

2013  
Roll No.

B.E / B. Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, MAY 2013

69

ELECTRONICS AND COMMUNICATION ENGINEERING

Eighth Semester

**EC 9045 - CAD FOR VLSI**  
(REGULATIONS 2008)

Time: 3 Hours

Maximum Marks: 100

Answer ALL Questions

Part – A (10 x 2 Marks = 20 Marks)

1. In the VLSI Design Process, What are the five most important entities need to be optimized?
2. What are the three ways of checking the correctness of an Integrated Circuit without actually fabricating it? Write a short note about any one.
3. Write the names of any four algorithms of general purpose methods for combinatorial Optimization. Why they are called "general Purpose methods"?
4. What are the most common types of minimum-distance rules of a lambda grid?
5. Write the Data structure definition for circuit representation.
6. What are the Optimization problems related to the Floorplanning?
7. Write any four most important parameters of Local Routing Problems.
8. What are the components of the software modules of a simulator?
9. Construct the truth-table modeling of the behavior of a two-input NAND gate.
10. Define: High Level Synthesis.

Part – B (5 x 16 Marks = 80 Marks)

11. (a). (i). Explain the two concepts which are helpful to deal with the complexity in the VLSI Design Process. (8)
11. (a). (ii). With the help of Y-Chart, explain the design methodology based on top-down structural decomposition and bottom-up layout reconstruction. (8)
12. (a). What is meant by Minimal Spanning Tree? Explain step by step how to construct a Minimal Spanning Tree using Kruskal's Algorithm with an example graph

or

12. (b). Explain the Liao-Wong Compaction Algorithm which partitions the edge set  $E$  of the constraint graph  $G(V,E)$  into two sets  $E_f$  and  $E_b$ . [ PTO ]

13. (a). Differentiate the Depth First Search and Breadth First Search Algorithms which are used to Traverse the Graph in a systematic way with an example graph.

or

13. (b). Explain the minimization of total weight of the edges cut by the partitioning "V" into the sets "A" and "B" by the algorithm proposed by Kernighan and Lin.

14. (a). Illustrate the floorplan based design methodology with the help of Y-Chart.

or

14. (b). What is "Maze Routing" Algorithm used in Area Routing? Explain the basic version of Area Routing algorithm proposed by Lee.

15. (a). Explain the Event-driven simulation with the help of any one implementation of event queue.

or

15. (b). Illustrate the use of OBDD in the synthesis and verification of VLSI Circuits.

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