Reg. No. : [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Question Paper Code : 71877

M.E. DEGREE EXAMINATION, JUNE/JULY 2013.

Elective

VLSI Design

VL 9256/VL 956/10244 VLE 32 – VLSI TECHNOLOGY

(Regulation 2009/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a point defect in crystal structure?

2. Write the problem associated with oxide stress in the oxidation process.

3. Write the necessity of oxidation of silicon.

4. What do you mean by projection printing?

5. List the advantages of low pressure deposition process.

6. Write the importance of Arrhenius equation.

7. List the fundamental consideration factors for an IC processing.

8. Write the significance of threshold adjusting in MOS fabrication.

9. Define eutectic die bonding.

10. List three common interconnection of chip to bond pads.

PART B — (5 × 16 = 80 marks)

11. (a) (i) List the various defects associated with crystal structure and explain them. (8)

(ii) Discuss why crystal growing is needed and explain the theory behind it. (8)

Or

(b) Explain the crystal growing approach by Czochralski process. (16)

12. (a) How is optical lithography technique used in various image printing on silicon wafer? Explain. (16)

Or

(b) Explain various methods of technique involved in electron lithography. (16)

13. (a) Explain the following toward plasma assisted deposition

(i) Deposition variable (8)

(ii) Properties of PD films. (8)

Or

(b) Explain the atomic diffusion mechanism. (16)

14. (a) Explain the gate materials and threshold adjustment in NMOS fabrication. (16)

Or

(b) Discuss the modeling for etching and deposition in VLSI. (16)

15. (a) Explain the various packaging design Considerations. (16)

Or

(b) Discuss the following process in VLSI assembly technology

(i) Wafer preparation (4)

(ii) Die interconnection (4)

(iii) Die bonding and (4)

(iv) Wire bonding. (4)

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