Joseph Wenzel

Truth Table

A	B	C	D	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Output
0	0	0	0	1	1	1	0	1	1	1	0
0	0	0	1	0	1	0	0	1	0	0	1
0	0	1	0	1	1	0	1	0	1	1	2
0	0	1	1	1	1	0	1	1	0	1	3
0	1	0	0	0	1	1	1	1	0	0	4
0	1	0	1	1	0	1	1	1	0	1	5
0	1	1	0	1	0	1	1	1	1	1	6
0	1	1	1	1	1	0	0	1	0	0	7
1	0	0	0	1	1	1	1	1	1	1	8
1	0	0	1	1	1	1	1	1	0	1	9
All	Other	Combin	ations								None

$F = \sum m_1(0,2,3,5,6,7,8,9)$

$\sum m_2(0,1,2,3,4,7,8,9)$

$\sum m_3(0,4,5,6,8,9)$

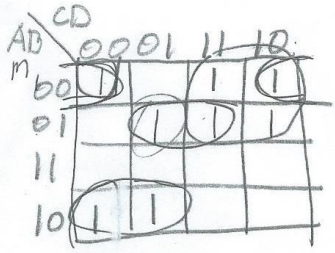
$\sum m_4(2,3,4,5,6,8,9)$

$\sum m_5(0,1,3,4,5,6,7,8,9)$

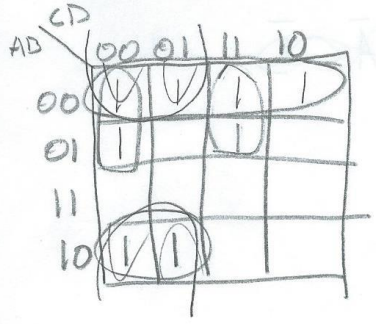
$\sum m_6(0,2,6,8,)$

$\sum m_7(0,2,3,5,6,8,9)$

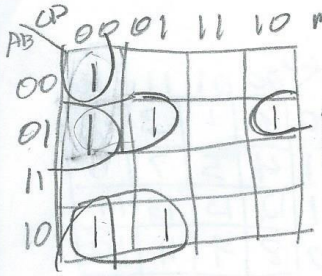
AB \ CD	00	01	11	10
00	0	1	3	2
01	4	5	7	6
11	12	13	15	14
10	8	9	11	10



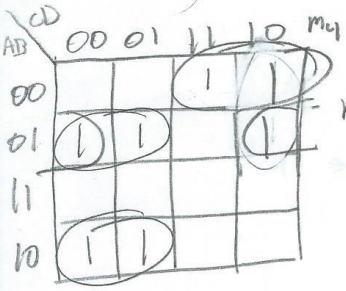
$m_1 = \bar{A}\bar{B}\bar{D} + A\bar{B}\bar{C} + \bar{A}BD + \bar{A}C$



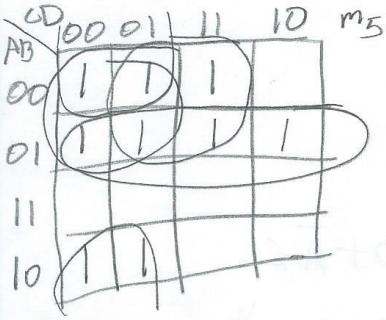
$m_2 = \bar{B}\bar{C} + \bar{A}\bar{B} + \bar{A}\bar{C}\bar{D} + \bar{A}CD$



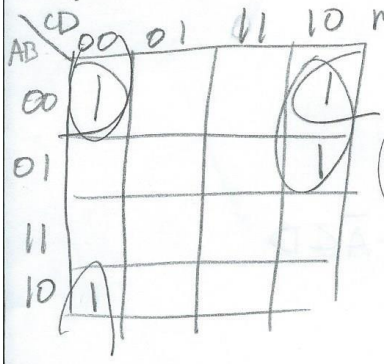
$m_3 = \bar{B}\bar{C}\bar{D} + \bar{A}B\bar{D} + \bar{A}B\bar{C} + A\bar{B}\bar{C}$



$m_4 = \bar{A}\bar{B}C + \bar{A}B\bar{C} + \bar{A}B\bar{D} + A\bar{B}\bar{C}$



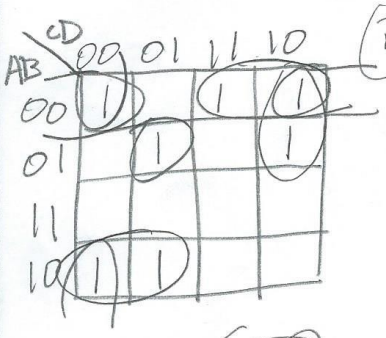
$m_5 = \bar{A}\bar{C} + \bar{B}\bar{C} + \bar{A}D + \bar{A}B$



$m_6 = \bar{B}\bar{C}\bar{D} + \bar{A}C\bar{D}$

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

~~$\bar{A}\bar{B}\bar{D}$~~



$(m_7) = \bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C + \bar{A}C\bar{D} + A\bar{B}\bar{C} + \bar{A}B\bar{C}D$