Paper / Subject Code: 42502 / IC Technology

13-May-19 1T01117 - B.E.(ELECTRONICS)(Sem VII) (CBSGS) / 42502 - IC Technology 69092

(3 Hours) **Total Marks: 80**

N.B. 1) Question No.1 is compulsory
2) Solve any three questions from the remaining questions.
3) Assume suitable data if necessary.

1. Answer any four:
   (a) Describe bonded SOI and smart cut SOI method — **5**
   (b) Enlist the steps for obtaining Si from sand. — **5**
   (c) What is short channel effect? How to avoid it? — **5**
   (d) Explain any one application of nanowire — **5**
   (e) Explain difference between positive and negative photo resist — **5**

2. (a) Explain Liquid phase epitaxy method. What are its advantage and disadvantage? — **10**
   (b) Explain RCA cleaning method. — **5**
   (c) State comparison of APCVD, LPCVD and PECVD. — **5**

3. (a) Enlist step for fabrication of CMOS inverter using N well process. Draw vertical cross sectional view starting from substrate till the gate, source and drain formation in fabrication of CMOS inverter. — **10**
   (b) Draw layout of 2 input CMOS NAND gate using lambda based design rule — **10**

4. (a) Describe with help of neat diagram of Hyness schokley experiment for measurement of drift mobility of n type semiconductor — **10**
   (b) Explain Deal and Groove model for oxidation — **5**
   (c) Explain BiCMOS — **5**

5. (a) What is LOCOS? Why it is required in CMOS process. Explain technology solution for avoiding problem in LOCOS. — **10**
   (b) Explain Difference between schottky contact and ohmic contact — **5**
   (c) Explain Difference between Dry etching and Wet etching — **5**

6. Write short notes — **20**
   (a) MODFET devices
   (b) Multigate device structure
   (c) High k and low k dielectric
   (d) Need of lambda based design rule
   (e) X ray lithography

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