

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. E. - SEMESTER – VI • EXAMINATION – WINTER 2012**

**Subject code: 161705****Date: 07/01/2013****Subject Name: Instrumentation Measurement-II****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain the measurement of viscosity under extremes of temperature and pressure. **07**  
(b) Explain the use of electromagnetic and acoustic radiation for measurement of length. **07**
- Q.2** (a) What is strain gauge? Explain its construction, working and application. **07**  
(b) Briefly explain the methods of vibration measurement. **07**
- OR**
- (b) What is load cell? Explain its construction, working and application. **07**
- Q.3** (a) What is chromatography? Explain Gas chromatography in detail. **07**  
(b) With suitable diagram explain X-ray spectroscopy. **07**
- OR**
- Q.3** (a) Explain NMR Spectroscopy. **07**  
(b) Explain Flame Photometric Detector. **07**
- Q.4** (a) What is moisture? Explain moisture measurement. **07**  
(b) Explain Electron Paramagnetic Resonance(EPR) **07**
- OR**
- Q.4** (a) With suitable diagram, explain Oxygen analyzer. **07**  
(b) What is conductivity? Explain any method of electrical conductivity measurement. **07**
- Q.5** (a) What is differential pressure? Explain DP transmitter. **07**  
(b) Explain the concept of pH and its measurement. **07**
- OR**
- Q.5** (a) Explain Thermal Conductivity Detector in detail. **07**  
(b) What are IR waves? Explain IR spectroscopy. **07**

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