

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2018**Subject Code:2140306****Date:05/12/2018****Subject Name: Biosensors & Transducers****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	MARKS
Q.1 (a) Give classification of Transducers.	03
(b) Explain functions of Chemoreceptors and Baroreceptors.	04
(c) Explain Performance characteristics of transducer.	07
Q.2 (a) Give applications of Biosensors.	03
(b) Explain working principle of Thermocouple. What are the types of Thermocouple?	04
(c) Explain Construction and Working principle of LVDT.	07
OR	
(c) Explain basic Construction and Working of 2-wire and 3-wire RTD in detail.	07
Q.3 (a) What is Smart Sensor? Give its applications.	03
(b) Explain Scintillation Detector in detail.	04
(c) Explain design of Wire Wound Potentiometric type Displacement Transducer.	07
OR	
Q.3 (a) Explain working principle of Photoconductive cell.	03
(b) Explain Capacitive Transducer for Liquid Level Measurement.	04
(c) Explain Ultrasonic Flow Transducer in detail.	07
Q.4 (a) What is Hall Effect Sensor?	03
(b) Explain Rotameter with the help of diagram.	04
(c) Explain different types of Thermistors in detail.	07
OR	
Q.4 (a) What is working principle of Piezoelectric Sensor.	03
(b) Explain differential Pressure measurement using Capacitor Sensor.	04
(c) Explain Radiation Pyrometer to measure Ear Drum temperature.	07
Q.5 (a) What is Plethysmography?	03
(b) Explain Electrodes for measurement of PO ₂ .	04
(c) Explain different types of Strain Gauge Transducers in detail.	07
OR	
Q.5 (a) How to measure Conductivity?	03
(b) Explain about G M counter.	04
(c) Explain design of Electromagnetic flow meter in detail.	07
