Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016

Subject Code: 161705 **Date: 24/10/2016**

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)**	Give two differences between bonded and unbonded strain gauge. Explain semiconductor gauge in detail.	**07**
	(b)	Describe paramagnetic oxygen analyzer.	**07**
Q.2	**(a)**	Explain Mass Spectroscopy with necessary diagram.	**07**
	(b)	Draw the functional block diagram of X-ray absorption spectroscopy and discuss the importance of each block in brief.	**07**
		OR	
	(b)	Explain High-Performance Liquid Chromatography in detail.	**07**
Q.3	**(a)**	Define Viscosity with necessary equation and discuss Newtonian and non-Newtonian behavior of various fluids in detail.	**07**
	(b)	Explain electron Paramagnetic Resonance (EPR) in detail.	**07**
		OR	
Q.3	**(a)**	Define Density. Discuss the hydrostatic head method for density measurement.	**07**
	(b)	Explain DP transmitter with repeater for density measurement.	**07**
Q.4	**(a)**	List the moisture measurement technique. Explain conductivity technique for moisture measurement in textile and paper industry.	**07**
	(b)	Define Vibration and Explain mass spring seismic sensor for measurement of vibration.	**07**
		OR	
Q.4	**(a)**	What is spectroscopy? Explain atomic absorption spectroscopy.	**07**
	(b)	Explain reference electrodes in detail.	**07**
Q.5	**(a)**	Explain Flame photometric detector (FPD) with its schematic, operation, limitation, benefits and application.	**07**
	(b)	What is load cell? Explain its construction, working and application.	**07**
		OR	
Q.5	**(a)**	Explain Non Dispersive IR spectroscopy in detail with diagram.	**07**
	(b)	Write a short note on: 1) Semiconductor detector 2) Helium ionization detector	**07**

****