Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. Semester-IV- Examination June- 2011

Subject code: 141702

Subject Name: Transducers

Date:13/06/2011 **Time : 10:30 am to 1:00 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)**	Draw the block diagram of an Instrument System and explain the functions of different functional elements. Make the block diagram showing the functional elements of a Pressure Gauge.	**07**
	(b)	1. What is IEEE standard?	**03**
		2. Differentiate between Accuracy and Precision.	**04**
Q.2	**(a)**	Define Transducers. Explain how transducers play an important role to improve the quality of the product and efficiency of production in any process industry. Justify your answer with suitable block diagram.	**07**
	(b)	Describe with neat sketch the construction and working of LVDT with its advantages, disadvantages, and application.	**07**
		OR	
	(b)	State electrical methods of liquid level measurement. Explain any one of them in detail with its advantages and disadvantages.	**07**
Q.3	**(a)**	What is Reynolds number? Explain Rota meter in detail.	**07**
	(b)	What is a pressure switch? What are the uses of pressure switch?	**07**
		OR	
Q.3	**(a)**	What do you mean by Temperature sensitive Pigments? State one application of it. How can you measure the temperature of turbine blades which is running at 25000 revolutions per minute?	**07**
	(b)	Explain Piezo-electric method of thickness measurement.	**07**
Q.4	**(a)**	What is Hydrometer? What are the advantages and disadvantages of using hydrometer?	**07**
	(b)	Name the two types of recorder charts commonly used in process industry. Explain construction and working of any one of the chart recorders.	**07**
		OR	
Q.4	**(a)**	Explain block diagram of smart and intelligent transmitters with different features.	**07**
	(b)	Define telemetry systems. Which telemetry systems can be used for very large transmission distances? Explain any one in brief.	**07**
Q.5	**(a)**	What is a transmission line? Write various factors for selection of transducers.	**07**
	(b)	Explain A.C. tachometer with diagram.	**07**
		OR	

Q.5 **(a)** Define the term 'Calibration'. Mention the steps to calibrate an instrument. **08**

(b) State True/False. If false then correct the statement. **06**

1. Backlash is a lost motion or free play, which is inherent in mechanical elements.
2. The Reaumur scale assigns 0°R′ to the ice points and 70° R′ to the steam point.
3. Standard current signal in process industry is 10-20 mA.

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