

**SYNERGY INSTITUTE OF ENGINEERING AND TECHNOLOGY, DHENKANAL**

Near NH-55, Banamali Prasad – 759001

**Assignment-3[CO3]****Full Marks-40****Duration-Within 1 Week from Notification****Name-****Registration No-****Subject with Code:** Design And Analysis of Algorithms  
(CSPC2006)**Course & Branch:** B. Tech CSE**Year & Semester:** 2<sup>nd</sup>. 4<sup>th</sup>

Course Outcome	Total Marks	Marks Secured	Signature of Evaluator
CO2	40		

**Section-A**  
**Answer All Questions**

1. What is the advantage of Variable Length Coding over Fixed Length Coding? [2 marks][L2]
2. Define Knapsack Problem. How to solve it? [2 marks][L2]
3. What is Dynamic Programming? [2 marks][L2]
4. What is Network Flow Problem and what are its properties? [2 marks][L2]

**Section-B**  
**Answer All Questions**

1. What is LCS problem? Find LCS of  $\langle 1,0,0,1,0,1,0,1 \rangle$  and  $\langle 0,1,0,1,1,0,1,1,0 \rangle$  [6 marks][L3]
2. What is MST (Minimum Spanning Tree)? Write prim's algorithm to find MST of an undirected graph. [6 marks][L2]

**Section-C**  
**Answer All Questions**

1. What is Matrix Chain Multiplication Problem? Find optimal parenthesization of a matrix chain product whose sequence of dimension is  $\langle 10,5,4,8,6,10,8 \rangle$  [10 marks][L3]
2. Write Floyd-Warshall algorithm to find All Pair Shortest Path and solve the following graph. [10 marks][L3]

