

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– V (New) EXAMINATION – WINTER 2019****Subject Code: 2154101****Date: 21/11/2019****Subject Name: Sensor and Instrumentation****Time: 10:30 AM TO 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.

		MARKS
Q.1	(a) Define Accuracy with its types.	03
	(b) Why electronic instruments are more preferable than mechanical and electrical instruments?	04
	(c) Explain Transducer with its characteristics and also give advantages and disadvantages.	07
Q.2	(a) Define sensor calibration.	03
	(b) Explain Drift and Linearity	04
	(c) Explain LVDT with construction and working. Also give advantages.	07
OR		
	(c) Explain dynamic characteristics of a measuring device	07
Q.3	(a) Give principle and construction of Load cell.	03
	(b) Explain RVDT.	04
	(c) Explain thermocouple construction and also give advantages, limitations of it.	07
OR		
Q.3	(a) How magnetic sensor work?	03
	(b) Explain types of strain gauges.	04
	(c) What is gyroscope sensor? Explain its type and give its application.	07
Q.4	(a) Give advantages and disadvantages of venturi tube for flow measurement.	03
	(b) Explain orifice meter for flow measurement	04
	(c) Explain MEMS sensor, working principle also give advantage and applications	07
OR		
Q.4	(a) Give advantages and limitations of thermistors.	03
	(b) Explain RTD with advantages.	04
	(c) Explain piezoelectric (PZT) pressure transducer with limitations and applications.	07
Q.5	(a) Explain uses of data acquisition system.	03
	(b) What is sample and hold circuit? Explain with circuit diagram.	04
	(c) Explain Multichannel data acquisition system.	07
OR		
Q.5	(a) Define (i) Reproducibility (ii) Scale Readability	03
	(b) Explain single channel data acquisition system.	04
	(c) Explain characteristics of a data logger.	07
