Questions for self assessment

Module 9--Lecture 1

1. What does ATPG stand for? What are the main types of ATPG algorithms that are based on Boolean logic manipulation?

2. What are the alternatives for ATPG apart from Boolean logic manipulation? Why these alternatives are not widely accepted, compared to Boolean logic manipulation?

3. Why is Boolean algebra not considered powerful enough to be used in ATPG algorithms? How Roth's five value algebra solves the problem?

4. What is the complexity of ATPG using Symbolic Difference?

5. ATPG can be used to find redundancies in circuits. Explain using an example.

Module 9--Lecture 2,3

1. What is singular cover of a logic gate? Determine singular covers for two input AND, OR, NOR and NAND gates.

2. What is D-frontier? Illustrate using an example that a fault is non testable if D-frontier disappears before fault effect propagates to a primary output.

3. What is unique D-frontier and what does it imply in ATPG?

4. What is the difference between implication and simulation?

5. What is X-path? For a fault to be testable there should be at least an X-path from fault site to primary output. Illustrate using an example

6. Explain all the steps of D-Algorithm using an example.

7. What are the drawbacks of D-Algorithm? Suggest some improvements on D-Algorithm.