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Printed Pages : 2

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BT-5 / D-19

VLSI TECHNOLOGY

Paper-ECE-305 N Opt-II

Time allowed : 3 hours]

[Maximum marks : 75

Note:- Attempt any five questions out of eight questions selecting at least one question from each unit.

Unit-I

1. (a) List and explain the various defects present in the real crystal as compared to ideal crystal. 8
- (b) Describe solvent cleaning method. 7
2. (a) Draw and explain Czochralski crystal growth apparatus. 10
- (b) Why (100) orientation is preferred over (111) orientation for starting material in NMOS/CMOS ICs fabrication? 5

Unit-II

3. (a) Differentiate between thermal oxidation and CVD oxidation. 8
- (b) List and explain oxide properties. 7
4. (a) Describe growth mechanism and kinetics in detail. 8
- (b) List and explain various oxidation-induced defects. 7

Unit-III

5. (a) Write and explain Fick's 1 D diffusion equations. 8
- (b) Why Ion implantation is preferred over diffusion for impurity doping? 7

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6. (a) List and explain various atomic diffusion mechanisms. 8
- (b) Describe junction depth and Four-point probe measurement techniques. 7

Unit-IV

7. Explain Physical Vapour Deposition (PVD) technique in detail. 15
8. Draw and explain various steps involved in fabrication process of Schottky diodes. 15

