

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-III Regular / Remedial Examination December 2010****Subject code: 131301****Subject Name: Environmental Sciences-I****Date: 13 /12 /2010****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
- 4.

- Q.1** (a) Write a short note on pH meter with figure. 07
(b) Write a short note on Nephelometer with figure. 07

- Q.2** (a) Write a short note on sources of Turbidity in drinking water. 07
(b) Write a short note on Spectrophotometer with figure. 07

OR

- (b) Describe any one method of removal of hardness with chemical reactions. 07
Q.3 (a) Give characteristics of secondary standards and write the procedure for standardization of 0.25 N FAS solution 07
(b) Write the available capacity and uses of following glass wares: 07
(i) BOD Bottle (ii) COD flask (iii) Beaker (iv) Separating Funnel (v) volumetric pipette (vi) Petri dish (vii) Nessler Tube

OR

- Q.3** (a) Write the importance of familiarization of laboratory. 07
(b) Give the difference between volumetric and gravimetric with appropriate example. 07

- Q.4** Determine the amount of chemical power/concentrated solution required for preparation of following reagents. 14
(i) 500 ml 0.02 N H_2SO_4
(ii) 500 ml 0.25 N $\text{K}_2\text{Cr}_2\text{O}_7$
(iii) 500 ml 0.25 N FAS
(iv) 500 ml 0.1 M KCl
(v) 500 ml 0.1 M EDTA
(vi) 500 ml 1 M HCl
(vii) 500 ml 0.05 N AgNO_3

OR

- Q.4** (a) Write the uses of following instruments: 07
(i) Hot Air Oven (ii) COD Apparatus
(iii) Atomic Absorption Spectrophotometer
(iv) High Volume Air Sampler (v) BOD incubator
(vi) Conductivity Meter (vii) CO/HC Analyzer
(b) Describe Henry's Law, environmental point of view. 07

- Q.5** (a) Write the importance of calibration of glass wares and instruments. 07
(b) Determine the p^{H} of following solutions: 07
(i) 0.02N HCL (ii) 0.02N H_2SO_4

OR

- Q.5** (a) Explain the Graham's Law with examples. 07
(b) Explain ionization of Weak Acids. 07
