VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

IBRAHIMBAGH, HYDERABAD-31

Department of Computer Science and Engineering

#### Name of the Course: Design & Analysis of Algorithms

**Lab Internal Examination – II**

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| 1 | 1. Implement 0/1 Knapsack algorithm.   Alice and Bob take turns playing a game, with Alice starting first.  Initially, there is a number n on the chalkboard. On each player's turn, that player makes a move consisting of:  Choosing any x with 0 < x < n and n % x == 0.  Replacing the number n on the chalkboard with n - x.  Also, if a player cannot make a move, they lose the game.  Return true if and only if Alice wins the game, assuming both players play optimally.    Example 1:  Input: n = 2  Output: true  Explanation: Alice chooses 1, and Bob has no more moves. |
| 2 | 1. Implement Matrix Chain multiplication algorithm with top-down approach. 2. Write a program to find minimum change to return when unlimited number of denominations are available using Dynamic programming. |
| 3 | 1. Implement the LCS problem using dynamic programming. 2. Implement a program to find longest increasing subsequence. |
| 4 | 1. Implement Matrix Chain multiplication algorithm with bottom-up approach. 2. Write a program to find subset sum by using Dynamic programming |
| 5 | 1. Implement of N-queens problem with Back tracking. 2. Implement Sum of subsets problem by using Backtracking |
| 6 | 1. Implement Graph coloring problem with back tracking. 2. Implement a program to find Hamiltonian cycle from a given graph. |
| 7 | 1. Implement TSP by branch and bound. 2. Implement the Dijkstra’s single source shortest paths algorithm. |
| 8 | 1. Implement 0/1 knapsack by branch and bound. 2. Implement Bellman ford single source shortest paths algorithm. |