Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II– EXAMINATION – WINTER - 2016

Subject Code: 2724202 **Date: 18/11/ 2016**

Subject Name: Testing and Verification of VLSI Design

Time: 2:30 pm to 5:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks**

Q.1	**(a)**	With necessary diagram explain the basic principal of digital testing.	**07**
	(b)	List down the various VLSI Technology Trends Effecting Testing and discuss any two in detail.	**07**
Q.2	**(a)**	Explain the Role of Testing in VLSI Circuit Design.	**07**
	(b)	With respect to Test Economy Define the Following terms. 1. The Law of Diminishing Returns. 2. Increasing Returns to Scale.	**07**
		OR	
	(b)	What do you mean by Design for treatability? List down and explain the various rules for Scan Design.	**07**
Q.3	**(a)**	Define the following terms with respect to verification. 1. TYPE I and TYPE II mistakes. 2. Verification Reuse	**07**
	(b)	Define the following terms 1. Defect. 2. Error. 3. Fault. Consider a digital system consisting of two inputs A and B, one output C, and one two-input AND gate. The system is assembled by connecting a wire between the terminal A and the first input of the AND gate. The output of the Gate is connected to C. But the connection between B and the gate is incorrectly made, B is left unconnected and the second input of the gate is grounded. The functional output of this system, as implemented, is C = 0, instead of the correct output C = AB. Find out Defect, Error and Fault for this system.	**07**
		OR	
Q.3	**(a)**	List down various Delay Test Methodologies and discuss any two in detail.	**07**
	(b)	Which are the Faults that Detected by I_{DDQ} Tests? Discuss any one in detail.	**07**
Q.4	**(a)**	List Down the various types of Faults and Explain any three with example.	**07**
	(b)	Explain Structural vs. Functional Test.	**07**
		OR	
Q.4	**(a)**	List down the various verification styles? And explain any two in detail.	**07**
	(b)	Define Design for Verification? Explain it in detail.	**07**
Q.5	**(a)**	Explain the Event Driven Simulator with necessary example.	**07**
	(b)	Discuss the different between Testing and Verification.	**07**
		OR	
Q.5	**(a)**	Discuss Functional RAM Testing with March Tests.	**07**
	(b)	What is BITS? Explain the process for generation of BITS Test Pattern.	**07**

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