COURSE HANDOUT

Course Code	ACSC13
Course Name	Design and Analysis of Algorithms
Class / Semester	IV SEM
Section	A-SECTION
Name of the Department	CSE-CYBER SECURITY
Employee ID	IARE11023
Employee Name	Dr K RAJENDRA PRASAD
Topic Covered	Spanning trees
Course Outcome/s	Construct the spanning trees from graphs
Handout Number	22
Date	

Content about topic covered : Spanning Tree

* Spanning tree is a sub-graph of a graph.
* undirected connected graph.
* A spanning tree must contain all the vertices, if any vertex is not there then it is not a spanning tree.
* A spanning tree should include vertex with the least possible no. of edges.
* A spanning tree doesnot have any cycle.
* A spanning tree consists of (n-1) edges where, n is the no. of vertices or nodes.

* A complete graph can have maximum of

$$n^{n-2} \text{ no. of spanning trees}$$

$\hookrightarrow$ Cayley's Formula.

graph: no. of vertices = 3
So, spanning tree will have
$(3-1)$ = 2 edges

3 possible spanning trees.
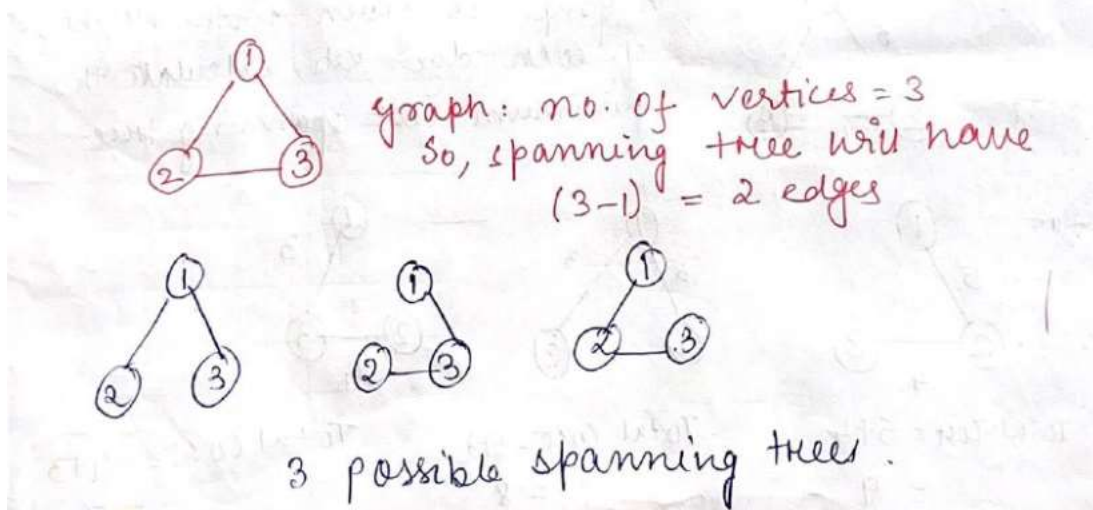
Another Example of spanning trees with 4 nodes

S.T 1   S.T 2   S.T 3   S.T 4