

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.

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|------------|--|-----------|
| 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 |
