Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. – SEMESTER – V • EXAMINATION – WINTER • 2016

Subject Code: 2250003 **Date: 28-11-2016**

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)**	What is Electro magnetic radiation? Discuss properties of EMR.	**06**
	(b)	Explain following terms: Wavelength, frequency, line spectra, Amplitude in wave, wave number.	**05**
	(c)	Write brief note on: Beer Lambert's Law.	**05**
Q.2	**(a)**	Discuss the deviations of Beer Lambert's law.	**06**
	(b)	Explain Bathochromic shift and Hypsochromic shift. What is the significance of Woodward Fieser Rule? Explain with example.	**05**
	(c)	Draw the flow diagramme of UV-visible spectrophotometer. Discuss briefly about monochromators used in UV spectrophotometers.	**05**
Q.3	**(a)**	What is Fluorescence and Phosphorescence? Explain Jablonski Diagramme.	**06**
	(b)	Discuss the Instrumentation of Fluorescence spectroscopy.	**05**
	(c)	Write note on FT-IR spectroscopy.	**05**
Q.4	**(a)**	Discuss theory of IR spectroscopy? Explain stretching and bending vibrations in brief.	**06**
	(b)	Discuss the calibration of IR spectrophotometer.	**05**
	(c)	What is Atomic spectroscopy? Discuss interferences observed in atomic absorption spectroscopy.	**05**
Q.5	**(a)**	Explain: Base peak, Mc lafferty rearrangement, Nitrogen rule in mass spectroscopy.	**06**
	(b)	Discuss the radiation sources used in atomic spectroscopy.	**05**
	(c)	What are different ionization techniques used in Mass spectrometry? Explain any one in detail.	**05**
Q. 6	**(a)**	What is chemical shift in NMR? Discuss factors affecting chemical shift.	**06**
	(b)	Enlist various mass analysers? Write note on Quadrupole mass analyser.	**05**
	(c)	What are different information obtained from NMR signal.	**05**
Q.7	**(a)**	Discuss the instrumentation of NMR spectrometer.	**06**
	(b)	What is spin spin coupling explain with example?	**05**
	(c)	Write note on C^{13} NMR. How it differs from H^1 NMR?	**05**

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