Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm - SEMESTER–V • EXAMINATION – WINTER -2020

Subject Code:2250003 **Date: 07/01/2021**

Subject Name: Pharmaceutical Analysis-III

Time: 10:30AM TO 12:30PM **Total Marks: 54**

Instructions:

1. **Attempt any THREE questions from Q-1 to Q-6.**
2. **Q.7 is compulsory to attempt.**
3. **Make suitable assumptions wherever necessary.**
4. **Figures to the right indicate full marks.**

Q.1	**(a)**	Draw and predict the No of NMR signal of following compound A) p-Xylene B) Ethanol C) Ethyl ethanoate D) Toluene E) Dioxane F) Allyl bromide	**06**
	(b)	Write a note on spin - spin coupling with example of Ethylchloride.	**05**
	(c)	Discuss factors affecting chemical shift in NMR.	**05**
Q.2	**(a)**	Predict the structure of given compound by given data. Molecular weight: 72 amu UV : 272 nm (λ max) IR: 2941-2857(m), 1716(s), 1460(m) cm^{-1} NMR: (Delta Value) Quartet d =2.48(2H) Singlet d=2.22(3H) Triplet d=1.07(3H)	**06**
	(b)	Write short notes on any two with example (i) Mc-Lafferty rearrangement (ii) Molecular ion peak (iii) Fragmentation pattern of Alkene.	**05**
	(c)	Define mass spectroscopy and give the principle with labeled diagram of mass spectrometer	**05**
Q.3	**(a)**	What is the energy of one photon having wavelength 600 nm (Planck constant value:6.626 x 10^{-34} J* Sec)	**06**
	(b)	Draw a well labeled diagram of Spectrofluorimeter and Draw labeled jablonski diagram.	**05**
	(c)	Write short not on different type of Interference in AAS.	**05**
Q.4	**(a)**	Justify the following comments. 1. Fluorescence occurs at longer wavelength than absorbance radiation. 2. Detector is placed at right angle to sample in flourimeter.	**06**
	(b)	State and derive lambert beer law equation.	**05**
	(c)	Define BlueShift, Monochromator, Specral Interference, Chromophore and Auxoxhrome.	**05**
Q.5	**(a)**	How would you differentiate primary amine, Secondary amine and tertiary amine with the help of fragmentation in MS?	**06**
	(b)	Discuss constructions and working of FT-IR.	**05**
	(c)	Enlist detectors used in IR spectroscopy and write a note on any detector.	**05**
Q. 6	**(a)**	Draw schematic spectrum pattern of UV, IR, NMR, MS (With Axis)	**06**
	(b)	Write down the Application of Atomic absorption Spectroscopy.	**05**
	(c)	Discuss the wavelength, frequency and Energy term for electromagnetic Wave.	**05**
Q.7	**(a)**	What are the different types of vibration in Infrared Spectroscopy? What are the possibilities if IR Spectra Shows one peak near to 1700 cm^{-1}	**06**
		OR	
	(a)	Explain analysis of binary mixtures of absorbing substances by simultaneous equation method.	**06**
		OR	
	(a)	Enlist application of UV spectroscopy and explain any one in detail.	**06**