

Code No: **R41035****R10****Set No. 1****IV B.Tech I Semester Supplementary Examinations, March/April - 2016****MICRO ELECTRO MECHANICAL SYSTEMS (MEMS)****(Open Elective)****Time: 3 hours****Max. Marks: 75**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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- 1 a) Explain the significance of micro electro mechanical system. [8]  
b) Discuss the challenges faced by the MEMS industry. [7]
- 2 a) Explain the principles of sensing and actuation. [8]  
b) Draw the connection diagram between sensors, actuators, micro processor and target machine platform. [7]
- 3 a) What are shape memory alloys? [7]  
b) Explain the working principles of various types of thermal flow sensors. [8]
- 4 Explain the following:-  
a) Reflection                      b) Refraction                      c) Interference  
d) Polarization                      and e) Optical switch. [15]
- 5 a) Explain the difference between magnetic diodes and magneto transistors. [8]  
b) Explain the properties of magnetic materials for MEMS. [7]
- 6 a) Write the characteristics of RF MEMS system. [7]  
b) Discuss the principle of operation of a typical MEMS switch used in RF applications. [8]
- 7 a) What are macro and micro fluids? Give some applications. [7]  
b) Explain the working of a micro pump with a neat sketch. [8]
- 8 Write short notes on  
a) E-nose      b) Fluorescence detection      and      c) Chemotransistors. [15]