

Baškent University
Dept. Of Electrical-Electronics Engineering
EEM 211 - Digital Logic Design
Quiz 3 (A)

Student Name-Surname: Answer Key

Number:

1) Given the Boolean function $F=xy+x'z$:

- Obtain the truth table for F.
- Write F in canonical sum of products form.
- Write F in canonical product of sums form.

a)

x	y	z	F
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

b) $F(x,y,z) = \sum(1,3,6,7) = m_1 + m_3 + m_6 + m_7$

c) $F(x,y,z) = \prod(0,2,4,5) = M_0 M_2 M_4 M_5$

2) Express $F(A,B,C,D) = \sum(1,3,4,6,9,11,12,14)$ in standard product of sums form by using Karnaugh map.

		CD			
		00	01	11	10
AB	00	0	1	1	0
	01	1	0	0	1
	11	1	0	0	1
	10	0	1	1	0

$$F' = BD + B'D'$$

$$F = [(BD) + (B'D')]'$$

$$F = (BD)'(B'D')'$$

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

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Quiz 3 (B)

Student Name-Surname: Answer Key

Number:

1) Given the Boolean function $F = x'y + xz$:

- Obtain the truth table for F.
- Write F in canonical sum of products form.
- Write F in canonical product of sums form.

a)

x	y	z	F
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

b) $F(x,y,z) = \Sigma(2,3,5,7) = m_2 + m_3 + m_5 + m_7$

c) $F(x,y,z) = \Pi(0,1,4,6) = M_0 M_1 M_4 M_6$

2) Express $F(A,B,C,D) = \Pi(1,3,4,6,9,11,12,14)$ in standard sum of products form by using Karnaugh map.

	CD	00	01	11	10
AB	00	1	0	0	1
	01	0	1	1	0
	11	0	1	1	0
	10	1	0	0	1

$F = B'D' + BD$