CS 3305 HW 4 Drew Pulliam 3/24
a Draw Bz
(b) the number of vertices of Bk = Zk
the definition of binary to
the definition of binary trees is that B_k consists of
in number of vertices of Br = double vertices R
Bo has 1 vertex - 20-1
B, has 1+2 vertices - 2'=2
: Vertices - Z'=Z
Bk has Bt-1*2 vertices - 7k
(C) Prove 1)
© Prove there are $C(k,k)$ vortices at level k of B_k
Base: Bo contains a single node and C/0.01-1
for a tree of height had it
for a tree of hight hel it contains 2 trees of height h one connected to the root of the other in nodes at level & of hel = nodes at level & in h in nodes at level & of hel = C(h, l) + C(h, l-1) if there are C(k, l) 1 if there are C(k, l) 1 if there are C(k, l) 1
of hill a nodes at level 1.
in nodes at level l of hel - weder at level l-1 in h (chi il
(h, l) + (h, l-1) offset oneland
: Here are $C(k,l)$ vertices at love 1 of fascal's Identify
: Here are $C(k,l)$ vertices at level l of B_k
L'K