Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- VIth SEMESTER–EXAMINATION – MAY- 2012

Subject code: 161705 **Date: 19/05/2012**

Subject Name: Instrumentation Measurement-II

Time: 10:30 am – 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)**	**(1)** Explain in detail "Liquid chromatography "	**04**
		(**2**) Explain Ostwald Viscometer in detail with neat diagram	**03**
	(b)	Explain design and selection of strain gauge load cell for measurement of force.	**07**
Q.2	**(a)**	What is meant by pH, write necessary equations and explain more detail of ion selective electrode	**07**
	(b)	Define viscosity and give more brief of its behavior and explain cone and plate viscometer	**07**
		OR	
	(b)	What is conductivity, how it measures, and write in brief its application	**07**
Q.3	**(a)**	Explain in detail residual chlorine analyzer	**07**
	(b)	Explain in detail "Mass Spectroscopy" with necessary diagram	**07**
		OR	
Q.3	**(a)**	Explain in detail atomic absorption spectroscopy	**07**
	(b)	Explain the length measurement using position sensitive photocells	**07**
Q.4	**(a)**	How to use a bubble tube for the measurement of density? What are the limitations of that technique?	**07**
	(b)	Write a short note on 1) Semiconductor detector 2) Helium ionization detector	**07**
		OR	
Q.4	**(a)**	Explain in detail moisture measurement	**07**
	(b)	Explain in detail application guideline for analytical instruments	**07**
Q.5	**(a)**	Write a short note on 1) Thermal Analysis 2) Polarography	**07**
	(b)	Explain dynamic displace measurement calibration in terms of vibration and write an application of vibration measurement	**07**
		OR	
Q.5	**(a)**	How to measure oxygen using paramagnetic oxygen analyzer	**07**
	(b)	Explain in detail IR Spectroscopy	**07**

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