	Seat 1	No.: Enrolment No	
		GUJARAT TECHNOLOGICAL UNIVERSITY	
		M. E SEMESTER – I • EXAMINATION – WINTER • 2014	
	Subj	ect code: 713102N Date: 02-12-2014	
	Subj	ect Name: Biosensors and BioMEMS	
		e: 10:30 am - 01:00 pm Total Marks: 70	
	Inst	ructions:	
		 Attempt all questions. Make suitable assumptions wherever necessary. 	
		3. Figures to the right indicate full marks.	
Q.1	(a)	Short Note: Applications of Bio MEMS	07
	(b)	Write a Short Note on Force Measurement using Load Cell.	07
Q.2	(a)	Discuss various characteristics of Biosensors.	07
	(b)	Explain application of Strain Gauge for the measurement of Pressure with necessary diagrams.	07
		OR	
	(b)	Derive the equation for output Potential generated by LVDT.	07
Q.3	(a)	Explain cold-junction compensation and Calibration techniques of	07
	<i>a</i> .	Thermocouple.	07
	(b)	Write a Short Note on Electro Magnetic Blood Flow meters.	07
Q.3	(a)	Explain signal conditioning circuit of Thermistor.	07
	(b)	Write a Short Note on Vortex Shedding Flow meters.	07
Q.4	(a)	Short Note: Radiation Thermometers.	07
	(b)	Derive the formula for Gauge Factor of wire resistive Strain Gauge with	07

Explain RTD as a Temperature sensor with necessary signal conditioning

Quater Bridge with voltage excitation circuit.

Explain construction and working of ISFETs.

Short Note: Working of Amperometric sensors

Explain application of MEMS in Drug Delivery systems.

Short Note: SPSD

Short Note: Catalytic BioSensor.

circuit diagram.

Q.4

Q.5

Q.5

(a)

(b)

(a)

(b)

(a)

(b)

07

07

07

07

07

07