Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 162401 **Date: 05/05/2017**

Subject Name: Industrial 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.**

Q.1	**(a)**	Define the following. 1. Resolution 2. Precision 3. Accuracy 4. Threshold 5. Linearity 6. Hysteresis 7. Repeatability	**07**
	(b)	Explain the electrical characterization of sensors.	**07**
Q.2	**(a)**	Explain the construction, working and characteristics of LVDT. List the advantages of LVDT.	**07**
	(b)	Explain the piezoelectric sensors with necessary diagram. List the materials used for piezoelectric sensors. Also list the properties of natural quartz.	**07**
		OR	
	(b)	Describe the principles of 'Smart transmitters'. What and where does it transmit? Discuss some aspects of its development in recent years.	**07**
Q.3	**(a)**	Explain in details use of sensor for Home Appliances.	**07**
	(b)	Explain the use of sensor for Measuring Temperature.	**07**
		OR	
Q.3	**(a)**	Draw structure of Photovoltaic Cell and explain its working.	**07**
	(b)	Compare the following: Unbounded and Bounded strain gauge.	**07**
Q.4	**(a)**	Enlist capacitive transducers and explain any one in detail.	**07**
	(b)	Explain measurement of velocity through sensors?	**07**
		OR	
Q.4	**(a)**	Describe noise thermometry in detail.	**07**
	(b)	Enlist applications of optical fiber. Explain any one of them in detail.	**07**
Q.5	**(a)**	Write a short note on: Nano sensor.	**07**
	(b)	Describe the concept of industrial automation.	**07**
		OR	
Q.5	**(a)**	What is compensation? List the various sensor defects and explain any three of them in brief.	**07**
	(b)	Describe working of Electromagnetic Flow meter.	**07**

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