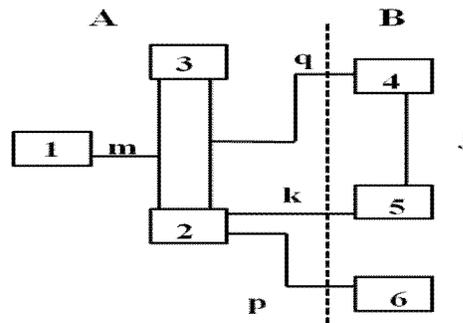


GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 2714202**Date: 12-01-2015****Subject Name: Foundation of 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)** Compare Constructive Algorithm and Interactive Algorithm. **07**
(b) Partition the given circuit using Fiduccia Mattheyses (FM) Algorithm **07**



$$S(1)=3, S(2)=2, S(3)=4, S(4)=1, S(5)=3, S(6)=5$$

- Q.2 (a)** Define the followings: **07**
 (i) Space Complexity (ii) Net (iii) Hard Problem (iv) Polynomial Time (v) Cell
 (vi) Critical Net (vii) Pin
(b) Explain Following Graph Representation in detail. **07**
 (a) Polar Graph
 (b) Adjacency Graph
 (c) Channel Intersection Graph
 (d) Channel Position Graph

OR

- (b)** Explain wire length estimation techniques in detail. **07**
- Q.3 (a)** What is polish expression? Explain with an example how it can be useful in Floorplan. **07**
(b) Compare Floorplan v/s Placement. **07**

OR

- Q.3 (a)** Explain Hadlock's Algorithm. **07**
(b) What is difference between Shortest Path and Desired Path.? How to find more desirable path? **07**

- Q.4 (a)** Explain following terms with respect to Floorplan: **07**
 (i) Rectangular Dissection (ii) Slicing Structure (iii) Slicing Tree
(b) Explain followings: (i) HCG (ii) VCG **07**

OR

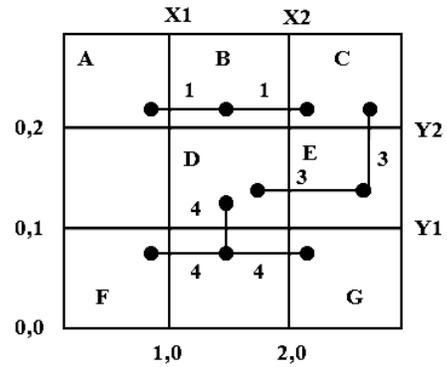
- Q.4 (a)** Discuss in brief Layout Generation and need of Layout Optimization. **07**
(b) Explain in detail: Lee's Algorithm. **07**

- Q.5 (a)** Compare Maze Routing Algorithm and Line Search Algorithm. **07**
(b) Discuss the methods to reduce running time of Lee Algorithm. **07**

OR

- Q.5 (a)** The placement P shown in figure corresponds to the circuit whose signal nets are given below. Weights w_i refers to the number of wires required for each net. Compute $X(P)$, $Y(P)$ and $L(P)$. **07**

Nets	Weight
N1 =(A, B, C)	$w_1 = 1$
N2 =(C, D, E)	$w_2 = 3$
N3 =(D, F, G)	$w_3 = 4$



- (b)** Explain in detail: Mikami-Tabuchi's Algorithm. **07**
