MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : PE-EC802C VLSI Design Automation

UPID : 008383

Time Allotted : 3 Hours   *Full Marks :70*

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :   [1 x 10 = 10]
   (I)   What analysis we do during floor plan?
   (II)   What is the need of simulation in VLSI?
   (III)   What are RTL and synthesis?
   (IV)   What is the meaning of combinatorial optimization problem?
   (V)   What is the clock latency?
   (VI)   What is signal integrity?
   (VII)   What are the types of programmable devices?
   (VIII) What is keep-out margin?
   (IX)   What are the complex cells in the floor plan?
   (X)   What do you mean by logic synthesis?
   (XI)   What is meant by computational complexity?
   (XII)   What are the different types of partitioning in VLSI?

Group-B (Short Answer Type Question)

Answer any three of the following :   [5 x 3 = 15]

2.   Explain Gajski's Y chart for VLSI design.   [5]
3.   Describe the Kernighan-Lin (K-L) algorithm.   [5]
4.   What is Depth-first Search algorithm?   [5]
5.   What are the drawbacks of the K-L algorithm ?   [5]
6.   What is Dijkstra's Shortest-path Algorithm?   [5]

Group-C (Long Answer Type Question)

Answer any three of the following :   [15 x 3 = 45]

7.   (a) What is Computational Complexity?   [5]
     (b) Differentiate between tractable and Intractable problems.   [5]
     (c) What do you mean by combinatorial optimization.   [5]
8.   (a) What is the Min-cut algorithm ? Describe the different   [8]
          types of Min-cut algorithm.
     (b) Explain Bellman Ford algorithm.   [7]
9.   (a) What does a placement algorithm try to optimize?   [7]
     (b) What do the terms Cut set, Cut size, and Size of a component mean?   [8]
10. (a) Explain the Line probe algorithm in VLSI design automation.   [8]
     (b) Discuss the Maze routing algorithm in detail.   [7]
11. (a) Describe the Simulated Annealing algorithm.   [10]
     (b) What are the advantages of this algorithm ?   [5]

*** END OF PAPER ***