CSIT 403 Analysis & Design of Algorithm

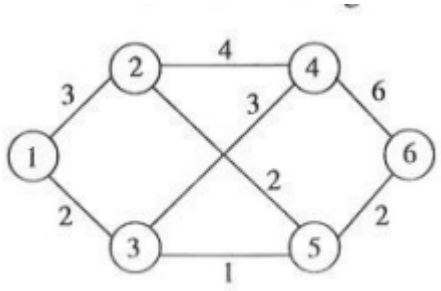
B.Tech. CSIT IV Semester

CI-1

ADA Assignment

Unit 3:

1. Solve the following Multistage problem using Dynamic programming forward and backward approach



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2. Apply Dynamic programming to solve 0/1 knapsack problem for

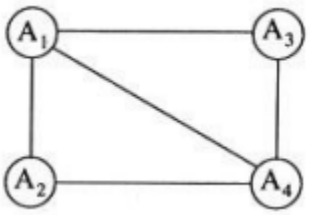
N=3, weight elements = {1, 2, 3}, weight values = {10, 15, 40}, Capacity=6

3. Use Floyd-Warshall Algorithm and find all pair shortest path for the following

$$\begin{bmatrix} 0 & 4 & \infty & 3 \\ \infty & 0 & 2 & 1 \\ 5 & 3 & 0 & \infty \\ 1 & \infty & 2 & 0 \end{bmatrix}$$

Unit 4:

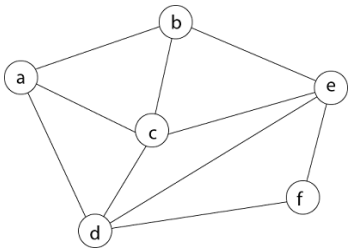
1. Color the following graph using vertex coloring problem. What is the minimum no. of colors required?



2. Solve the TSP using branch and bound technique

	A	B	C
A	∞	2	3
B	5	∞	3
C	2	4	∞

3. Consider a graph G = (V, E) shown in fig. Find a Hamiltonian circuit using Backtracking method.



Unit 5:

1. Differentiate between

a) P, NP class problems

b) NP complete and NP Hard problems

2. Create a B- Tree for the following list of elements:

{86,50,40,3,94,10,70,90,110,113,116}

Given minimization factor t=3, minimum degree=2

3. Obtain height balanced trees starting with empty tree on the following set of instructions: Dec, Jan, Apr, Mar, Jul, Aug, Oct, Feb, Now, May, Jun.