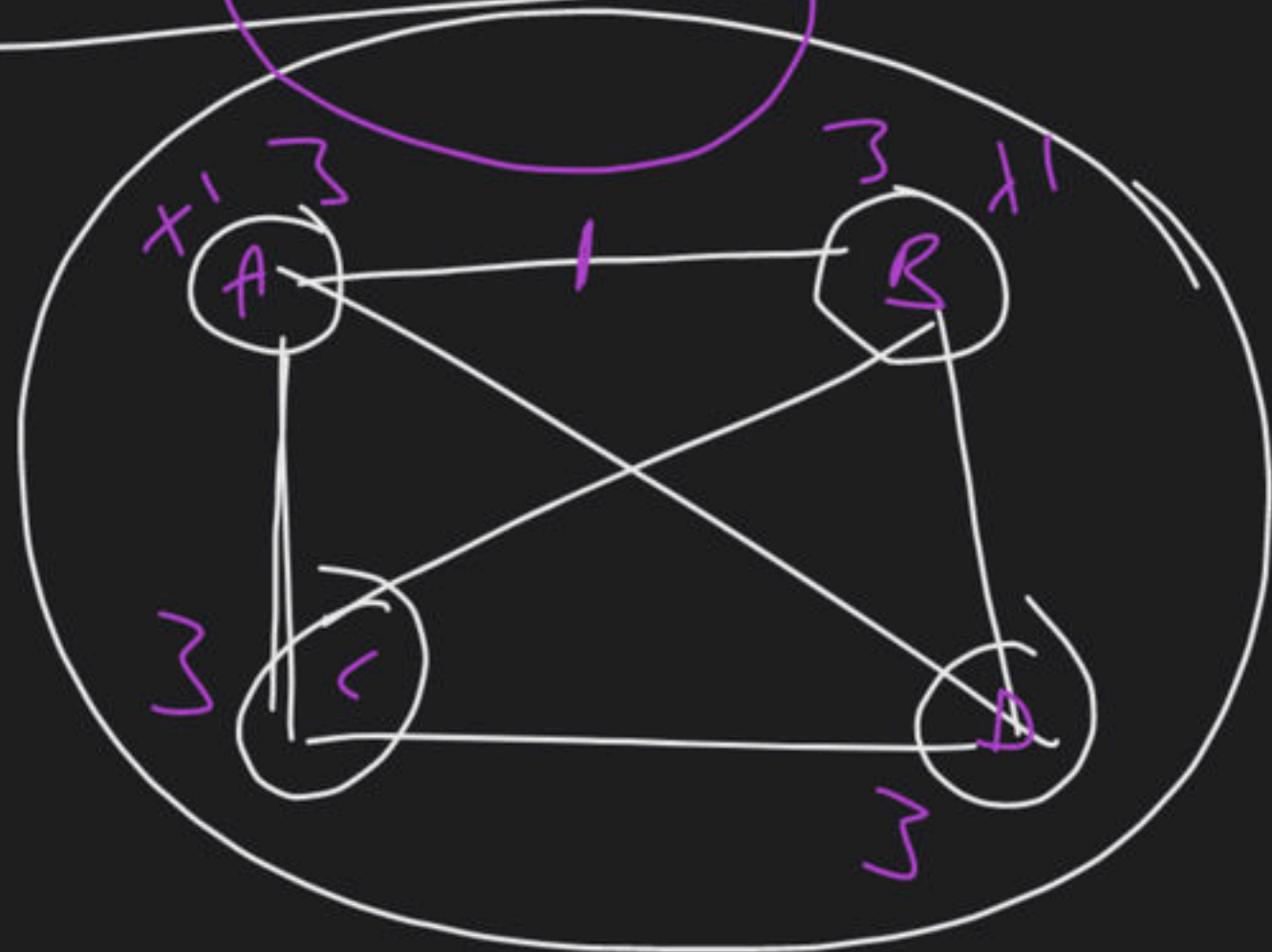
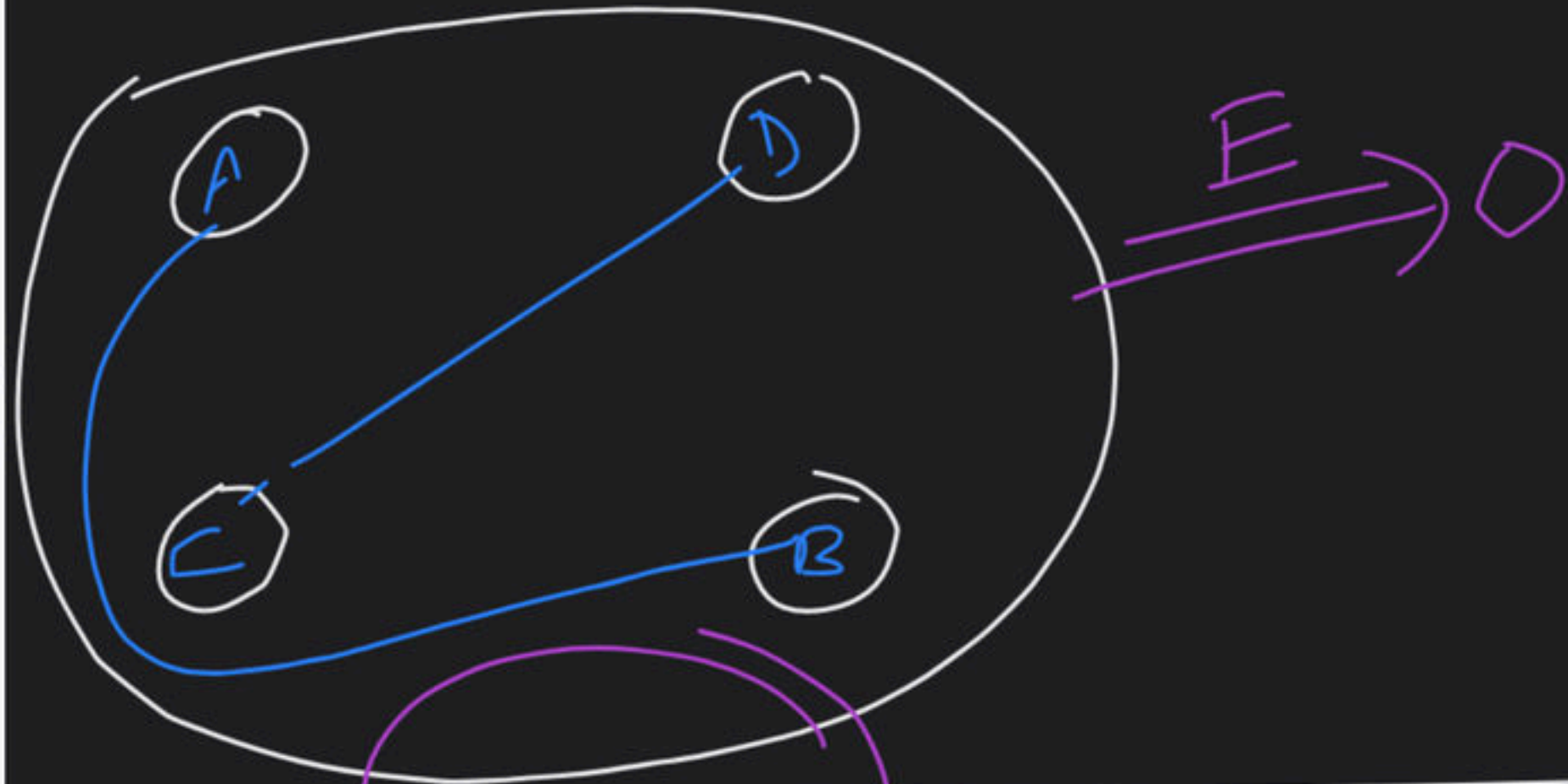


Dynamic Programming - Part X

Complete Course on Algorithms - GATE

Simple Graph $\Rightarrow 10$



Complete Graph
 K_4

In Simple Graph with n vertices
min-degree of any vertex = 0
max " " " " = $n-1$

$$\text{Sum of degrees} = 12 = 2 \times 6 = 2 \times E$$

$$E(K_4) = \frac{4 \times 3}{2}$$

$$E(K_{50}) = \frac{50 \times 49}{2} \Rightarrow \frac{E(K_n)}{n(n-1)/2} = 1$$

Representation of Graph

more edges \Rightarrow Dense Graph

Sparsel Graph $O(V^2)$

① Adjacency Matrix

②

List

Less edges \Rightarrow Sparse Graph

Sparse

$O(n^2)$

EC

$d(2) = 3$

$d(2) = 0$

	1	2	3	4
1	0	✓	✓	0
2	✓	0	✓	✓
3	✓	✓	0	✓
4	0	✓	✓	0

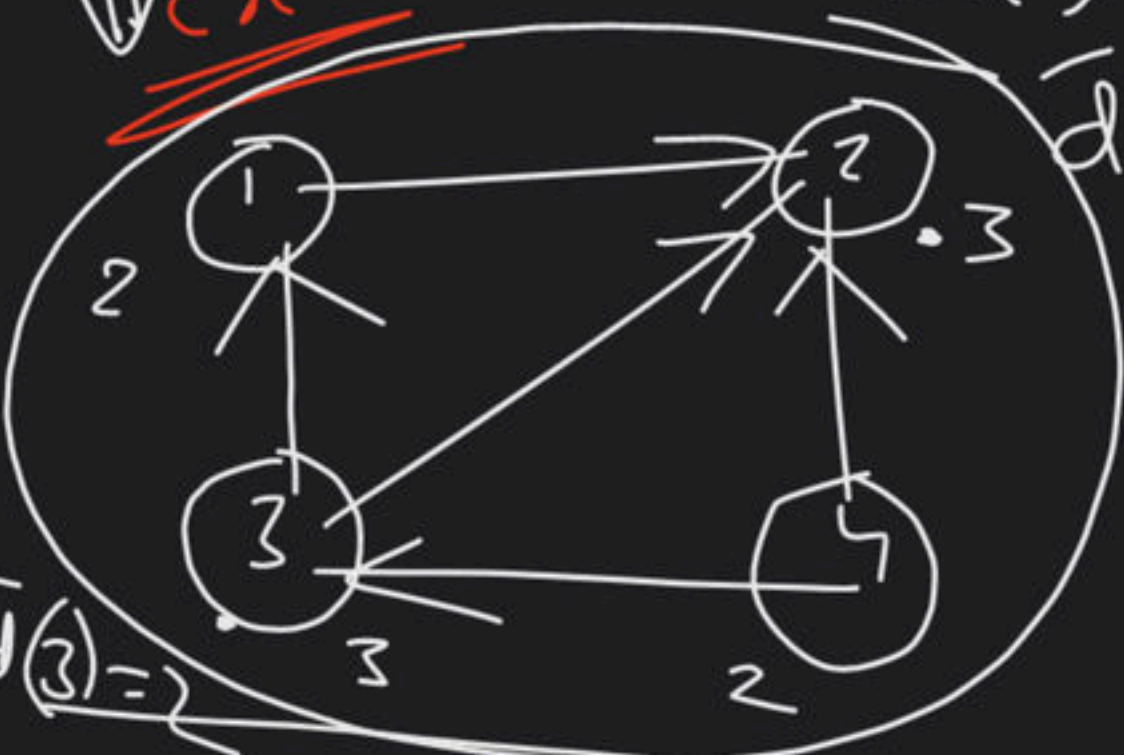
	1	2	3	4
1	0	0	0	0
2	0	0	1	0
3	0	1	0	0
4	0	0	0	0

	1	2	3	4
1	1000			
2	3000	1000		
3	5000	9000	2000	
4	2000	6000	6000	2000

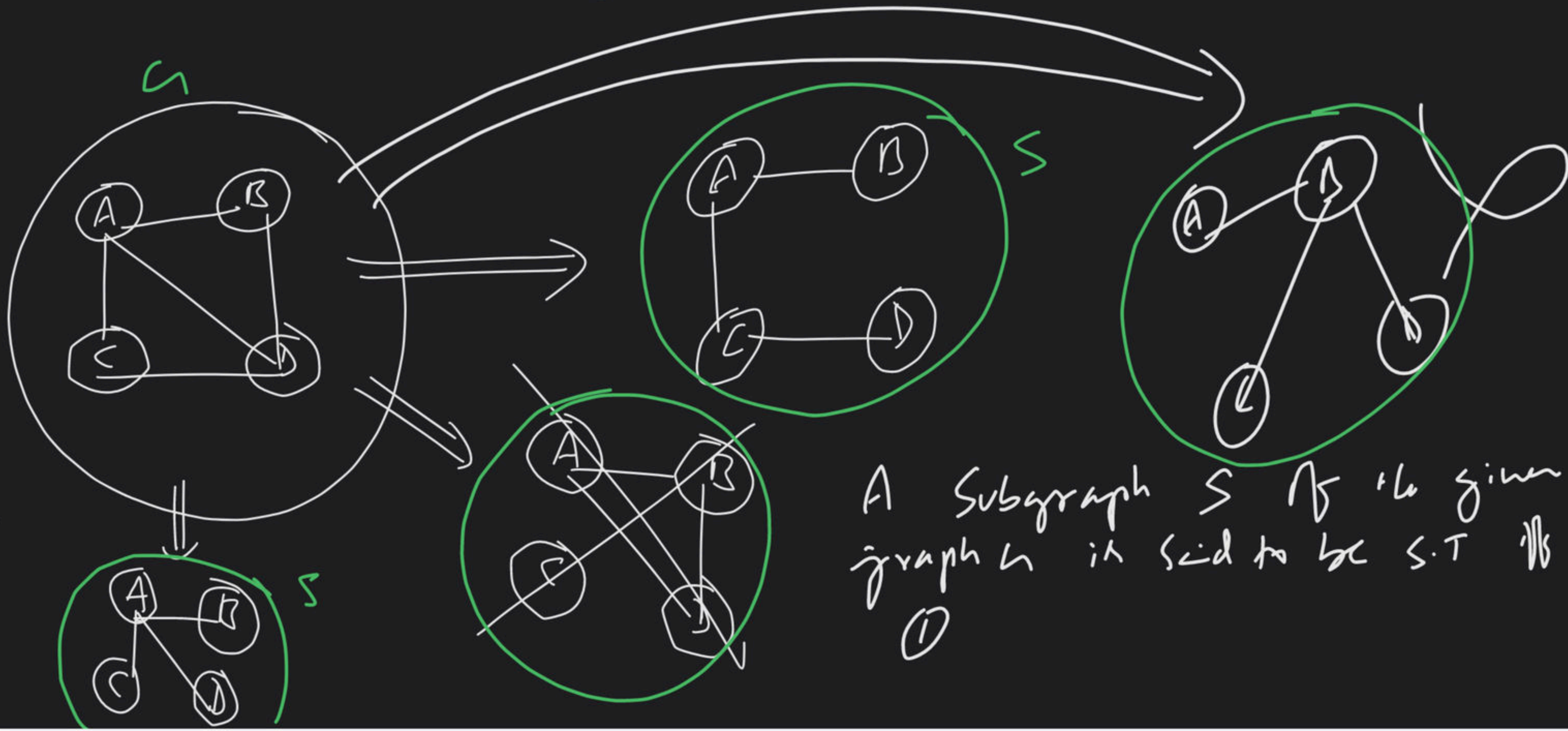
	1	2
1	2	
2		2
3		
4		

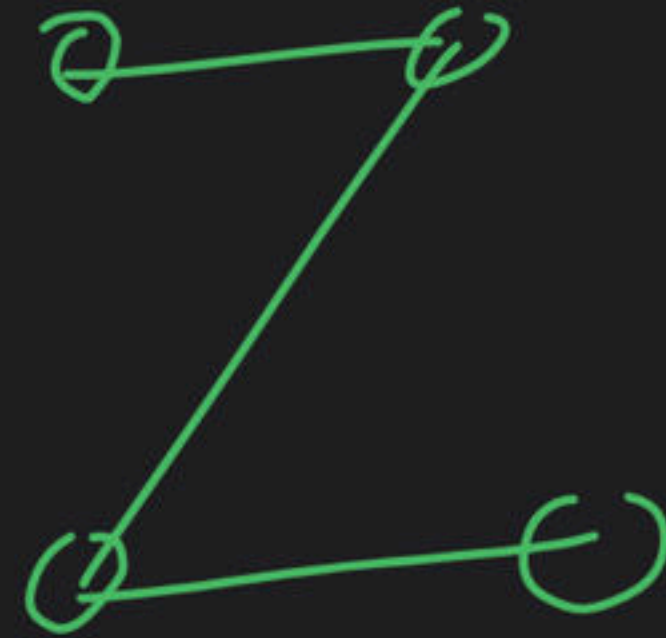
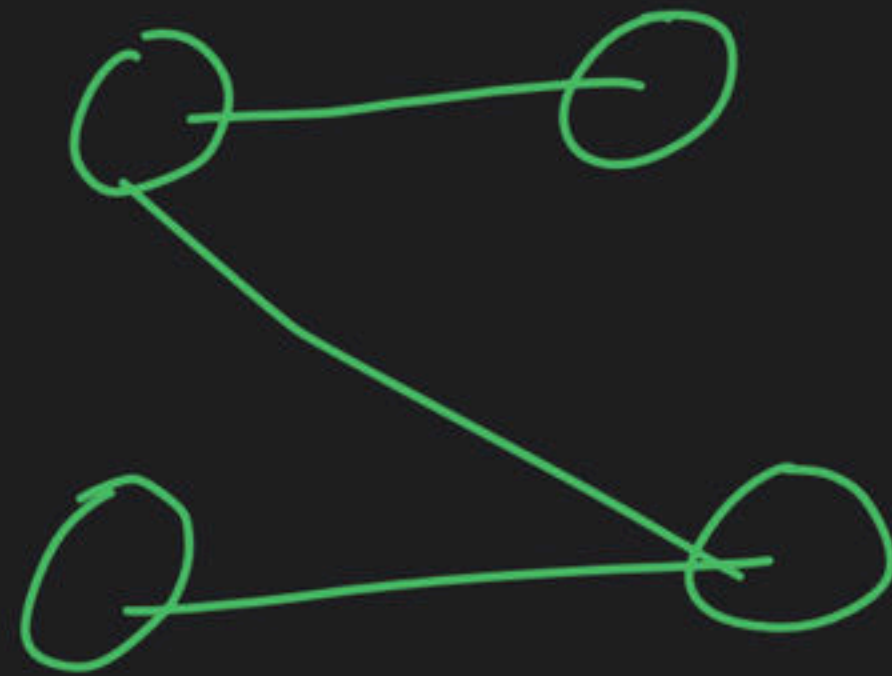
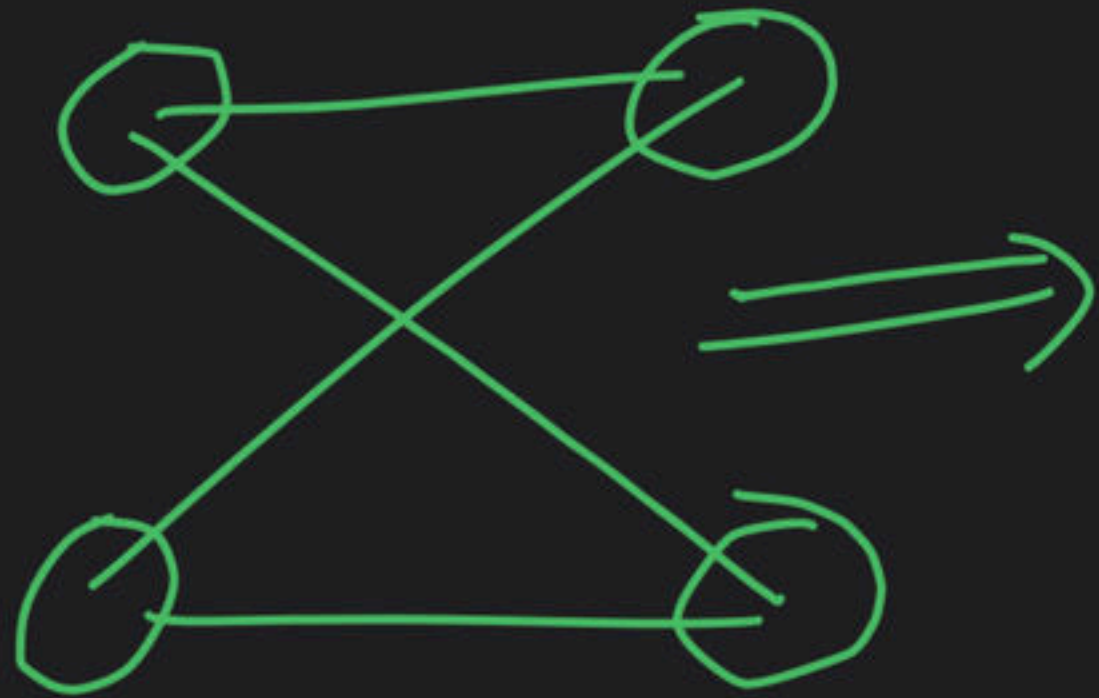
	1	2
1	3	2
2	2	2
3		
4		

$2E$
 $\ll V^2$
 $O(V+E)$

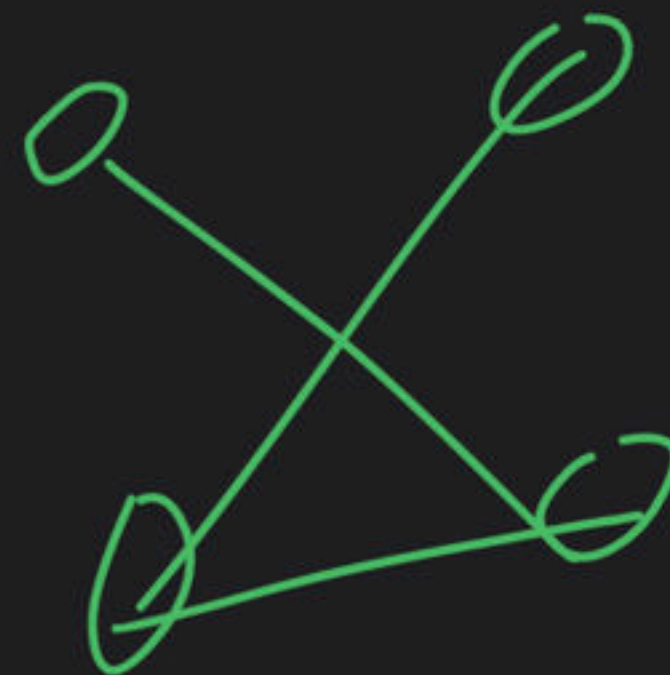
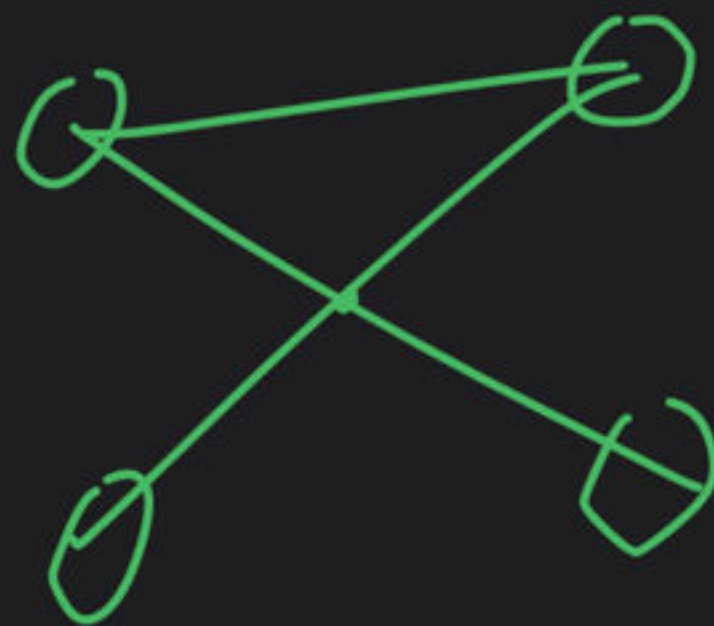


Spanning Tree

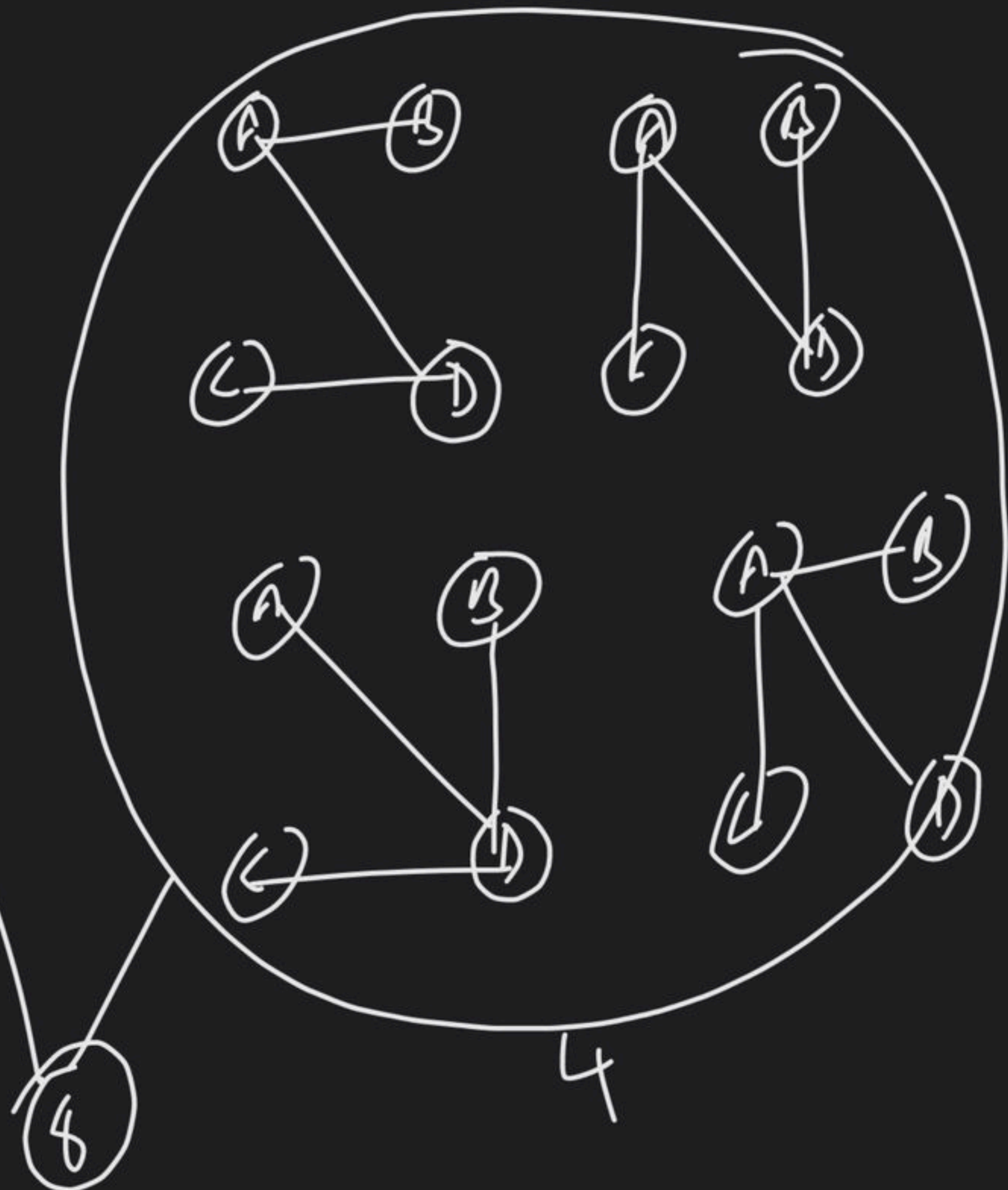
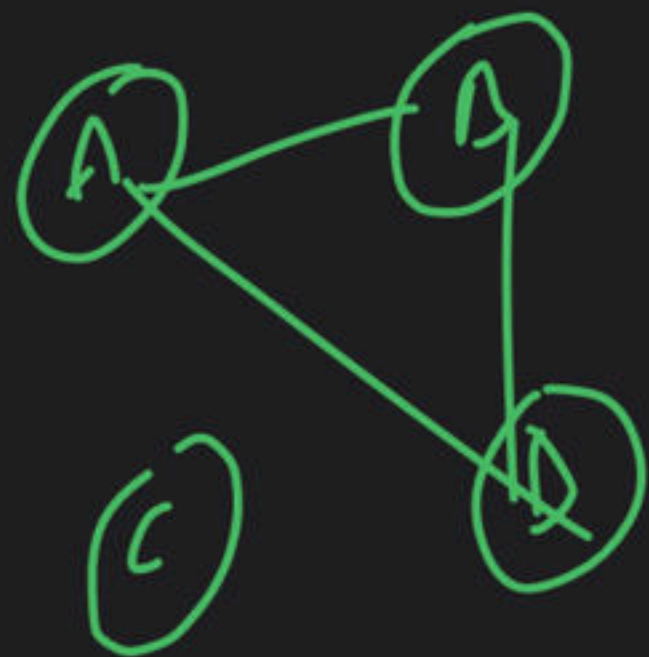
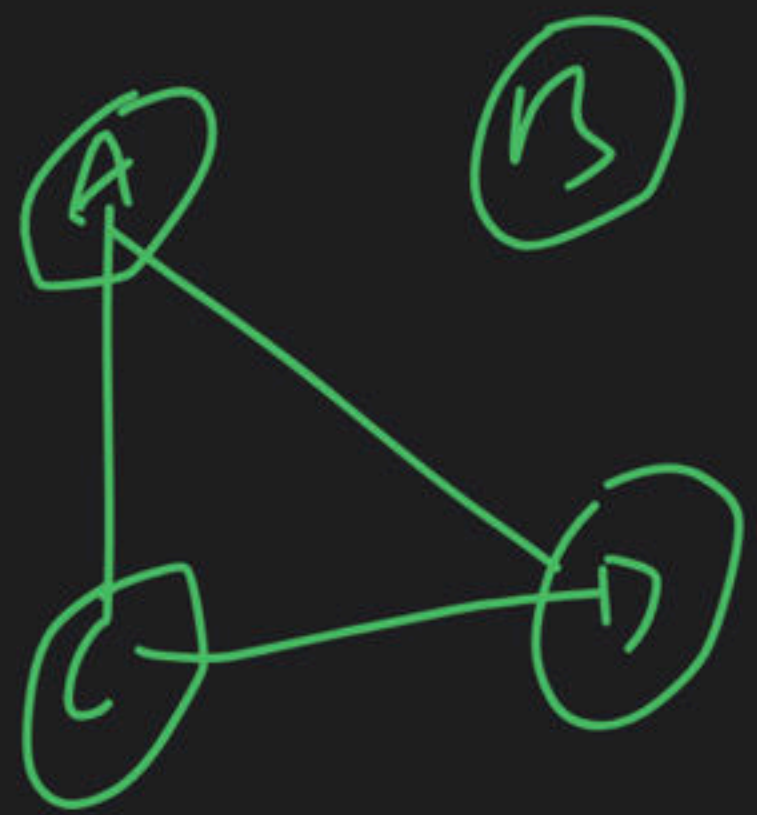
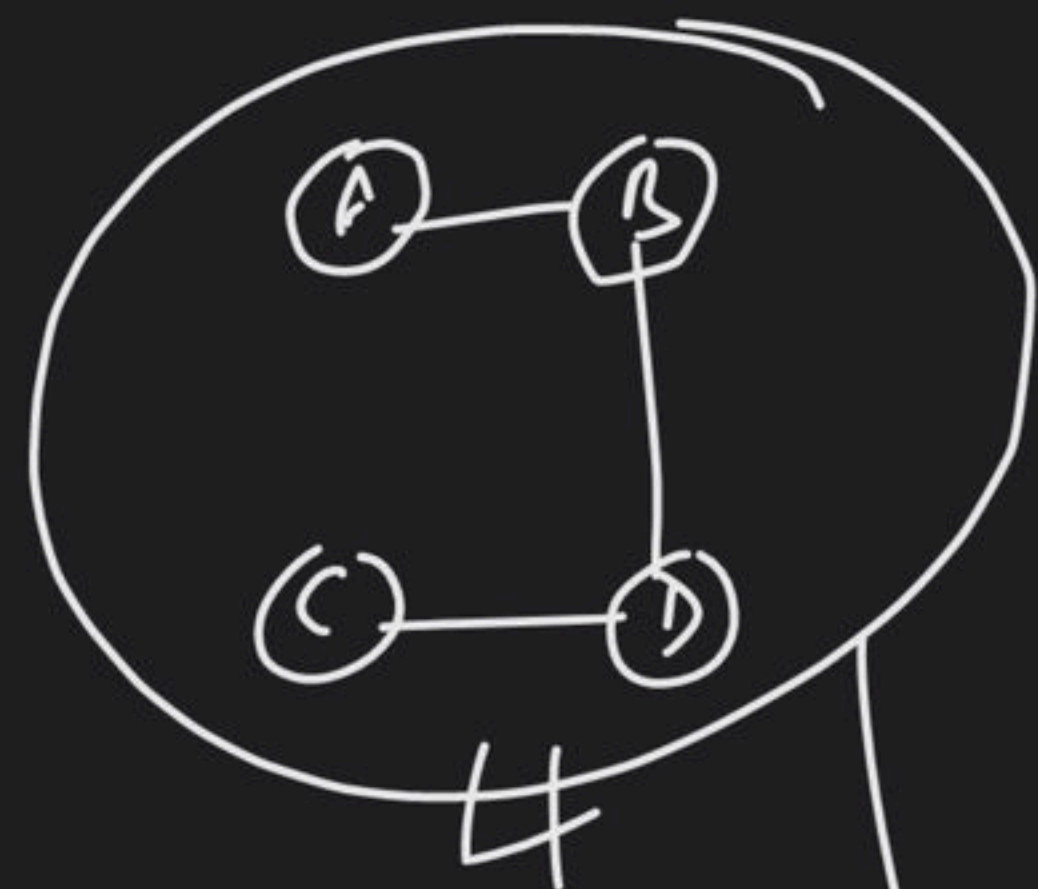
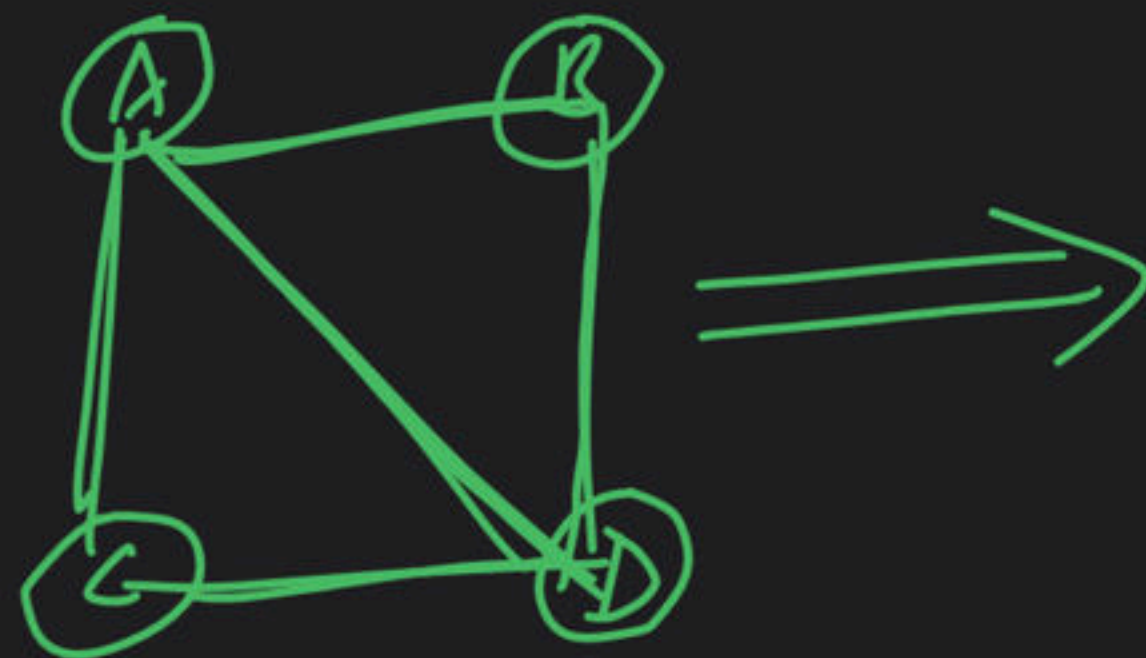




$$K_3 \Rightarrow K_1 \Rightarrow$$



$$S_{L_3} \Rightarrow S_{L_2} \Rightarrow 10 - 1 = 9 - 1 = 8 \checkmark$$



8