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SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

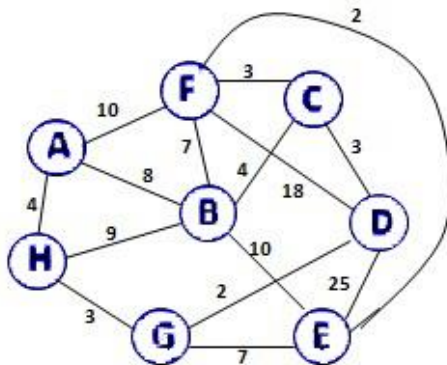
(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SIXTH SEMESTER B.TECH DEGREE EXAMINATION (R), MAY 2024**(2020 SCHEME)****Course Code : 20ECT392****Course Name: Electronic Design and Automation Tools****Max. Marks : 100****Duration: 3 Hours****PART A****(Answer all questions. Each question carries 3 marks)**

1. Define a 'minimum spanning tree'.
2. Distinguish between adjacency list and adjacency matrix.
3. Illustrate VLSI design flow.
4. Explain the classification of partitioning algorithm.
5. Briefly explain layout compaction.
6. List out the relevance of maximum distance constraints in lay out compaction.
7. Differentiate standard cell placement and building block placement.
8. Distinguish between slicing and non-slicing floorplan.
9. List out three parameters that should be considered during local routing.
10. Give the significance of 'doglegs' in channel routing.

PART B**(Answer one full question from each module, each question carries 14 marks)****MODULE I**

11. a)

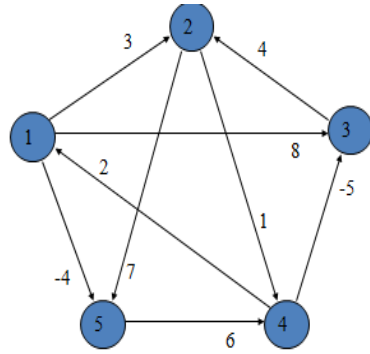


(7)

Calculate the cost of minimum spanning tree using Prim's algorithm.

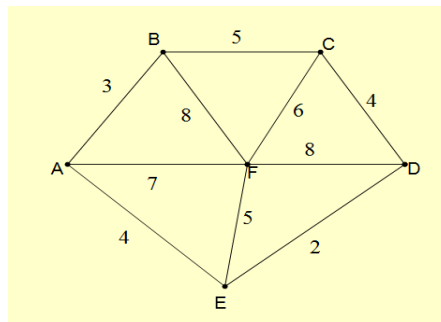
- b) Calculate shortest path between all pair of vertices using (7)

matrix multiplication modeling



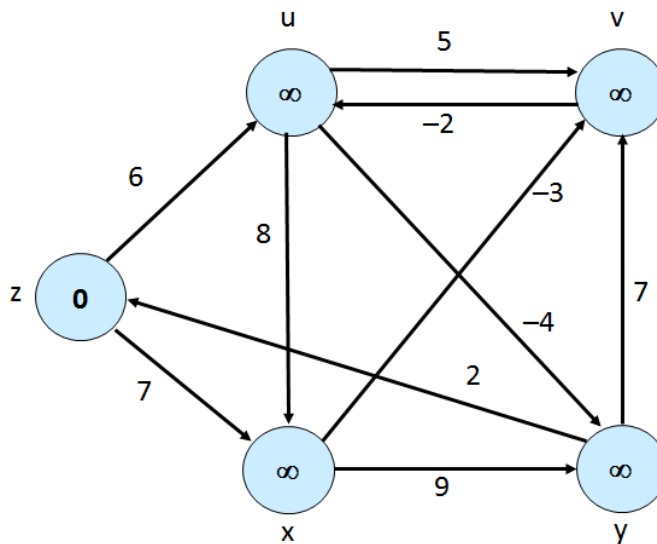
OR

12. a) Calculate the cost of minimum spanning tree using Prim's algorithm.



(7)

- b)

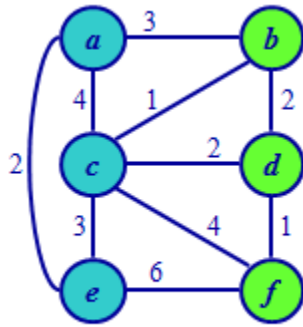


(7)

Calculate shortest path using bellman ford algorithm.

MODULE II

13. a) Calculate gain of all vertices using kernighan-lin algorithm if initial partition is {a,c,e} and {b,d,f}. (10)



- b) List out the parameters of partitioning (4)

OR

- 14. a) Explain Fiduccia-Mattheyses algorithm and Simulated annealing. (10)
- b) Explain different types of VLSI design styles. (4)

MODULE III

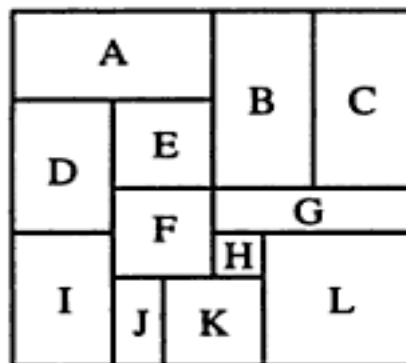
- 15. a) Illustrate any two-layout compaction algorithm based on minimum distance between features. (7)
- b) Explain about clustering and min-cut placement (7)

OR

- 16. a) Interpret any two techniques to perform constructive algorithms in placement. (7)
- b) Explain Liao-Wong algorithm. (7)

MODULE IV

- 17. a) Sketch floor plan tree, vertical and horizontal polar graph of the floor plan given below with suitable explanations



(10)

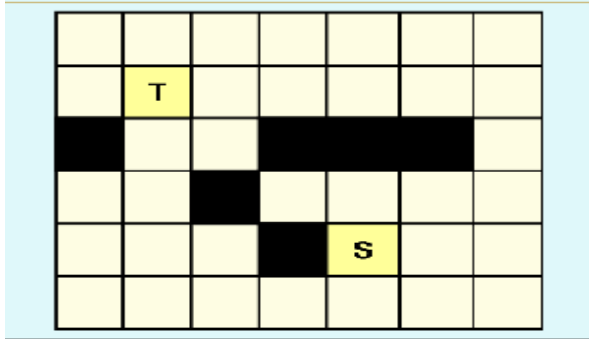
- b) Define wirelength estimation. (4)

OR

- 18. a) Explain quadratic placement. (4)
- b) Differentiate seperability based steiner tree algorithm and steiner min-max tree-based algorithm. (10)

MODULE V

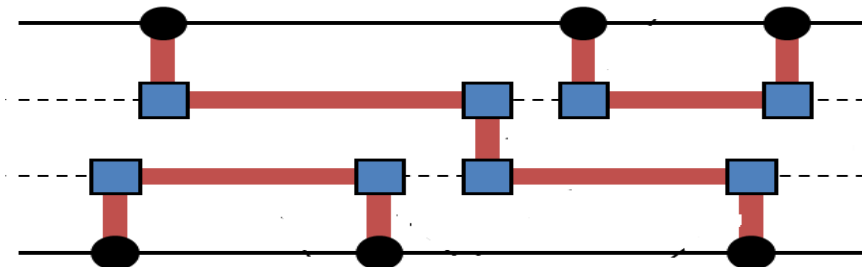
- 19. Find shortest route from S to T using Lee's maze routing algorithm.



(7)

Shaded region represents obstacle.

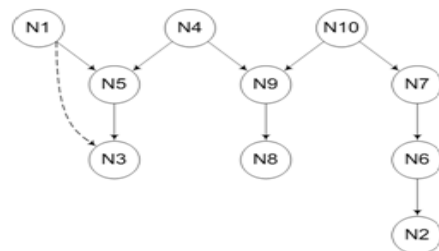
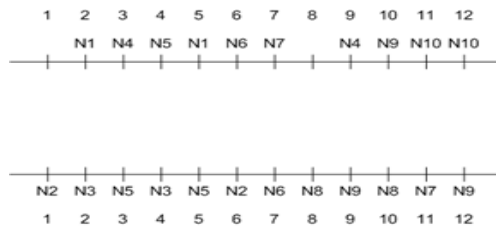
- b) Explain trunk, branch, via, terminal. Mark trunk, branch, dogleg, via, terminal in the diagram given below



(7)

OR

- 20. a) Perform left edge channel routing algorithm from the vertical constrained graph given below.



(10)

- b) Explain Hadlock algorithm. (4)
