B.E. Seventh Semester

(Electronics & Telecommunication / Electronics & Communication Engineering) (C.B.S.)

Elective - I : Micro Electromechanical Systems & System on Chip (MEMS)

P. Pages : 2 **NKT/KS/17/7456**

Time : Three Hours * 0 1 0 2 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What is miniaturization? State benefits of miniaturization. **6**

b) Explain Accelerometer in MEMS & give its application. **7**

OR

2. a) Differentiate between microelectronics & microsystems. **7**

b) Explain Bio-MEMS in detail. **6**

3. a) Explain Bulk micromachining techniques in detail. **7**

b) Differentiate between wet etching & dry etching process. **7**

OR

4. a) Explain device fabrication using surface micromachining. **7**

b) Write short notes on material used for MEMS & Microsystems. **7**

5. a) Explain chemical sensors in MEMS. **7**

b) Explain optical transducer in MEMS. **6**

OR

6. a) What are different types of Thermal transducer in MEMS. **7**

b) Explain RF transducers in MEMS. **6**

7. a) Explain MEMS Inductor in detail. **7**

b) Explain the typical applications of RF MEMS switches. **7**

OR

8. a) Explain MEMS antennas. **7**

b) Explain MEMS capacitors in detail. **7**

9. a) Explain the types of MEMS packages. **6**

b) Explain the MEMS wafer-level packaging. **7**

OR

10. a) Explain the importance of MEMS packaging. **6**

b) Explain the flip-chip assembly in MEMS. **7**

11. a) Explain typical system-on-chip (SoC) architecture. **7**

b) Explain applications of microsystems. **6**

OR

12. a) Explain microsystems design methodology. **7**

b) Give introduction to core architectures for digital media & the associated compilation techniques. **6**

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