Justin Fortner
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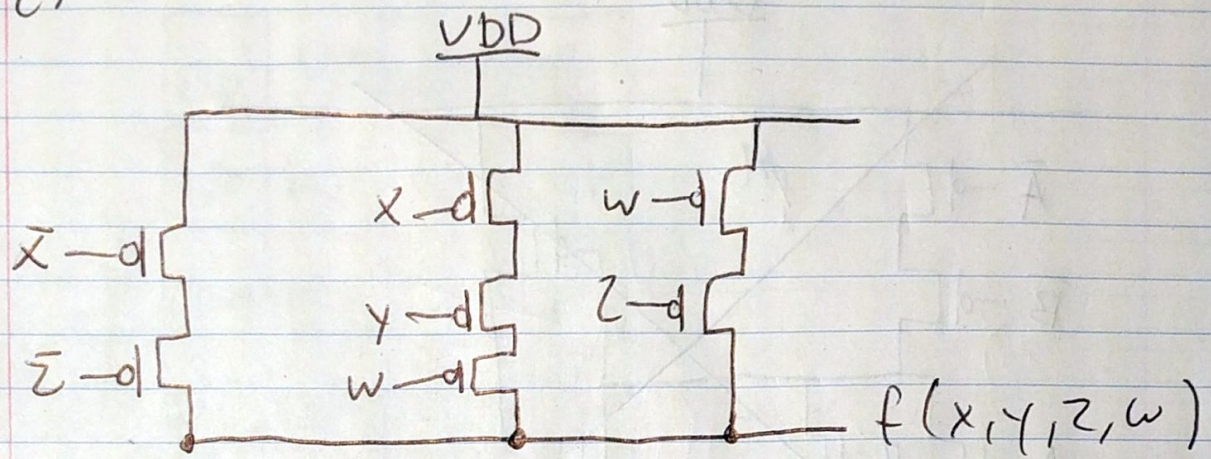
CE100 HW#6

2)

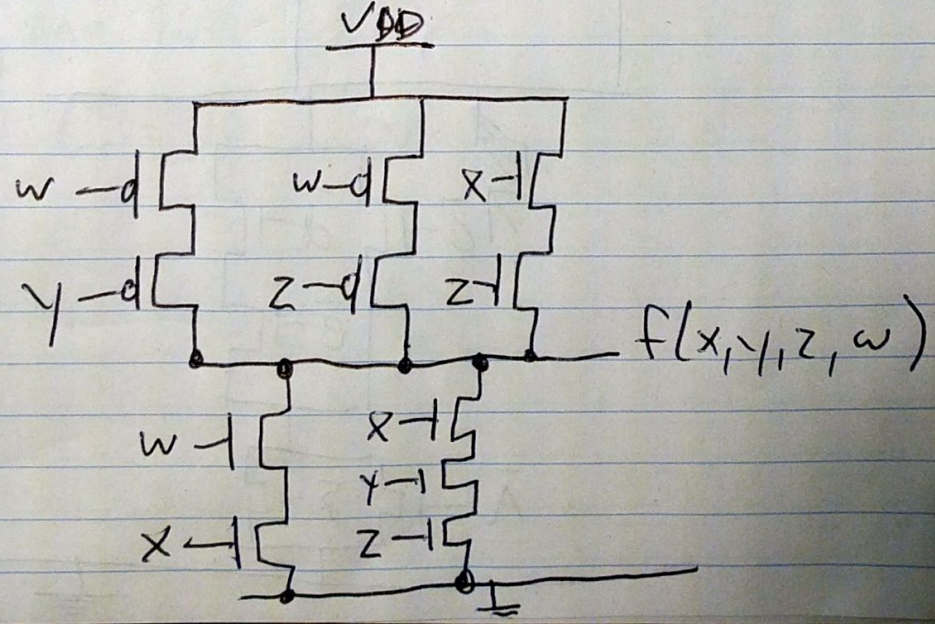


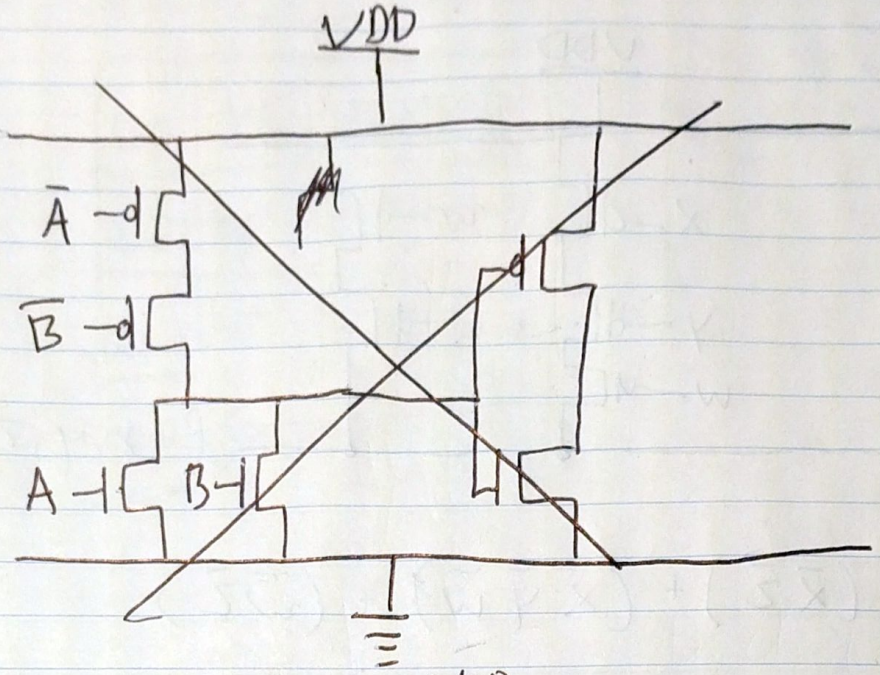
$$(\bar{x}\,\bar{z}) + (\bar{x}\,\bar{y}\,\bar{w}) + (\bar{w}\,\bar{z})$$

$$f(x,y,z,w) = (xz) + (\bar{x}\,\bar{y}\,\bar{w}) + (\bar{w}\,\bar{z})$$

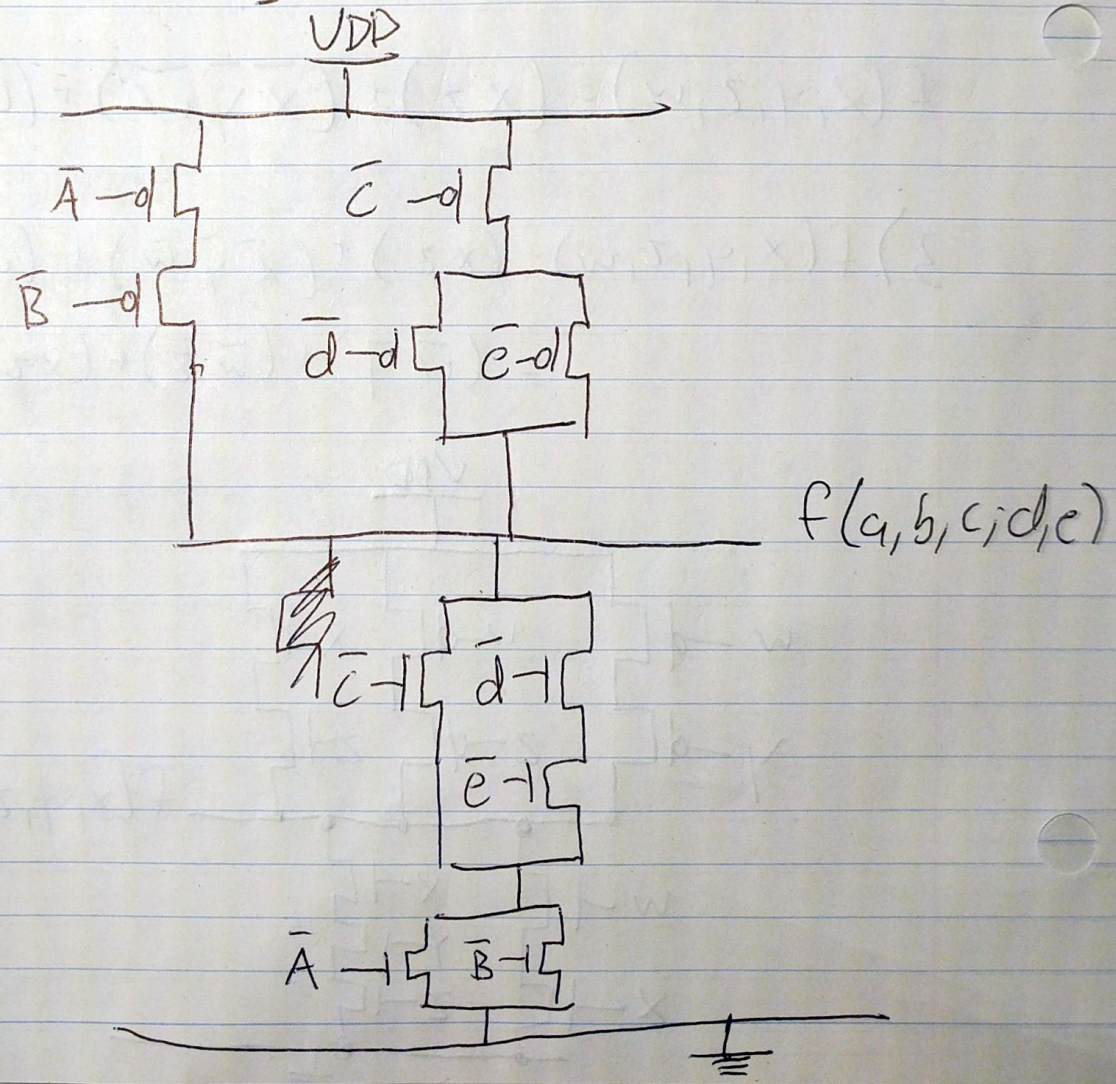
3) $f(x,y,z,w) = (xz) + (\bar{x}\,\bar{y}\,\bar{w}) + (\bar{w}\,\bar{z})$

$$= (\bar{w}\,\bar{y}) + (\bar{w}\,\bar{z}) + (xz)$$




VDD
$\bar{A}$
$\bar{B}$
A
B

4)


VDD
$\bar{A}$
$\bar{B}$
$\bar{C}$
$\bar{d}$
$\bar{e}$
f(a,b,c,d,e)
$\bar{C}$
$\bar{d}$
$\bar{e}$
$\bar{A}$
$\bar{B}$

CE100 HW#6

5)

b

up	up	down	up
up	up	down	none
down	up	down	down
up	down	down	up

c | d

a

When $a=1, b=0, c=0, d=1$

f is not connected to either

6) a) $NM_H = 3.9 - 2.6 = 1.3$

$NM_L = 1.1 - .3 = .8$

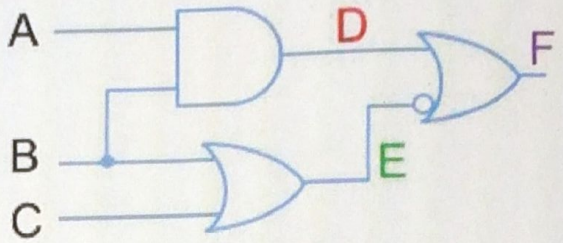
$NM = .8$

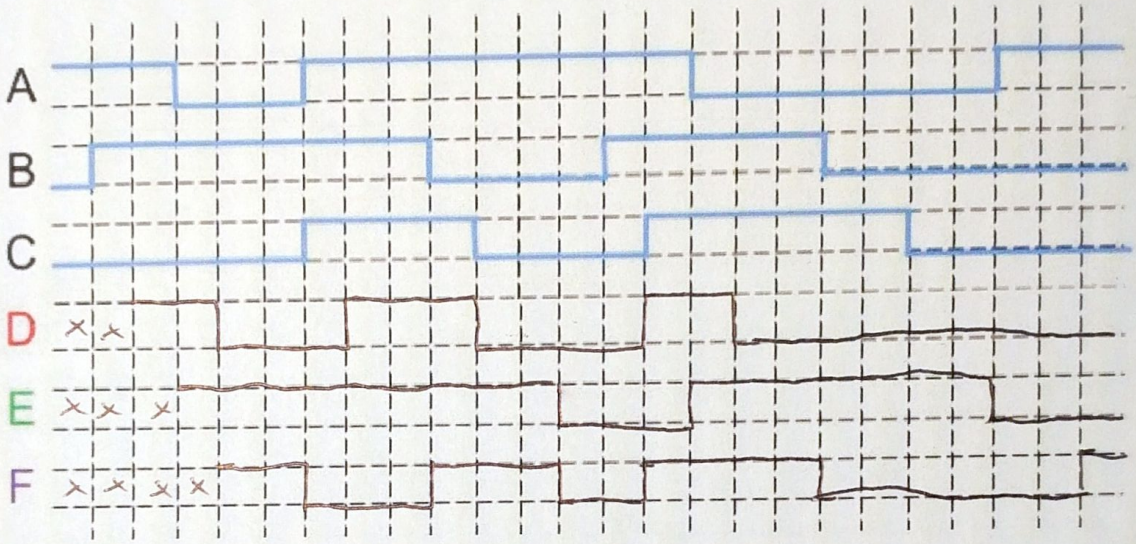
b) $L_H = \frac{10}{.5} = 20$

$L_L = \frac{15}{.5} = 30$

$L = 20$ loads

7)





8) 1) 25 is the longest delay

2) Critical Path is ~~top Right to~~

$\overset{1}{18}$ OR, $\overset{13}{2}$ And, $\overset{7}{4}$ NOR, $\overset{5}{1}$ NAND, $\overset{3}{4}$ OR, $\overset{2}{2}$ NAN