

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
M.Pharm. - SEMESTER- 1 • EXAMINATION – SUMMER-2018**Subject Code:910001****Date: 03/05/2018****Subject Name: Modern Analytical Technique****Time: 02:30PM TO 05:30PM****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) Describe theory and application of derivative spectroscopy **06**
(b) Explain principle of UV-Vis. Spectroscopy **05**
(c) Explain and give examples of the types of transition occur in organic compounds **05**
- Q.2** (a) Discuss the role of Michelson interferometer in FT-IR **06**
(b) What is reflection spectroscopy? Describe attenuated total reflection (ATR) spectroscopy with its applications. **05**
(c) Discuss the principle and important applications of Atomic absorption spectroscopy **05**
- Q.3** (a) Describe the factors affecting the chemical shift **06**
(b) Write the principle of NMR spectroscopy **05**
(c) COSY NMR **05**
- Q.4** (a) Write short notes on **06**
(i) Mc Lafferty rearrangement
(ii) MALDI-MS
(b) Enumerate various types of Mass analyzer. Discuss quadrupole mass analyzer with appropriate diagram. **05**
(c) Describe chemical ionization technique with its advantages and disadvantages **05**
- Q.5** (a) Define Bragg's equation for diffraction of x-rays by crystals. How it can be used **06**
(b) Optical rotatory dispersion **05**
(c) What detectors are used in Gas chromatography. Explain working of any one detector. **05**
- Q. 6** (a) Define and describe TGA. Discuss the thermogravimetric curve of Calcium oxalate monohydrate **06**
(b) What is thermal method of analysis? Discuss principle and applications of differential thermal analysis (DTA) **05**
(c) Discuss the principle of HPLC. What are the advantages of HPLC **05**
- Q.7** (a) What is enzyme immune-assay? Describe double sandwich ELISA technique for antigen measurement. **06**
(b) Size exclusion chromatography **05**
(c) Describe technique of Affinity chromatography **05**
