Total No. of Questions : 10] SEAT No. :

P1970 [Total No. of Pages : 2

[4859]-1047
B.E. (Electronics Engg.) (End Semester)
VLSI DESIGN
(2012 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
4) ***Assume suitable data, if necessary.***

Q1) a) What is feature size and λ? List basic λ rules in CMOS design? **[6]**

b) Write short note on velocity saturation. **[4]**

OR

Q2) a) Derive the expression for Dynamic power dissipation. **[5]**

b) Draw block diagram and explain architecture of FPGA. **[5]**

Q3) a) Write a VHDL code for BCD to seven segment Decoder. **[5]**

b) Explain Noise margin. Give its expressions. **[5]**

OR

Q4) a) Explain various attributes in VHDL with suitable examples. **[5]**

b) What is metastability? How can it be removed? **[5]**

Q5) a) Compare SRAM and DRAM. List various types of memories. **[8]**

b) Draw any 2 schematics of DRAM cells. Explain Write and Read operation of any one of them. **[8]**

OR

Q6) a) Draw and explain the schematic of SRAM cell with necessary peripherals. **[8]**

b) Write short note on : **[8]**

i) Refresh circuit

ii) Sense amplifier

P.T.O.

Q7) a) What are challenges in routing? Explain switch box routing. **[8]**

b) Explain floor planning, its purposes and the rules. **[8]**

OR

Q8) a) What is Global routing. Explain Maze and line probe routing algorithms in detail. **[8]**

b) Explain Power distribution and power optimization in details. **[8]**

Q9) a) What are stuck open, stuck short faults? Also explain stuck at 1 and stuck at 0 faults with example. **[9]**

b) What is Built in self test? Explain BIST for RAM. **[9]**

OR

*Q10)*a) What is need of Boundary scan? Explain Boundary scan technique in detail. **[6]**

b) What is necessity of DFT. **[4]**

c) What is Test access port? Explain TAP controller with help of state machine. **[8]**