ROLL NO…………….

Note: Answer one question from each Unit All questions carry equal marks.

UNIT –I

1.Define the three asymptotic measures used ti specify the time and space complexity of algorithms and give a brief of each.
List a few time complexity specifications in the order of their merit.

OR

2.What is a Heap. Give insertion and deletion algorithm for a heap.Illustrate ADJUST with an example.

UNIT-II

3.What is devide-and-conquer strategy.How is it applied in quick sort.
Apply quick sort algorithm to sort the following list of keys.
(28,12,30,45,20,70,15,60)

OR

4.Write greedy optimal merge pattern algorithm and explain the same with an example.

UNIT-III

5.(a) Formulate reliability design problem as a dynamic programming problem.
(b) Explain about game trees. Use an example.

OR

6. Briefly argue how principle of optimality holds for 0/1 knapsack problem.
Generate the sets s(i) ,0<=i<=1 where (w1,w2,w3,w4)=(10,15,6,9) and
(p1,p2,p3,p4)=(2,5,8,1).
State the purging rules used.If knapsack capacity is m=25, what is the optimal solution.

UNIT-IV

7. Explain 8-Queens problem and write an algorithm to solve same.

OR

8.Following cost matrix is defined for a travelling salesperson problem.Obtain reduces
cost matrix and state tree generated by LCBB method. Label each node with cost
estimate.
- 7 13 12 8
3 - 6 14 9
5 8 - 6 18
9 3 5 - 11
18 14 9 8 -

(- infinite symbol)

UNIT-V

9.(a) Define P.NP,NP-complete and NP-hard problems.Draw Venn diagramm illustrating
the common believed among them.
(b) State Cook's theorem and prove the same.

OR

1. what is decision problem?Show that CNF-Satisfiablity reduces to clique decision
problem.