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	Local Co	6
	Graph Theory	6
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		Determine the about this a to
		An and I'm a spring time of
		Algorithm ("Recurring DFS") in the lacture
	1 2 2 2	notes! helper class of arms
		Edgas Linedas to La tagas 1
	1/1/3	Eggs I nodes to be traversed
ì		= V, + V, incidente edges + V2+ V2 incident edges
	1	t + Vn + Vn incident edges
		allow the second to the state of the second second
		= (V1+V2+V3++Vn)+(E1+E2+En)
		:Time Complexity = O(V) + O(E) = O(VI + EI)
0		·· lime Complexity = U(V) + O(t)
7	1	= O(V + E)
2	a cal	ala, by San A. Con in a Hill have
2	2	Determine the churchtatic runing time
		Of the given algorithm
	3-1	of the given algorithm
	la l	1 O Marie 1 . O . Marie 1 all los . I the last a second of the last and the last an
2		1/2.19
		Time complexity = O(E) + O(E) + O(V). O(E)
		, (
7		= O(E) + O(V.E)
		= O (V.E)
		= O(IVI.[E])

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		4
(3)	land; I have delle rock lighted to	6
0.0.	contain the same edge e, then	4
	등보다 하는 사람들은 사람들은 보다 보다는 것이 되는 것이 되었다. 그런 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은	
	Consider a graph Cr, which has two	3 3 3
La Fre	subgraphs, A'(V(A), E(A) and B'(V(B), E(B))	6
	both of them are circles corrected by a	6
1,1	Vx and Vy. As a result, there must be	6
	tree additional path ledge between x by,	6
	given both graphs are circles.	2
	i even if we remove edge e, it wont	2
	nako a differencias A-e. & B-e will form	2
2242	a circle a) if two saparate circles in Gr have	5
	some edge e, then a ciacle without	2
	edge e exists.	•
())().	(a) the 1- (7) to the 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1-	
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Lot T be a connected graph with no cycles. Then doliting any edge from T disconnects the graph Because Tis a tree, there exist a unique single path botusen any 2 vertices If an edge (u, v) is dolated, than there will be not path between them, so to graph will be disconnected. Assurbtion Let (u, v) be an edge in (r, since Cr is a graph there are atleast 2 paths u to v, one directly and one indirectly Assume & is a path between war which does not go through (u, v). If the edge b/w (u, v) a deleted, there will stell be one bath connecting vertice through b.

(5)	Every tree T of order n > 2 has at least two leafs
	I find the think the same of t
	Lot T= (V, E) be a tree with V ≥ 2. There carret be a vertex with degree 0,
	otherwise it will be disconnected from
0.00	the grabh
	in II have degreed. All vertices in IV-LI
	have degree at least 2.
	$\leq \deg(V) = \leq \deg(V) + \leq \deg(V)$
1	2 L + 2 (V-L)
y ha	≥ 2.1 Y - L
997-	The same at the same of the sa
	For any Tace, E = V -1
	:. 2 VI - 2 = 2 deg (v) > 2 V - L
	=> L 22