Reg. No. :

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Name some special materials used in MEMS.

2. What is micro fabrication?

3. What is Comb-drive?

4. How are actuators selected for the desired applications?

5. Mention the type of materials used in Piezo Electric.

6. What is meant by tactile sensor?

7. What is Silicon Anisotropic Etching?

8. What is meant by Thermochemical nanolithography?

9. What is MOEMS?

10. What is Parylene?

PART B — (5 × 13 = 65 marks)

11. (a) Explain the process of Silicon based MEMS.

Or

(b) Explain the flexural beam bending.

12. (a) Discuss on micro grippers.

Or

(b) Explain the working of magnetic actuator with neat diagram.

13. (a) Discuss about the various types of sensors in MEMS.

Or

(b) Explain the operation principle of piezoelectric sensor.

14. (a) (i) Describe the Wet etching of crystalline silicon with necessary diagram.

(ii) Explain the process of Deep Reaction Ion Etching (DRIE).

Or

(b) Discuss about the LIGA process in MEMS.

15. (a) Explain the classification, properties and applications of Polyimide.

Or

(b) Explain the thermal flow sensor in detail.

PART C — (1 × 15 = 15 marks)

16. (a) Enumerate in detail with necessary diagram the complete micro machining processes. (15)

Or

(b) Discuss in detail with suitable diagram the need for actuators and the types of actuators used for active optical MEMS applications. (15)

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