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Prof. Li

04/20/2020
CSE222

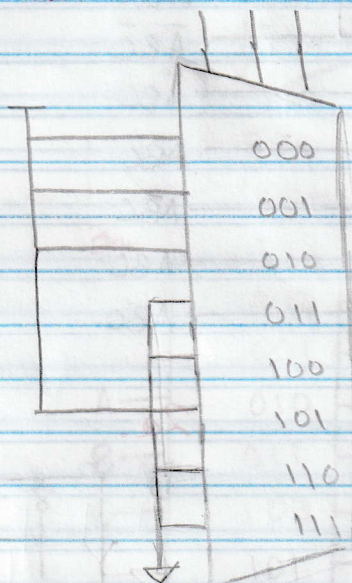
Homework #7

1. A B C Y

0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

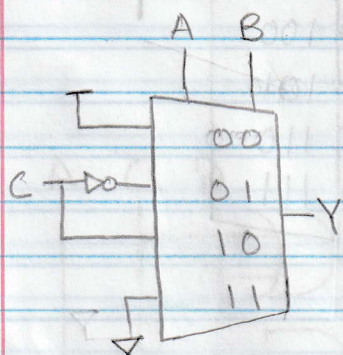
1a.

A B C



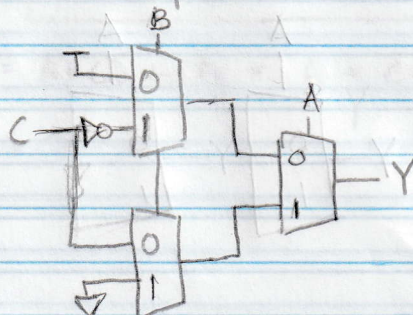
8:1 Multiplexer

1b. 4:1 Multiplexer



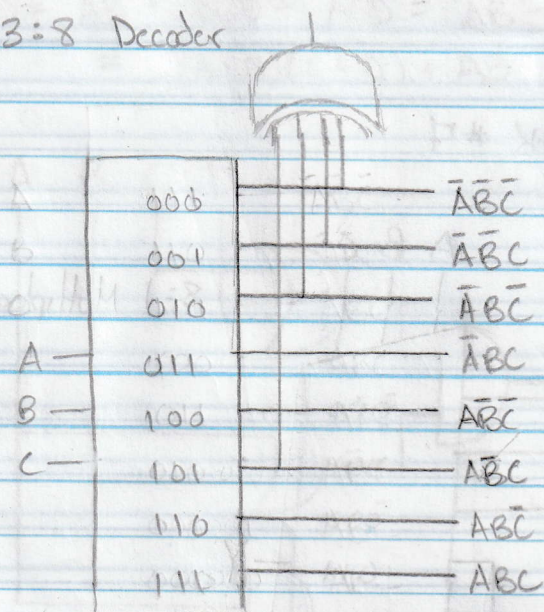
A B	Y
00	1
01	\bar{C}
10	C
11	0

1c. 2:1 Multiplexer



$$Y(A,B,C) = \Sigma(0,1,2,5) = M_0 \oplus M_1 \oplus M_2 \oplus M_5$$

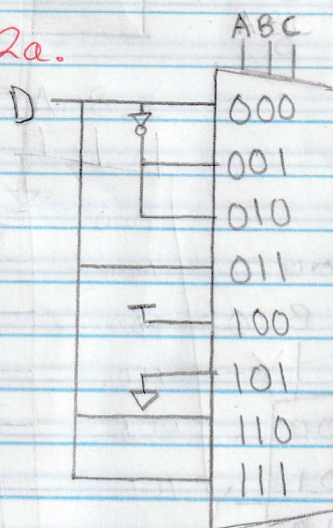
1d. 3:8 Decoder



2.

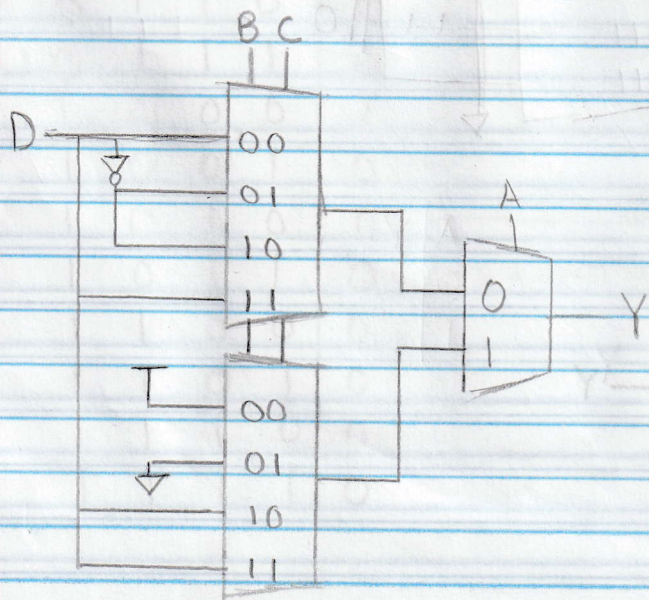
ABC	Y
000	D
001	\bar{D}
010	\bar{D}
011	D
100	1
101	0
110	D
111	D

2a.



2b.

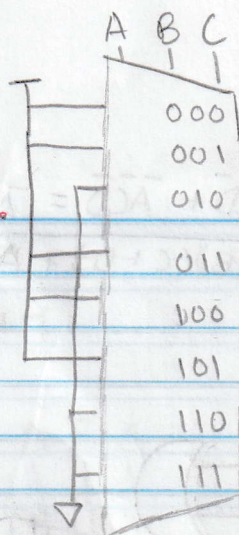
2b.



23. $Y' = \overline{A}B + \overline{A}C + \overline{B}C$ 3a.

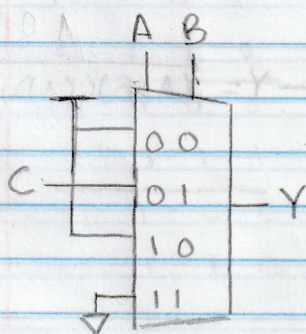
3a.

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

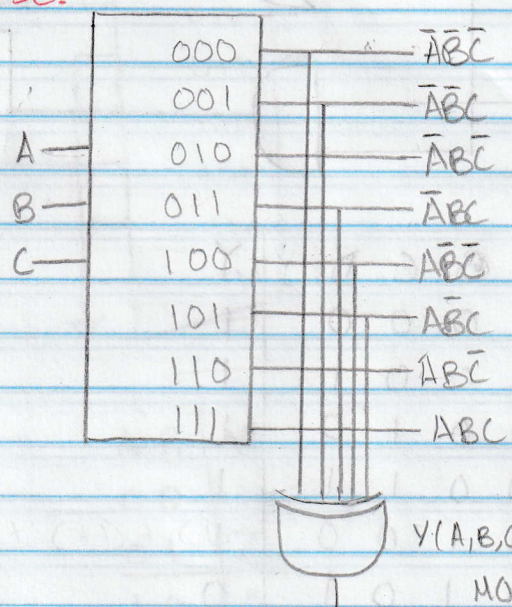


A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	0

3b.

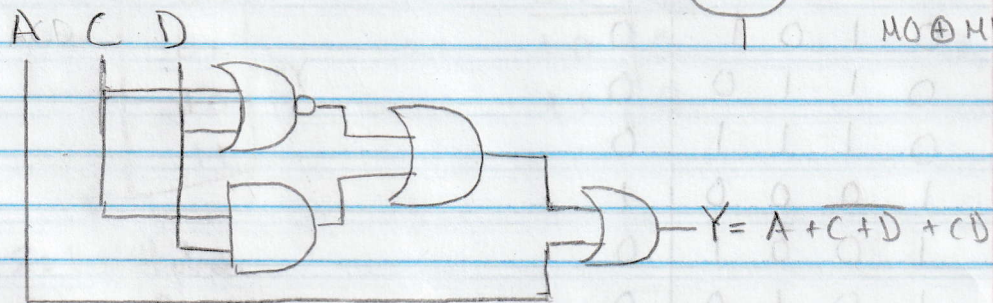


3c.



4a.

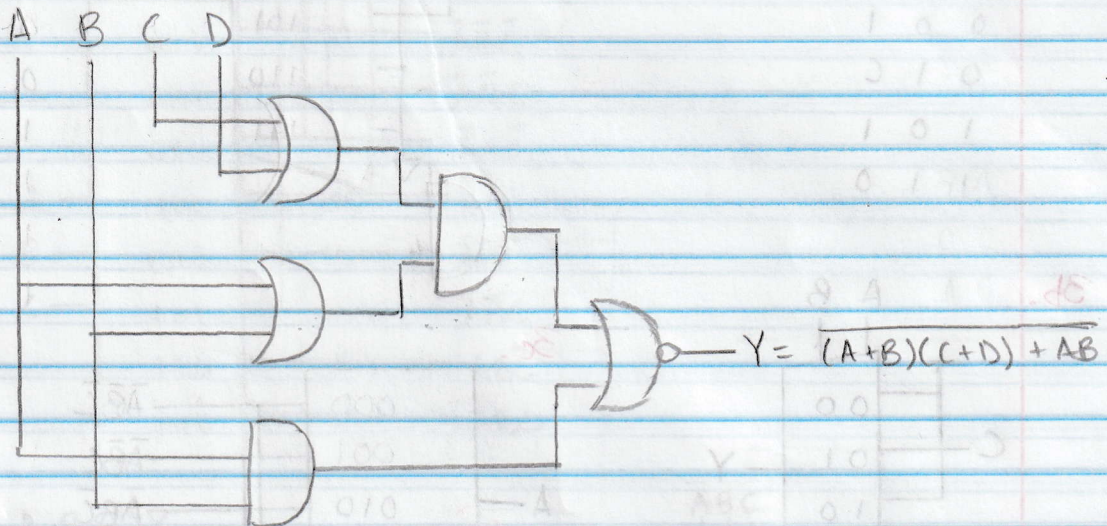
$Y = A + \overline{C}D + CD = A + \overline{C}D + CD$



$Y = A + \overline{C}D + CD = A + \overline{C}D + CD$

$Y(A,B,C) = \Sigma(0,1,3,4,5) = m_0 \oplus m_1 \oplus m_3 \oplus m_4 \oplus m_5$

46. $Y = \overline{A}B + \overline{B}C\overline{D} + \overline{A}C\overline{D} = \overline{A}B + \overline{C}\overline{D}(\overline{B} + \overline{A}) + \overline{A}B = Y$
 $= \overline{(A+B)(C+D)} + AB$



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