

GUJARAT TECHNOLOGICAL UNIVERSITY
B. PHARM. - SEMESTER – VII • EXAMINATION – WINTER 2012

Subject code: 270004

Date: 03/01/2013

Subject Name: Pharmaceutical Analysis - III

Time: 10.30 am - 01.30 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 and explain Beer's law. Discuss the factors leading to deviation from this law. **06**
 (b) Give an account of the detectors used in UV VIS spectrophotometer. Add a note on monochromators. **05**
 (c) 10.00 mg of a drug sample was dissolved in water and volume was adjusted to 1 Ltr. with the same solvent. The absorbance was found to be 0.556 at its λ_{max} . Calculate purity of the sample (M. Wt. 200.0 and molar absorptivity is 1.32×10^4). **05**
- Q.2** (a) Explain various transitions occurring in a molecule when electromagnetic radiations interact with it. Discuss in detail the principle of IR Spectroscopy. **06**
 (b) Discuss constructions and working of Michelson interferometer. **05**
 (c) Give a detailed account of various regions of electromagnetic spectrum. **05**
- Q.3** (a) Explain the theory of fluorescence and phosphorescence. Discuss the factors affecting fluorescence intensity. **06**
 (b) Draw a well labeled diagram of Spectrofluorimeter. Explain advantages and limitations of fluorescence spectroscopy. **05**
 (c) Discuss sample handling in UV – VIS and IR Spectroscopy. **05**
- Q.4** (a) Explain the principle of NMR. Give an account of instrumentation in NMR. **06**
 (b) Define chemical shift. Explain in brief factors affecting chemical shift. **05**
 (c) Write a short notes : **(Any TWO)** **05**
 1. Spin-Spin coupling 2. Coupling constant 3. TMS as an internal standard
- Q.5** (a) Discuss the theory of Mass Spectroscopy. Give an account of Ionization techniques used in Mass spectroscope. **06**
 (b) Draw a well labeled diagram of a Mass Spectroscope. Add a note on fragmentation rules. **05**
 (c) Enlist different Mass analyzers and discuss any one in detail. **05**
- Q. 6** (a) Explain the principle of Atomic absorption Spectroscopy. Give its applications. **06**
 (b) Give a detailed account of interferences in Atomic Spectroscopy. **05**
 (c) Write a short notes : (1) Hollow Cathod lamp (2) Flame photo meter **05**
- Q.7** (a) Discuss simultaneous equation method for analysis of Binary Mixture. **06**
 (b) Describe the factors influencing vibrational frequencies. **05**
 (c) Write Short note **(ANY TWO)** **05**
 1. C13 NMR 2. Doppler effect
 3. Calibration of UV – VIS spectrophotometer **OR** IR spectrophotometer
