

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 2713102**Date: 12-01-2015****Subject Name: Biosensors and BioMEMs****Time: 02:30 pm - 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.

- Q.1** (a) Explain static and Dynamic characteristics of Instrumentation System. **07**
(b) Enlist Different types of Optical Sensors & explain Biomedical Applications of Optical sensors in detail. **07**
- Q.2** (a) What is Biosensors? Give classification of Biosensors & explain Catalytic Biosensor in detail. **07**
(b) Write a Short Note on: Potentiometric Biosensors **07**
OR
(b) Write a Short Note on: Conductometric Biosensors **07**
- Q.3** (a) Write a Short Note on Capacitance Level Sensors. **07**
(b) Enlist different types of Vortex Detection systems & explain Capacitance & Ultrasonic Vortex flow meters with its Merits & Demerits. **07**
OR
- Q.3** (a) Derive the equation of Output Potential e_o for LVDC. **07**
(b) Write a short note on Torque Measurement. **07**
- Q.4** (a) Discuss Application of MEMS in Glucose Monitoring device. **07**
(b) What is BioMEMS? Explain Different types of Materials used for fabrication of BioMEMS. **07**
- Q.4** (a) Discuss Application of MEMS in Drug Delivery System. **07**
(b) Explain Different Fabrication techniques of BioMEMS. **07**
- Q.5** (a) Explain Thermocouple as a temperature Sensor with its necessary interface. **07**
(b) Discuss various surgical Applications of Bio MEMS. **07**
- Q.5** (a) Explain Thermistor as a temperature Sensor with its necessary interface. **07**
(b) Discuss various Diagnostic Applications of Bio MEMS. **07**
