Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI • EXAMINATION – SUMMER • 2015

Subject code: 162401 **Date: 01/05/2015**
Subject Name: Industrial Instrumentation
Time: 10.30am-01.00pm **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 Transducer. List the different criteria for classification of it. Explain classification on the basis of transduction principle.	**07**
	(b)	List the static characteristics of transducer. Explain any six characteristics in brief.	**07**
Q.2	**(a)**	How 'bath tub' curve is is associated with failure of transducers? What are the screening steps taken in SITS?	**07**
	(b)	Explain construction of Platinum Resistance Thermometers elements with diagram.	**07**
		OR	
	(b)	Explain construction, type and application of Thermister.	**07**
Q.3	**(a)**	Explain seeback effect. Explain construction and properties of type S thermocouples.	**07**
	(b)	Write Technical Note on: Hall Effect Sensors.	**07**
		OR	
Q.3	**(a)**	Explain seeback effect. Explain construction and properties of J-K thermocouples.	**07**
	(b)	Write Technical Note on: Piezo-electric Transducers.	**07**
Q.4	**(a)**	Explain LVDT with neat construction diagram and plot of output voltage against core displacement.	**07**
	(b)	Write a technical short note on: Fiber Optic Sensors.	**07**
		OR	
Q.4	**(a)**	Explain capacitive pressure transducers using neat circuit diagram.	**07**
	(b)	Write a technical short note on: Photo detectors.	**07**
Q.5	**(a)**	Write Technical Note on: Chem FET.	**07**
	(b)	Draw a diagram to show the construction of an unbounded strain gauge. Explain its operation.	**07**
		OR	
Q.5	**(a)**	Write Technical Note on: SHE	**07**
	(b)	Explain the concept and sensors used for industrial automation using necessary diagram.	**07**

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