

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE – SEMESTER V • EXAMINATION – WINTER - 2012****Subject code: 151302****Date: 12-01-2013****Subject Name: Advanced Environmental Instrumentation****Time: 02:30 pm to 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) Explain “Nephelo Turbidity Meter” with neat sketch. **07**  
(b) Write the working principle of TOC analyzer. **07**

**Q.2** (a) Write a short note on application of conductivity meter and pH meter. **07**  
(b) What is chromatography? Give the difference between stationary phase and mobile phase in chromatography **07**

**OR**

(b) Give the difference between adsorption and partition chromatography with examples. **07**

**Q.3** (a) Write a short note on “Spectrophotometer” with neat sketch. **07**  
(b) Derive and explain Lambert’s and Beer’s law. **07**

**OR**

**Q.3** (a) What is working principle of flame photometer ? Explain working of each component of it. **07**  
(b) Write a short note on Ion selective meter. **07**

**Q.4** (a) Write a short note on standard Hydrogen Electrode **07**  
(b) Write a short note on High Performance Liquid chromatograph **07**

**OR**

**Q.4** (a) Analyst reported the following percentage (%) of CaO in a sample. **08**  
7.55, 7.60, 7.78, 7.66, 7.50, 7.63 and 7.65. Calculate mean, medium, range, average deviation, relative deviation, standard deviation and co-efficient of variation.

(b) Explain the merits and demerits of the gas chromatograph. **06**

**Q.5** (a) Explain the working principle and operation of each unit of Colorimeter with sketch. **07**  
(b) Explain Atomic Adsorption Spectroscopy in detail. **07**

**OR**

**Q.5** (a) Write a short note on importance of statistical analysis of laboratory data. **07**  
(b) Explain Raman Spectroscopy. **07**

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