

Q-3	Attempt all questions	(14)
	a) What are pH metry titration? Explain the methods used to measure pH.	7
	b) Give the principle of Gas chromatography. Explain the instrumentation in GLC.	7
Q-4	Attempt all questions	(14)
	a) Explain Mass instrumentation.	7
	b) Explain the principle of Mass spectroscopy. Discuss the ions produced in the ionization chamber.	7
Q-5	Attempt all questions	(14)
	a) Explain the factors influencing chemical shift.	6
	b) Why TMS is used as reference standard in NMR spectroscopy?	4
	c) Acetylene protons show NMR signal in upfield. Explain.	4
Q-6	Attempt all questions	(14)
	a) Give the selection of carrier gas and stationary phase in GLC.	7
	b) Enlist types of potentiometric titration. Explain any two.	7
Q-7	Attempt all questions	(14)
	a) Find out pH of mixture of 10 mL 0.1 M HCl and 40 mL 0.2 M H ₂ SO ₄ .	5
	b) Explain the factors affecting on GLC technique. Also give the uses of GLC.	5
	c) Derive the formula for determination of dissociation constant of weak acid by pH metry.	4
Q-8	Attempt all questions	(14)
	a) Assign the structure to a compound from the following spectral results.	5
	Molecular formula: C ₈ H ₁₀ O ₂	
	IR: 3300-3200 cm ⁻¹ (broad), 2950, 2845, 1605, 1510, 1460, 1310, 1250, 1175, 1032, 820 cm ⁻¹	
	NMR:	
	(a) Singlet δ 3.5 1H	
	(b) Singlet δ 4.5 3H	
	(c) Singlet δ 2.6 2H	
	(d) Complex δ 7.17 4H	
	b) Degree of dissociation of CH ₃ COOH is 1%. Find the mass of acetic acid in 1 litre solution and also find pH. (K _a = 1.8 X 10 ⁻⁵)	5
	c) Indicate the number of signals and multiplicity of the following compounds.	4

