Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY ME SEMESTER – I (NEW) EXAMINATION – SUMMER 2017

Subject Code: 2710809 Date:11/05/2017 **Subject Name: Mechatronics** Time:02:30 P.M. to 05:00 P.M. **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) What is Mechatronics? Briefly discuss the elements of Mechatronics System. 07 (b) What is 'Control System'? Explain types of Control Systems in detail with 07 example. 0.2 What is a Relay Driver Circuit? Explain it with any one application. **07** Write a short note on Supervisory Control and Data Acquisition (SCADA) and 07 explain its communication methods. OR (b) Explain various components and structure of a PLC. 07 Q.3 With neat sketch explain pneumatic time delay valve. 07 With neat sketch explain types of gears used to transmit the power. 07 OR 0.3 With neat sketch explain hydraulic pressure relief valve. 07 (a) With neat sketch explain types of belt drives used to transmit the power. 07 0.4 Explain Linear and Rotary Potentiometers with neat sketch. 07 (a) Explain the various geometric configurations of robot with neat sketch. 07 OR 0.4 Explain Linear Variable Differential Transformer (LVDT) with neat sketch. **07** (a) State the advantages and disadvantages of CNC Machine. 07 **(b)** 07 0.5 With diagram explain working principle of brushless DC motor. (a) Explain Antilock Braking System in terms of Mechatronics System. 07 OR (a) Explain working and construction of DC stepper motor. 07 Q.5 (b) Explain Automatic Guided Vehicle in terms of Mechatronics System. 07
