GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER-I(New course)• EXAMINATION - WINTER- 2015

Subject Code: 2710809 Subject Name: MECHATRONICS Time: 2:30 pm to 5:00 pm Instructions: Total Mark			1/2016	
			70	
11150	1. 2.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a) (b)	Compare open loop control system and closed loop control system. State the merits and demerits of Mechatronics system.	07 07	
Q.2	(a) (b)	Design a autonomous mobile robot on the basis of mechatronics system design. Clarify Linear Variable Differential Transformer (LVDT) with neat sketch.	07 07	
		OR		
	(b)	Explain relay driver circuit in detail with example.	07	
Q.3	(a) (b)	Explain performance terminologies of sensors and transducers. Discuss the various stages involved in the design of mechatronics systems	07 07	
		OR		
Q.3	(a) (b)	Explain the three types of pressure control valves. Explain the construction and working principle of AC and DC motor.	07 07	
Q.4	(a) (b)	What is a PLC? Explain with advantage & feature. Write short note on Human Machine Interface (HMI)	07 07	
		OR		
Q.4	(a)	What is Supervisory Control & Data Acquisition (SCADA)? Explain it with details.	07	
	(b)	Explain interfacing of different hard wares in industry	07	
Q.5	(a) (b)	Explain Counters and different types of counters Define need for networks in industrial plants.	07 07	
		OR		
Q.5	(a)	Design a mechatronics system for a pick and place robot and explain the various mechatronics elements.	07	
	(b)	Explain Timers and different types of timers.	07	