Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY **BE – SEMESTER V • EXAMINATION – WINTER - 2012** Subject code: 152402 Date: 12-01-2013 **Subject Name: Electrical Measurements and Electronics Instruments** Time: 02:30 pm to 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. Enumerate the main static characteristics of measuring instruments. 07 0.1 (a) Explain the classification of Electrical and Electronics Instruments. 07 (b) List the essential parts of Indicating Instruments and Explain the difference between 07 **Q.2** (a) Spring Control and Gravity Control. Explain construction, principle and operation of D'Arsonval Galvanometer. Derive 07 (b) torque equation for it. OR Explain construction, principle and operation of Vibration Galvanometer. Derive torque 07 (b) equation for it. **Q.3** With neat diagram explain construction and operation of single phase energy meter. 07 (a) Explain the construction and characteristics of PT with its equivalent circuit and (b) 07 necessary phasor diagram. OR With neat sketch explain construction and working of dynamometer type 1- $\Phi$  Power 0.3 07 (a) Factor Meter. (b) Explain the construction and characteristics of CT with its equivalent circuit and 07 necessary phasor diagram. Explain the classification of resistance. List the methods for measurement of low **Q.4** (a) 07 resistance. Explain Kelvin Double Bridge using circuit diagram and necessary equation. Explain De Sauty Bridge using necessary circuit diagram, phasor diagram and (b) 07 equation. OR Explain the classification of resistance. List the methods for measurement of high 07 Q. 4 (a) resistance. Explain Loss of charge method using circuit diagram and necessary equation. (b) Explain Maxwell Bridge using necessary circuit diagram, phasor diagram and 07 equation. (a) Define Probe. List the types of Probes and explain the construction and features of 07 **Q.5** Active probe. (b) Give the classification of Digital Voltmeter. Explain Dual-slope Integrating type 07 DVM with necessary block diagram. OR

- Q.5 (a) List different accessories used with measuring instruments. Explain construction 07 and features of RF demodulator probes.
  - (b) Define Q factor of Inductor. Explain the working of Digital LCR Meter with neat 07 Block diagram.

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