Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:3131305 Date:13-07-2022

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)**	Make a list of at least six various plastic ware used in laboratory.	**03**
	(b)	List down the various types of pipette available in your Laboratory. State the difference between Mohr pipette and Volumetric Pipette.	**04**
	(c)	Explain in detailed about Reverse Osmosis process.	**07**
Q.2	**(a)**	Define atomic weight and equivalent weight. Calculate equivalent weight of $CaCO_3$ and Na_2SO_4.	**03**
	(b)	Differentiate between distilled water and dematerialized water.	**04**
	(c)	Write the uses of following instruments: (i)Hot Air Oven (ii) COD Apparatus (iii)Magnetic stirrer (iv) Flame photometer (v)BOD incubator (vi)Conductivity Meter (vii) Colony Counter.	**07**
		OR	
	(c)	Enlist various gas laws and state the Dalton's law and Henry's law and application of both in the field of Environmental Engineering.	**07**
Q.3	**(a)**	Define the following terms (i) Standard solution (ii) Normal solution (iii) Molal solution	**03**
	(b)	Explain the terms valency and oxidation state.	**04**
	(c)	Discuss about the Sampling procedures for analysis of water and waste water.	**07**
		OR	
Q.3	**(a)**	Enlist the difference between primary standard and secondary standard.	**03**
	(b)	Differentiate between Volumetric and Gravimetric analysis.	**04**
	(c)	Determine the amount of chemical power/concentrated solution required for preparation of following reagents. (i) 1000 ml 0.5 N H_2SO_4 (ii)1000 ml 0.1 M NaOH 500 ml (iii)0.025 N $CaCO_3$	**07**
Q.4	**(a)**	Give the difference between Drying and Ignition with proper example.	**03**
	(b)	Explain the procedure to prepare 0.020N H_2SO_4 for determination alkalinity of sample.	**04**
	(c)	List down the various electrodes used for the electrical analysis and explain glass electrode in detail.	**07**

OR

Q.4	**(a)**	List down the physical properties of elements of compounds that can be used as the basis for an Instrumental Analysis.	**03**
	(b)	State the difference between optical method of analysis and Emission method of analysis.	**04**
	(c)	Discuss about the application of standard methods for water and wastewater analysis.	**07**
Q.5	**(a)**	Enlist the environmental Significant of sulfate.	**03**
	(b)	State the application of alkalinity data in the field of Environmental Engineering.	**04**
	(c)	Give the detailed classification of solid present in water also state the environmental significance of each type.	**07**

OR

Q.5	**(a)**	Define alkalinity? Enlist the types of alkalinity.	**03**
	(b)	Give the classification of hardness and Explain Pseudo Hardness.	**04**
	(c)	Explain Argentometric method for determination of chloride.	**07**

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