19F-0228 Quiz 04.

Q

Implement the circuit defined by the equation

$$F(A,B,C,D) = \sum(1,4,6,7,8,11,12)$$

using

a) 4 to 1 multiplexer
b) 8 to 1 multiplexer

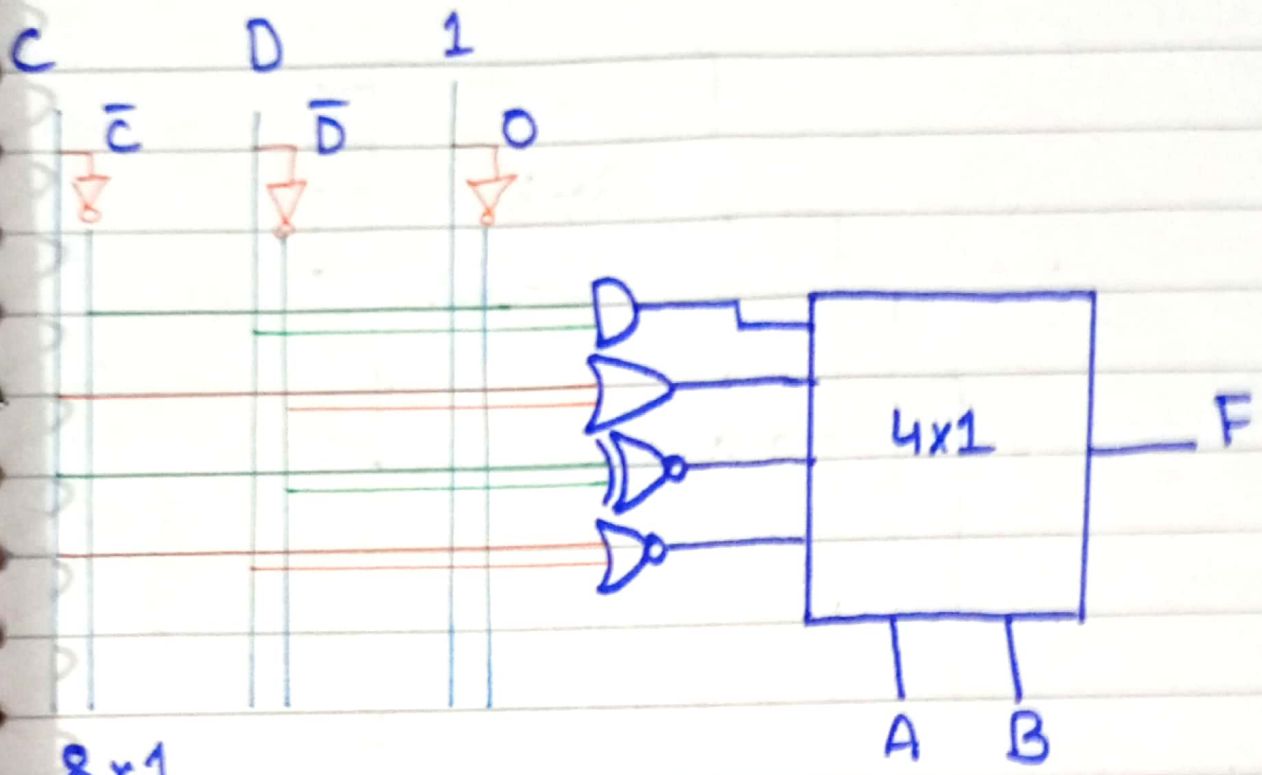
Truth Table

A	B	C	D	F
0	0	0	0	0
0	0	0	1	1
0	0	1	0	0
0	0	1	1	0
0	1	0	0	1
0	1	0	1	0
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	1
1	1	0	1	0
1	1	1	0	0
1	1	1	1	0

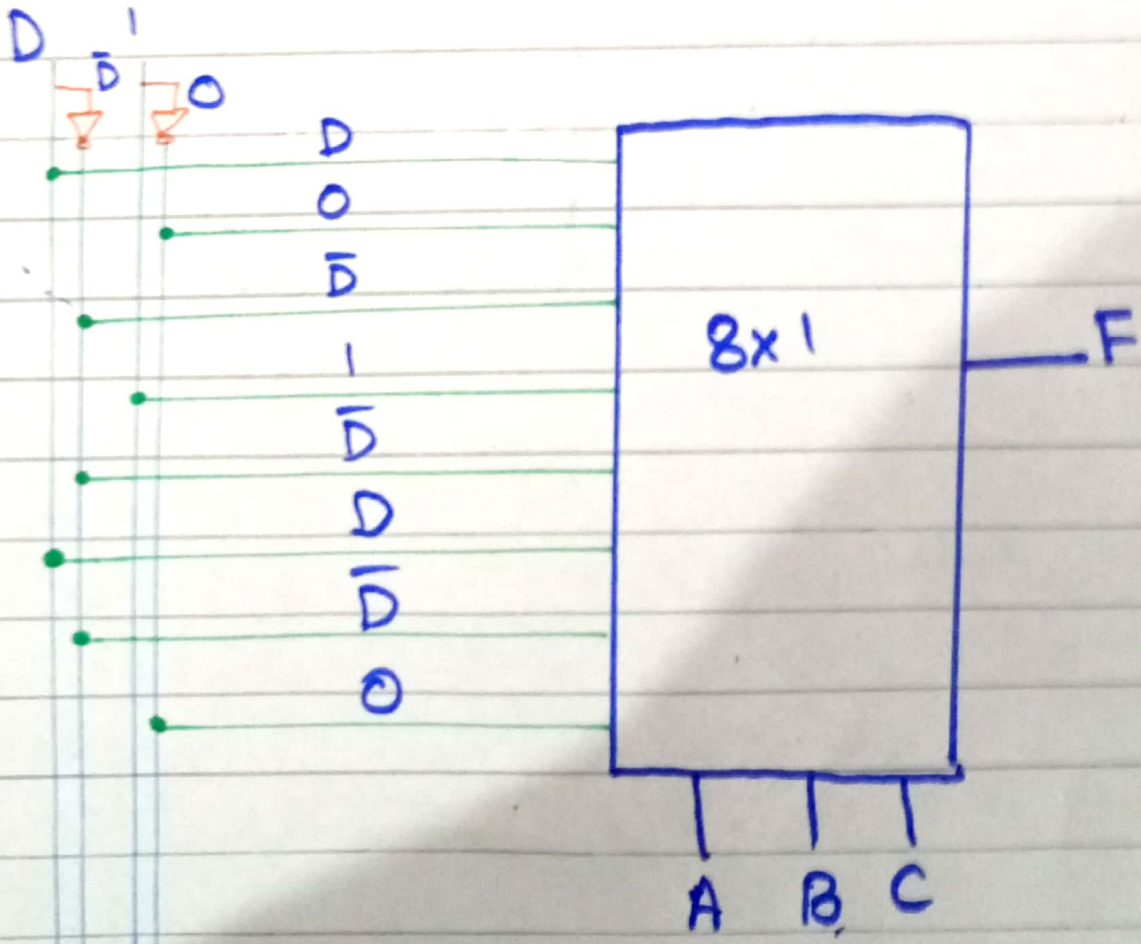
combinations for

4×1	8×1
$F = \bar{C}D$	$F = D$
	$F = 0$
$F = C + \bar{D}$	$F = \bar{D}$
	$F = 1$
$F = \overline{C \oplus D}$	$F = \bar{D}$
	$F = D$
$F = \overline{C + D}$	$F = \bar{D}$
	$F = 0$

4x1



8x1



c

3 to 8 decoder