

① $F(A, B, C) = \sum_m(0, 1, 2, 4, 5)$

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

$F = \bar{B} + \bar{A}C$

② $F(A, B, C) = \sum_m(0, 1, 2, 3, 5, 7)$

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

$F = \bar{A} + C$

③ $F(A, B, C, D) = \sum_m(0, 1, 9, 11, 13, 15)$

CD	00	01	11	10
AB	00	11	11	
01				
11			11	11
10			11	11

$F = AD + \bar{A}BC$

④ $F(A, B, C, D) = \sum_m(0, 2, 8, 9, 10, 11, 13, 15)$

CD	00	01	11	10
AB	00	11		11
01				
11			11	11
10	11	11	11	11

$F = \bar{B}\bar{C} + AD$

⑤

CD	00	01	11	10
AB	00	11		
01		11		
11		11	11	11
10		11	11	

$F = D\bar{C} + DA + ABC\bar{D}$

⑥ $F(A, B, C, D) = \bar{A}D + BD + \bar{B}C + A\bar{B}D$

CD	00	01	11	10
AB	00	1	1	1
01		1	1	
11		1	1	
10		1	1	1

$$F = D + \bar{B}C$$

⑦ $F(W, X, Y, Z) = WX + YZ + \bar{W}Y\bar{Z}$

YZ	00	01	11	10
WX	00	1		1
01	1			1
11	1			1
10	1	1	1	1

$$F = WX + \bar{Z}\bar{W} + \bar{Z}Y$$

⑧ $F(A, B, C, D) = AC + AD + A\bar{B}\bar{C} + BCD$

CD	00	01	11	10
AB	00		1	
01			1	
11	1	1	1	1
10	1	1	1	1

$$F = AC + AD + A\bar{B}\bar{C} + BCD$$

Part 2 ⑨ $F(A, B, C, D) = \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C\bar{D} + A\bar{B}C\bar{D} + A\bar{B}C\bar{D}$

CD	00	01	11	10
AB	00	1		
01			1	
11				1
10				1

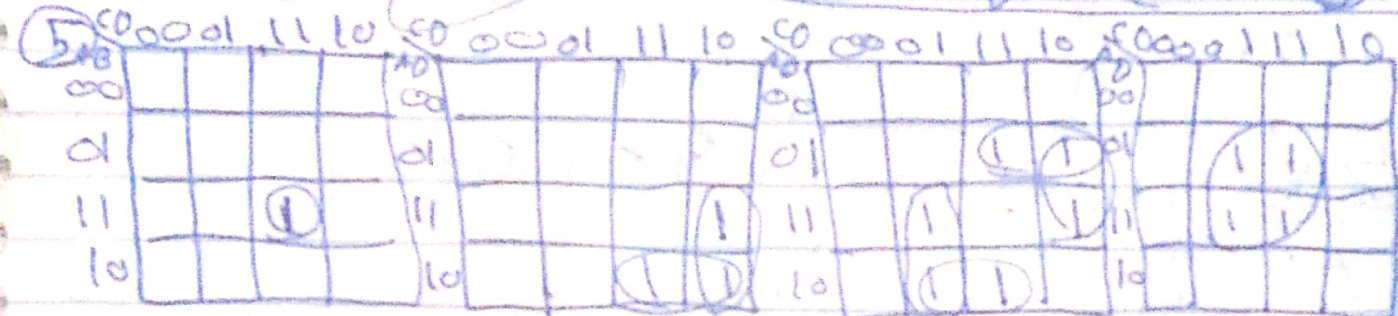
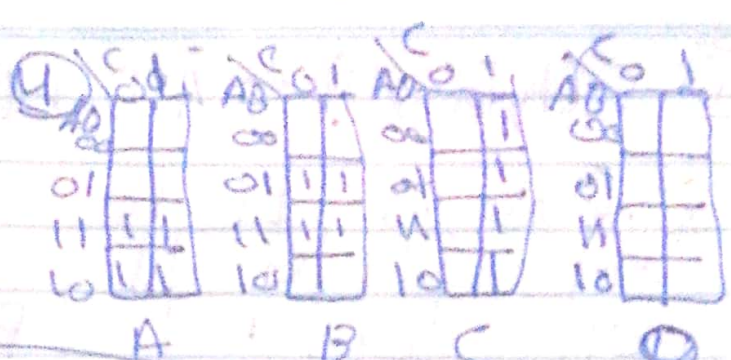
$$F = \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C\bar{D} + A\bar{B}C\bar{D} + A\bar{B}C\bar{D}$$

CD	00	01	11	10
AB	00			
01				
11	1	1	1	1
10			1	1

$$F = AB + AC$$

CD	00	01	11	10
AB	00	1		
01			1	
11				1
10				1

$$F = \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + A\bar{B}\bar{C} + A\bar{B}C$$



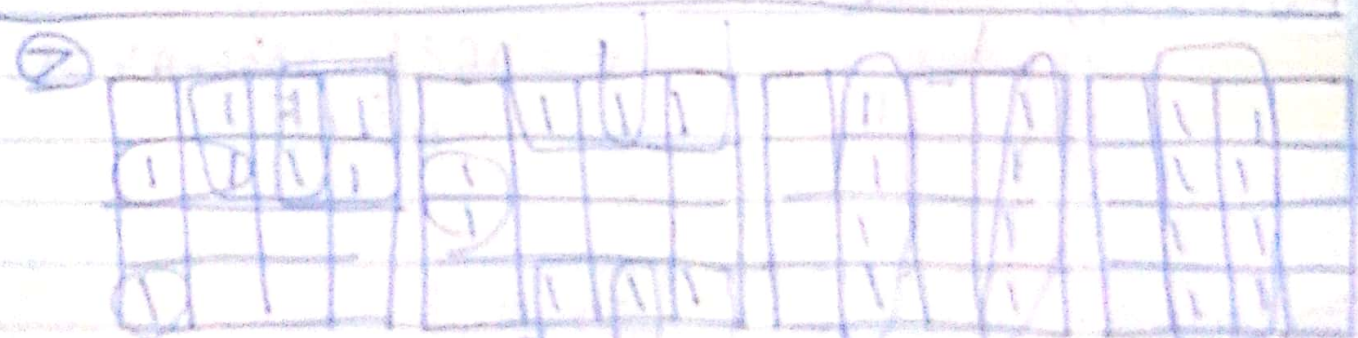
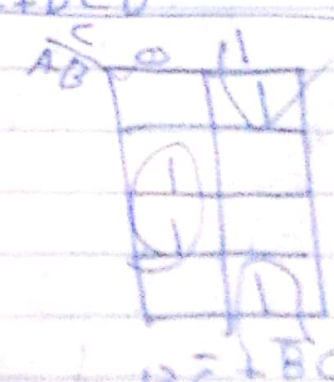
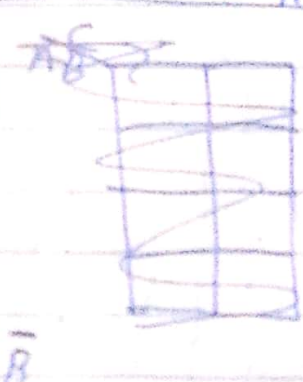
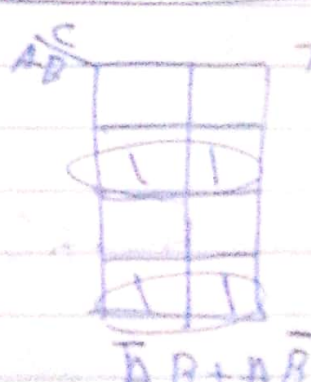
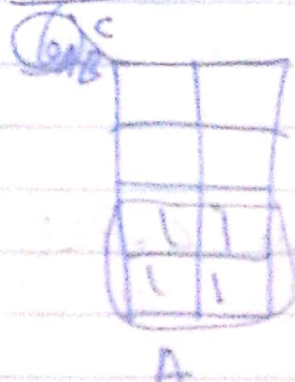
$ABCD$

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

$ACD + ADD$

BD

$\bar{A}BC + BC\bar{D}$



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

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

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

D

$\bar{A}D + AB\bar{D}$

$+ BC\bar{D}$