Seat No.:	Enrolment No
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## **GUJARAT TECHNOLOGICAL UNIVERSITY**

M.E. SEMESTER I (old course)–EXAMINATION (Remedial) – WINTER 2015 Subject code: 713102 Date: 09/12/2015

**Subject Name: Biosensors & Biomems** 

Time: 10:30 AM to 1:00 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 role of strain gauge in blood pressure measurement system with necessary equations and schematic diagrams.	07
	<b>(b)</b>	Enlist and Explain Biosensors characteristics.	07
Q.2	(a)	Explain working of LVDT. Also derive necessary equations for theory of operation.	07
	<b>(b)</b>	What is NTC thermistor? Explain signal conditioning circuit of it.  OR	07
	<b>(b)</b>	Explain Signal conditioning circuit of Thermocouple. Also explain Cold-junction compensation techniques.	07
Q.3	(a) (b)	Explain the application of MEMS in Drug-Delivery systems.  Write a short note on amperometric sensors with its biomedical applications.  OR	07 07
Q.3	(a)	Write a short note on Field-Effect Biosensors.	07
Q.C	(b)	Explain Vacuum deposition technique of Surface processing.	07
Q.4	(a) (b)	Write a Short Note on Vortex Shedding Flow meters.  Explain Electromagnetic Flow meter system with neat diagram.  OR	07 07
Q.4	(a)	Write a short note on Torque measurement technique with strain gauge.	07
	<b>(b)</b>	Explain working of Radiation Thermometers.	07
Q.5	(a)	How the level of liquid can be measured using Capacitance level sensors Explain with its necessary equations.	07
	<b>(b)</b>	Give functional specifications of any three medical sensors.  OR	07
Q.5	(a)	What is Biosensors? Explain Catalytic Biosensor with its major Components	07
-	<b>(b)</b>	Explain concepts of neurosensors.	<b>07</b>

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