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MODUL KE 6

Kegiatan Praktikum

PERCOBAAN 1

KEGIATAN PRAKTIKUM
Percobaan 1

1. Buat kombinasi gerbang logika berdasarkan peta karnaugh berikut.

		AB			
		00	01	11	10
C	00	0	0	0	0
	01	1	1	1	0
	11	0	1	1	1
	10	0	0	0	0

Handwritten annotations on the Karnaugh map:
- $A'C'D$ points to the cell (00, 01).
- BD points to the cell (11, 11).
- ACD points to the cell (11, 10).

2. Fungsi boolean : $F = ACD + BD + A'C'D$

3. Buat gerbang logika berdasarkan fungsi boolean anda! Gambar dalam kotak dibawah ini!

PERCOBAAN 2

Percobaan 2

1. Buat kombinasi gerbang logika berdasarkan peta karnaugh berikut!

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

Handwritten annotations on the Karnaugh map:
 - A blue circle around the top-left 1 (CD=00, AB=00) and a blue circle around the bottom-left 1 (CD=10, AB=00), with an arrow pointing to $\bar{B}\bar{D}$.
 - A red circle around the middle-right 1s (CD=01, AB=11) and (CD=11, AB=11), with an arrow pointing to $B\bar{D}$.
 - A green circle around the bottom-right 1 (CD=10, AB=10) and a green circle around the bottom-left 1 (CD=10, AB=00), with an arrow pointing to $B\bar{D}$.
 - A blue circle around the bottom-left 1 (CD=10, AB=00) and a blue circle around the bottom-right 1 (CD=10, AB=10), with an arrow pointing to $\bar{B}\bar{D}$.

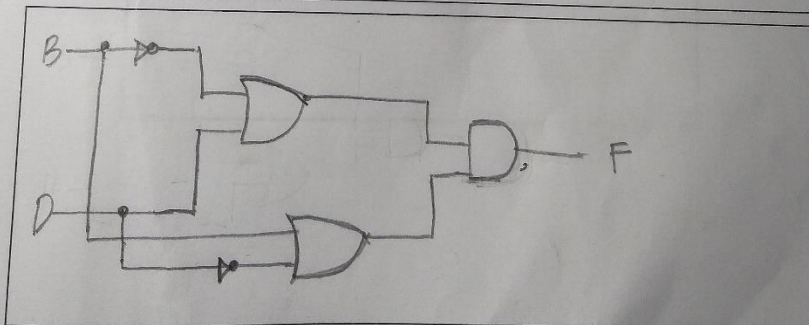
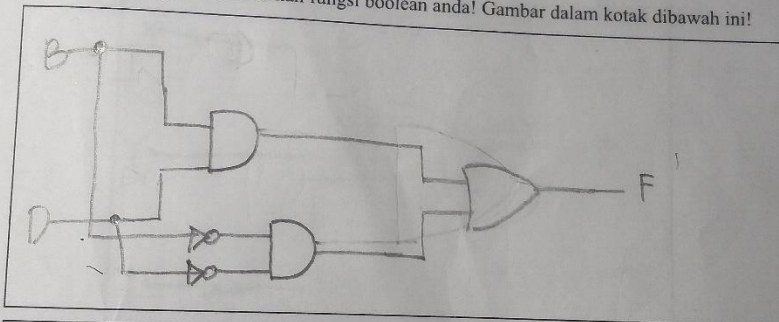
2. Fungsi boolean :

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

$$F = (\bar{B} + B)(\bar{D}) \quad \text{(AND-OR) SOP}$$

$$F = (\bar{B} + B)(\bar{D}) \quad \text{(OR-AND) POS}$$

3. Buat gerbang logika berdasarkan fungsi boolean anda! Gambar dalam kotak dibawah ini!



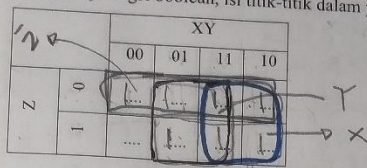
Apakah kedua kombinasi memberikan hasil yang sama? Ya / tidak

PERCOBAAN 3

Percobaan 3

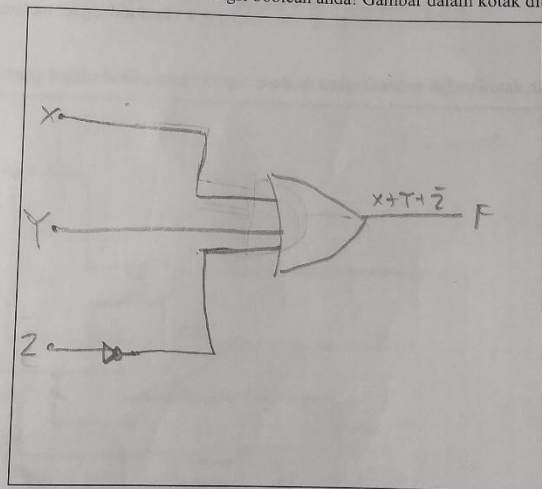
1. Fungsi boolean : $F = \overset{111}{XYZ} + \overset{110}{XYZ'} + \overset{101}{XY'Z} + \overset{011}{X'YZ} + \overset{010}{X'YZ'} + \overset{100}{XY'Z'} + \overset{000}{X'Y'Z'}$.

2. Berdasarkan fungsi boolean, isi titik-titik dalam peta karnaugh berikut!



3. Sederhanakan fungsi boolean : $F = X + Y + \bar{Z}$

4. Buat gerbang logika berdasarkan fungsi boolean anda! Gambar dalam kotak dibawah ini!



PERCOBAAN 4

Percobaan 4

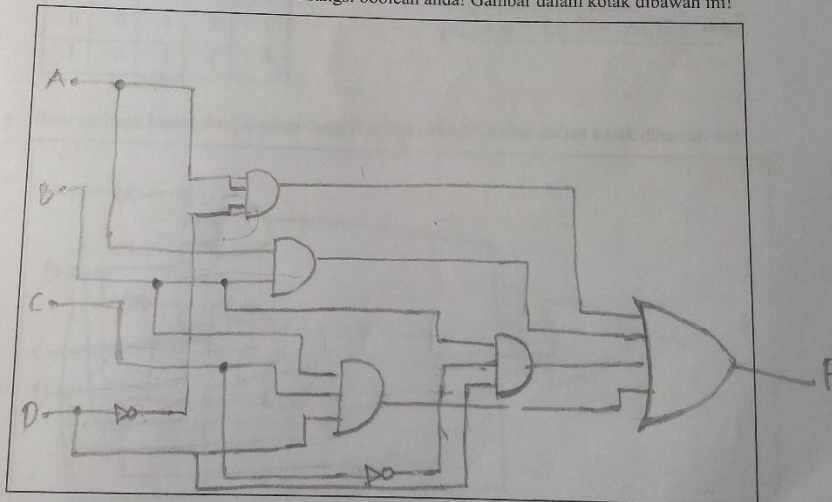
1. Fungsi boolean : $F = \overline{A}B + ABC + \overline{A}BC + BCD + BC'D + AB'CD'$

2. Berdasarkan fungsi boolean, isi titik-titik dalam peta karnaugh berikut!

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

3. Sederhanakan fungsi boolean : $F = \overline{A}B + ABC + \overline{A}BC + BCD + BC'D + AB'CD'$

4. Buat gerbang logika berdasarkan fungsi boolean anda! Gambar dalam kotak dibawah ini!



PERCOBAAN 5

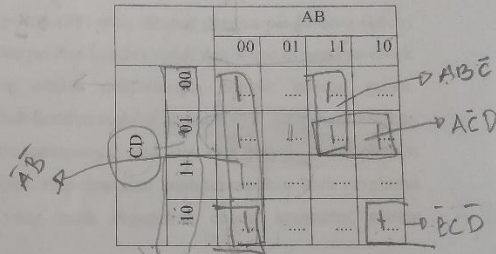
Percobaan 5

1. Tabel Fungsi boolean :

A	B	C	D	F
0	0	0	0	1
1	0	0	0	0
0	1	0	0	0
1	1	0	0	1
0	0	1	0	1
1	0	1	0	1
0	1	1	0	0
1	1	1	0	0
0	0	0	1	1
1	0	0	1	1
0	1	0	1	0
1	1	0	1	1
0	0	1	1	1
1	0	1	1	0

0	1	1	1	1
1	1	1	1	0

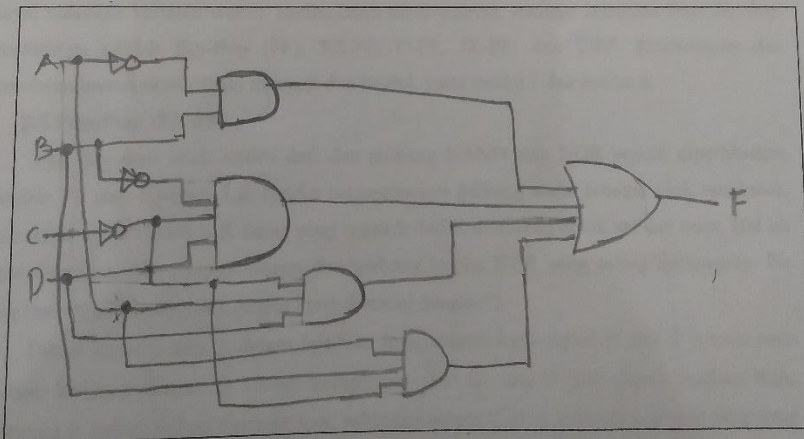
2. Berdasarkan tabel. Isi titik-titik dalam karnaugh map berikut!



3. Fungsi boolean sederhana:

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

4. Buat gerbang logika berdasarkan fungsi boolean anda! Gambar dalam kotak dibawah ini!



Apakah kedua kombinasi memberikan hasil yang sama? Ya / Tidak