

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – WINTER • 2014****Subject Code: 2131301****Date: 20-12-2014****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) Describe Henry's law & Dalton's law with their significance in Environmental Engineering. **08**
(b) Find the pH of the following solutions. **06**
(i) 0.02 N NaOH (ii) 0.02 N H₂SO₄
- Q.2** (a) Write the applications of standard methods for water & wastewater analysis. **07**
(b) Explain conductivity meter with neat sketch **07**
OR
(b) Explain spectrophotometer with neat sketch **07**
- Q.3** (a) Define hardness. How to determine calcium & magnesium hardness from water. **07**
(b) Give the differences between accuracy & precision with appropriate examples. **07**
OR
- Q.3** (a) Give the differences between temporary hardness & permanent hardness. **07**
(b) What is turbidity? Write a short note on Jackson Candle turbidity meter. **07**
- Q.4** (a) Explain the sources of turbidity in river water and drinking water. **07**
(b) Write a short note on carbonate hardness & non carbonate hardness. **07**
OR
- Q.4** (a) Explain the procedure to determine TS, TDS and TSS from wastewater. **07**
(b) Differentiate between demineralized & distilled water in details. **07**
- Q.5** (a) Give the differences between **08**
(i) Primary standards & Secondary standards
(ii) Volumetric analysis & gravimetric analysis
(b) Explain in brief **06**
(i) Molar solution
(ii) Normal solution
(iii) Percent Solution
OR
- Q.5** (a) Enlist the methods of hardness removal and explain Zeolite method with chemical reactions. **07**
(b) Explain generalized gas law. **07**
