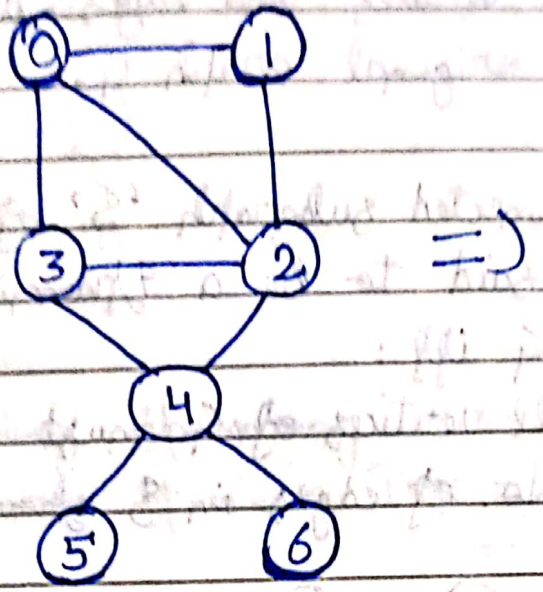
# Spanning Trees

→ Subgraphs :

→ A subgraph of a graph G is a graph whose vertices and edges are subsets of the original graph G.

Ex:

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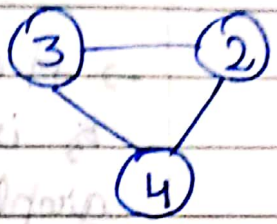



Subgraph of G

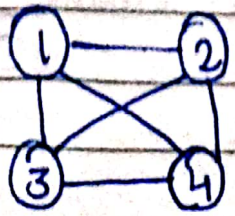
G

→ Connected and Complete Graphs:

→ A connected graph is a graph that is connected in the sense of a topological space, i.e., there is a path from any point to any other point in the graph. A graph that is not connected is said to be disconnected.

→ A complete graph is a simple undirected graph in which every pair of distinct vertices is connected by a unique edge.

e.g.:



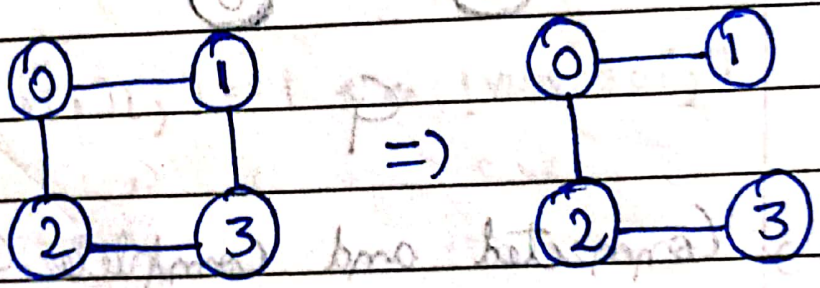
→ What is a Spanning tree?

→ A subgraph of a graph G is a graph whose vertices and edges are subsets of the original graph G.

→ A connected subgraph 'S' of graph G(V,E) is said to be a Spanning tree of graph G iff:

1) All vertices of G must be present in S.
2) No. of edges in S should be V-1.

e.g:




G

Spanning tree of G.

→ No. of spanning trees for Complete Graphs:

→ A complete Graph has $n^{n-2}$ spanning Trees where n is the number of vertices in the graph.