

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. - SEMESTER-5 • EXAMINATION – SUMMER -2018

Subject Code: 2250003

Date: 18/05/2018

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) Derive Beer-Lambert's law and explain various types of deviations from Beers Lambert's law. **06**
(b) Draw a labeled diagram of UV-Visible spectrophotometer. Explain various applications of UV- Visible spectrophotometry. **05**
(c) One tablet of drug (mol. wt.: 250, $\epsilon = 710$) when dissolved and diluted to 2000 ml with water gave absorbance of 0.725 at 275 nm. Calculate mg of drug present in one tablet. **05**
- Q.2** (a) Explain the effect of vibrational coupling, H-bonding and electronic factors on vibrational frequency in IR spectroscopy. **06**
(b) Explain instrumentation of FTIR along with its advantages. **05**
(c) Write a brief note on thermal detectors. **05**
- Q.3** (a) Define chemical shift. Explain various factors affecting chemical shift. **06**
(b) Explain theory and principle of NMR spectroscopy. **05**
(c) Differentiate: **05**
1. Proton and C13 NMR spectroscopy
2. Fluorescence and Phosphorescence
- Q.4** (a) Explain various factors affecting fluorescence intensity. **06**
(b) Write a brief note on instrumentation of fluorimetry. **05**
(c) Describe sample handling in IR spectroscopy. **05**
- Q.5** (a) Explain various interferences in atomic absorption spectrophotometry and various approaches for its minimization. **06**
(b) Write a brief note on photomultiplier tube. **05**
(c) Explain different types of nebulizer burner system in flame photometry. **05**
- Q. 6** (a) Define: molecular ion, daughter ion, base ion and metastable ion. Explain in brief principle and application of mass spectroscopy. **06**
(b) What is hard and soft source. Explain any one soft source in detail. **05**
(c) What is resolution of mass analyzer. Explain briefly time of flight analyzer. **05**
- Q.7** (a) Explain various rules for fragmentation in Mass spectroscopy. **06**
(b) Define : Line spectra, Band spectra, wavelength, wave number, frequency **05**
(c) How many numbers of signals and multiplets will appear for ethyl chloride and propyl bromide in Proton NMR spectroscopy? **05**
