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BIELE-002

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

01550

Term-End Examination

June, 2013

BIELE-002 : MICROELECTRONICS TECHNOLOGY

Time : 3 hours *Maximum Marks : 70*

Note : *(i) Attempt **any seven** questions in all.*

(ii) Assume suitable missing data if any.

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1. Define integrated circuits and its types in detail. 10

2. Define orientation and explain various orientation dependant properties of silicon crystals with suitable diagrams. 10

3. Explain complete crystal growth process using Czochralsbi technique with neat diagram. 10

4. Mention various steps of epitaxial process and explain epitaxial growth process model and various epitaxial defects. 10

5. Differentiate wet oxidation and dry oxidation. Explain oxide properties and various oxidation induced defects. 10

6. Explain various diffusion systems and various problems associated with silicon diffusion. **10**

7. State the word lithography and explain complete basic steps involved in lithographic process. **10**

8. Explain plasma etching process using any one plasma etching system. Also explain properties of plasma. **10**

9. Why multilevel metallization is required ? Differentiate between complete planarization and semi-planarization techniques. **10**

10. Write short note on ***any two*** of the following : **5x2=10**

    (a) Process sequence for an N-mos circuit fabrication.

    (b) Optical lithography.

    (c) IC design considerations.