Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– I (New course)• REMEDIAL EXAMINATION – SUMMER 2015

Subject Code: 2713102 **Date:15/05/2015**

Subject Name: Biosensors & BioMEMS

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)**	Discuss Application of MEMS in Glucose Monitoring device.	**07**
	(b)	Write a short note on Amperometric Biosensors.	**07**
Q.2	**(a)**	Give classification of Biosensors & explain Catalytic Biosensor in detail.	**07**
	(b)	Explain Generalized instrumentation System with necessary block diagram.	**07**
		OR	
	(b)	1. Define: Transducer, Accuracy, Precision, Reproducibility, and Repeatability. 2. Differentiate Between: Active & Passive Transducer with Example.	**07**
Q.3	**(a)**	Enlist different types of temperature transducers & explain measurement of Temperature using RTD.	**07**
	(b)	Write a Short Note on LVDT.	**07**
		OR	
Q.3	**(a)**	What is Piezoelectricity? Explain heart sound measurement using Piezoelectric sensor.	**07**
	(b)	Explain Instrumentation of Torque measurement on Rotating shafts in detail.	**07**
Q.4	**(a)**	Write short Note on Smart Sensors.	**07**
	(b)	Write a Short Note on Vortex Shedding Flow meters.	**07**
Q.4	**(a)**	Write a Short Note on: Potentiometric Biosensors.	**07**
	(b)	Explain construction and working of ISFETs.	**07**
Q.5	**(a)**	Write a Short Note on Force Measurement using Load Cell.	**07**
	(b)	What is BioMEMS? Explain Different types of Materials used for fabrication of BioMEMS.	**07**
Q.5	**(a)**	Discuss Application of MEMS in Drug Delivery System.	**07**
	(b)	Discuss application of MEMS in Cholesterol Monitoring	**07**

****