13-12-2019

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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

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

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