Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III • EXAMINATION – SUMMER 2013

Subject Code: 131301 **Date: 31-05-2013**

Subject Name: Environmental Sciences-I

Time: 02.30 pm - 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.**

Q.1	**(a)**	Find the P^H of following solutions: (i) 0.02M HCl (ii) 0.02N HCl	**04**
	(b)	Write a short note on ñ Standard Methods for water and wastewater analysisò	**08**
Q.2	**(a)**	Enlist methods of hardness removal and explain any one in detail	**07**
	(b)	Give the difference between Nephelometric and Visual method for Turbidity measurement. **OR**	**07**
	(b)	What is Turbidity ? Explain Jackson Candle Turbiditymeter in detail	**07**
Q.3	**(a)**	Write a short note on activity coefficient .	**07**
	(b)	Explain Henryôs Law in detail.	**07**
		OR	
Q.3	**(a)**	Calculate volume of oxygen required at 25 ^oC and 0.6 atm. Pressure for combustion of 50 gm of methane.	**07**
	(b)	Write the short note on conductivity meter.	**07**
Q.4	**(a)**	Calculate the amount of powder required in grams /solution required in ml for preparation of following solutions: (i) 1000ml 0.0282N $AgNO_3$ (ii) 500ml 0.01M $CaCO_3$ (iii) 2500ml 0.2N HCl (iv) 2000ml 0.5N FAS (v) 1500ml 0.02M H_2SO_4 (vi) 1000 ml 0.25 N $K_2Cr_2O_7$ (vii) 2500ml 0.01M EDTA	**14**
		OR	
Q.4	**(a)**	Define Primary standards and secondary standards. Give the characteristics of both.	**07**
	(b)	Define: Molar solution, Molal solution, Normal solution, Percent solution	**07**
Q.5	**(a)**	Write the uses and capacity of following glass wares: (i) volumetric flask (ii) Measuring flask (iii) Desiccators (iv) COD flask (v) Brown colour Reagent Bottle (vi) Condenser (vii) Distillation flask	**14**
		OR	
Q.5	**(a)**	Write the uses of following instruments (i) High volume Air Sampler (ii) Hot Air Oven (iii) BOD Incubator (iv) TOC analyzer (v) High Performance Liquid Chromatography (vi) Stack Monitoring Kit (vii) Auto Exhaust Analyzer	**14**

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