



## K Map Assignment

Q1)

	AB	00	01	11	10
CD	00	1	X	1	1
	01	5	13	1	9
	11	8	7	15	11
	10	2	X	6	1

SOP

$$\Sigma_m(0, 6, 8, 13, 14) + d(3, 4, 10)$$

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

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

Q2)  $Y = \Sigma_m(0, 1, 3, 7, 8, 9, 11, 15) + d(6, 14)$

	AB	00	01	11	10
CD	00	1	5	12	8
	01	1	1	5	9
	11	8	1	7	1
	10	2	6	X	14

SOP

The simplified equation is

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

Q3)  $\Pi_M(3, 5, 6, 11, 13, 14, 15) + d(4, 9, 10)$

	AB	00	01	11	10
CD	00	0	4	X	12
	01	1	5	0	18
	11	3	0	7	10
	10	2	6	0	10

POS

D - A

I -  $\bar{A}$

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

Q4)  $\Sigma_m (1, 3, 4, 5, 9, 10, 11) + \Sigma_d (6, 8)$

		AB	00	01	11	10	
		CD	00	01	12	18	SOP
		00	0	1	X		0 - A
		01	1	1	13	1	1 - A
		11	3	1	15	1	
		10	2	6	14	1	

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

Q5)  $F = \Sigma_m (0, 1, 4, 6, 7, 8, 9, 10, 11, 15)$

		AB	00	01	11	10	
		CD	00	01	12	18	SOP
		00	0	1	1		
		01	1	1	13	1	
		11	3	1	15	1	
		10	2	6	14	1	

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

$$F = \sum_m (1, 4, 6, 7, 8, 9, 10, 11, 15)$$

<del>AB</del>	00	01	11	10
<del>CD</del>	00	1 1	12	8 1
01	1 1	5	13	9 1
11	3	7 (1) 15 1	11	1
10	2	9 1 14	10	1

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

$$F(A, B, C, D) = \sum_m (0, 4, 5, 6, 12, 13) + d(7, 15)$$

<del>AB</del>	00	01	11	10
<del>CD</del>	00	1 1	12	8
01	1 1	5	13 1	9
11	3	7 X	15 X	11
10	2	6 1	14	10

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

$$F(P, Q, R, S) = \pi_m (1, 2, 3, 8, 9, 10, 11, 14)$$

<del>AB</del>	00	01	11	10
<del>CD</del>	00	1	12	8 1
01	1 1	5	13	9 1
11	1	7	15	11 1
10	1	6	14 1	10 1

$$\overline{AB} + \overline{BD} + A\overline{CD} + \overline{BC}\cancel{D} \neq A$$

$$F(W, X, Y, Z) = \sum m(2, 3, 6, 7, 8, 10, 11, 12, 14, 15)$$

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

$$A + AD$$

$$F(A, B, C, D) = \sum m(1, 5, 6, 12, 13, 14) + d(2, 4)$$

		AB	00	01	11	10
		CD	00	01	11	10
CD	AB	00	0	4	X	12
		01	1	5	1	13
11	3		7		15	"
10	2	X	6	1	14	10

$$\overline{A}\overline{C}D + B\overline{C}\overline{D} + A\overline{B}\overline{D} + AB\overline{C}$$

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