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16/12/13 FN

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**Question Paper Code : 82449**

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Elective

VLSI Design

VL 9258/ VL 958 — GENETIC ALGORITHMS AND THEIR APPLICATIONS

(Common to M.E. Electronics and Communication Engineering)

(Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the application of concept of inversion.
2. What are the methods involved in Genetic Algorithm?
3. Write the objective of automatic routing tool.
4. State the main task of taxonomy.
5. What is the relation between GASP algorithm and differential algebra?
6. What are the limitations of estimation?
7. What is performance driven technology mapping?
8. Define finite space search problem. -
9. Write down any four applications of genetic algorithms.
10. Distinguish between genetic algorithm and conventional algorithm.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the steady state algorithm and genetic operators in detail. (16)

Or

- (b) Draw the flowchart for simple genetic algorithm. Write the mathematical substantiation of fitness scaling algorithm. (16)

12. (a) Explain partitioning, placement and routing related to physical design automation of MCMS. (16)

Or

- (b) What are the different styles of cell placements in a custom design of chip layout? Explain. (16)

13. (a) Explain the various methods of hybridization. (16)

Or

- (b) What are the different mechanisms are present in GASP algorithm? Explain the constraint propagation mechanism in detail. (16)

14. (a) Explain an optimal technology mapping algorithm for delay optimization in LUT based FPGA designs. (16)

Or

- (b) Explain the overview of cross talk fault testing using genetic algorithm frame work. (16)

15. (a) Explain the application of genetic algorithm to peak power estimation. (16)

Or

- (b) Explain the ways encoding tree in fixed charge transportation problems. (16)