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Reg. No. : .....

Name : .....

Seventh Semester B.Tech. Degree Examination, May 2014

(2008 Scheme)

08.736 (Elective – IV) : MEMS (TA)

Time : 3 Hours Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. Explain the working of chemical sensors.
2. List any few commonly used microsystem products.
3. Describe the working of a micro-valve.
4. Write notes on electroplating, with relevant equations.
5. Write notes on silicon piezo resistors.
6. Comment on the scaling of electric power supply while miniaturizing devices.
7. What are the important materials commonly used in the manufacture of MEMS systems ?
8. Explain the features of bulk micromachining.
9. How will you select a particular manufacturing process for a particular microsystem fabrication ?
10. List a few RF MEMS components and give their applications. **(10×4=40 Marks)**

PART – B

Answer **any two** questions from **each** Module. **Each** quesion carries **10** marks.

Module – I

11. Explain the principle of operation of micromotors with the help of neat diagrams.
12. Explain the working of different types of microaccelerometers.
13. Describe the multidisciplinary nature of MEMS.

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Module – II

14. Explain the various steps and materials involved in surface micromachining.

15. Describe :

    a) Chemical etching and b) Plasma etching.

16. Compare the properties of various silicon compounds used in microsystem fabrication.

Module – III

17. Describe signal mapping and transduction for a micropressure sensor.

18. Write notes on the three levels of microsystem packaging.

19. Explain microsystem design considerations. **(6×10=60 Marks)**