

FD-611

M.Sc. 3rd Semester Examination, Dec.-Jan., 2021-22

CHEMISTRY

Paper - IV

Analytical Techniques and Data Analysis

Time: Three Hours] [Maximum Marks: 80 [Minimum Pass Marks: 16]

Note: Answer **all** questions. The figures in the right-hand margin indicate marks.

Unit-I

- **1.** (a) What is Sampling? Discuss in brief the methodology used for sampling of pond water.
 - (b) Explain the following:
 - (i) Types of errors
 - (ii) t-tests

OR

DRG_198_(3)

(Turn Over)

10

 5×2

	(a)	Explain principle, methodology and	
		applications of base digestion.	10
	(<i>b</i>)	Explain the following:	5×2
		(i) F-tests	
		(ii) Significant figures	
		Unit-II	
2.	(a)	What is Extraction? Discuss the methods of extraction.	10
	(<i>b</i>)	Discuss technique and applications of HPLC.	5
	(c)	Discuss the classification of chromatography.	5
		OR	
	(a)	Discuss technique and application of Thin-layer chromatography.	10
	(<i>b</i>)	Explain efficiency and selectivity of extraction.	5
	(c)	Define the term counter current extraction and retardation factor.	5
		Unit-III	
3.	(a)	Discuss the principle, instrumentation and application of DTA.	10
DR	.G_19	8_(3) (Contin	nued)

	(<i>b</i>)	Explain Automated methods.	5
	(c)	Discuss the principle and instrumentation of FIA.	5
		OR	
	(a)	Discuss the principle, methodology and application of Flow Injection Analysis.	10
	(b)	Discuss the principle, instrumentation of DSC method.	5
	(c)	Discuss the factors affecting DTA.	5
		Unit-IV	
4.	(a)	Discuss the principle, instrumentation and application of conductometry.	10
	(<i>b</i>)	Explain the following:	5×2
		(i) Dropping mercury electrode	
		(ii) Polarized electrode	
		OR	
	(a)	Discuss the principle, instrumentation and application of pH potentiometry.	10
	(<i>b</i>)	Explain the following:	5×2
		(i) Cyclic voltammetry	
		(ii) Micro electrode	
			