

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-VI Examination May 2011****Subject code: 161705****Subject Name: Instrumentation Measurement-II****Date: 23/05/2011****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.**

- Q.1** (a) Explain the terms: “stress” and “strain”. Enlist various types of strain gauges and explain foil type strain gauge in detail with neat diagram. **07**
- (b) Explain Paramagnetic Oxygen Analyser in detail with neat sketch. **07**
- Q.2** (a) Explain parallel plate viscometer in detail with neat diagram. **07**
- (b) Explain various techniques of electronic length measurement. **07**
- OR
- (b) Explain various types of load cells and their use in measurement of weight. **07**
- Q.3** (a) How to use a bubble tube for the measurement of density? What are the limitation of that technique? **07**
- (b) Explain mass spring seismic sensor for measurement of vibration. **07**
- OR
- Q.3** (a) What is meant by pH? Explain pH scale. Enlist various electrodes used in pH measurement and explain any one of them in detail. **07**
- (b) Write short note on “Flame Ionization Detector”. **07**
- Q.4** (a) Explain paper chromatography and thin-layer chromatography in detail. **07**
- (b) Explain X-ray fluorescence spectroscopy in detail with neat diagram. **07**
- OR
- Q.4** (a) Write short note on “fuel cell oxygen analyzer”. **07**
- (b) Explain static methods of calibration of gas analyzers. **07**
- Q.5** (a) Enlist various factors to be considered in successful application of analytical instruments. **07**
- (b) Write short note on “Photo-acoustic spectroscopy”. **07**
- OR
- Q.5** (a) Explain various elastic elements used in force measurement. What is the limitation of piezoelectric transducers used for force measurement? **07**
- (b) Explain techniques of moisture measurement briefly. **07**
