

GUJARAT TECHNOLOGICAL UNIVERSITY
ME - SEMESTER– 3 (NEW) • EXAMINATION – WINTER - 2023

Subject Code:3732605**Date: 02 Dec 2023****Subject Name:VLSI Test Principles and Architecture****Time:10:30 AM TO 01:00 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)** What is mean by transistor fault? Explain it with an example of two input CMOS NOR gate transistor level circuit and also draw the truth table for faulty and fault free circuit of it. **07**
- (b)** What is the importance of testing in VLSI Design flow? Write down the challenges in VLSI Testing. **07**
- Q.2 (a)** What is test point insertion? Explain control point insertion with the help of an example. **07**
- (b)** Draw and explain clocked scan cell design with the help necessary waveforms. **07**
- OR**
- (b)** Explain scan design rules for (1) Tristate buses (2) Derived Clocks **07**
- Q.3 (a)** Draw and explain scan design flow. **07**
- (b)** What is logic element evaluation? Explain input scanning algorithm. **07**
- OR**
- Q.3 (a)** What is serial fault simulation? Draw and explain serial fault simulation algorithm flow. **07**
- (b)** Explain differential fault simulation. **07**
- Q.4 (a)** Explain the concept of Boolean difference with the help of an example. **07**
- (b)** What is the time frame expansion? How does it work for sequential circuit? **07**
- OR**
- Q.4 (a)** Explain PODEM algorithm in brief. **07**
- (b)** What is static logic implication and dynamic logic implication? Explain it with the help of an example. **07**
- Q.5 (a)** What is BIST design rule? Explain BIST Design rule for unknown source blocking. **07**
- (b)** Discuss Cellular Automata. **07**
- OR**
- Q.5 (a)** Draw and explain built in logic block observer (BIBLO). **07**
- (b)** List and explain LFSR properties. **07**
