DESIGN AND ANALYSIS OF ALGORITHMS

MID-2 TUTORIAL QUESTIONS

UNIT-3

1. Find optimal tour of the following traveling salesperson problem using dynamic programming method.

∞	10	15	20
5	∞	9	10
6	13	∞	12
8	8	9	∞

2. Explain how to transform a string X into another string Y with an example using dynamic programming?
3. Problem on String Editing.
4. Problem on All Pairs Shortest path problem

UNIT – 4

1. Write backtracking algorithm of N-Queens problem.
2. Draw the state space tree to find all solutions of 4-queens problem.
3. Write backtracking algorithm of Graph coloring problem.
4. Problem on Graph Coloring
5. Problem on Hamiltonian Cycle
6. Write an algorithm to determine the Hamiltonian Cycles in a graph using backtracking.

UNIT-5

1. Discuss LC branch and bound method and write an algorithm for LC Search.
2. Draw the portion of the state space tree generated by LC branch and bound of knapsack problem for an instance n=3, (P1, P2, P3) = (3, 6, 6), (w1, w2, w3) = (2, 3, 4), and m=8.

3. Draw the portion of the state space tree generated by FIFO branch and bound of knapsack problem for an instance n=3, (P1, P2, P3) = (8, 6, 10), (w1, w2, w3) = (4, 2, 6), and m=6.
4. Find an optimal tour of the following Travelling Salesperson problem using LCBB

∞	10	15	20
5	∞	9	10
6	13	∞	12
8	8	9	∞

5. Discuss about the following:
    i. NP-Hard
    ii. NP-Complete
    iii. Cook's Theorem