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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Second Semester, M. Tech - VLSI Design and Embedded System (MECE)

Semester End Examination; May/June - 2018

Design of VLSI System

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a.	Explain in detail of structured design techniques.	10
b.	Explain the terms: i) Programmable logic devices ii) Programmable inter connect	10
2 a.	Explain the concept of hierarchy in VLSI design.	5
b.	Write a short note on full custom design.	5
c.	Briefly explain the EDA tools for system.	10

UNIT - II

3 a.	Explain the following design capture tools: i) HDL design ii) Schematic design	10
b.	Discuss different types of simulation tools used in verification of VLSI system.	10
4 a.	With necessary arrangements, explain the chip composition high-lighting the progression of steps at each level.	5
b.	Explain the terms: i) Time Verifiers ii) Network isomorphism iii) Netlist comparision	15

UNIT - III

5 a.	Draw the schematic diagram of a comparator to compare the magnitude of two 4-bit binary number using adders. Explain the operation for unsigned and signed comparison.	10
b.	Design a 16-bit carry select adder using 4-bit adder, in each group write expression for critical path delay.	10
6 a.	With an example show how the multiplication is performed using radix-4 booth encoding. Explain in brief.	10
b.	Draw the basic ROM architecture using programmable ROM and NAND ROM and explain its working.	10

Contd…2

UNIT - IV

7 a.	Explain the FSM design procedure with an example.	10
b.	Discuss the power distribution employed while designing special purpose subsystem.	10
8 a.	Explain the global clocking strategies in modern VLSI design of PLL.	10
b.	With a neat diagram, explain the working of CMOS inverter as an amplifier.	10

UNIT - V

9 a.	Explain in detail about fault models.	5
b.	Explain how serial and parallel scan testing is implemented.	5
c.	Explain the terms :	
	i) Recurring cost	10
	ii) Non-currring cost	
10 a.	Explain in brief, boundary scan techniques.	10
b.	Discuss different types of fault models in VLSI design.	10

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