Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject code: 714202N **Date: 17-06-2014**

Subject Name: Applied Algorithm for VLSI CAD

Time: 02:30 pm - 05:00 pm **Total Marks: 70**

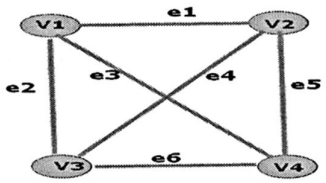
Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

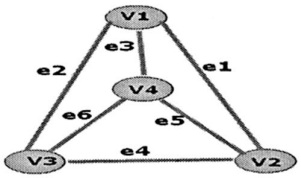
Q.1 **(a)** Explain the following terms with respect to Graph. **07**

I. Ordered and Unordered Pair.
II. Mixed Graph.
III. Adjacent Node
IV. Loop.

(b) What are Isomorphic Graphs? Check that following two graphs G1 and G2 are isomorphic or not? **07**

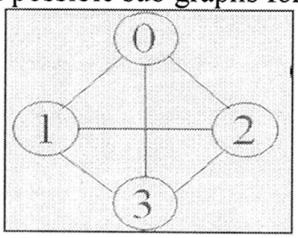


G1



G2

Q.2 **(a)** What is Sub Graph? Find all possible sub graphs for the given graph G3. **07**



Graph G3.

(b) What is a Network Flow Algorithm? Explain its importance in the various fields. **07**

OR

(b) What are the factor affecting floor planning? Discuss briefly. **07**

Q.3 **(a)** List the different types of global routing approaches? Explain any two in detail. **07**

(b) Explain the Depth-First Algorithm with suitable example. **07**

OR

Q.3 **(a)** What is channel routing? Explain classical model of channel routing. **07**

(b) Explain the Dijkstra's Shortest Path Algorithms with suitable example. **07**

Q.4 **(a)** Explain simulated annealing algorithm for partitioning and its importance in VLSI. **07**

(b) Explain Hightower's algorithm with suitable example. **07**

OR

Q.4 **(a)** What are constructive algorithms and iterative algorithms ? Explain in detail. **07**

(b) Explain Mikami-Tabuchi's algorithm with suitable example. **07**

Q.5 **(a)** Define the following terms. **07**

I. Pin.
II. Big-Omega Notation.
III. Time Complexity.
IV. Cell.

(b) Explain the differences and similarity between Kernighan-lain and fiduccia-mattheyres heuristics. **07**

OR

Q.5 **(a)** Explain the following terms with respect to Tree. **07**

I. Rooted Tree.
II. Ordered Tree.
III. Forest.

(b) What are the differences between floor planning and placement? **07**

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