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

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 161705 **Date: 01/05/2017**

Subject Name: Instrumentation Measurement - II

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)**	List derived length measurement methods with primary standards. Explain one of the methods with necessary diagram and operation.	**07**
	(b)	Write short Notes on bonded Strain gauge.	**07**
Q.2	**(a)**	Discuss about moisture measurement techniques and explain one of the techniques with necessary diagram, operation and measurement limitation.	**07**
	(b)	What is calibration? Write dawn calibration procedure for length measuring Instruments.	**07**
		OR	
	(b)	List electric and non electrical force measurement methods. Draw and describe compound lever balance approach for force measurement.	**07**
Q.3	**(a)**	Describe Newtonian and Non Newtonian behavior of fluid. Write short notes on Couette Viscometer.	**07**
	(b)	Differentiate Piezo-electric load cell versus Strain gauge type load cell.	**07**
		OR	
Q.3	**(a)**	Define the order of vibration amplitude. Explain Mass-spring type mechanical seismic sensors.	**07**
	(b)	What are the main differences of Vibrating wire strain gauge versus capacitive strain gauge? Describe it with technical explanation.	**07**
Q.4	**(a)**	Draw and describe bubbler type density measurement. Enlist its benefits.	**07**
	(b)	How will chromatography works? Explain it with thin layer chromatography.	**07**
		OR	
Q.4	**(a)**	Obtain the benefits of Absorption spectroscopy? Draw and describe UV Absorption Spectroscopy.	**07**
	(b)	Define Electrical conductivity of Liquid. Describe conductivity measurement over aqueous liquid.	**07**
Q.5	**(a)**	Describe the advantages of atomic spectroscopy? Explain X-ray Fluorescence Spectroscopy.	**07**
	(b)	Draw and describe combined electrode pH measurement.	**07**
		OR	
Q.5	**(a)**	Draw and describe thermal conductivity Detector for gas detection.	**07**
	(b)	Write short note on Paramagnetic Oxygen Analyzer.	**07**

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