Roll No. .....

23332

M. Tech. 1st Semester (VLSI Design & Embedded System) Examination – January, 2016

IC FABRICATION TECHNOLOGY

Paper : MT-VLES-501

Time : Three Hours] *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions. Each question carries equal marks.

1. What is the role of clean room in IC fabrication ? What are the different types of clean room and how will you construct the clean room ? 20

2. What is diffusion ? What are the different mechanism by which the random jumps of an impurity in lattice takes place ? Describe each one of them. 20

3. (a) Explain the kinetic of silicon oxide on silicon. Show that the oxide thickness is directly proportional to the square root of time. 15

(b) Explain the purpose of oxidation. 5

4. (a) Define lithography. Also explain electron beam lithography technique for patterning VLSI/ULSI circuits. 15

(b) Explain the term "Mask generation". 5

5. Describe the principle of Chemical Vapour Deposition. Also explain plasma-enhanced (PECVD) with suitable examples. 20

6. (a) Explain the sputtering technique. Also explain how the film are deposited by sputtering ? 12

(b) Explain why multi-level metallization schemes are required for IC processing ? 08

7. (a) Discuss the Rapid Thermal Processing (RTP) technique for growth of a film in IC processing. 12

(b) Explain the term "electromigration". 8

8. Write short note on : 20

(a) N MOS Process Integration

(b) Bipolar Process Integration
