

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM. - SEMESTER- VII • EXAMINATION – SUMMER-2016

Subject Code: 270004

Date: 09/05/2016

Subject Name: Pharmaceutical Analysis - III

Time: 2:30 PM to 5:30 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) Explain effect of Various transitions occurring in a molecule when electromagnetic radiations interact with it. Discuss the origin of UV visible absorption spectrum. **06**
- (b) Define Lambert-Beer's Law. Discuss the limitation and deviation from the law. **05**
- (c) The drug has $A_{1\text{cm}}^{1\%}$ value 328 at λ_{max} 444nm. Calculate concentration in $\mu\text{g/mL}$ of drug solution that produces absorbance at λ_{max} 444nm of 0.248 in a 2 cm cell. **05**
- Q.2** (a) Discuss Factors affecting spectral characteristics **06**
- (b) Give the difference between Dispersive IR and FT IR **05**
- (c) What is the Pharmacopoeial application of IR spectroscopy, how it helpful in identification. **05**
- Q.3** (a) Discuss the factors affecting fluorescence intensity. **06**
- (b) Write an instrumentation and application of fluorescence spectroscopy. **05**
- (c) Give the classification of spectra and discuss electromagnetic spectrum. **05**
- Q.4** (a) Explain the principle of atomic absorption and atomic emission spectroscopy. **06**
- (b) Discuss about interferences in AAS. **05**
- (c) Write application, advantages and limitation of atomic absorption and atomic emission spectroscopy. **05**
- Q.5** (a) Enlist the ionization techniques used in mass spectroscopy. Discuss MALDI technique. **06**
- (b) Explain principle and working of Quadrupole mass analyzer. **05**
- (c) Define the followings: (Any Two) **05**
- (i) MC-Lafferty rearrangement
- (ii) Metastable ion
- (iii) Base peak
- Q. 6** (a) Give principle of NMR spectroscopy. How NMR spectroscopy helps in structural elucidation. **06**
- (b) What is Chemical Shift? Factors affecting chemical shift. **05**
- (c) Discuss about Spin-Spin Coupling. **05**
- Q.7** (a) Give a detail account of Photometric titration. **06**
- (b) Explain sample handling techniques in IR spectroscopy. **05**
- (c) Write a notes (Any Two) **05**
- (i) Hollow cathode lamp
- (ii) Monochromator
- (iii) Nitrogen rule
