain terms: Thermally thick sample and thermally thin sample. | 05 |
| Q.5 | (a) Write note on Neutron activation method. | 06 |
| | (b) Explain the sample cell used in Photoacoustic spectrometry. | 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) Discuss in detail Isotopic dilution method. | 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 NMR? | 08 |
| | (b) Discuss the spin-spin coupling in C ¹³ NMR. | 08 |
