DCTL NOR : (Positive Logic)
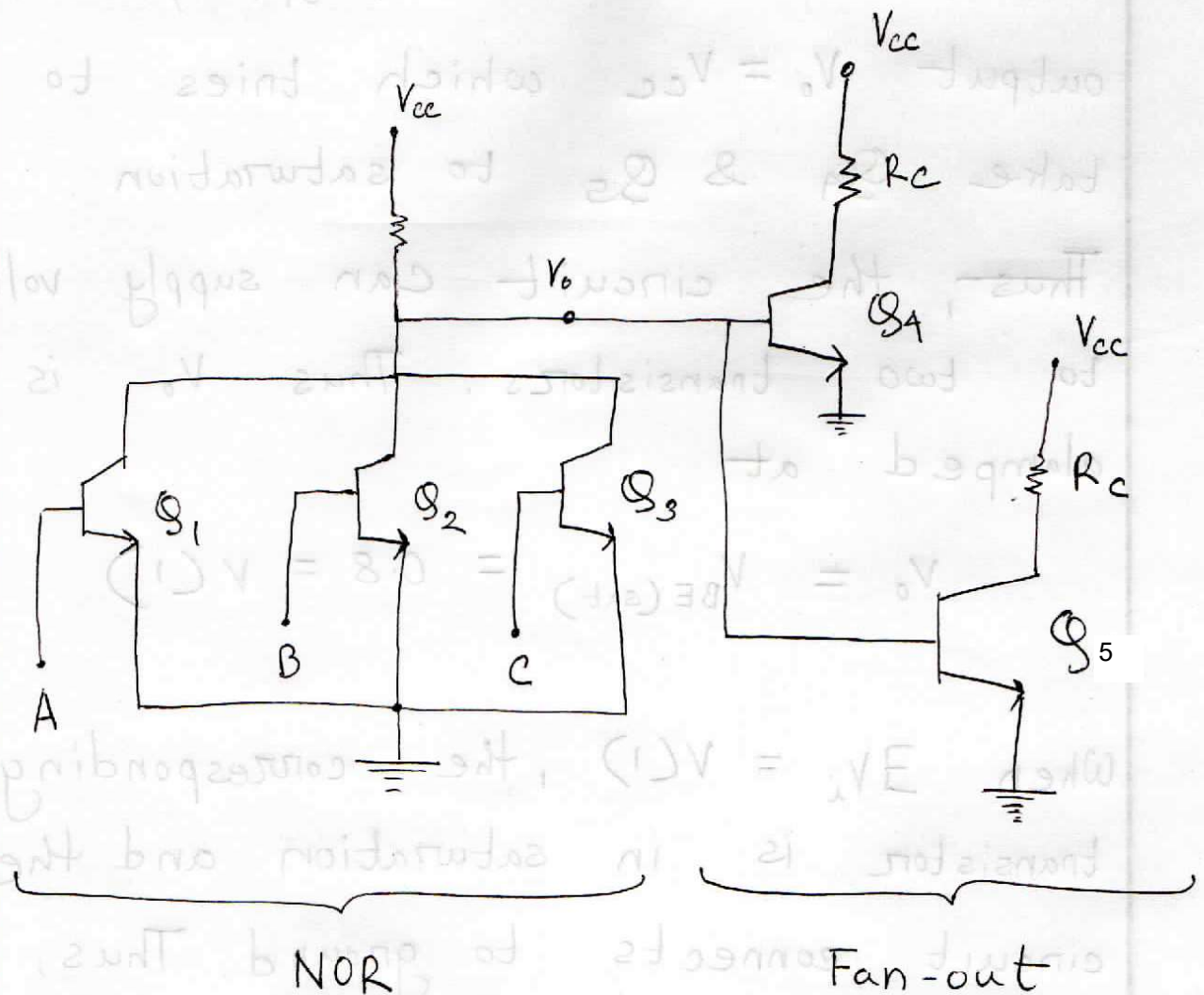

NOR   Fan-out

Configuration similar to RTL except
base resistors are omitted

(ii) When $\forall V_i = 0.2V$, all input transistors are in cut off, so the output $V_o = V_{cc}$ which tries to take Q_4 & Q_5 to saturation.

Thus, the circuit can supply voltage to two transistors. Thus V_o is clamped at

$$V_o = V_{BE(sat)} = 0.8 = V(1)$$

When $\exists V_i = V(1)$, the corresponding transistor is in saturation and the circuit connects to ground. Thus,

$$V_o = V_{CE(sat)} = 0.2 = V(0)$$

Hence, the ckt works like a NOR gate.