

Code No: **R41035****R10****Set No. 1****IV B.Tech I Semester Supplementary Examinations, February/March - 2018****MICRO ELECTRO MECHANICAL SYSTEMS****(Open Elective)****Time: 3 hours****Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) Explain the X-ray lithography process with the help of line diagram. [8]
b) What are the advantages of miniaturization of systems? [7]
- 2 a) How does MEMS Gyroscopes work? Explain the terms Coriolis force and Coriolis acceleration. [8]
b) Enumerate the working of gripping piezo actuator. [7]
- 3 a) What are shape memory alloys? Where and for what purpose they are used in MEMS industry? Explain. [8]
b) What are gas sensors? Explain how a micro hot plate gas sensor works? [7]
- 4 a) How is tuning achieved by using the micro optical wave guide? [8]
b) What are micro mirrors? Explain their working and applications. [7]
- 5 a) With the help of line diagram explain the construction and working of magneto resistive sensor. [8]
b) Explain the working principle of bi-directional micro actuator. [7]
- 6 a) Explain briefly
i) Large force reluctance actuator
ii) Magnetic probe based storage device [8]
b) What are RF MEMS? Give their applications. [7]
- 7 a) Write about thermo capillary effect observed in micro fluidic system. [8]
b) Describe a micro pump and explain its working. [7]
- 8 a) Explain the application of micro systems in biomedical field. [8]
b) What is calorimetric spectroscopy? Explain its working. [7]