SL-350

Total No. of Pages :2

Seat No.	

B.E. (Mechanical) (Part - II) (Semester - VIII) (Old)

Examination, May- 2017

MICRO ELECTRO MECHANICAL SYSTEM (Elective - III)

Sub. Code: 49421

Day and Date :Wednesday, 03- 05 - 2017 **Total Marks : 100**

Time :2.00 p.m. to 5.00 p.m.

Instructions : 1) **Attempt any three questions from each section.**

2) **Figures to the right indicate full marks.**

SECTION-I

Q1) a) What is inertia sensor? How it is used in air bag deployment system. **[10]**

b) Differentiate Microsystems and microelectronics. **[8]**

Q2) a) What is photolithography? Describe in detail. **[8]**

b) Explain procedure to creat a polysilicon cantilever beam on Si base. **[8]**

Q3) a) Explain in detail etching processes in detail. **[8]**

b) Compare Ion implantion with diffusion process along with working principles. **[8]**

Q4) a) What is Czocharalski method for producing single crystal Si. **[8]**

b) How piezoresistors and piezoelectric crystals are used in MEMS. **[8]**

SECTION-II

Q5) a) What are optical sensors? **[10]**

b) What are the ways of transducing the deformation of diaphragm to electric output signal. **[8]**

P.T.O.

Q6) a) What are the applications of MEMS in microfluidics. **[8]**

b) What are design considerations in MEMS. **[8]**

Q7) a) Explain surface bonding and wire bonding. **[8]**

b) What are the techniques for pumping in Microfluidics. **[8]**

Q8) a) Explain electrostatic actuation principles along with examples. **[8]**

b) What is the working principles of microgripper and micropumps. **[8]**

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