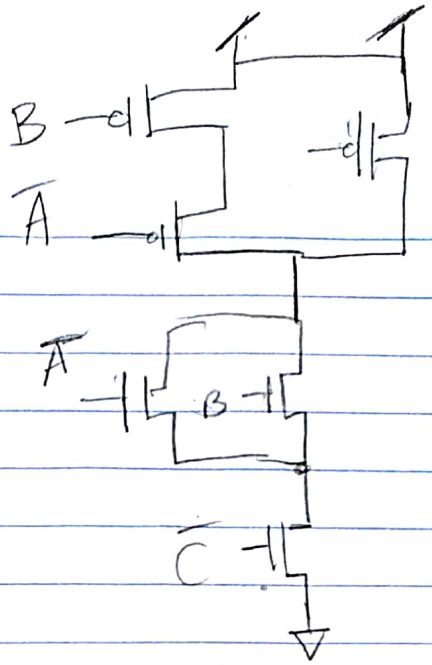
Colleen Law
EE 307-06
HW2

3. a) $Out = A \cdot \overline{B} + C$

$= \overline{\overline{(A \cdot \overline{B}) + C}}$

$Out = \overline{(\overline{A} + B) \cdot \overline{C}}$



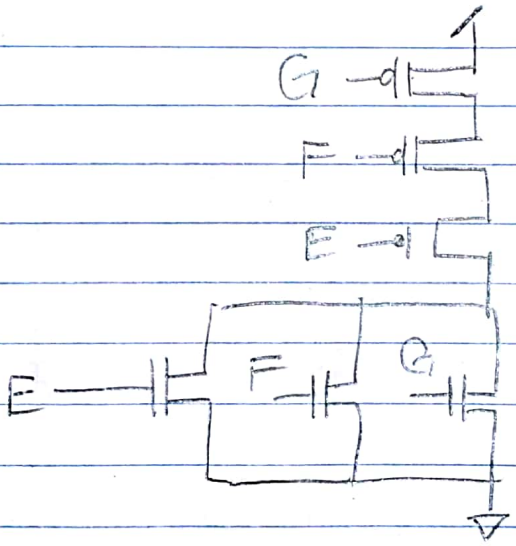
b) $D_X = \overline{\overline{(E + \overline{F}) \cdot G}}$

$= \overline{(E + \overline{F}) + \overline{G}}$

$= \overline{\overline{(A + B) \cdot C}}$

$\overline{\overline{(A+B)} + C}$ → demorgan

$\overline{(\overline{A} \cdot \overline{B}) + C}$

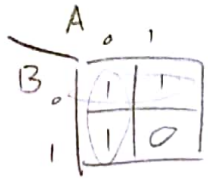


Colleen Lau EE 307-06 HW2

4. a)

NAND

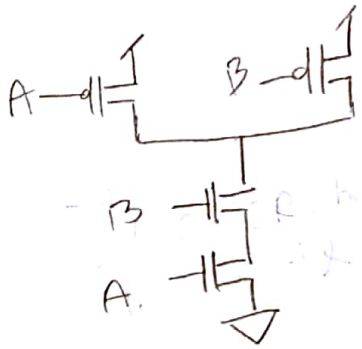
A	B	Vout
0	0	1
0	1	1
1	0	1
1	1	0



$\overline{A}+\overline{B}$

$\overline{\overline{A}+\overline{B}}$

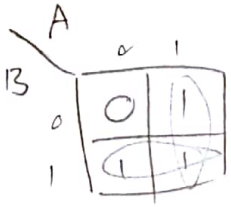
$A \cdot B$



b)

OR

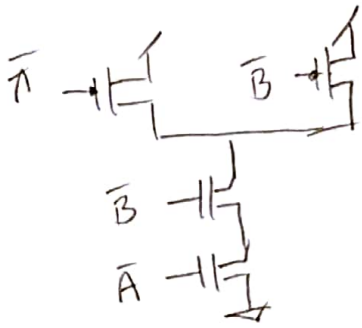
A	B	Vout
0	0	0
0	1	1
1	0	1
1	1	1



$A + B$

$\overline{A+B}$

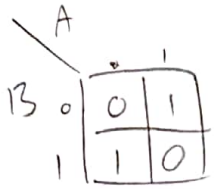
$\overline{\overline{A} \cdot \overline{B}}$



d)

XOR

A	B	Vout
0	0	0
0	1	1
1	0	1
1	1	0



$(A \cdot \overline{B}) + (\overline{A} \cdot B)$

$\overline{(A \cdot \overline{B}) + (\overline{A} \cdot B)}$

$\overline{(A \cdot \overline{B})} \cdot \overline{(\overline{A} \cdot B)}$

$(\overline{A}+B) \cdot (A+\overline{B})$