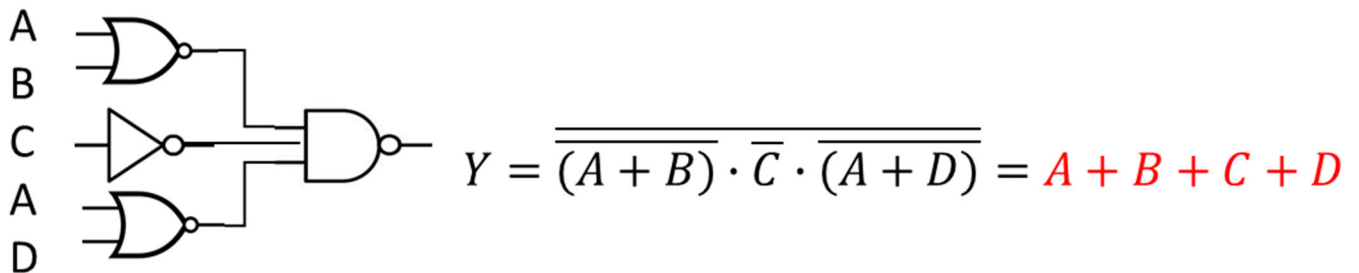
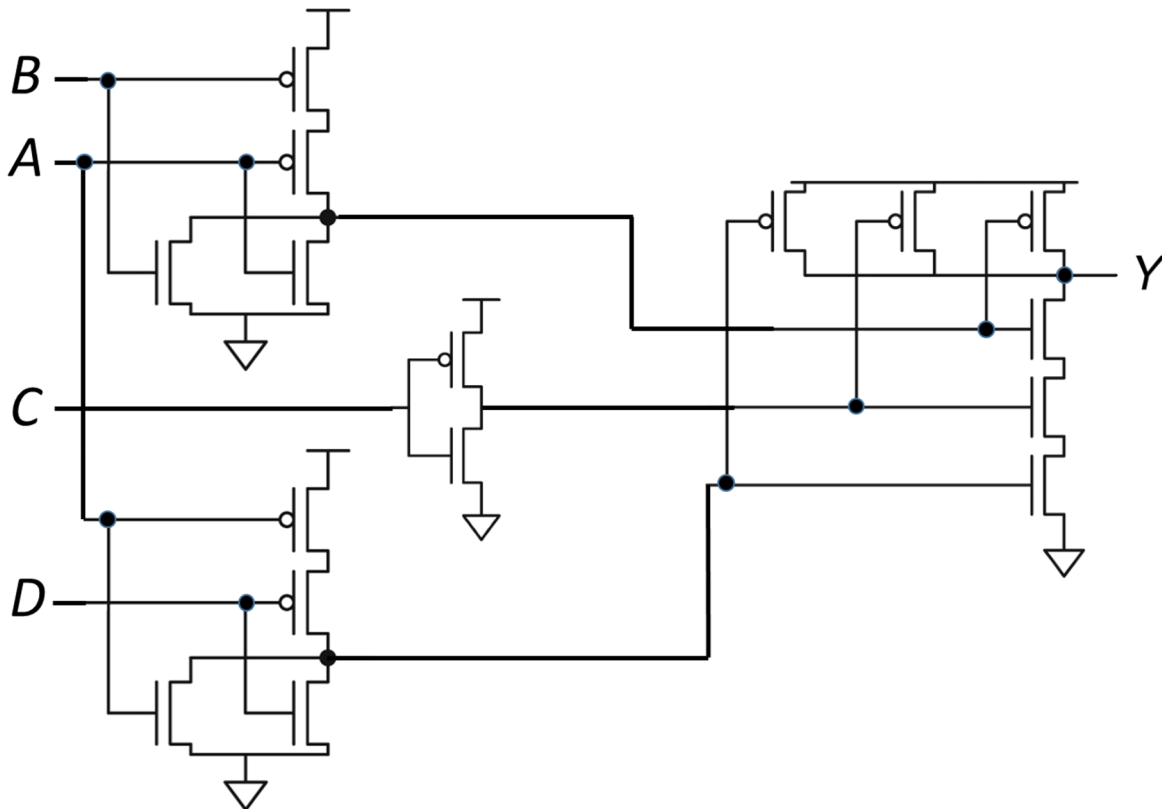


IE1204 Digital Design Practice Exam K-maps etc

4 CMOS

Swedish: Bestäm den logiska funktionen $Y = f(A, B, C)$ för CMOS-grindnätet. Förenkla så långt som möjligt med De Morgans lagar.

English: Determine the logic function $Y = f(A, B, C)$ for the CMOS-circuit. Simplify as much as possible using De Morgan's laws.



5 SoP / PoS

Swedish: Ta fram booleskt uttryck på PoS form för sanningstabellen nedan.

English: Derive the Boolean expression in PoS form for the truth table below.

A	B	C	Y
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

		AB			
		00	01	11	10
C	0	1	0	1	1
	1	0	1	0	1

$$Y = (A + B + \bar{C})(A + \bar{B} + C) (\bar{A} + \bar{B} + \bar{C})$$

6 K-map

Swedish: Uttnyttja x = don't care.

Ta fram enklast möjliga booleska uttryck från K-map.

English: Use x = don't care.

Derive simplest possible Boolean expression from the K-map.

Y	CD 00	CD 01	CD 11	CD 10
AB 00	1	0	0	1
AB 01	0	X	0	X
AB 11	0	0	0	1
AB 10	1	1	0	X

Format:

C, D

	00	01	11	10
A, B 00	1	0	0	1
01	0	x	0	x
11	0	0	0	1
10	1	1	0	x

$\bar{B}\bar{D} + C\bar{D} + A\bar{B}\bar{C}$

Format:

C, D

	00	01	11	10
A, B 00	1	0	0	1
01	0	x	0	x
11	0	0	0	1
10	1	1	0	x

$(A + \bar{D})(\bar{C} + \bar{D})(\bar{B} + C)$