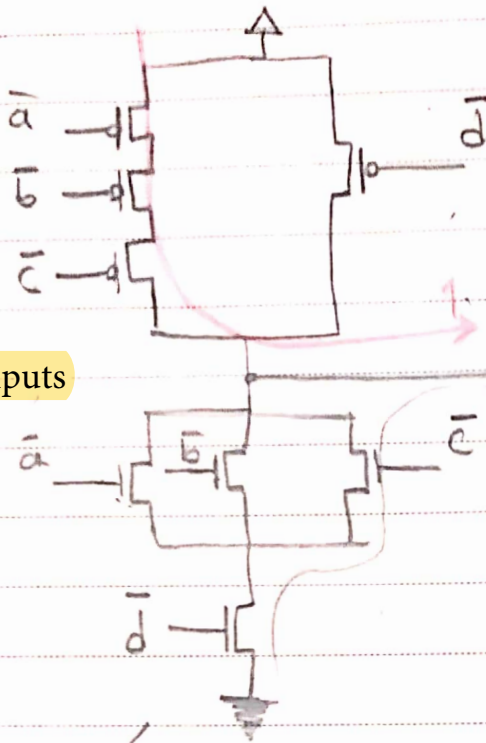


$$f = abc + d$$

الف)



-5 for inverted inputs

+15

nMOS # (4, 5, 4)

PMOS # (4, 5, 1, 1)

$T_{01}$   $T_{00}$   $T_{02}$

$$3 \times 6 = 18 ; T_{01}$$

$$2 \times 6 = 12 ; T_{02}$$

$$\max(12, 18) = 18 ; T_{01}$$

$$2 \times 5 = 10 ; T_{00}$$

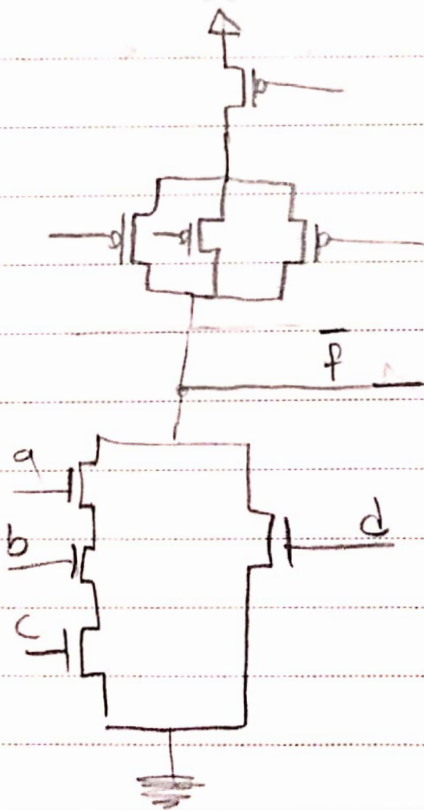
+10

$$3 \times 8 = 24 ; T_{02}$$

+10

$$\max(10, 24) = 24 ; T_{00}$$

این حالت اول تأخیر کمتری دارد



$$3 \times 6 = 18 ; T_{01}$$

$$4 \times 6 = 24 ; T_{02}$$

$$\max(18, 24) = 24$$

$T_{01}$

$$4 \times 5 = 20 ; T_{00}$$

$$3 \times 8 = 24 ; T_{02}$$

$$\max(20, 24) = 24 ; T_{00}$$