Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER 2013

Subject Code: 163405 Date: 30-05-2013

Subject Name: Mechatronics

Time: 10.30 am - 01.00 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	**(a)**	Explain basic elements of a closed loop system.	**07**
	(b)	Explain Linear variable differential transducer in details.	**07**
Q.2	**(a)**	Explain different types of stepper motors and its specification.	**07**
	(b)	Explain solid-state devices, which can be used electronically to switch circuit.	**07**
		OR	
	(b)	Explain mechanical factors or aspects for motor selection.	**07**
Q.3	**(a)**	Explain Hydraulic mechanical system as a system model.	**07**
	(b)	Explain Proportional control mode in details with diagram.	**07**
		OR	
Q.3	**(a)**	Explain Derivative control mode in details with diagram.	**07**
	(b)	Explain Adaptive control and its commonly used forms.	**07**
Q.4	**(a)**	Explain Basic PLC structure in details with figure.	**07**
	(b)	Explain different logic gate function with figure used in PLC.	**07**
		OR	
Q.4	**(a)**	Explain Input/output processing in PLC.	**07**
	(b)	Explain Master and Jump controls in PLC.	**07**
Q.5	**(a)**	Explain Pick & Place robot system design in details.	**07**
	(b)	Explain Car Engine Management system.	**07**
		OR	
Q.5	**(a)**	Explain Hard Disk Drive case study.	**07**
	(b)	Write short note on Car Park Barriers case study	**07**

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