

GUJARAT TECHNOLOGICAL UNIVERSITY
B.PHARM- SEMESTER VIII – • EXAMINATION – WINTER -2022

Subject Code:BP811TT**Date: 28/12/2022****Subject Name: Advanced Instrumentation Techniques****Time: 02:30PM TO 05:30PM****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) Explain in detail chemical ionization source used in mass spectrometer.	06
	(b) Describe the rules for fragmentation of molecules in MS with suitable examples.	05
	(c) Draw a block diagram of MS. Discuss different detectors used in MS	05
Q.2	(a) Discuss important factors in sample preparation and handling in DTA	06
	(b) Discuss the principle, instrumentation and application of DSC	05
	(c) Draw the block diagram of TGA. Explain the factor affecting TGA curve	05
Q.3	(a) Discuss instrumentation and applications of X-ray powder diffraction technique	06
	(b) Write a note on HPTLC/MS	05
	(c) What is x-ray diffraction? Give detail idea about Bragg's law.	05
Q.4	(a) Explain instrumentation and applications of GC-MS/MS.	06
	(b) Describe the principle and procedure involved in the solid phase extraction	05
	(c) Explain calibration of Fluorimeter	05
Q.5	(a) Write the principle involved in NMR spectrometer. Add a note on factors affecting on Shielding and de -shielding in NMR Spectra.	06
	(b) Write principle, instrumentation and application of proton magnetic resonance.	05
	(c) Write a note on ¹³ C NMR	05
Q. 6	(a) Discuss in detail the validation parameter for bio-analytical methods as per ICH guideline	06
	(b) Explain validation and calibration of UV-Visible spectrophotometer.	05
	(c) Discuss elements of process validation	05
Q.7	(a) What is extraction? Give detail note on liquid -liquid extraction technique.	06
	(b) Define RIA? Elaborate various components of RIA	05
	(c) Discuss different methods of RIA. Write application of RIA	05
