Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – V (NEW) EXAMINATION – WINTER 2015

Subject Code: 2152408 **Date:08/12/ 2015**

Subject Name: Industrial Instrumentation

Time:10:30am to 1:00pm **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 following. 1. Resolution 2. Precision 3. Accuracy 4. Threshold 5. Linearity 6. Hysteresis 7. Repeatability.	**07**
	(b)	Define transducer. List the different criteria for classification of it. Explain classification on the basis of transduction principle.	**07**
Q.2	**(a)**	List the types of variable resistance transducer and explain construction and working of resistance strain gauge.	**07**
	(b)	What is strain gauge? What may be different applications of it?	**07**
		OR	
	(b)	Compare the following terms: Unbounded and Bounded strain gauge.	**07**
Q.3	**(a)**	Compare the following terms: Primary and Secondary Temperature Sensor.	**07**
	(b)	Explain about the construction, working, characteristics & any one application of R.T.D.	**07**
		OR	
Q.3	**(a)**	Write Technical Note on: Hall Effect Sensors.	**07**
	(b)	Write Technical Note on: Piezo-electric Transducers.	**07**
Q.4	**(a)**	Explain the construction, working and characteristics of ultrasonic flow meter. List the advantages of ultrasonic flow meter.	**07**
	(b)	Explain the construction, working and characteristics LASER level sensor. List the advantages of LASER level sensor.	**07**
		OR	
Q.4	**(a)**	Explain the construction, working and characteristics of LVDT. List the advantages of LVDT.	**07**
	(b)	Explain the construction, working of Pirani Gauge. List the advantages of Pirani Gauge.	**07**
Q.5	**(a)**	What is basically the concept of 'Smart Sensor'? Explain with the help of a Diagram the arrangement of its elements.	**07**
	(b)	Write a Short Note on: Micro sensors	**07**
		OR	
Q.5	**(a)**	Explain the construction, working and characteristics of thermocouples. List the advantages and disadvantages of thermocouples.	**07**
	(b)	Explain in details use of sensor for home appliances.	**07**

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