CSE-232

Question 1

1)

ab \ cd	00	01	11	10
00	a'b'c'd'	a'b'cd	a'bcd	a'bcd'
01	a'bc'd'	a'bcd	a'bcd	a'bcd'
11	abc'd'	abcd	abcd	abcd'
10	ab'c'd'	ab'cd	ab'cd	ab'cd'

$F_1(A,B,C,D) = \sum m(0,1,4,5,8,9,10,12,13)$

ab \ cd	00	01	11	10
00	1	1	0	0
01	1	1	0	0
11	1	1	0	0
10	1	1	0	1

c' , ab'd'

$F_1 = c' + ab'd'$

$F_2(A,B,C,D) = \sum m(3,5,7,8,9,10,11,13,15)$

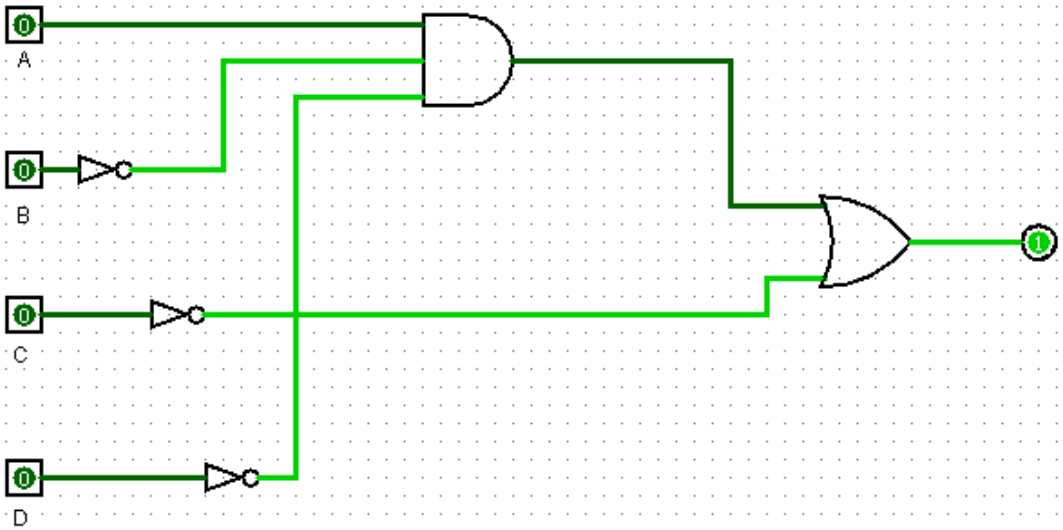
ab \ cd	00	01	11	10
00			1	
01		1	1	
11		1	1	
10	1	1	1	1

bd , ab' , cd

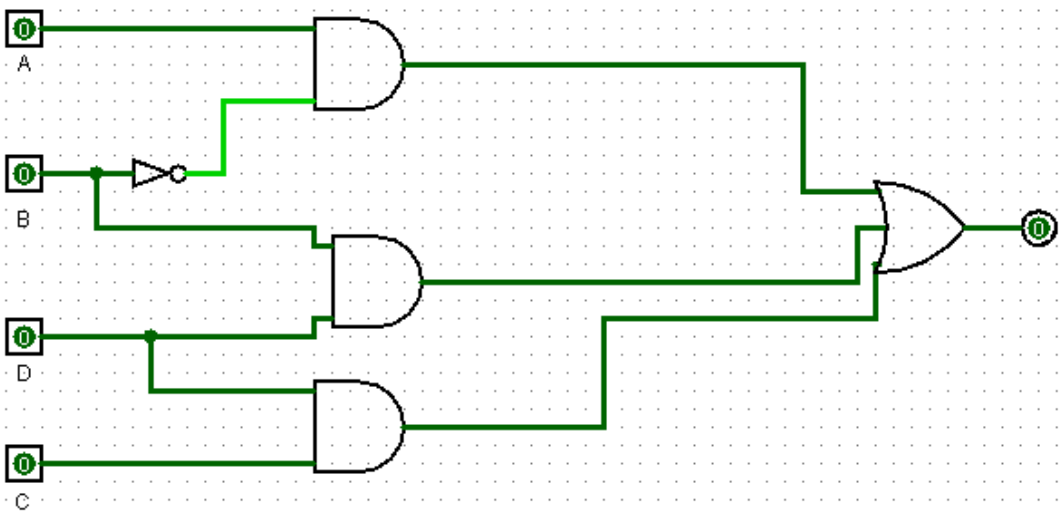
$F_2 = ab' + bd + cd$

Question1.3

F1

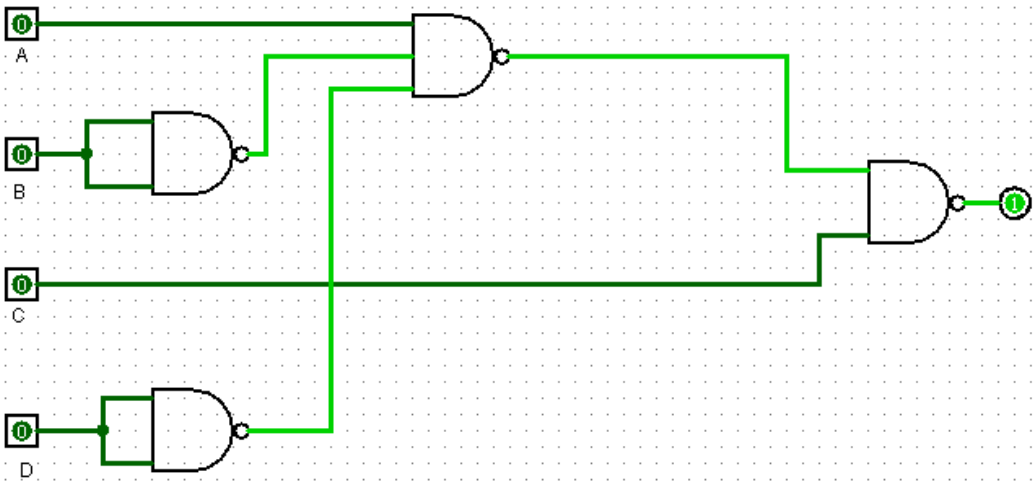


F2

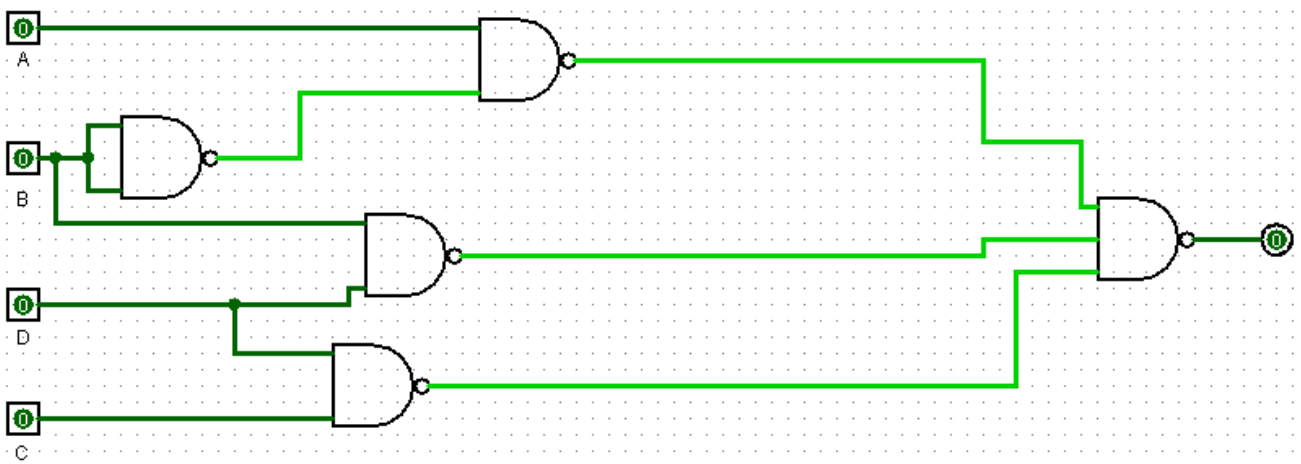


Question1.4

F1



F2



Question 2

1

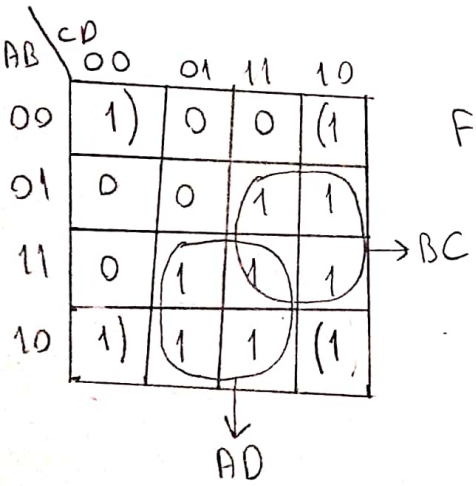
A	B	C	D	AB'	AD	BC	CD'	AB'CD	F	
0	0	0	0	0	0	0	0	1	1	→ A'B'C'D' m_0
0	0	0	1	0	0	0	0	0	0	
0	0	1	0	0	0	0	1	0	1	→ A'B'CD' m_2
0	0	1	1	0	0	0	0	0	0	
0	1	0	0	0	0	0	0	0	0	
0	1	0	1	0	0	0	0	0	0	
0	1	1	0	0	0	0	1	0	1	→ A'BCD' m_6
0	1	1	1	0	0	1	0	0	1	→ A'BCD m_7
1	0	0	0	1	0	0	0	0	1	→ AB'C'D' m_8
1	0	0	1	1	1	0	0	0	1	→ AB'C'D m_9
1	0	1	0	1	0	1	1	0	1	→ AB'CD' m_{10}
1	0	1	1	1	1	1	0	0	1	→ AB'CD m_{11}
1	1	0	0	0	0	0	0	0	0	
1	1	0	1	0	1	0	1	0	1	→ ABC'D m_{13}
1	1	1	0	0	0	1	0	0	1	→ ABCD' m_{14}
1	1	1	1	0	1	1	0	0	1	→ ABCD m_{15}

F = A'B'C'D' + A'B'CD' + A'BCD' + A'BCD + AB'C'D' + AB'C'D + AB'CD' + ABCD + AB'CD + ABC'D + ABCD + ABCD

2)

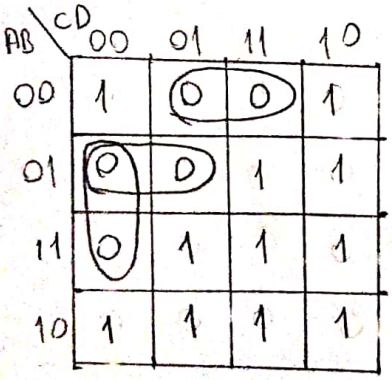
AB \ CD	00	01	11	10
00	A'B'C'D'	A'B'CD	A'BCD	A'BCD'
01	A'BC'D'	A'B'CD	A'BCD	A'BCD'
11	ABC'D'	ABC'D	ABCD	ABCD'
10	AB'C'D'	AB'CD	AB'CD	AB'CD'

3)



$F = B'D' + BC + AD$

4)



$F' = (A'B'D + A'BC' + BC'D')$

Question2.5