Seat No.:	Enrolment No.
Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2710809	Date:06/01/2017
Subject Name: Mechatronics	
Time: 2:30 pm to 5:00 pm	Total Marks: 70

Instructions:

1.	Attempt al	l questions.	•	
_				_

2. Make suitable assumptions wherever necessary.3. Figures to the right indicate full marks.

Q.1	(a)	What is Mechatronics? Briefly discuss the Advantages and Disadvantages of Mechatronics System.	07			
	(b)	Explain functional elements of close loop control system.	07			
Q.2	(a)	Describe the following characteristics of a transducer: (i) Range (ii) Span (iii) Resolution (iv) Accuracy (v) Precision (vi) Sensitivity (vii) Repeatability	07			
	(b)	Explain the various geometric configurations of robot with neat sketch. OR	07			
	(b)	State the advantages of CNC Machine over NC Machine.	07			
Q.3	(a) (b)	With neat sketch explain Hydraulic and Pneumatic load cell. Explain different types of Registers in Microprocessor. OR				
Q.3	(a) (b)	With neat sketch explain Hall effect sensor.				
Q.4	(a)	Explain with circuit diagram, speed control of D.C. shunt and series motor by Armature Voltage Control method. Explain basic structure of PLC and functions of different components of PLC.	07 07			
	(b)	OR	U/			
Q.4	(a) (b)					
Q.5	(a) (b)	Explain working and construction of single phase induction motor. Explain Engine Management System with Mechatronics approach.	07 07			
0.5	(a)	OR With next sketch explain working and construction of DC stanger mater	07			
Q.5	(a) (b)	With neat sketch explain working and construction of DC stepper motor. Explain Digital Camera System with Mechatronics approach.	07			
