

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) **05**
(i) Chemical shift (ii) Spin-spin decoupling
(iii) Shielding effect
- 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) **05**
(i) Mc-Lafferty rearrangement (ii) Base Peak
(iii) Metastable peak
- 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) **05**
(i) Super fluid chromatography
(ii) LC-MS
- 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**