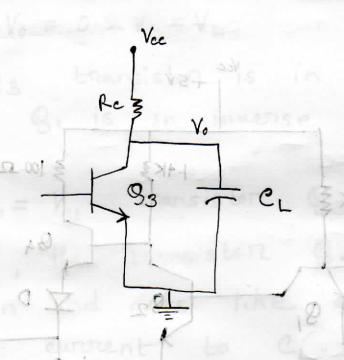
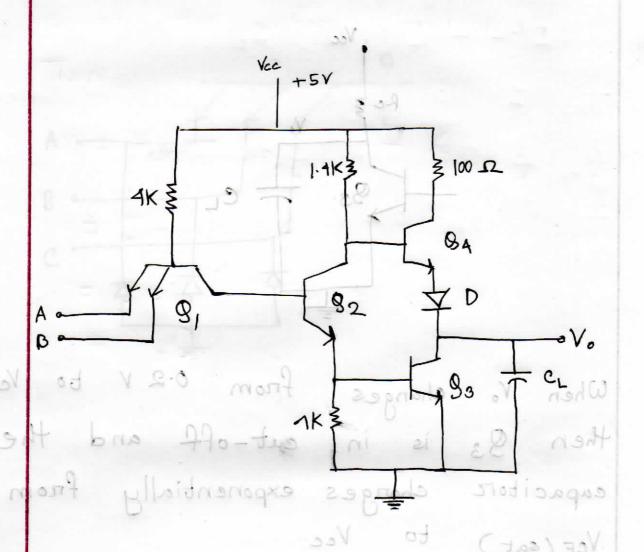
## Passine pull-up ext



When Vo changes from 0.2 V to Vcc then g3 is in cut-off and the eapacitors charges exponentially from VcE (sat) to Vcc

Time constant = Rc CL [CL = fixed]

configuration is called "totem-pole



on this ckt, transistor &4

YoH = acts like an active pull-up

ckt replacing the passive pull up

resistor Re. This oup output

configuration is called "totem-pole"

amplifier because 84 sits up on 83 When . Vo = 0.2 V = VLO set to 21 The 83 transistor is in saturation and Bi is in inverse active mode Vec BEy (cutin) D(cutin) When Vo = VH transistor 83 is in cut off, the transistor 84 is in saturation and acts like source supplying eworent to CLIN = The diode is used because the value of i will decrease and dissipation will decrease. Here, Q4 and diode combinedly form the active pull up ext. When, Vo increases the convent in 84 decreases, and 84 comes out of saturation and finally Vo

reaches a steady state when Q4 is at the cutin condition. The Q3 transister is in satisfult on Show evides estreval al 31 / D. (cutin) bus  $V_0 = V_{ec} - V_{BE_4}$  (cutin) - VD. (cutin) When Vo = Vy thansistore &31 is in ent off the briensis bord 84 is in saturation and acts like Verence supplying environt to e(1) V = 0 The diode is used because the value of i will decrease and dissipation will decrease Here, 84 and diode combinedly forms the active pull up lake. When I to increases the current 84 decreases and 84 comes ou of saturation and finally 10