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

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2151706 **Date: 03/05/2017**

Subject Name: Industrial Measurement II

Time: 02:30 PM to 05:00 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		**Short Questions**	**14**
	1	Find density of the object having mass 2 kg and volume 1 m^3.	
	2	What is gauge factor?	
	3	State importance of bouncy force.	
	4	Define viscosity.	
	5	What is absolute encoder?	
	6	What is incremental encoder?	
	7	What is relative humidity?	
	8	What is absolute humidity?	
	9	State true or false: Scintillation detector is type of color detector.	
	10	State true or false: Secondary winding of LVDT connected as a series opposition.	
	11	State true or false: To sense the proximity of nonmagnetic but conductive materials, the effect of eddy currents is used in a dual-coil sensor.	
	12	Explain reflection.	
	13	Explain turbidity.	
	14	Explain Doppler effect.	
Q.2	**(a)**	What are the different methods of Viscosity measurement? Explain any one in brief.	**03**
	(b)	Discuss the factors that should be taken care while specifying an accelerometer for a particular application.	**04**
	(c)	Compare capacitive, piezoresistive, piezoelectric and thermal accelerometers.	**07**
		OR	
	(c)	Explain Gas Chromatography in Detail.	**07**
Q.3	**(a)**	Explain Consistency measurement.	**03**
	(b)	Explain in detail "Liquid chromatography.	**04**
	(c)	How tactile sensors can be used in robotics for force measurement? Explain active piezoelectric tactile sensor with basic circuit diagram.	**07**
		OR	
Q.3	**(a)**	Explain polarography.	**03**
	(b)	Discuss the applications of proximity sensors with suitable example.	**04**
	(c)	Compare bonded and unbounded strain gauge. Explain Semiconductor gauge in detail.	**07**
Q.4	**(a)**	Discuss the need of torque measurement for industrial applications in brief.	**03**
	(b)	Explain Opacity Measurement in brief.	**04**
	(c)	Discuss the limitations of flapper-nozzle type of pneumatic transducer and give suggestions to overcome it.	**07**
		OR	
Q.4	**(a)**	Explain industrial need of pH measurement.	**03**

	(b)	Compare pneumatic and electrical transducers.	**04**
	(c)	Discuss how position can be sensed using methods of electromagnetic induction with suitable example.	**07**
Q.5	**(a)**	Explain angular velocity measurement using tachometers.	**03**
	(b)	Explain optical transducers in brief.	**04**
	(c)	Discuss measurement of oxygen using paramagnetic oxygen analyzer.	**07**
		OR	
Q.5	**(a)**	Explain UV Visible Spectroscopy in brief.	**03**
	(b)	Discuss the importance of Industrial weighing system.	**04**
	(c)	Discuss applications of Hygrometer and Hydrometer in Detail.	**07**

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