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 at 257 nm, calculate microgram of drug per ml of the solution. (E 1% 1cm of the drug = 715) **05**

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 ^{H}NMR spectroscopy. **10**

(b) What is chemical shift in ^{H}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 $C_{10}H_{12}O_2$ gave H^1NMR 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**

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