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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14EC2074** | **Duration :** | **3hrs** |
| **Sub. Name :** | **VLSI FABRICATION TECHNIQUES** | **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 the process of molecular beam epitaxy with neat diagrams. | CO1 | 10 |
| b. | Outline the process of vapor phase epitaxy with necessary diagrams. | CO1 | 10 |
| **(OR)** | | | | |
| 2. |  | Solve using relevant equations to determine the kinetics of oxide growth in the oxidation process. | CO1 | 20 |
|  |  |  |  |  |
| 3. |  | Apply the concept of diffusion and model Fick’s second law with appropriate equations. | CO2 | 20 |
| **(OR)** | | | | |
| 4. | a. | Show different printing techniques adopted in lithography and compare the resolution adopted in printing techniques. | CO1 | 10 |
| b. | Summarize the chemical process involved in wet etching with relevant equations. | CO1 | 10 |
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| 5. | a. | Explain the sputtering process in detail related to fabrication issue. | CO1 | 15 |
| b. | Outline Dual Damascene process in metallization. | CO1 | 5 |
| **(OR)** | | | | |
| 6. |  | Explain the concept of electron beam lithography in detail with neat diagrams. Also list out the rules of thumb to be followed during  e- beam lithography. | CO1 | 20 |
|  |  |  |  |  |
| 7. | a. | Compare the characteristics of CVD techniques on different materials. | CO1 | 14 |
| b. | List out the significance of I2L circuit. | CO3 | 6 |
| **(OR)** | | | | |
| 8. | a. | Summarize in detail the MESFET technology. | CO3 | 15 |
| b. | What is Trench Isolation? How will you form trench isolation in MOS device. | CO3 | 5 |
|  | | **Compulsory**: |  |  |
| 9. |  | Explain the step by step procedure for BJT fabrication with neat diagrams. | CO1 | 20 |