Test Generation

name _____

matricul. nr. _____

group _____

1. Small random circuit

Manual test generation

(100% coverage)

Nr.	Random	Algorithmic
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

2. 8-bit adder

Manual test generation

(100% coverage)

Nr.	Algorithmic
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

Automatic test generation (ATPG)

(100% coverage)

	Default		Tuned/Compacted	
	Nr. of vectors	Time, s	Nr. of vectors	Time, s
Deterministic				
Genetic				
Random				

3. A complex ISCAS'85 benchmark

Circuit name:	Default				Tuned/Compacted			
	Nr. of vectors	Time, s	Cover, %	Cost	Nr. of vectors	Time, s	Cover, %	Cost
Deterministic								
Genetic								
Random								

Cost = $C_v + C_t + C_{\%}$, where

$C_v = \alpha \cdot$ (Nr. of vectors) – cost of test length,

$C_t = \beta \cdot$ (Time,s) – cost of test generation time,

$C_{\%} = \gamma \cdot$ (100% - Cover,%) – cost of fault coverage

α, β, and γ are to be chosen by the following rules:

- 10 additional test vectors can be justified by 1% of fault coverage gain;
- we agree to spend 10 seconds more to generate 1-vector shorter test.