

## 01263 B.TECH. IN ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

December, 2012

## BIELE-002 : MICROELECTRONICS TECHNOLOGY

Time : 3 hours

Maximum Marks : 70

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*Note : (i) Attempt any seven questions.**(ii) Assume suitable missing data if any.*

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1. (a) What are the advantages of integrated circuits over discrete components ? 5  
(b) Discuss photo Lithography process. 5
2. Explain semiconductor material properties, its planes and directions with neat diagrams. 10
3. Define MGS and EGS and explain various defects in real silicon crystal. 10
4. Define epitaxy and explain vapour phase epitaxy in detail using different susceptors and reactors. 10
5. What do you mean by oxidation ? Explain oxide growth and oxidation system with suitable diagrams. 10

6. What is diffusion ? Discuss types of diffusion and its properties. Explain diffusion mechanism using Fick's diffusion equations. 10
  7. Differentiate between positive and negative resist. Explain Electron beam lithography in detail. 10
  8. Mention various etching parameters and explain wet chemical etching and its properties. 10
  9. Define twin tub process and explain Berkeley n-well CMOS process and various considerations for CMOS ICs. 10
  10. Write short note on *any two* of the following :  $2 \times 5 = 10$ 
    - (a) Float zone process.
    - (b) Multilevel metallization schemes.
    - (c) RIE
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