• Consider the following adjacency matrix of graph G:

$$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 & 1 & 1 \\ 0 & 0 & 1 & 0 & 1 & 1 \\ 1 & 0 & 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 1 & 1 & 0 \end{bmatrix}$$

a) reconstruct G :

b) is there any path between nodes 1 & 2 ?

c) Find degrees of the nodes in this graph:

d) Find #edges in G from the degrees of the vertices :

e) is G bipartite ?

f) is this graph isomorphic to W_6?

g) Does G have an Euler circuit / path?

h) is G connected?

7) consider the following adjacency list of graph G.

1	2
2	3
3	1, 4
4	3, 5
5	5
6	5

a. reconstruct G:

b. tell if it's directed/undirected and simple/multi graph.

c. find the strong/weak components:

d. check Euler path/circuit:

2) consider a complete graph with 2^n vertices. ($n \geq 1$) Show we can color its edges with n different colors so that the edges of each triangle in the graph has at least 2 different colors.