Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14EC3022** | **Duration :** | **3hrs** |
| **Sub. Name :** | **VLSI TECHNOLOGY** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain in detail about the method of depositing a thin layer over a substrate  using molecular beam epitaxy. |  | **20** |
| **(OR)** | | | | |
| 2. | a. | With the help of schematics explain the silicon Shaping operations. |  | **10** |
| b. | What are the processing considerations used for silicon wafer  preparation? |  | **10** |
| 3. | a. | What are the kinetics for thin oxide growth? |  | **10** |
|  | b. | Explain about the oxide properties in detail. |  | **10** |
| **(OR)** | | | | |
| 4. | a. | Explain in detail about the methods of E-beam lithography technique with  schematic representation. |  | **10** |
|  | b. | Discuss in detail about DC plasma excitation and A.C plasma excitation |  | **10** |
| 5. | a. | Explain in detail about the methods of Optical lithography technique with  schematic representation. |  | **10** |
|  | b. | What is Plasma Etching? Write about the properties of Plasma Etching in detail. |  | **10** |
| **(OR)** | | | | |
| 6. | a. | With the help of equations explain the techniques used for Silicon dioxide and  Silicon Nitride deposition. |  | **20** |
| 7. | a. | Explain the Monte Carlo and the Boltzmann transport equation methods of simulating ion implantation in solids with necessary diagrams and equations. |  | **20** |
| **(OR)** | | | | |
| 8. | a. | Discuss the diffusion model and silicon oxidation model with necessary mathematical equations. |  | **20** |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain NMOS IC technology process in detail. |  | **10** |
|  | b. | Explain the VLSI assembly technologies in detail. |  | **10** |

ALL THE BEST