

Code No: **RT41035****R13****Set No. 1****IV B.Tech I Semester Supplementary Examinations, February/March - 2018****MICRO ELECTRO MECHANICAL SYSTEMS****(Open Elective)****Time: 3 hours****Max. Marks: 70***Question paper consists of Part-A and Part-B**Answer ALL sub questions from Part-A**Answer any THREE questions from Part-B***\*\*\*\*\*****PART-A (22 Marks)**

1. a) Discuss the scope of the subject MEMS. [3]
- b) Explain the basic characteristics of thermal sensors. [4]
- c) What are the important applications of MOEMS devices? [4]
- d) Explain the principle of working of magneto resistive sensor. [4]
- e) Draw the block diagram of a general communication system. [3]
- f) Write short note on fluorescence detection. [4]

**PART-B (3x16 = 48 Marks)**

2. a) Discuss about the factors influencing the process of transferring the image through lithography. [7]
- b) With the help of line diagram explain the functioning of MEMS microphone. [9]
3. a) Discuss in detail about the functioning of shape memory alloys. [7]
- b) Describe and explain the working of microplate type gas sensor. [9]
4. a) Explain the principle of operation of various types of optical switches used in optical communication systems. [9]
- b) Discuss the use of MOEMS devices for shear stress measurement. [7]
5. a) Discuss the principle of working and applications of magnetic probe based storage device. [9]
- b) Explain how a MOKE device works. [7]
6. a) What are the advantages of using RF MEMS as compared to traditional units and systems? [7]
- b) With the help of suitable diagram explain the features of electro wetting based fluid flow. [9]
7. a) Explain various types of primary sensing principles used in biochemical sensors. [8]
- b) With suitable diagram explain the working of chemoresistor. [8]