Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III(NEW) EXAMINATION – WINTER 2022

Subject Code:3131305 Date:22-02-2023

Subject Name:Environmental Chemistry-I

Time:02:30 PM TO 05:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	List out any three glass wares along used in the Environmental chemistry lab and draw its figure.	**03**
	(b)	Write calibration process for Atomic weighing balance.	**04**
	(c)	Explain experimental methods for determination of Chloride present in wastewater sample.	**07**
Q.2	**(a)**	Categorize techniques of the collecting sample.	**03**
	(b)	Determine process for the preparation of distilled water.	**04**
	(c)	Explain the principle of Infrared Spectroscopy.	**07**
		OR	
	(c)	Explain the principle of the Ultraviolet Spectroscopy.	**07**
Q.3	**(a)**	Calculate pH of 0.2 g of hydrogen ion per liter.	**03**
	(b)	300 ml of water is added to 200 ml of 0.5 M HCl solution. Calculate the molarity of solution.	**04**
	(c)	Prepare methods for making 0.04M H_2SO_4 standard solution.	**07**
		OR	
Q.3	**(a)**	Calculate hydrogen ion activity and hydroxide ion activity of following solution: (a) 3 pH (b) 5 pH	**03**
	(b)	Calculate weight required for the following solutions preparation: (a) 0.3M NaOH 450 ml, (b) 0.6N $CaCO_3$ 550 ml	**04**
	(c)	Prepare methods for making 0.04N NaOH standard solution.	**07**
Q.4	**(a)**	Explain the role of Indicator in titration.	**03**
	(b)	Define Chemical Precipitation and also write requirements.	**04**
	(c)	Explain experimental methods for determination of pH present in wastewater sample.	**07**
		OR	
Q.4	**(a)**	Write down the use of the Desiccators.	**03**
	(b)	Explain the terms precision and accuracy with example.	**04**
	(c)	Explain experimental methods for determination of Total Hardness present in water sample.	**07**
Q.5	**(a)**	Give the relation equation for calculate (a) TDS, (b) TSS, (c) TS with Gravimetric Analysis.	**03**
	(b)	Write application of Solids.	**04**
	(c)	Explain experimental methods for determination of Alkalinity present in wastewater sample.	**07**
		OR	
Q.5	**(a)**	Differentiate between Primary standards and Secondary standards.	**03**
	(b)	What is the role of Chloride in the Environment engineering?	**04**
	(c)	Explain experimental methods for determination of Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) present in water sample.	**07**