

**Code: 9D06101****M.Tech I Semester Regular & Supplementary Examinations February 2016****DIGITAL SYSTEM DESIGN**

(Common to DSCE, DECS, ECE, VLSIES, ESVLSI, VLSI ESD &amp; MNE)

(For students admitted in 2011, 2012, 2013, 2014 &amp; 2015 only)

Time: 3 hours

Max Marks: 60

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Discuss the primary constructs that are used in VHDL.  
(b) Design a 4 X 3 ROM to perform:  
 $F_1 = \sum(0, 1, 2, 3, 7)$   
 $F_2 = \sum(1, 2, 3, 5, 7)$   
 $F_3 = \sum(0, 2, 4, 6)$
- 2 (a) Draw the symbols used in ASM chart and explain.  
(b) Describe important features of FPGA.
- 3 Construct the test set of output function of the circuit  $F(X_1, X_2, X_3) = X_1X_3 + (\overline{X_2 + X_3})$ . Using path sensitizing method.
- 4 (a) With a neat circuit diagram, describe the working of a signature analyzer.  
(b) Write short notes on testing for bridging faults.
- 5 (a) Explain about fault detection and location in sequential circuits.  
(b) Discuss about synchronizing experiments of fault diagnosis in sequential circuits.
- 6 (a) Explain the various types of cross point fault that occur in PLA's.  
(b) Explain PLA folding.
- 7 (a) Explain how test generation can be achieved in testing a PLA.  
(b) Discuss briefly about testable PLA design.
- 8 Explain the fundamental mode model for asynchronous sequential machine design.

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