

GUJARAT TECHNOLOGICAL UNIVERSITY
ME Semester –I Examination Feb. - 2012

Subject code: 714202N

Date: 13/02/2012

Subject Name: Applied Algorithm for VLSI CAD

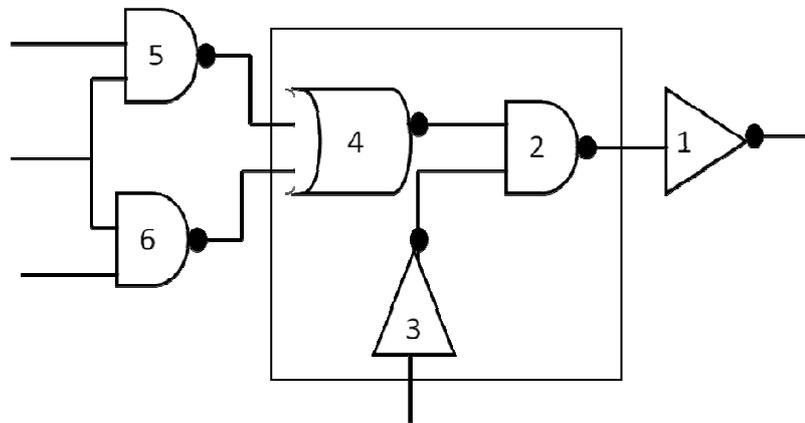
Time: 10.30 am – 01.00 pm

Total Marks: 70

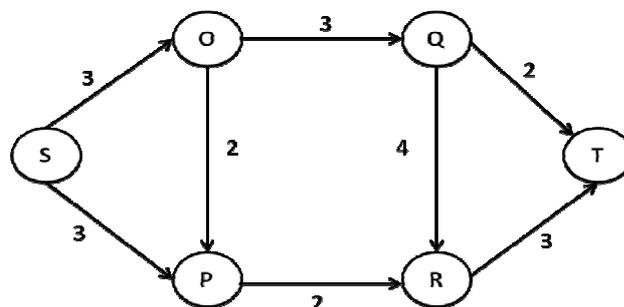
Instructions:

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

- Q.1** (a) Discuss about Constructive algorithms and Iterative algorithms. **07**
 (b) The circuit given in Figure below is to be partitioned into two sub circuits. **07**
 Apply Kernighan-Lin heuristic to break the circuit into two equal size partitions, so as to minimize the number of interconnections between partitions. Assume that all gates are of the same size.



- Q.2** (a) Define following terms **07**
 (i) Reachable Node (ii) Cycle (iii) Path (iv) Graph (v) Null Graph
 (vi) Path Matrix (vii) Steiner Tree
 (b) Solve the given network for maximum flow using Ford Fulkerson algorithm. **07**



OR

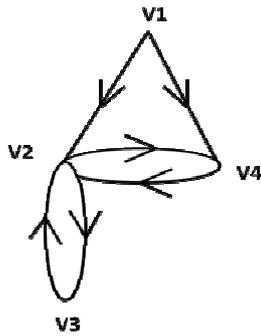
- (b) Define Network Flow Algorithm and its significance in various fields. **07**
- Q.3** (a) Explain different approaches of Floorplanning. **07**
 (b) What are the main differences between Floorplanning and Placement? **07**
- OR**
- Q.3** (a) What are the classifications of Placement Algorithms? Discuss briefly. **07**
 (b) Compare Conventional Algorithm and Genetic Algorithm. **07**

Q.4 (a) Explain the Following Properties: **07**

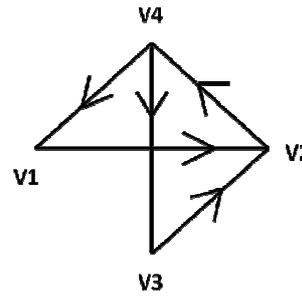
(i) Reflexive (ii) Symmetry (iii) Transitive

(b) What do you mean by Adjacency Matrix? Prepare the Adjacency Matrix for given graph. **07**

(i)



(ii)



OR

Q.4 (a) Explain Simulated Annealing algorithm and its importance in VLSI. **07**

(b) Explain Lee's Algorithm and its drawbacks. **07**

Q.5 (a) Explain Channel Routing and its objectives. **07**

(b) Explain Global Routing and its objectives. **07**

OR

Q.5 (a) Explain Hightower's Algorithm. **07**

(b) Describe Routing Regions and also briefly discuss the following graphs used in routing. (i) Order constrained graph (ii) Channel Connectivity Graph (iii) Grid Graph **07**
