LABORATORY EXERCISES

Atalanta – Hope

1. You are asked to output a test set for circuit c880o.bench with the following properties : Output 5 control vectors for each fault but leave the inputs that are not set as they are. In addition, find the response of the circuit for each fault in each of the above 5 cases.
2. You are asked to extract a test set for circuit s9234.bench with the following properties : Include Random Pattern Testing before deterministic test vector extraction, which stops when 48 consecutive packets of 32 random vectors detect no faults.
3. You are asked to output a test set for the file s9234.bench with the following properties : Output 2 test vectors for each fault, the number of maximum backtracks for the FAN algorithm should equal 4 and the list of faults with undetected or dropped faults should be returned in a file named s9234.ufaults. How many test vectors have you calculated? How many bugs have been returned to the list in the output file? How many redundant faults did the program find?
4. How would you declare the following faults in a circuit fault list ?

    a. Stuck-at/1 error at the output of gate sw3 connected to the input of gate gt1

    b. Stuck-at/0 error at the input of gate sb2 connected to the output of gate gt2

    c. Stuck-at/1 error at the output of gate f8

    d. Stuck-at/0 error at the output of gate gh6 connected to the input of gate gt1

5. You are asked to simulate the c1355o.bench circuit and return the list of detected errors in an output file. What do you observe happening in the latest test vectors used in the simulation? How many errors do they detect? Why does this happen?

6. You are asked to simulate the circuit c1355o.bench as in the previous case but adding the parameter -N to the command line. What results do you expect? By running the simulation, do you return the results you had predicted? Why is there a difference between this simulation and the one in the previous question (if exists)?

7. Describe in the way given in the atalanta and hope manuals the following circuit and find test vectors for it.

You are given a circuit with 5 inputs A, B, C, D, E and one output F. A and B are inputs of an AND gate. So are the inputs C and D of a second AND gate. The outputs of the above two gates are the two inputs of an OR gate. The output of the OR gate and input E form the inputs of a third AND gate from which we get the main output of the circuit F.

How many test vectors are generated for this circuit and what is the response in each case?