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**MEVD-201****M.E./M.Tech. II Semester**

Examination, June 2017

**VLSI Technology****Time : Three Hours****Maximum Marks : 70**

- Note:** i) Attempt five questions out of eight questions.  
 ii) Each question carry equal marks.  
 iii) Assume suitable data if required.

1. a) Explain the working principle of Czochralski process.  
 b) Draw a flow diagram of the water preparation process.
2. a) Explain the working of Electronic Grade silicon preparation from earth crust.  
 b) Write the basic instructions to follow clean room construction and maintenance to enter the fabrication lab.
3. a) Describe the changes in positive and negative resist during exposure to light.  
 b) Draw a cross sectional diagram of the ten step process with a positive resist and dark field mask.
4. a) Discuss about the kinetics of oxidation. Explain deal groove model in detail.  
 b) Explain the principle of oxidation. Write down different uses of silicon dioxide layer.

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5. a) What do you mean by Thermal Oxidation Process? Explain its mechanism. Write and explain all its methods in detail.  
 b) Explain the electron beam exposure system. Also explain its applications.
6. a) Explain the concept of junction. Discuss about the formation of doped region and junction by diffusion.  
 b) Explain drive in oxidation. Also explain the concept of ion implantation and its system.
7. a) Explain the principle of Chemical Vapour Deposition. Write and explain different CVD process steps.  
 b) Give a brief introduction on PECVD.
8. Write short notes on (any four)
  - a) MBE
  - b) LPCVD
  - c) Vapor phase epitaxy
  - d) SOS
  - e) X ray lithography
  - f) Metallization

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