

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 $\bar{n}$ Standard Methods for water and wastewater analysis **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. **07**
OR
 (b) What is Turbidity ? Explain Jackson Candle Turbiditymeter in detail **07**
- Q.3** (a) Write a short note on activity coefficient . **07**
 (b) Explain Henry's Law in detail. **07**
OR
- Q.3** (a) Calculate volume of oxygen required at 25 °C 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: **14**
 (i) 1000ml 0.0282N AgNO₃
 (ii) 500ml 0.01M CaCO₃
 (iii) 2500ml 0.2N HCl
 (iv) 2000ml 0.5N FAS
 (v) 1500ml 0.02M H₂SO₄
 (vi) 1000 ml 0.25 N K₂Cr₂O₇
 (vii) 2500ml 0.01M EDTA
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: **14**
 (i) volumetric flask
 (ii) Measuring flask
 (iii) Desiccators
 (iv) COD flask
 (v) Brown colour Reagent Bottle
 (vi) Condenser
 (vii) Distillation flask
OR
- Q.5** (a) Write the uses of following instruments **14**
 (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
