

G 1726

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Eighth Semester

Branch : Electronics and Communication Engineering, Electronics and Instrumentation Engineering

EC 010 804.2/EI 010 804 L02—MICRO ELECTRO MECHANICAL SYSTEMS
(Elective III) [EC/EI]

(New Scheme—2010 Admission onwards)

[Regular]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Write a note on the challenges faced by MEMS industry.
2. Describe about MEMS pressure sensor.
3. Distinguish between Substrate and Wafer.
4. Give a note on the oxidation process used in the fabrication of MEMS systems.
5. List out the steps used in surface micromachining technique.



(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Differentiate between MEMS and Microsystems.
7. Give a note on micro accelerometers.
8. Why are semi-conductor materials preferred as substrate in MEMS ?
9. Compare physical and chemical vapour deposition techniques.
10. Give a note on surface micromachining.

(5 × 5 = 25 marks)

Turn over

Part C

Answer all questions.

Each full question carries 12 marks.

11. What is MEMS ? What are its applications ? Explain in detail about any *one* application.

Or

12. Explain in detail the components of a microsystem with a suitable example.
13. Explain in detail the working principle of micromotors and micropumps with necessary diagrams.

Or

14. List out the various actuation methods used in MEMS. Describe the principles of any *two* methods with neat sketches.

15. Explain the doping and diffusion process in semi-conductors with diagrams.

Or

16. Write notes on Silicon piezoresistors. Give two applications of Silicon piezoresistors.
17. What is etching ? List out the commonly used etching techniques used in industries. Briefly explain about any *one* technique.

Or

18. Write short notes on :

(a) Photolithography.

(b) Ion implantation.

19. What do you mean by LIGA process ? Explain about the different stages in it with necessary diagrams.

Or

20. Describe about the bulk micro manufacturing technique used for manufacturing MEMS devices.

(5 × 12 = 60 marks)

