Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER III (NEW) – EXAMINATION – WINTER-2016

Subject Code: 2732605 **Date:25/10/2016**

Subject Name: VLSI Test Principles and Architectures

Time:02:30 pm to 05:00 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)**	Define or briefly explain following terms: 1. Rule of Ten, 2. Yield, 3.Error, 4. Design for testability, 5. Fault, 6. Transient power supply testing, and 7. Fault collapsing	**07**
	(b)	Explain various bridging fault models.	**07**
Q.2	**(a)**	Draw and explain Enhanced Scan Architecture.	**07**
	(b)	Discuss SCOAP based testability analysis and determine SCOAP combinational measures for 3 input OR gate.	**07**
		OR	
	(b)	Draw Edge triggered muxed D scan cell design and explain its operation with help of waveforms.	**07**
Q.3	**(a)**	Explain parallel pattern fault simulation (PPFS) with the help of an example.	**07**
	(b)	Discuss transport delay model and inertial delay model concept for timing delay models.	**07**
		OR	
Q.3	**(a)**	What is Hazard? Explain various types of hazards.	**07**
	(b)	Explain any two techniques for Logic element evaluation.	**07**
Q.4	**(a)**	Discuss D-algorithm which is used to generate vectors in combinational circuits (No need to give Pseudo code).	**07**
	(b)	How Genetic algorithm is used for ATPG? Explain in detail.	**07**
		OR	
Q.4	**(a)**	With an example, explain the concept of Boolean difference.	**07**
	(b)	Explain the concept of time frame expansion in sequential ATPG.	**07**
Q.5	**(a)**	Explain parallel signature analysis output response compaction technique.	**07**
	(b)	What is the importance of Cellular Automata in Pseudo-Random Testing? Explain in detail.	**07**
		OR	
Q.5	**(a)**	Explain the single capture clocking scheme to test multiple clock domain.	**07**
	(b)	How you will enhance the fault coverage? Write down three approaches for that in brief.	**07**

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