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GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-IV • EXAMINATION – SUMMER 2013

Subject Code: 141702 Date: 17-06-2013 **Subject Name: Transducers** Time: 10:30am - 01:00pm**Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. (a) Explain following terms with one example **Q.1** 07 i) Drift ii) Reproducibility iii) Sensitivity **(b)** Draw and explain construction and working LVDT. **07** (a) Draw the block diagram of an Instrument System and explain the functions of **Q.2** different functional elements. Make the block diagram the functional elements of a Pressure Gauge **(b)** Explain ultrasonic level measurement technique, with it's merits and demerits. 07 OR (b) Given the comparison of RTD, Thermistor and Thermocouple-- temperature **07** measurement devices. **07** Q.3 (a) Explain working principle of strain gauge along with gauge factor and its types. (b) What you mean by pressure? Define absolute pressure, gauge pressure and 07 vacuum pressure. Also given the relationship among them (in term of conversion). OR Q.3 (a) List out different static characteristics of an instrument and explain each in **07 (b)** Discuss McLeod gauge in detail. **07** 0.4 (a) Explain variable area flow meters with sketches. 07 **(b)** List out various type of transmitters. Explain any one in details. **07** (a) What is a pressure switch? What are the uses of its? 0.4 **07 (b)** Describe the various temperature scales in detail. What do mean by IPTS? **07** Explain it in brief. Name the two types of recorder charts commonly used in process industry. **Q.5** 07 Explain construction and working of any one. **(b)** Explain Piezo-electric method of thickness measurement. **07** (a) List the various types of speed – measuring devices. Explain the Contactless **07** Q.5 Tachometer in detail. Define the term pH. Explain the working principle of pH measurement. State the 07 application, advantages and disadvantages for pH meters.
