Department of Computer Science and Information Technology

**Assignment-4**

**Design and Analysis of Algorithm**

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| **Q. No.** | **Questions** | **CO** | **Bloom’s level** |
|  | Define principal of optimality. When and how dynamic programming is applicable. | CO4 | L2 |
|  | Difference between Greedy Technique and Dynamic programming. | CO4 | L2 |
|  | Write down an algorithm to compute Longest Common Subsequence (LCS) of two given strings and analyze its time complexity. | CO4 | L3 |
|  | Solve the following 0/1 knapsack problem using dynamic programming. P=[11,21,31,33] w=[2,11,22,15] c=40, n=4. | CO4 | L4 |
|  | Define Floyd Warshall Algorithm for all pair shortest path and apply the same on following graph: | CO4 | L4 |
|  | Find an optimal parenthesization of a matrix chain product whose sequence of dimensions is {10, 5, 3, 12, 6}. | CO4 | L4 |
|  | Solve the Subset sum problem using Backtracking, where  n=4, m=18, w[4] = {5, 10, 8, 13} | CO4 | L4 |
|  | What is the difference between Backtracking and Branch & Bound? Write Pseudo code for Subset Sum Problem using Backtracking. Give example for the same. | CO4 | L4 |
|  | Consider a graph G=(V,E). Find a Hamiltonian cycle using backtracking method. | CO4 | L3 |
|  | Explain Implicit and Explicit constraints of N-queen Problem. | CO4 | L1 |