GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject Code: 710709N Date: 24-06-2014 **Subject Name: Electrical Drives** Time: 02:30 pm - 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. **Q.1** Explain with neat diagram the four quadrant operation of hoist/wrench. 07 (a) Classify the different types of industrial loads in terms of Torque Speed 07 (b) characteristics. Q.2Explain the working of 3-phase fully controlled converter fed separately 07 (a) excited motor. Explain Equal Pulse Width Modulation with neat diagram. (b) 07 Explain working of Dual converter fed dc drive system. (b) 07 Q.3Explain working of DC-DC converter based multi quadrant drive. (a) 07 Explain working of six step inverter. 07 (b) OR **Q.3** Explain the CSI based Induction motor drive system. 07 (a) What is slip power recovery system? Explain any one method with neat 07 (b) diagram. **Q.4** Explain working of synchronous motor with variable voltage source and 07 constant frequency. Explain regenerative braking operation of synchronous motor. 07 (b) 0.4 Explain AC-AC converter based three phase induction motor speed control. **07** (a) Explain working of three phase bridge inverter with 120 degree conduction 07 **(b)** mode. Q.5 (a) What is soft starter? 07 Explain any one method of rotor side speed control of three phase induction **07 (b)** OR **Q.5** Write the difference between VSI fed and CSI fed three phase Induction motor 07 (a) drive. Explain working of Permanent magnet motor operating from a fixed frequency 07 (b) source
