Total No. of Questions : 8]

SEAT No. :

P4178

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[4760] - 1146

M.E. (E & TC - VLSI and Embedded Systems)

ASIC Design

(2013 Credit Pattern) (Semester - III) (604202)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Attempt any five questions out of 8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of electronic pocket calculator is allowed.***
5) ***Assume suitable data, if necessary.***

Q1) a) Draw the design flow for an ASIC design process and explain each step. **[5]**

b) What do you mean by ASIC cell library? What should it contain. **[2]**

c) Compare different ASIC technologies. **[3]**

Q2) a) Explain in detail Gate array based ASICS. **[5]**

b) Differentiate static and dynamic lining analysis. Which is better? and why? **[2]**

c) Explain Logic synthesis with an example. **[3]**

Q3) a) What is crosstalk delay and crosstalk noise in context to ASIC design? Which parameter it will severely affect . **[4]**

b) Explain Gate level mixed node simulation and synthesis. **[4]**

c) Write a note on testing of mixed mode ASIC. **[2]**

Q4) a) Explain noise coupling and element matching with respect to practical aspects of mixed signal analog digital design. **[5]**

b) Explain signal integrity effects in ASIC design. **[5]**

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Q5) a) What are the different objectives of system partitioning and explain algorithm for the same. **[4]**

b) What are the factors contributes to test floor planning? Explain in detail. **[3]**

c) What is parameter extraction pertaining to ASIC design? **[3]**

Q6) a) Differentiate pre layout and post layout simulation with respect to ASIC. **[4]**

b) What are the approaches to global routing? Explain in detail one algorithm to find shortest path. **[4]**

c) Define channel density and Elmore's delay. **[2]**

Q7) a) Explain in detail about ATPG algorithm using test vectors with neat diagram. **[4]**

b) Explain types features of any two EDA tools. **[4]**

c) Define the term controllability and observability. **[2]**

Q8) a) Briefly describe about Boundary Scan Test with suitable example. **[5]**

b) Explain LFSR and BIST. **[5]**

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