

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 2711705

Date: 12-01-2015

Subject Name: Advances In Environmental Laboratories

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) Explain the principle of Infrared Spectrometry and Flame photometry with schematic diagram of each instrument **07**

(b) Identify the sources of Turbidity in river water. What is the significance of turbidity in Environmental engineering? **07**

Q-2 (a) Explain all components of atomic absorption spectrophotometer with schematic diagram **07**

(b) Furnish the difference between visible and instrumental method for measurement of turbidity **07**

OR

(b) Give a brief account of four major sources of error in gas analysis **07**

Q-3 (a) Explain Working principle of Potentiometric Analysis. Name various electrodes used in Potentiometric Analysis. State the precautions to be taken in using electrodes. **07**

(b) Write the working principle of Ion Selective meter. **07**

OR

(a) Explain how is the fraction of nitrogen determined in a gas sample using volumetric analysis. **07**

(b) Draw the electric circuit diagram for Polarographic Analysis and explain its important applications **07**

Q-4 (a) Write a short note on importance of statistical analysis of laboratory data. **07**

(b) Write a short note on mass spectrometry. **07**

OR

(a) Explain fundamental principle of Emission Spectroscopy-Inductively Coupled Plasma ICP method. **07**

(b) Write a short note on Anodic stripping voltametry of Polarographic analysis **07**

Q-5 (a) Explain the working principle and operation of each unit of High Performance Liquid Chromatography with sketch. **07**

(b) What is the difference between normal phase and reverse phase HPLC? **07**

OR

(a) What is a necessary property of a compound for it to be analyzed by gas chromatography? **07**

(b) Show Explain the working principle of chromatographic methods of analysis with a schematic diagram of a gas chromatograph **07**
