

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.PHARM - SEMESTER- 5 EXAMINATION – SUMMER -2019**

**Subject Code: 2250003****Date: 31-05-2019****Subject Name: Pharmaceutical Analysis III****Time: 02:30 PM TO 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) State Beer-Lambert's law and explain chemical and instrumental deviations. **06**  
(b) Explain instrumentation of UV- Visible spectrophotometer. **05**  
(c) Define: chemical shift, base ion, wavelength, wave number, fluorescence. **05**
- Q.2** (a) Explain in brief principle and application of mass spectrometry. Draw a labeled block diagram of mass spectrometer. **06**  
(b) List various ionization sources used in mass spectrometry. Explain chemical ionization source in detail. **05**  
(c) Write a note on time of flight analyzer. **05**
- Q.3** (a) Describe various factors affecting chemical shift. **06**  
(b) Describe theory, principle and applications of NMR spectroscopy. **05**  
(c) Differentiate: Atomic absorption and Atomic emission spectrophotometry. **05**
- Q.4** (a) Explain instrumentation and applications of fluorimetry. **06**  
(b) Write a brief note on photomultiplier tube. **05**  
(c) Explain spin spin coupling with example. **05**
- Q.5** (a) Describe principle, instrumentation and applications of flame photometry. **06**  
(b) Explain principle, instrumentation and advantages of FTIR. **05**  
(c) Write a note on C13 NMR spectroscopy. **05**
- Q. 6** (a) Explain various interferences in atomic absorption spectrophotometry and various approaches for its minimization. **06**  
(b) Explain various factors affecting fluorescence intensity. **05**  
(c) Explain principle and instrumentation of ICP-AES. **05**
- Q.7** (a) Explain sample handling in IR spectroscopy. **06**  
(b) Explain various factors influencing vibrational frequency in IR spectrophotometry. **05**  
(c) Describe thermal detectors used in IR spectrophotometry. **05**

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