## **GUJARAT TECHNOLOGICAL UNIVERSITY**

<b>BE - SEMESTER-VI- EXAMINATION – SUMMER 2016</b>				
$\mathbf{S}_{\mathbf{I}}$	ubjec	et Code:163405 Date:11/05/20	Date:11/05/2016	
Subject Name:Mechatronics Time: 10:30 AM to 01:00 PM Instructions:  Total Mar			:ks: 70	
111	1	1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.		
Q.1	(a) (b)	Define: Range, True Value, Lag, Repeatability, Reproducibility, Accuracy and Resolution.  Explain Basic Elements of a Closed-loop system.	07 07	
Q.2	(a) (b)	Explain Belt and Chain Drives. Explain Electrical Relays as actuation systems.  OR	07 07	
	<b>(b)</b>	Explain Brush type DC motor with field coils and its types.	07	
Q.3	(a) (b)	Explain Strain Gauge Load cell with neat diagram.  Explain Potentiometric Pressure Transducer.  OR	07 07	
Q.3	(a) (b)	Explain Variable Reluctance stepper motor and Permanent Magnet stepper motor.  Explain Diaphragm Pressure Transducer.	07 07	
Q.4	(a) (b)	Explain Two step control mode. Explain Adaptive control & its commonly used forms.  OR	07 07	
Q.4	(a) (b)	Explain PI and PD controllers. Explain different logic functions used in PLC.	07 07	
Q.5	(a) (b)	Short note on Data Handling in PLC.  Master and Jump controls in PLC.  OR	07 07	
Q.5	(a) (b)	Car Engine Management systems.  Explain Windscreen-wiper motion as a case study for mechatronic system.	07 07	

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