

Code No: R194103K

R19

Set No. 1

IV B.Tech I Semester Advance Supplementary Examinations, March - 2023

MEMS

(Open Elective)

Time: 3 hours

Max. Marks: 75

*Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks*

UNIT-I

- 1 a) Differentiate between bulk and surface micromachining. Explain the role of sacrificial layer in fabrication of MEMS devices. [7]
b) Point out various scaling laws in miniaturization. [8]
(OR)
- 2 a) Explain the working of MEMS gyroscope with a neat sketch. [7]
b) What is inchworm technology? Discuss in detail. [8]

UNIT-II

- 3 a) Explain the working of thermally activated MEMS relay. [7]
b) Briefly explain (i) Thermal flow sensor and (ii) MEMS thermo vessels. [8]
(OR)
- 4 a) Explain the working of a Pressure sensor utilizing MOKE. [7]
b) Explain the feed-back circuit integrated magnetic actuator. [8]

UNIT-III

- 5 a) Explain working of micro lens and micro mirrors. [7]
b) Give the construction details and explain the working of optical switch. [8]
(OR)
- 6 a) Write different properties of light in detail. [7]
b) What is shear stress measurement? Explain any one working principle of shear stress measurement. [8]

UNIT-IV

- 7 a) Explain the characteristic features of micro fluidic channels. [7]
b) Explain about electro wetting and electro osmosis flow. [8]
(OR)
- 8 a) What is a molecular gate? Write about different types of molecular gates. [7]
b) Write down the applications of micro fluid systems. [8]

UNIT-V

- 9 a) Explain the sensing mechanism used in biomedical micro systems. [7]
b) Explain about MEMS inductors and varactors. [8]
(OR)
- 10 a) What do you mean by CLOC? Explain in detail. [7]
b) Write the applications of MEMS in Biomedical Instrumentation. [8]

