

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E –Ist SEMESTER–EXAMINATION – JULY- 2012****Subject code: 713102N****Date: 07/07/2012****Subject Name: Biosensors & Biomems****Time: 2:30 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 Biosensors characteristics. **07**
(b) Write a short note on catalytic biosensors. **07**

Q.2 (a) Explain Schematic of Potentiometric sensors with Structure of Ion-selective electrode. **07**
(b) Explain Temperature compensation in Load cell with necessary equations. **07**

OR

(b) Explain various types of Load cells with equation and neat diagram. **07**

Q.3 (a) Explain Electromagnetic Flow meter system with neat diagram. **07**
(b) Explain construction and working of ISFETs. **07**

OR

Q.3 (a) Explain working of Amperometric sensors with neat diagram. **07**
(b) Discuss various materials that used for construction and fabrication of sensors. **07**

Q.4 (a) Explain chemical vapor deposition Surface processing technique. **07**
(b) Explain cold-junction compensation and Calibration techniques of thermocouple. **07**

OR

Q.4 (a) Explain signal conditioning circuit of Thermistor. **07**
(b) Explain application of Strain Gauge for the measurement of Pressure with necessary diagrams. **07**

Q.5 (a) Explain the structure of Intelligent Sensors. **07**
(b) Give basic idea of processing steps for MEMS. **07**

OR

Q.5 (a) Explain application of MEMS in Drug Delivery systems. **07**
(b) Write a short note on Systems for SMART sensors. **07**
