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SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

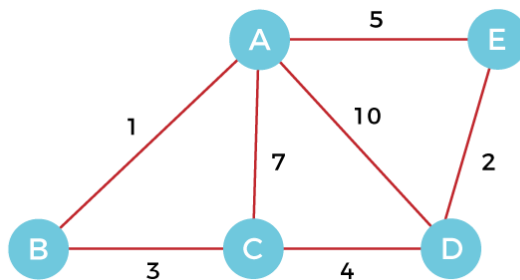
(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SIXTH SEMESTER B.TECH DEGREE EXAMINATION (R), MAY 2023**(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. Explain topological sort.
2. Distinguish between adjacency list and adjacency matrix.
3. Illustrate parameters for partitioning.
4. Explain various VLSI design styles.
5. Briefly explain about design rules.
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 wheel floorplan and its mirror image.
9. Explain about three factors that should be considered during routing.
10. Give the significance of 'doglegs' in channel routing.

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

11. a)

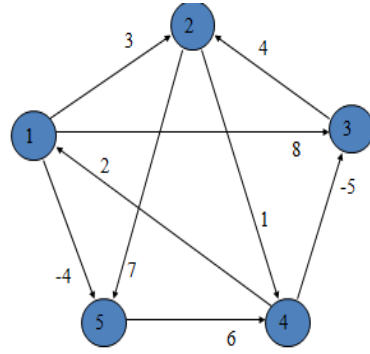


(7)

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

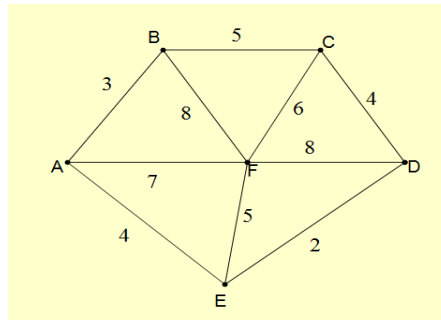
- b) Calculate shortest path between all pair of vertices using matrix multiplication modeling

(7)



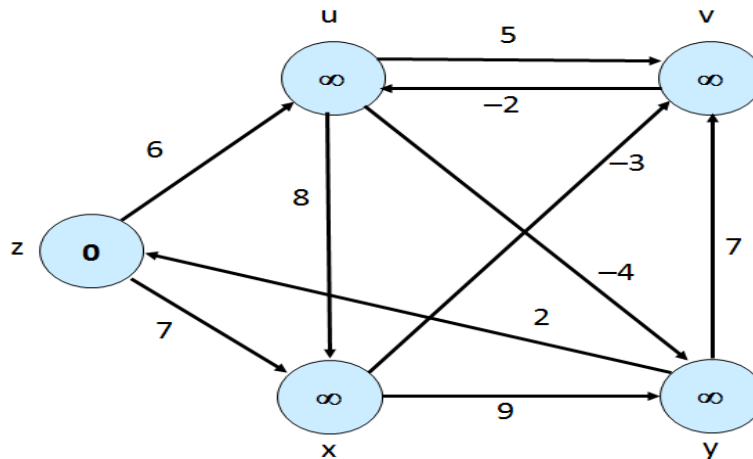
OR

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



(7)

b)



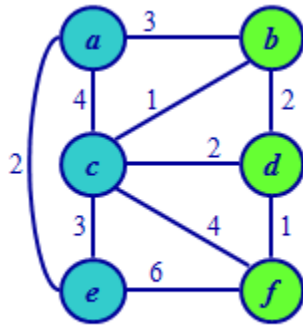
(7)

Calculate shortest path using bellman ford algorithm.

MODULE II

13. a) Calculate gain of all vertices using kernighan-lin algorithm if intial partition is {a,c,e} and {b,d,f}. Recalculate the gain if vertex a and f are interchanged.

(10)



- b) Draw the flowchart of VLSI Design Flow and explain the different stages. (4)

OR

- 14. a) Explain classification of partitioning algorithms. (10)
- b) Explain different types of VLSI design styles. (4)

MODULE III

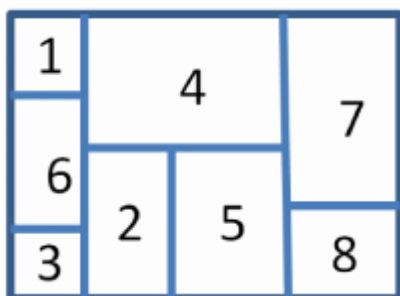
- 15. a) Illustrate any two-layout compaction algorithm based on minimum distance between features. (7)
- b) Explain Bellman-Ford algorithm. (7)

OR

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

MODULE IV

- 17 a) Draw the floorplan slicing tree of the given floorplan.



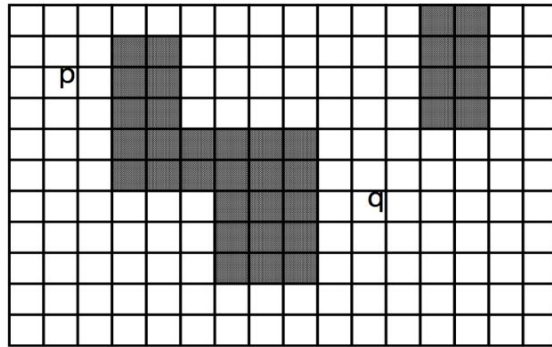
- b) Draw the polar graphs of the above floorplan. (8)

OR

- 18. a) Define wirelength estimation. (4)
- b) Differentiate seperability based steiner tree algorithm and steiner min-max tree-based algorithm. (10)

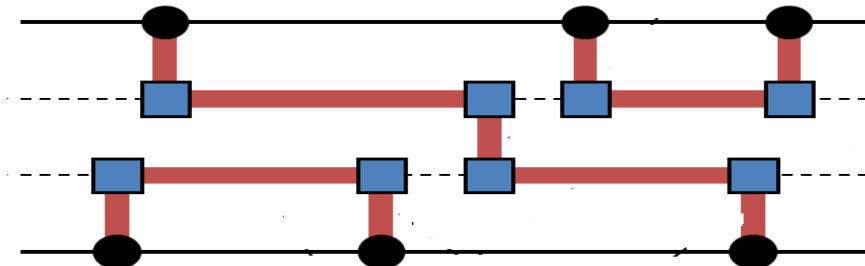
MODULE V

- 19 a) Find shortest route from P to Q using Lee's maze routing algorithm. Shaded region represents obstacle.



(7)

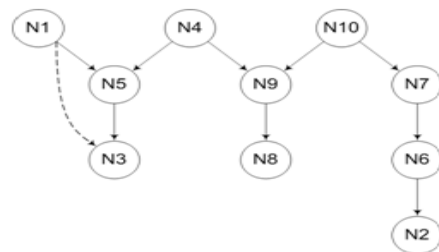
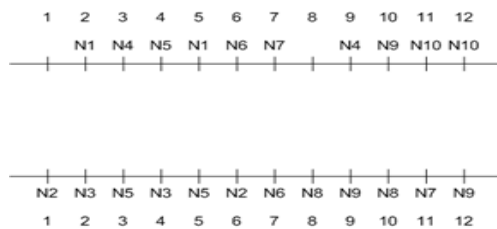
- b) Explain trunk, branch, via, terminal. Mark trunk, branch, dogleg, via, terminal in the diagram given below.



(7)

OR

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



(10)

- b) Explain horizontal and vertical Constraint graph.

(4)
