Reg. No. :

Question Paper Code: 22072

M.E. DEGREE EXAMINATION, MAY 2014.

Second Semester

VLSI Design

01PVL202 - CAD FOR VLSI CIRCUITS

(Regulation 2013)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What are the entities to be considered for optimization in VLSI Design?

2. Differentiate DFS and BFS algorithms.

3. What is meant by layout compaction?

4. What is the basic idea of min - cut placement?

5. What is meant by Global routing?

6. List the parameters characterizing the local routing problems.

7. Compare Compiler driven simulation and Event driven simulation.

8. What is the role of Logic synthesis in VLSI Design? Write its three categories.

9. Define high level synthesis.

10. Mention the various scheduling algorithms used in high level synthesis.

PART - B (5 x 14 = 70 Marks)

11. (a) (i) Discuss about the three domains in Gajski's Y- Chart. (6)

        (ii) Explain the Dijktra's shortest path algorithm with an example. (8)

Or

(b) (i) Describe Simulated Annealing with pseudocode. (6)

        (ii) Explain the Prim's algorithm for minimum spanning trees with an example. (8)

12. (a) (i) Explain briefly about Symbolic layout. (6)

        (ii) Describe the Bellman - Ford algorithm with pseudocode. (8)

Or

(b) Describe the Kernighan - Lin Partitioning algorithm with pseudocode and with necessary Diagrams. (14)

13. (a) (i) Describe the floorplanning concepts with neat diagrams. (10)

        (ii) Write short notes on Area routing. (4)

Or

(b) (i) Discuss on the Channel routing models. (6)

        (ii) Explain Left edge algorithm and explain how it is used in channel routing with an example. (8)

14. (a) (i) What is the importance of Delay modeling? Explain the three types of delay models. (6)

        (ii) Explain briefly Compiler driven simulation. (8)

Or

(b) What is ROBDD? Explain its principles, implementation and construction in detail. (14)

15. (a) What is Data Flow Graph? Explain the types of data flow with suitable diagrams.

(14)

Or

(b) (i) Explain in detail about Mobility based scheduling. (6)

(ii) Give a brief note on High level Transformations. (8)

PART - C (1 x 10 = 10 Marks)

16. (a) With the adjacency list representation, apply the concept of Depth-First search and Breadth-First search algorithm for the directed graph shown below.
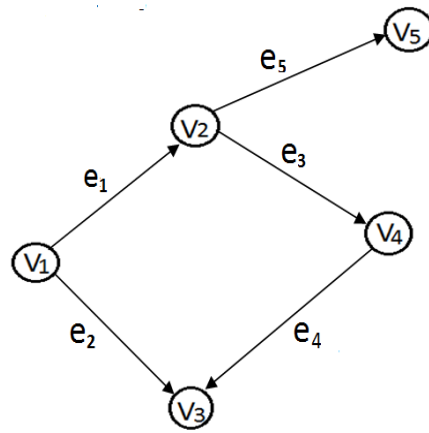
(10)

Or

(b) What are minimum distance design rules? Explain how it is used in Graph theoretical formulation. (10)

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