

CSE435 Introduction to EDA & Testing - Spring 2022

Homework Assignment #6

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About Path-Oriented Decision Making (PODEM), please answer the following questions according to Figure 1.

1-4 PODEM (See Figure 1)

1. (15%) Derive the effective test set for G5 SA0 by PODEM

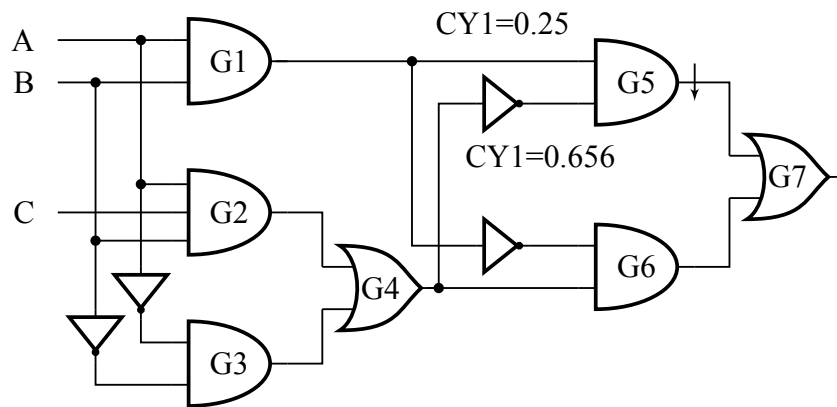


Figure 1

Solution:

1. Activate G5 SA0. Initial objective: G5's output = 1.
2. Backtrace to A. With an even inversion parity, A = 1. Simulation, objective not achieved.
3. Backtrace to B. With an even inversion parity, B = 1. Simulation, objective not achieved.
4. Backtrace to C. With an old inversion parity, C = 0. Simulation, objective achieved.
5. Propagate the fault. Objective: G7's second input = 0.
6. No more unknown primary input to backtrace to. Simulation, objective achieved.
7. Test generated, (A, B, C) = (1, 1, 0).

Answer: (A, B, C) = (1, 1, 0).

2. (15%) Derive the effective test set for G5 SA0 by PODEM with More Intelligent Backtracing

Solution:

3. (15%) Derive the effective test set for G5 SA0 by PODEM with Unguided Backtracing

Solution:

4. (15%) Please compare the above (1), (2), (3). [Chapter 10, slides 7-23]

Solution:

5. (15%) What are the difference between Backtracking and Backtracing? Please show by example.

Solution:

6. (25%) FAN (See Figure 2)

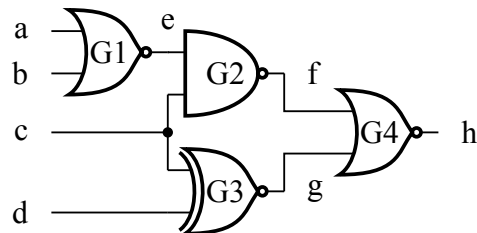


Figure 2

- (a) (15%) Generate a test for the fault f-sa1 by using FAN algorithm.

Solution:

- (b) (10%) What are the differences between PODEM and FAN?

Solution: