GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER- I (New course) • REMEDIAL EXAMINATION - SUMMER 2015 Subject Code: 2711705 Date:16/05/2015 **Subject Name: Advances in Environmental Laboratories** Time: 10:30 am to 1:00 pm **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. What is the principle for AAS? Discuss single beam AA Spectrophotometer 0.1 07 (a) with diagram. Explain Calibration Curve method for Spectrophotometer by giving suitable **(b) 07** example for analysis of any one water quality parameter. 0.2 Explain briefly Grafite Furnace (Non Flame Atomizer) used in AAS along with (a) **07** its principle, mechanism, advantages. Explain principle of GC. Give brief account of instrumental set up with labeled **07** (b) diagram. OR Explain retention time, area under peak, theoretical plate height in Gas 07 Chromatogram. Q.3 (a) Explain isocratic and gradient elution in HPLC. 07 What is guard column? Write function of guard column. (b) Give general requirements of pumps. Give brief accounts of different pumps 07 used in HPLC. OR Give principle and layout of HPLC. Write application of HPLC. Q.3 07 (a) Explain difference between GSC and GLC. 07 (b) **Q.4** Explain Polarography technique with principle and instrumental setup. 07 (a) What is Voltametry? Give its Application with respect to environmental **07 (b)** analysis. Explain Mass Spectroscopy and its Applications. **Q.4** 07 (a) Give difference between Fluorescence and Phosphorescence techniques. Write 07 **(b)** environmental applications of these techniques.. Discuss the basic principle and working of Electron Capture Detector used in **Q.5** (a) 07 GC with Application. Discuss Photomultipliet tube: PMT detector used in Spectrophotometer . 07 (b) Discuss its Merits and Demerits . OR **Q.5** (a) Explain EMF along with significance in environmental data analysis. 07 What is pH? Derive Nernst equation to determine pH for Glass electrode. **07** (b)
