[80-A]

SARDAR PATEL UNIVERSITY
M.Sc. (Semester III) (CBCS) EXAMINATION 2012
Friday, 7th December 2012

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CMOS Technology & VLSI Design

Time: 02:30 PM TO 05:30 PM
Total Marks: 70

Q – 1 Multiple Choice Question [8]

1. Which Statement is true for Static RAM.

   i) Single ended output
   ii) Slower so used for main memory
   iii) Data is stored as long as supply is applied
   iv) None of above

2. The Moore machine o/p is depend on

   i) Current state, I/p
   ii) Next state
   iii) Current state, Next state
   iv) Current state

3. What Does Stand For UART

   i) Universal Asynchronous Receive Transmit
   ii) Universal Asynchronous Receiver Transmit
   iii) Universal Asynchronous Receiver Transmitter
   iv) Universal Asynchronous Receiver Transmition.

4. What does stand for DDR SDRAM?

   i) Dual data rate SDRAM.
   ii) Dual double rate SDRAM.
   iii) Double dual rate SDRAM.
   iv) Double data rate SDRAM.

5. In CPLD XC9572 series what does mean of 4/72_____

   i) Macro cells / FBs
   ii) FBs / Input pin
   iii) Macro cells / Output pin
   iv) FBs / Macro cells

6. What Does mean of DUT ?

   i) Data Under Test
   ii) Design Upper Test
   iii) Design Under Test
   iv) All are True

7. Which statement is true?

   i) Ieee.std_logic_1164.
   ii) IEEE_STD_LOGIC_1164
   iii) Ieee.std_logic_1164_all
   iv) A None of all.

8. A Transmission Gate is a combination of _____ and also known as _____

   i) Two Parallel PMOS and NMOS, Pass gate
   ii) Parallel PMOS and NMOS, Pass gate.
   iii) Parallel MOSFET AND CMOS, Basic gate
   iv) Parallel PMOS and NMOS, Basic gate

Q –2 Answer the Following Questions (Any seven). [14]

   1) Write Down the VHDL Code for AND gate & NAND gate.
   2) Write Down the Comparison of SRAM and Antifuse FPGA.
   3) Write Down the CMOS Parasitic equivalent circuit.
   4) Give The Description Of SRC And DRC.
   5) Define Body effect with circuit diagram.
   6) Write down the Definition of FSM with Mealy circuit diagram.
   7) Define Why to prefer FPGA's?
   8) Write Down the Types Of Attributes.
   9) Define Transmission Gate.

Q -3 Answer the Following Questions.

    a) Write down the Architecture of FPGA with diagram.   [6]

    b) Explain the Configuration in detail.   [6]
               OR
    b) Describe memory basics with types of memory and define any   [6]
       two of Following in short details. 1) RAM 2) ROM 3) Flash Memory

Q -4 Answer the Following Questions.

    a) Describe FSM in Detail with circuit diagram.   [6]

    b) Explain the TEST BENCHES in detail.   [6]
               OR
    b) Explain The SRAM and DRAM Operation.   [6]

Q -5 Answer the Following Questions.

    a) Write down the Architecture of CPLD with diagram.   [6]

    b) Describe Different modeling styles with one example.   [6]

               OR
    b) Draw the VLSI Design Flow with Description.   [6]

Q -6 Answer the Following Questions.

    a) Write Down Programming of TLC.   [6]

    b) Define the Clock distribution and Power distribution in detail.   [6]
               OR
    b) Describe Global routing, Switch box routing and Wire parasitic.   [6]

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