Seat No.:							Enrolment No					 -	

		GUJARAT TECHNOLOGICAL UNIVERSITY									
		BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2017									
Sul	bject	Code: 2170913 Date: 29/04/201	17								
Sul	bject	Name: Industrial Instrumentation(Departmental Elective - II)									
	_	2.30 PM to 05.00 PM Total Marks: 7	70								
Inst	ructio	ons:									
	1.	Attempt all questions.									
	2.	· · · · · · · · · · · · · · · · · · ·									
	3.	Figures to the right indicate full marks.									
Q.1	(a) (b)	Explain Active transducer and Passive transducer. Enlist types of each. What is Gauge factor? Derive the expression for Gauge factor in terms of poisson's ratio.	07 07								
Q.2	(a) (b)	Explain principle of operation of L.V.D.T. with its characteristics. Describe the working principle, construction and application of Proximity sensors.	07 07								
		OR									
	(b)	What is Hall effect? Describe the working principle, construction and application of Hall effect transducer.	07								
Q.3	(a) (b)	Explain working of incremental encoders used for Shaft Speed Measurement. Explain proving ring type load cell and its advantages. OR	07 07								
Q.3	(a) (b)	Explain inline rotational torque measurement using strain gauge. Write need of Pirani gauge and Describe it with neat diagram.	07 07								
Q.4	(a)	Explain variable inductance and capacitance transducers for pressure measurement.	07								
	(b)	Explain ultrasonic flow meter.	07								
0.4	()	OR	0.5								
Q.4	(a) (b)	Explain operation of capacitive transducers for liquid level measurements. Describe Optical pyrometer for temperature measurement.	07 07								
Q.5	(a)	Describe construction, operation and applications of X-Y recorders.	07								
	(b)	Explain dual slope A/D circuits in digital data acquisition. OR	07								
Q.5	(a)	Describe operation of sample and hold circuit.	07								
(b)		Explain in brief working principle of different temperature sensors—RTD, Thermister, Thermocouples and Thermopiles and material used for each.									
