

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – VIII. EXAMINATION – WINTER 2016

Subject Code: 180303**Date: 22/10/2016****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) What is LIGA process? Explain LIGA by deep X-ray lithography. **07**
(b) Describe the geometric scaling issue of MEMS. **07**
- Q.2** (a) Explain the processes of CVD and PVD with necessary diagrams. **07**
(b) Describe the process of wet etching. **07**
- OR**
- (b) Describe the process of plasma etching. **07**
- Q.3** (a) Describe the Lorentz force actuation with appropriate diagrams. **07**
(b) Explain viscous damping with necessary sketches. **07**
- OR**
- Q.3** (a) Enlist and explain diagnostic and therapeutic applications of metal nanoshells. **07**
(b) Explain the electrical system scaling issue of MEMS. **07**
- Q.4** (a) Write a short note on MEMS as physical sensors. **07**
(b) Briefly describe the postfabrication processing of MEMS. **07**
- OR**
- Q.4** (a) Explain piezoresistance in single-crystal silicon. **07**
(b) Write a short note on MEMS as chemical sensors. **07**
- Q.5** (a) Describe the czochralski growth process. **07**
(b) Explain case study on DMD packaging. **07**
- OR**
- Q.5** (a) Describe the process of Surface Characterization. **07**
(b) Write a brief note on tissue-specific zip codes in blood vessels. **07**
