11. (a) Explain system on chip and its design process. 7

(b) Explain Microsystem Technology and give its application. 6

**OR**

12. Draw Core Architecture of system on chip. 13



**NTK/KW/15/7543**

**Faculty of Engineering & Technology**

**Seventh Semester B.E. (EC/ET) (C.B.S.) Examination**

**ELECTIVE–I : MICRO ELECTROMECHANICAL SYSTEM & SYSTEM ON CHIP**

Time—Three Hours] [Maximum Marks—80

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**INSTRUCTIONS TO CANDIDATES**

(1) All questions carry marks as indicated.

(2) Solve Question No. **1** **OR** Questions No. **2**.

(3) Solve Question No. **3** **OR** Questions No. **4**.

(4) Solve Question No. **5** **OR** Questions No. **6**.

(5) Solve Question No. **7** **OR** Questions No. **8**.

(6) Solve Question No. **9** **OR** Questions No. **10**.

(7) Solve Question No. **11** **OR** Questions No. **12**.

(8) Assume suitable data wherever necessary.

(9) Illustrate your answers wherever necessary with the help of neat sketches.

1. (a) Explain Miniaturization and explain its benefits. 7

   (b) Write short notes on the following :

   (i) Optical MEMS

   (ii) BIO MEMS

   (iii) RF MEMS. 6

**OR**

2. (a) Draw and explain working principle of Piezoelectric Inkjet Printer. 7

   (b) Explain pressure sensor and state its applications. 6

3. (a) Draw and explain Bulk Micro machining Process. 7

   (b) Explain LIGA process used in Micro-machining Techniques. 7

**OR**

4. (a) Explain the types of Wet Etching Process. 8

   (b) Explain Micro-cantilever fabrication process in detail. 6

5. (a) What is Sensor ? Explain Chemical Sensor and Biosensor. 7

   (b) Differentiate between Chemical and Biological Transducer. 6

**OR**



6. (a) Explain Optical Transducer with proper block diagram. 7

   (b) What is Thermal Transducer and explain any one example of it. 6

7. Write short notes on the following RF MEMS Devices :–

   (i) Capacitor

   (ii) Inductor

   (iii) Antenna. 14

**OR**

8. Write short notes on :

   (i) Role of MEMS in Communication

   (ii) Space application of RF MEMS. 14

9. (a) Explain the role of MEMS packages and various parameters associated with it. 7

   (b) Explain metal packages and ceramic packages. 6

**OR**

10. (a) Explain Multi-chip Module packaging. 7

    (b) Draw and explain FLIP-CHIP Assembly. 6



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