

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. – SEMESTER – V • EXAMINATION – WINTER • 2014

Subject Code: 2250003**Date: 01-12-2014****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) Comment on followings with explanation. **10**
 (i) Atomic spectra are continuous spectra.
 (ii) Overtone region of IR is used for identification of drug substance.
 (iii) In flourimeter, two Monochromators are positioned at 90 ° angle.
 (iv) Coupling constant (J) indicate number of hydrogen on adjacent carbon.
 (v) Base peak in mass spectra is peak of highest mass.
- (b) Enumerate pharmaceutical applications of UV-VS spectroscopy; discuss any three. **06**
- Q.2** (a) Explain absorption of uv-vis radiation by molecule. **06**
 (b) Discuss factors affecting deviation of Beer's- Lambert's Law of photometry. **05**
 (c) A solution of paracetamol using cell of 1 cm path length gave absorbance 0.705 **05**
 at 257 nm, calculate microgram of drug per ml of the solution. (E 1% 1cm of the drug = 715)
- Q.3** (a) What is fluorescence? Describe Jablonski diagram. **06**
 (b) Write a note on Hollow cathode lamp. **05**
 (c) Discuss the interference in AAS. **05**
- Q.4** (a) Discuss sample preparation in IR spectroscopy. **06**
 (b) Write note on FT-IR spectrophotometer. **05**
 (c) Describe any one IR detector. **05**
- Q.5** (a) Explain basic principle of ¹H NMR spectroscopy. **10**
 (b) What is chemical shift in ¹H NMR? Discuss factor affecting it. **06**
- Q. 6** (a) Explain working principle of Mass spectrometer with labeled diagram. **06**
 (b) Discuss Chemical Ionization techniques of mass spectroscopy. **05**
 (c) Explain rules of fragmentation in mass spectroscopy. **05**
- Q.7** (a) An ester C₁₀H₁₂O₂ gave H¹NMR spectra of following characteristic. Construe structure of the compound. **06**
- | δ Chemical Shift | Multiplicity | δ Chemical Shift | Multiplicity |
|------------------|--------------|------------------|--------------|
| 1.1 | triplet | 7.45 | multiplet |
| 1.8 | sextet | 7.55 | multiplet |
| 4.3 | triplet | 8.1 | multiplet |
- (b) Explain spin-spin coupling with illustration. How is it useful? **05**
 (c) Write a short note on Grating monochromator. **05**
