

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2170311

Date: 06/05/2017

Subject Name: Biomedical Microsystems (Department Elective - II)

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.

- Q.1** (a) Define MEMS. Describe different challenges of MEMS Technology. **07**
(b) Explain in detail LIGA Process. **07**
- Q.2** (a) Explain the different applications of MEMS Technology. **07**
(b) Discuss in detail the process of fabrication of Physical Vapor Deposition (PVD). **07**
- OR**
- (b) Discuss in detail the process of fabrication of Chemical Vapor Deposition (CVD) **07**
- Q.3** (a) Explain various Etching Processes in detail. **07**
(b) Explain various wafer bonding techniques in detail. **07**
- OR**
- Q.3** (a) Discuss in detail various materials used for fabrication of MEMS Devices stating their properties and applications. **07**
(b) Explain various chemical mechanical polishing techniques in detail. **07**
- Q.4** (a) Write a short note on Smart sensors. **07**
(b) Explain Bulk Micromachining Technique along with Steps of SCREAM Process. **07**
- OR**
- Q.4** (a) Write a short note on MEMS Actuators. **07**
(b) Explain surface micromachining technique. Also explain SUMMiT Process. **07**
- Q.5** (a) Write a short note on Implantable devices. **07**
(b) Explain Delivery of Diagnostic and Therapeutic Agents to Vascular Targets using MEMS technology. **07**
- OR**
- Q.5** (a) Write a short note on Chemical Sensors. **07**
(b) Explain Real-Time Biological Imaging and Detection using MEMS technology. **07**
