

GUJARAT TECHNOLOGICAL UNIVERSITY**B.PHARM – SEMESTER – V • EXAMINATION – WINTER – 2015****Subject Code: 2250003****Date: 15/12/2015****Subject Name: Pharmaceutical Analysis III****Time: 10.30 AM to 1.30 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) Give an account of the detectors used in UV VIS spectrophotometer. Add a note on monochromators. **06**
- (b) Explain different types of electronic transition in spectroscopy. Predict the type of electronic transition in dimethyl amine, methanol. **05**
- (c) Explain Deviation of Beer's law and explain instrumental factors affecting on deviation of Beer's law. **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) Explain the principle, working and advantages of FTIR. **05**
- (c) Write a note on solid sampling technique with its merits and demerits. **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) Define quenching. Explain types of quenching. Derive $F=2.303kI_0abc$. **05**
- Q.4** (a) Explain the principle of NMR. Give an account of instrumentation in NMR. **06**
- (b) Write a note on spin - spin coupling and coupling constant. **05**
- (c) Define chemical shift. Explain in brief factors affecting chemical shift. **05**
- Q.5** (a) Discuss the theory of Mass Spectroscopy. Give an account of detection techniques used in Mass spectroscope. **06**
- (b) Explain in brief various fragmentation rules in MS. **05**
- (c) Give the difference between gas phase and desorption phase ionisation technique and write a note on quadrupole ion filter and TOF. **05**
- Q. 6** (a) Write a short notes: (1) Hollow Cathod lamp (2) Flame photo meter. **06**
- (b) Explain in detail flame and nebulizer burner system in flame photometry. **05**
- (c) Discuss about the interference in FES. **05**
- Q.7** (a) Calibration of UV – VIS spectrophotometer **06**
- (b) Write a note on ^{13}C NMR spectroscopy. **05**
- (c) Explain: wave number, frequency, line spectra, band spectra, absorption spectra, emission spectra **05**
