Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-IV (New) EXAMINATION - WINTER 2015

Subject Code:2140306	Date:30/12/2015
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Subject Name: Biosensors & Transducers

Time: 2:30pm to	5:00pm	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)	Explain following terms: 1) Accuracy 2) Precision 3) Linearity 4) Sensitivity 5) Resolution 6) Hysteresis 7) Active and Passive Transducer.	07
	(b)	Define Transducer and Sensor. Give classification of Transducer in detail.	07
Q.2	(a)	Enlist Thermo-resistive Transducer. Explain basic Construction and Working of 2-wire and 3-wire RTD in detail.	07
	(b)	Discuss Dynamic Characteristics of Transducers. OR	07
	(b)	What is Receptors? Explain Sensory Receptors in Human body.	07
Q.3	(a)	What are the types of Pyrometer? Explain Optical Pyrometer in detail.	07
	(b)	Enlist types of Radiation Sensor. Explain Scintillation Detector in detail. OR	07
Q.3	(a)	Explain in detail Photoconductive and Photovoltaic cell	07
	(b)	Explain working principle of LVDT and Discuss Designing of LVDT.	07
Q.4	(a)	Explain Measurement of Differential Pressure using Capacitive Pressure Sensor.	07
	(b)	Explain different types of Strain Gauges for Displacement measurement. OR	07
Q.4	(a)	Explain in detail Capacitive Level Sensor.	07
	(b)	Explain Piezoelectric Pressure Sensor.	07
Q.5	(a)	Explain Ultrasonic Transducer for flow measurement.	07
	(b)	Explain Electrodes for Measurement of pCO2 in detail.	07
		OR	
Q.5	(a)	Enlist Thin-Film Sensor. Explain anyone Thin-Film Sensor.	07
	(b)	Discuss Smart Sensor with applications.	07
