

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-III Examination-Dec.-2011

Subject code: 131301**Date: 20/12/2011****Subject Name: Environmental Sciences-I****Time: 2.30 pm -5.00 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 the Dalton's law and Henry's law and write the importance in wastewater treatment. **07**

(b) Write the significance of P^H data in water and wastewater treatment. **07**

Q.2 (a) Find the P^H of following solutions: **07**

(i) 0.02M HCl (ii) 0.02N HCl

(b) How will you determine TS, TDS and TSS from wastewater? **07**

OR

(b) Give the difference between Temporary Hardness and Permanent Hardness **07**

Q.3 (a) Write a short note on Zeolite Method for removal of Hardness. **07**

(b) Give the difference between Volumetric Analysis and Gravimetric Analysis with examples. **07**

OR

Q.3 (a) Write a short note on Standard Methods for water and wastewater analysis. **07**

(b) Write a short note on Kjeldah Method. **07**

Q.4 (a) Calculate the amount of powder required in grams for preparation of following solutions: **07**

(i) 1500ml 0.01M KCL

(ii) 250ml 0.282N $AgNO_3$

(b) Write the characteristics of Primary Standards and give examples of three Primary Standard solutions.

OR

Q.4 (a) Calculate the amount of concentrated solution required in ml for preparation of following solutions: **07**

(i) 500ml 0.02N HCl

(ii) 1500ml 0.025N H_2SO_4

(b) Explain the sources of Turbidity in River Water. **07**

Q.5 (a) Give the difference between Visual Method and Instrumental Method for turbidity measurement. **07**

(b) What is importance of Calibration of glass wares and instruments. **07**

OR

- Q.5 (a)** Write the uses of following glass wares: **07**
- (i) Measuring Cylinder
 - (ii) Pipette
 - (iii) Condenser
 - (iv) Desiccators
 - (v) Dropping Bottle
 - (vi) Reagent Bottle
 - (vii) Test Tube
- (b)** Write the uses of following instruments: **07**
- (i) COD apparatus
 - (ii) Atomic Absorption Spectrophotometer
 - (iii) High Volume Air Sampler
 - (iv) Total Organic Carbon Analyzer
 - (v) Jar Test Apparatus
 - (vi) Stack Monitoring Kit
 - (vii) Sound Level Meter
- *****