

Roll No. _____

Total Pages : 2

5th Sem. Electronics

8957

BT-5/D06

MICROELECTRONICS

PAPER - ECE-309E

Time : 3 Hrs.

Maximum Marks : 100

Note : Attempt any five questions in all, selecting at least one question from each unit.

UNIT-I

1. a. Explain the various Silicon shaping processes required to convert Silicon ingots into polished wafers. 10
- b. Describe the Basic Transport Processes and reaction kinematics involved in Vapour Phase Epitaxy. 10
2. a. What are the various Oxidation Techniques ? Explain briefly. 10
- b. Describe with suitable diagrams the process of MBE. 10

SECTION - II

3. a. Enlist the various lithographic techniques used and explain X-Ray lithography in detail. 10
- b. Explain in brief ion enhanced and ion induced etching. 10
4. a. What are the various reactive plasma-etching techniques? Describe in detail the equipment used in the process. 15
- b. Describe the various properties of plasma. 5

SECTION-III

5. a. Write Fick's I-D diffusion equation and explain its significance. 5
- b. Explain constant source and limited source diffusion. 10

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- c. Explain the behaviour of group V impurities in Silicon. 5
6. a. Describe the equipment used for ion implantation and evaluate the process in terms of uniformity and contamination. 15
- b. Briefly explain Furnace Annealing. 5

SECTION - IV

7. a. Explain the sequence of steps involved in N = MOS IC fabrication. 10
- b. Describe the various VLSI assembly and packaging techniques, also enlist various package types. 10
8. a. Explain the C-MOS IC fabrication process. 10
- b. What are the various design considerations for ICs ? 5
- c. What is MEMS ? What are the future trends in reference to MEMS ? 5

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