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Roll No

MEVD-201

M.E./M.Tech. II Semester

Examination, December 2016

VLSI Technology

Time : Three Hours

Maximum Marks : 70

- Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Discuss various defects in single crystal silicon. How a crystal of known orientation is grown.
b) A boron-doped crystal is measured at its seed end with a four point probe of spacing 1mm. The (V/I) reading is 10Ω . Determine seed doping and the expected reading at 0.95 fraction solidified.
2. a) Enlist advantages of polysilicon gate over metal gate MOSFET.
b) Elaborate Deal Grove Model. What are the purposes of oxidation.
3. a) Discuss kinetics of oxidation. How junction isolation is done using LOCOS?
b) Explain Photo masking process with positive resist and dark field mask.

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4. a) Explain the use of lithography for thick film circuit fabrication.
b) Distinguish between diffusion and ion-implantation.
5. a) Explain PVD and CVD techniques with their application in VLSI technology.
b) Which material is mostly used for contacts in silicon wafer technology and enlist its limitations?
6. a) Describe metallisation and packaging.
b) Explain in detail Band-gap Narrowing Effect.
7. a) Discuss few measurement techniques for determining diffusivities in diffusion.
b) Explain horizontal and vertical tube furnaces used in oxidation and diffusion process
8. Write short notes on (any two) :
 - a) Molecular Beam Epitaxy
 - b) Silicon on Insulator
 - c) Czochralski process
