APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER

SECOND SEMESTER M.TECH. DEGREE EXAMINATION APRIL 2019

Branch: Electronics & Communication Engineering   **Specialization:** VLSI DESIGN

08EC6332 TESTING AND VERIFICATION OF VLSI CIRCUITS

Time:3 hours   Max.marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.No	Module 1	Marks
1. A. What is Fault dominance and Fault analysis ?		**(3M)**

B.Sketch the VLSI design flow involved in testing to detect the faults involved in Combinational circuits.   **(6M)**

OR

C. Explain any of the stuck-at-fault with suitable example.   **(6M)**

Q.No	Module 2	Marks
2. A. Construct Propagation D-Cubes for Two-Input NAND Gate.		**(3M)**
B. Explain in detail about D-Algorithm.		**(6M)**

OR

C. Determine the line jusfication and the Progation delay path for an exclusive AND module with two inputs.   **(6M)**

Q.No	Module 3	Marks
3. A. What are the disadvantages of ATPG when compared with DFT?		**(3M)**
B. Discuss on various levels of DFT Techniques.		**(6M)**

OR

C. Explain about the classical scan based design with an example.   **(6M)**

Q.No	Module 4	Marks

4. A. Define Controllability **(3M)**

   B. Explain about the test interfacing challenges in the SCAN Design.
   (6M)

OR

   C. Explain the concept of Boundary scan design with Architecture
   (**6M**)

Q.No	Module 5	Marks

5. A. What is the purpose of verification in vlsi circuits? **(4M)**

   B. Sketch BIST Architecture and explain the procedural testing using this architecture. **(8M)**

OR

   C. What are the techniques adopted in IDDQ testing ? Explain with an example. **(8M)**

Q.No	Module 6	Marks

6. A. What are the functions of a simulator ? **(4**M)

   B. Explain about the analytical approach in Self Checking design with real time example. **(8M)**

OR

   C. Write short notes on

      (i) Timing verification with real time example **(4M)**

      (ii) Formal Verification with real time example **(4M)**