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1408102/2015
kelas A
Logika Kombinasional - 1

Slide 13

1.13_A 27,315(10)

27/2	13	1
13/2	6	1
6/2	3	0
3/2	1	1
1/2	0	1

0,315 x 2 =	0,630	Ambil	0
0,630 x 2 =	1,260	Ambil	1
0,260 x 2 =	0,520	Ambil	0
0,520 x 2 =	1,040	Ambil	1
~~0,040~~			

Jawab : $(11\ 011,\ 0101\ \ldots)_{(2)}$

B. $0.666666\overline{6} = 2/3$

0,66666607 x 2 =	1,33335334	ambil 1
1,33335334 x 2 =	0,66666668	ambil 0
0,66666668 x 2 =	1,33333336	ambil 1
0,33333336 x 2 =	0,66666672	ambil 0
0,66666672 x 2 =	1,33333344	ambil 1
0,33333344 x 2 =	0,66666688	ambil 0
0,66666688 x 2 =	1,33333376	ambil 1
0,33333376 x 2 =	0,66661752	ambil 0

0/2 0 0

Binary = $0.10101010_{(2)}$

$0 \times 2^0 = 0$

$(1\times2^{-1})+(0\times2^{-2})+(1\times2^{-3})+(0\times2^{-4})+(1\times2^{-5})+(0\times2^{-6})+(1\times2^{-7})+(0\times2^{-8})$

$= 0,66406250_{(10)}$

∴ Hasil dari konversi Biner ke desimal, memiliki nilai di belakang koma sama sampai dengan bilangan ke dua di belakang koma

C. Binary = 0,10101010

0000 = 0

1010 = ~~13~~ A

1010 = ~~13~~ A

~~(0,1010)16~~ (0,AA)16

0,AA

$0 \times 16^0 = 0$

$(A\times16^{-1})+(A\times16^{-2})$

$= 0,66406250_{(10)}$

∴ memiliki hasil yang sama

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1.10 (A) $(1,10010)_2$

1 = 0001

1001 : 9

0000 : 0

Hex : $(1,90)_{16}$

$(1,90)_{16}$

$1\times16^0 = 1$

$(9\times16^{-1}) + (0\times16^{-2}) = 0,5125$

Decimal : $(1,5625)_{10}$

(B) $(1\,10.010)_2$

110 = 6

0100 = 4

Hex : $(6.4)_{16}$

6×16^0

4×16^{-1}

$(6,25)_2$

∴ Bentuk Binary di (A) dan (B) bernilai sama, tetapi koma di (B) digeser kekanan sebanyak 2 bits, jadi kita dapatkan $2^2 = 4$ kali nilai sebelumnya

1.9 A. $(10110.0101)_2$

$(0\times2^0)+(1\times2^1)+(1\times2^2)+(0\times2^3)+(1\times2^4)$

$= 2+4+16$

$= 22$

$(0\times2^{-1}) + (1\times2^{-2}) + (0\times2^{-3}) + (1\times2^{-4})$

$= 2^{-2} + 2^{-4}$

$= \frac{1}{4} + \frac{1}{16} = \frac{4+1}{16} = \frac{5}{16}$

$= 0,3125$

Decimal : $(22,3125)_{10}$

B. $(16.5)_{16}$

$(6\times16^0)+(1\times16^1)$

$16+1$

$= 22$

5×16^{-1}

0,3125

Decimal : $(22,3125)_{10}$

C. $(26,24)_8$

$(6\times8^0)+(2\times8^1)$

$= 22$

$(2\times8^{-1})+(4\times8^{-2})$

$= \frac{1}{4} + \frac{1}{16} = \frac{5}{16} = 0,3125$

Decimal : $(22,3125)_{10}$

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D. $(DADA.B)_{16}$

$(10\times16^3)+(13\times16^2)+(10\times16^1)+(13\times16^0)$

$= 10 + 208 + 2560 + 53248$

$= 56026$

(11×16^{-1})

$= \frac{11}{16}$

$= 0.6875$

Decimal $= (56026.6875)_{10}$

E. $(1010.1101)_2$

$(0\times2^0)+(1\times2^1)+(0\times2^2)+(1\times2^3)$

$= 0 + 2 + 0 + 8$

$= 10$

$(1\times2^{-1})+(1\times2^{-2})+(0\times2^{-3})+(1\times2^{-4})$

$= \frac{1}{2}+\frac{1}{4}+\frac{1}{16} = \frac{8+4+1}{16} = \frac{13}{16}$

$= 0.8125$

Decimal $= (10.8125)_{10}$

1.8 A. Directly

431

↓

431/2	215	1
215/2	107	1
107/2	53	1
53/2	26	1
26/2	13	0
13/2	6	1
6/2	3	0
3/2	1	1
1/2	0	1

Binary $(110101111)_2$

B. Hex To Binary

431

↓

431/16	26	15
26/16	1	10
10/16	0	1

Hex: 1AF

Hex to binary

F = 1111

A = 1010

1 = 0001

binary $= (110101111)_2$

∴ Lebih cepat menggunakan cara kedua yaitu mengubah menjadi Hexadecimal terlebih dahulu dan menerjemahkannya ke binary karena pembagian lebih sedikit dilakukan

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1.7 $(64CD)_{16}$

Binary: D : 1101
C : 1100
4 : 0100
6 : 0110

$(1100100110001101)_2$

Octal: $(1100100110001101)_2$

101 = 5
001 = 1
011 = 3
010 = 2
110 = 6

$(62315)_8$

1.4. Binary $(1111111111111111)_2$

Decimal $(1\times2^0) + (1\times2^1) + (1\times2^2) + (1\times2^3) + (1\times2^4) + (1\times2^5) + (1\times2^6) + (1\times2^7) + (1\times2^8) + (1\times2^9) + (1\times2^{10}) + (1\times2^{11}) + (1\times2^{12}) + (1\times2^{13}) + (1\times2^{14}) + (1\times2^{15})$ $(65535)_{10}$

Hex: 1111 = F
1111 = F
1111 = F
1111 = F

$(FFFF)_{16}$

1.3 a. $(4310)_5$

Decimal: $(0\times5^0) + (1\times5^1) + (3\times5^2) + (4\times5^3)$
$= 5 + 75 + 500$
$= (580)_{10}$

b. $(198)_{12}$

Decimal $= (8\times12^0) + (9\times12^1) + (1\times12^2)$
$= 8 + 108 + 144$
$= (260)_{10}$

c. $(435)_8$

Decimal: $(4\times8^2) + (3\times8^1) + (5\times8^0)$
$= 5 + 24 + 256$
$= (285)_{10}$

D. $(345)_6$

Decimal $= (5\times6^0) + (4\times6^1) + (3\times6^2)$
$= 5 + 24 + 108$
$= (137)_{10}$

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Slide 14

1. A. $(1011, 101)_2$

- Hexdecimal

1011 : B , 1010 : A

$(B.A)_{16}$

- Octal

011 : 3 , 101 : 5

001 : 1

$(13.5)_8$

- Decimal

$(B.A)_{16}$

$(16^0 \times 11)$, (10×16^{-1})

11 + 10/16

$(11.625)_{10}$

B. $(DA3.CA)_{16}$

- Biner

D : 1101 C : 1100

A : 1010 A : 1010

3 : 0011

$(110110100011.11001010)_2$

- Octal

011 : 3 110 : 6

100 : 4 010 : 2

110 : 6 100 : 4

110 : 6

$(6643.624)_8$

- Decimal

$(DA3.CA)_{16}$

$(3 \times 16^0) + (10 \times 16^1) + (13 \times 16^2)$. $(12 \times 16^{-1}) + (16^{-2} \times 10)$

$(3 + 160 + 3328)$. $(0.75) + (0.0390625)$

(0.7890625)

$(3491.7890625)_{10}$

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c. $(36,54)_{10}$

- Biner

36 : 2 → 18 0
18 : 2 → 9 0
9 : 2 → 4 1
4 : 2 → 2 0
2 : 2 → 1 0
1 : 0 → 0 1

$0,54 \times 2 = 1,08$ → 1
$0,08 \times 2 = 0,16$ → 0
$0,16 \times 2 = 0,32$ → 0
$0,32 \times 2 = 0,64$ → 0
$0,64 \times 2 = 1,28$ → 1
$0,28 \times 2 = 0,56$ → 0

$\Rightarrow (100100,100010..)_2$

- Hexa decimal

$(100100.100010...)_2$

0100 : 4 1000 : 8
0010 : 2 1000 : 8

$\Rightarrow (24,88...)_{16}$

- Octal

$(100100.100010...)_2$

100 : 4 100 : 4
100 : 4 010 : 2

$\Rightarrow (44,42...)_8$

d. $(52,16)_8$

desimal
52,16
$(2 \times 8^0) + (5 \times 8^1)$ $(1 \times 8^{-1}) + (6 \times 8^{-2})$
$2 + 40$ $\frac{1}{8} + \frac{6}{64} = \frac{8+6}{64} = \frac{14}{64}$
42

$\Rightarrow (42,2187)_{10}$

- Biner

$(52,16)_8$
$\Downarrow$
$(101010.00111)_2$

- Hexa decimal

$(101010.00111)_2$

1010 : A 0011 : 3
0010 : 2 1000 : 8
$\Rightarrow (2A,38)_{16}$

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2. $(1001\,0100\,0001)_{BCD}$

1001 0100 0001

9 4 1

$(941)_{10}$

941	: 2	470	1
470	: 2	235	0
235	: 2	117	1
117	: 2	58	1
58	: 2	29	0
29	: 2	14	1
14	: 2	7	0
7	: 2	3	1
3	: 2	1	1
1	: 2	0	1

$(1110\,1011\,01)_2$

3. $(1010110)_2$

$1\times(2^6)+1\times(2^5)+0\times(2^4)+1\times(2^3)+1\times(2^2)+0\times(2^1)+0\times(2^0)$

$=64+0+16+8+4+0+0$

$=92$

9 2

1110 1000

$(1110\,1110\,1000)_{BCD}$

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Slide 6

1.3 $(250.5)_{10}$

- Base 4

250 : 4	62	2
62 : 4	15	2
15 : 4	3	3
3 : 4	0	3

$0.5 \times 4 = 2$ → 2

$(3322.2)_4$

- Base 8

250 : 8	31	2
31 : 8	3	7
3 : 8	0	3

$0.5 \times 8 = 4$

$(372.4)_8$

- Base 16

250 : 16	15	10
15 : 16	0	15

$0.5 \times 16 = 8$

$(FA.8)_{16}$

1.4 - $(12.0625)_{10}$

12 : 2	6	0
6 : 2	3	0
3 : 2	1	1
1 : 2	0	1

$0.0625 \times 2 = 0.1250$ → 0
$0.1250 \times 2 = 0.2500$ → 0
$0.25 \times 2 = 0.50$ → 0
$0.5 \times 2 = 1$

$(1100.0001)_2$

- $(1000)_{10}$

1000 : 2	500	0
500 : 2	250	0
250 : 2	125	0
125 : 2	62	1
62 : 2	31	0
31 : 2	15	1
15 : 2	7	1
7 : 2	3	1
3 : 2	1	1
1 : 2	0	1

$(1111101000)_2$

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• $(673.23)_{10}$

673 : 2	336	1
336 : 2	168	0
168 : 2	84	0
84 : 2	42	0
42 : 2	21	0
21 : 2	10	1
10 : 2	5	0
5 : 2	2	1
2 : 2	1	0
1 : 2	0	1

$(0.23 \times 2) = 0.46 \rightarrow 0$
$(0.46 \times 2) = 0.92 \rightarrow 0$
$(0.92 \times 2) = 1.84 \rightarrow 1$
$(0.84 \times 2) = 1.68 \rightarrow 1$
$(0.68 \times 2) = 1.36 \rightarrow 1$
$(0.36 \times 2) = 0.72 \rightarrow 0$

$(1010100001.001110)_2$

• $(1798)_{10}$

1798 : 2	899	0
899 : 2	449	1
449 : 2	224	1
224 : 2	112	0
112 : 2	56	0
56 : 2	28	0
28 : 2	14	0
14 : 2	7	0
7 : 2	3	1
3 : 2	1	1
1 : 2	0	1

$(11100000110)_2$

1.6 a $(225.225)_2$

• Binary

225 : 2	112	1
112 : 2	56	0
56 : 2	28	0
28 : 2	14	0
14 : 2	7	0
7 : 2	3	1
3 : 2	1	1
1 : 2	0	1

$0.225 \times 2 = 0.450 \rightarrow 0$
$0.45 \times 2 = 0.9 \rightarrow 0$
$0.9 \times 2 = 1.8 \rightarrow 1$
$0.8 \times 2 = 1.6 \rightarrow 1$
$0.6 \times 2 = 1.2 \rightarrow 1$

$(11100001,00111..)_2$

• Octal

$(11100001.00111)_2$

001 : 1
100 : 4
011 : 3

001 : 1
110 : 6

$(341.16...)_8$

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• Hexa Decimal

$(111\,0000\,|\,.00111)_2$

0001 : 1 0011 : 3
1110 : E 1000 : 8

$(E1,38)_{16}$

b. $(11\,0100\,1\,|\,.011)_2$

• Octal • Octal
001 : 1 • 011 : 3
101 : 5
001 : 1

$(151.3)_8$

• Hexadecimal
1001 : 9 0110 : 6
0110 : 6

$(69.6)_{16}$

• Decimal
$(69.6)_{16}$
$(9\times16^0)+(6\times16^{-1})$ (6×16^{-1})
$9+\frac{6}{16}$
$9+0.375$
9.375

$(105.375)_{10}$

c. $(623.77)_8$

• Binary
6 2 3 . 7 7
110 010 011 111 111

$(110010011.111111)_2$

• Hexadecimal
$(110010011.111111)_2$
0011 : 3 1111 : F
1001 : 9 1100 : C
0001 : 1

$(193.FC)_{16}$

• Decimal
147
256+
403

$(193.FC)_{16}$
$(3\times16^0)+(9\times16^1)+(1\times16^2)+$
$=3+144+256=403$
$(15\times16^{-1})+(12\times16^{-2})$
$\frac{15}{16}+\frac{12}{256}=\frac{240+12}{256}=\frac{252}{256}$
$=0.984375$
$=(403.984375)_{10}$

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d. $(2AC5.D)_{16}$

- Binary

2	A	C	5	.	D
0010	1010	1100	0101		1101

$(10101011000101.1101)_2$

- Octal

$(10101011000101.1101)_2$

101 : 5
000 : 0
011 : 3
101 : 5
010 : 2

110 : 6
100 : 4

$(25305.64)_8$

- Decimal

$(2AC5.D)_{16}$

$(5\times16^0)+(12\times16^1)+(10\times16^2)+(2\times16^3)$ $\qquad (13\times16^{-1})=\frac{13}{16}=0.8125$

$5+192+2560+8192$

$=10949$

$(10949.8125)_{10}$

1.7

a. $(100100.001)_2$

$(1\times2^0)+(1\times2^3)+(1\times2^6)$ $\qquad (1\times2^{-3})$

$1+8+64$ $\qquad 0.125$

73

$=(73.125)_{10}$

b. $(12121)_3$

$(1\times3^0)+(2\times3^1)+(1\times3^2)+(2\times3^3)+(1\times3^4)$

$1+6+9+54+81$

$=(151)_{10}$

c. $(1032.2)_4$

$(2\times4^0)+(3\times4^1)+(0\times4^2)+(1\times4^3)$ $\qquad (2\times4^{-1})$

$2+12+0+64$ $\qquad 0.5$

$(78.5)_{10}$

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d. $(4310)_5$

$(0\times5^0) + (1\times5^1) + (3\times5^2) + (4\times5^3)$

$0 + 5 + 75 + 500$

$= (580)_{10}$

e. $(0.342)_6$

$(0\times6^0) \quad (3\times6^{-1}) + (4\times6^{-2}) + (2\times6^{-3})$

$0 \quad \frac{3}{6} + \frac{4}{36} + \frac{2}{216} = \frac{108+24+2}{216} = \frac{134}{216}$

$(0.62037037\ldots)_{10}$

F. $(50:)_7$

$(0\times7^0) + (5\times7^1)$

$0 + 35 = (35)_{10}$

6. $(B.3)_9$

$(B\times9^0) \quad (3\times9^{-1})$

$B \quad 0.333\ldots$

$(B.333\ldots)_{10}$

H. $(19B)_{12}$

$(B\times12^0) + (9\times12^1) + (1\times12^2)$

$(B + 108 + 144)$

$= (260)_{10}$

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Tugas : Logika Kombinasi 2

1. **Slide 6**
   a. **Komplemen 7 dari $(7564,43)_8$**
      → $(8^4 - 8^{-2})_{10}$ - $(7564.43)_8$
      → $(7777.77)_{10}$ - $(7564.43)_8$
      → $(0213.34)_8$
   b. **Komplemen 15 dari $(0A65,7C)_{16}$**
      → (16^4-16^{-2}) - $(0A65,7C)_{16}$
      → (FFFF.FF)-$(0A65,7C)_{16}$
      → $(F59A.85)_{16}$

2. **Slide 8**

   a. **Komplemen 10 dari $(04857.43)_{10}$,$(0.6572)_{10}$**
      → **(**$99999.99)_{10}$ - $(04857.43)_{10}$
      → $(95142.57)_{10}$

      → $(9.9999)_{10}$ - $(0.6572)_{10}$
      → $(9.3428)_{10}$
   b. **Komplemen 8 dari $(7564.23)_{8,}$**
      → $(7777.77)_8$ - (7564.23)
      → $(0213.55)_8$
   c. **Komplemen 2 dari $(10110.101)_2$**
      → $(11111.111)_2$ - $(10110.101)_2$
      → $(01001.011)_2$
3. **Slide 9**
   a. **1.14**
      i. **00010000**
         1. **Komplemen 1**
            → $(11111111-00010000)_2$
            → $(11101111)_2$

         2. **Komplemen 2**
            → $(11101111 + 00000001)_2$
            → $(11110000)_2$

      ii. **11011010**
         1. **Komplemen 1**
            → $(11111111 - 11011010)_2$
            → $(00100101)_2$

         2. **Komplemen 2**
            → $(00100101 + 00000001)_2$
            → $(00100110)_2$

iii. **10000101**

1. **Komplemen 1**
   → $(11111111 - 10000101)_2$
   → $(01111010)_2$
2. **Komplemen 2**
   → $(01111010 + 00000001)_2$
   → $(01111011)_2$

iv. **00000000**

1. **Komplemen 1**
   → $(11111111 - 00000000)_2$
   → $(11111111)_2$

2. **Komplemen 2**
   → $(11111111 + 00000001)_2$
   → $(100000000)_2$

v. **10101010**

1. **Komplemen 1**
   → $(11111111 - 10101010)_2$
   → $(01010101)_2$
2. **Komplemen 2**
   → $(01010101 + 00000001)_2$
   → $(01010110)_2$

vi. **11111111**

1. **Komplemen 1**
   → $(11111111 - 11111111)_2$
   → $(00000000)_2$
2. **Komplemen 2**
   → $(00000000 + 00000001)_2$
   → $(00000001)_2$

b. **1.15**

i. **25,478,036**

1. **Komplemen 9**
   → $(99,999,999 - 25,478,036)_{10}$
   → $(74,521,963)_{10}$
2. **Komplemen 10**
   → $(1 + 74,521,963)_{10}$
   → $(74,521,964)_{10}$

ii. **25,000,000**

1. **Komplemen 9**
   → $(99,999,999 - 25,000,000)_{10}$
   → $(74,999,999)_{10}$
2. **Komplemen 10**
   → $(1+74,000,000)_{10}$
   → $(75,000,000)_{10}$

iii. **63, 325, 600**

1. **Komplemen 9**
   → $(99,999,9999 - 63,325,600)_{10}$

→ $(36,674,399)_{10}$

2. **Komplemen 10**

→ $(1+36,674,399)_{10}$

→ $(36,674,400)_{10}$

iv. **00,000,000**

1. **Komplemen 9**

→ $(99,999,999 + 00,000,000)_{10}$

→ $(99,999,999)_{10}$

2. **Komplemen 10**

→ $\mathbf{(}99,999,999 + 1\mathbf{)_{10}}$

→ $\mathbf{(}100,000,000\mathbf{)_{10}}$

c. 1.16

i. **Komplemen 16 dari C3DF**

→ $(FFFF - C3DF)_{16}$

→ $(3C20)_{16}$

→ $(0001 + 3C20)_{16}$

→ $(3C21)_{16}$

ii. **Konversi C3DF ke biner**

→ Menggunakan tabel

Decimal Value	Hexadecimal Value	Binary Value
0	00	0000 0000
1	01	0000 0001
2	02	0000 0010
3	03	0000 0011
4	04	0000 0100
5	05	0000 0101
6	06	0000 0110
7	07	0000 0111
8	08	0000 1000
9	09	0000 1001
10	0A	0000 1010
11	0B	0000 1011
12	0C	0000 1100
13	0D	0000 1101
14	0E	0000 1110
15	0F	0000 1111
16	10	0001 0000
17	11	0001 0001

→ C=1100

→ 3=0011

→ D=1101
→ F=1111
→ $(1100001111011111)_2$

iii. **Hasil komplemen 2 dari konversi tersebut**
→ $(1111111111111111 - 1100001111011111)_2$
→ $(0011110000100000)_2$
→ $(0000000000000001 + 0011110000100000)_2$
→ $(0011110000100001)_2$

iv. **Konversi jawaban komp 2 tersebut ke hexadecimal dan bandingkan dengan komplemen 16 dari C3DF**
→ 0001 =1
→ 0010 =2
→ 1100 =C
→ 0011 =3

→ $(3C21)_{16}$,memiliki hasil yang sama dengan jawaban di i

4. **Slide 14**
   a. **$(11010 - 10110)_2$ kompl 2**
   → komplemen 2 dari 10110
   → $(111111)_2 - (110110)_2$
   → $(001001)_2$
   → $(000001 + 001001)_2$
   → $(001010)_2$

   → operasi
   → $(011010 + 001010)_2$
   → $(1\ 00100)_2$ (End Carry diabaikan)
   → $(00100)_2$
   → $+(100)_2$

   b. **$(576 – 864)_{10}$ kompl 10**
   → Komplemen 10 dari 864
   → $(9999)_{10} - (9864)_{10}$
   → $(0136)_{10}$

   → Operasi
   → $(0576)_{10} + (0136)_{10}$
   → $(0712)_{10}$ (Tidak ada end carry,di komplemen 10 lagi)

   → $(9999)_{10} - (0712)_{10}$

→ $(9287)_{10}$
→ $-(287)_{10}$

c. $(345 - 762)_8$ kompl 8

→ Komplemen 8 dari (7762)
→ $(7777)_8 - (7762)_8$
→ $(0016)_8$

→ Operasi
→ $(0345)_8 + (0016)_8$
→ $(0363)_8$ (Tidak ada end carry di kompleme 8 sekali lagi)

→ $(7777)_8 - (0363)_8$
→ $(7415)_8$
→ $-(415)_8$

d. $(7451 - 4562)_8$ kompl 8

→ Komplemen 8 dari $(74562)_8$
→ $(77777)_8 - (74562)_8$
→ $(03216)_8$

→ Operasi
→ $(07451)_8 + (03216)_8$
→ $(1\ 2667)_8$
→ $+(2667)_8$

e. $(1100 - 1001)_2$ kompl 2

→ Komplemen 2 dari $(11001)_2$
→ $(11111)_2 - (11001)_2$
→ $(00111)_2$

→ Operasi
→ $(01100)_2 + (00111)_2$
→ $(10010)_2$ (end carry diabaikan)
→ $+ (011)_2$

Slide 19

A

1. $(08739 + 92345)_{10}$

→ komplemen 10 dari $(92345)_{10}$

→ $(99999 - 92345)_{10}$

$(07654)_{10}$

$(1 + 07654)_{10}$

$(07655)_{10}$

→ Operasi

$(08739 + 07655)_{10}$

$(16394)_{10}$ → Ada end carry 1, diabaikan

$+(6394)_{10}$

2. $(3542 - 6527)_8$

→ komp 8 dari $(76527)_8$

$(77777 - 76527)_8$

$(01250)_8$

$(00001 + 01250)_8$

$(01251)_8$

→ Operasi

$(03542 + 01251)_8$

$(05013)_8$ (Tidak ada end cary, di komp 8 lagi)

→ komp8$(03793)_8$

$(77777 - 05013)_8$

$(72764)_8$

$(1 + 72764)_8$

$-(2765)_8$

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3. $(11010 - 10001)_2$

→ komp 2 dari 11001

→ $(111111 - 110011)_2$

(001100)

(001101)

→ Operasi

$(011010 + 001101)_2$

$$\begin{array}{r} 011010 \\ 001101 \\ \hline 100111 \end{array}$$

$(011010 + 001101)_2$

$(100111)_2$ (ada end caryl, diabaikan)

$+(00111)_2$

4. $(6723.45 - 4512.72)_{10}$

→ komp 10 dari $(4512.72)_{10}$

$(99999.99 - 4512.72)_{10}$

$= (05487.27)_{10}$

$= (05487.28)_{10}$

→ Operasi

$(06723.45 + 05487.28)_{10}$

$(12210.73)_{10}$ → Ada end caryl, diabaikan

$+(2210.73)_{10}$

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B

1. $(3451-865)_{10}$

→ komp 9 (00865)

→ $(99999-00865)_{10}$

$(99134)_{10}$

→ Operasi

→ $(34513+99134)_{10}$

→ $(134647)_{10}$ → end carry ditambah di digit akhir

→ $(34648)_{10}$

2. $(265-652)_8$

→ komp 7 (7652)

$(777-652)_8$

$(125)_8$

→ Operasi

$(265+125)_8$

$(412)_8$ → Tidak ada end carry di komp 7 nya

$(7777-0412)_8$

$(7365)_8$

$-(365)_8$

3. $(10111.11-11001.01)_2$

→ komp 1 $(11001.01)_2$

$(11111.11-11001.01)_2$

$(00110.10)_2$

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Operasi

$(10111.11 + 00110.10)_2$

$(11110.01)_2$ → Tak ada end carry, di komp 1 kembali

$(11111.11 - 11110.01)_2$

$(00001.10)_2$

$-(00001.10)_2$

4. $(325.12 - 657.45)_8$

→ komp 7 dari $(7657.45)_8$

→ $(777.77 - 657.45)_8$

$(120.32)_8$

→ operasi

$(325.12 + 120.32)_8$

$(445.44)_8$ ⇒ Tidak ada end carry, di komp 7 kembali

$(7777.77 - 0445.44)_8$

$(7332.33)_8$

$-(332.33)_8$

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1.17. (a) $(4,637 - 2,579)_{10}$

→ komp 10 dari 2,579

$(99,999 - 2,579)_{10}$

$(\quad 97,421)_{10}$

→ Operasi

$(04,637 + 97,421)_{10}$

$(\ 1\ 2058)$ → end carry (1) diabaikan

$+(2058)$

(b) $(125 - 1,800)_{10}$

→ komp 10 dari 01,800

$(99,999 - 01,800)_{10}$

$(\quad 98,209)_{10}$

→ Operasi

$(00,125 + 98,209)_{10}$

$(\quad 98,325\ )$ → Tak ada end carry di komp 10 kembali

→ komp 10 (98,325)

$(99,999 - 98,325)_{10}$

$(\quad 01,674)_{10}$

$-(1,675)_{10}$

(c) $(2,043 - 4,361)_{10}$

→ komp 10 dari 04,361

$(99,999 - 04,361)_{10}$

$[\quad 95,638)_{10} \rightarrow (95,639)_{10}$

→ Operasi

$(02,043 + 95,639)_{10}$

$(\quad 97,682)_{10}$ → Tak ada end carry di komp 10 kembali

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→ komp 10 (07,682)10

(99,999 − 07682)10

(92,317)10

(92,317)10 ⇒ (92,318)10

− (2,318)10

(d) (1,631 − 745)10

→ komp 10 (0745)

(99,999 − 00,745)10

(09,254)10 ⇒ (09,255)10

→ operasi

(01,631 + 09,255)10

(10,886)10 ⇒ ada end carry diabaikan

+ (0,886)10

1.18

(a) (10011 − 10010)2

→ komp 2 dari 11010

(11111 − 11010)2

(00101)2

(00110)2

→ operasi

(01001 + 00110)2

(10000)2 → ada end carry, diabaikan

+ (00001)2

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(b) $(100010 - 100110)_2$

→ komp 2 dari $(100110)_2$

$(111111 + 100110)_2$

$(011001)_2$ --

$(011010)_2$

→ Operasi

$(0100010 + 0011010)_2$

$(0111100)_2$ → Tidak ada end carry di komp 2 sekali lagi

$(1111111 - 0111100)_2$

$(1 + 1000011)_2$

$(1000011)_2$

$-(0011100)_2$

(c) $(1001 - 110101)_2$

→ komp 2 dari $(110101)_2$

$(111111 - 110101)_2$

$(001010)_2$

$(001011)_2$

→ Operasi

$(0001001 + 1001011)_2$

$(0010100)_2$ → Tak ada end carry di komp2 kembali

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→ 1komp 2

$(11\ 1111 - 00\ 10100)_2$

$(\quad\quad 10\ 01\ 01)_2$

$(\quad\quad 11\ 01\ 00)_2$

$-(10\ 11\ 00)_2$

(D) $(10\ 1000 - 00\ 10\ 1)_2$

→ 1komp 2 dari $(0\ 10\ 10\ 1)_2$

$((11\ 1111 - 10\ 10\ 10)_2$

$(\quad 01\ 01\ 01)_2$

$(\quad 10\ 10\ 11)_2$

→ operasi

$(0\ 10\ 1000 + 01\ 01\ 011)_2$

$(\quad 1 \quad 0\ 1\ 00\ 11)_2$ → ada end carry diabaikan

$+(\quad 01\ 00\ 11)_2$

1. Ig $(+9236)_{10} = (009236)_{10}$

$(+801)_{10} = (000801)_{10}$

Bentuk Negatif

999,999
009,236 −
990,713
+ 1
(990,714)$_{10}$

999,999
000,801 −
999,198
+ 1
(999,199)$_{10}$

(a) $(+9,236) + (+801) = 009236 + 000801$

$= (01\ 00\ 87)_{10}$

(b) $(+9,236) + (-801) = 009236 + 999199$

$= (00\ 8435)_{10}$

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(c) (-9,286) + (+801) = 990714 + 000801

$= (991515)_{10}$

(d) (-9,286) + (-801) = 990714 + 999199

$= (989913)_{10}$

1.21

(+9742) = (009742)

(+641) = (000641)

Bentuk negatif

999999
009742 −
990257
1 +
$(990258)_{10}$

999999
000641 −
999358
1 +
$(999359)_{10}$

(a) (+9742) + (+641) = (009742) + (000641)

$= (010383)_{10}$

(c) (-9742) + (+641) = (990258) + (000641)

$= (990899)_{10}$ ⇒ Tak ada end carry

(999999
990899) −
009100
1 +
(009101) +
−(9101)

(b) (+9742) + (-641) = (009742) + (999359)

$= (009101)_{10}$

(d) (-9742) + (-641) = (990258) + (999359)

$= (989617)_{10}$

Tak ada end carry

999999
989617 −
010382
1 +
(010383)

−(10383)

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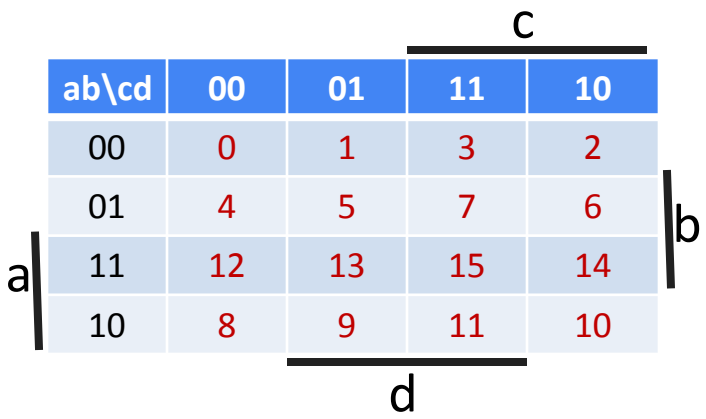
Latihan K-map

Logika Kombinasional

Amir Salim
140810210015
Kelas A

Fungsi dengan 4 variabel



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

F(a, b, c, d)=

* Nomor sel : 1 s.d 15

LATIHAN

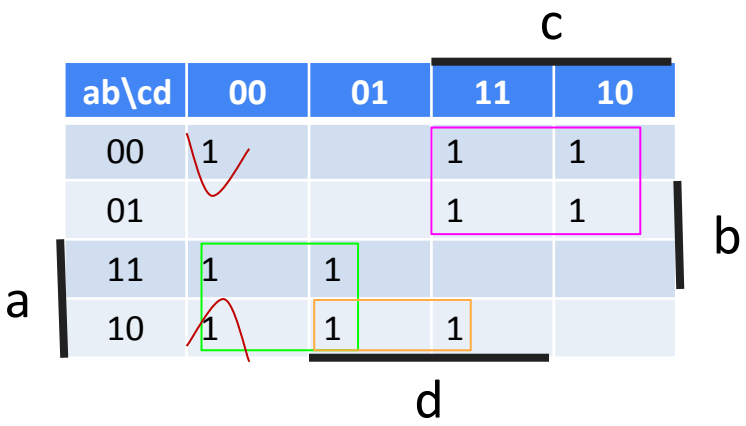
a. f(a, b, c, d) = Σm(0, 2, 3, 6, 7, 8, 9, 11, 12, 13)

b. f(a, b, c, d) = Σm(0,1,2,4,5,10, 11,13,15)

Sederhanakan!

ab\cd	00	01	11	10
00				
01				
11				
10				

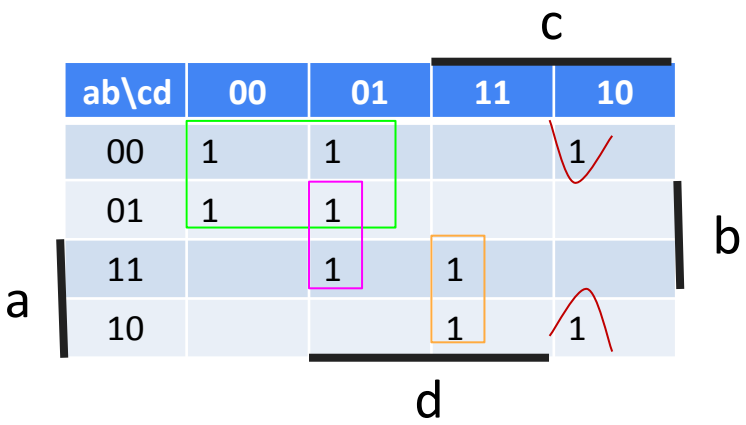
Soal A



a. f(a, b, c, d) = Σm(0, 2, 3, 6, 7, 8, 9, 11, 12, 13)

Jawaban = b’c’d’ + ac’ + a’c + b’cd

Soal B

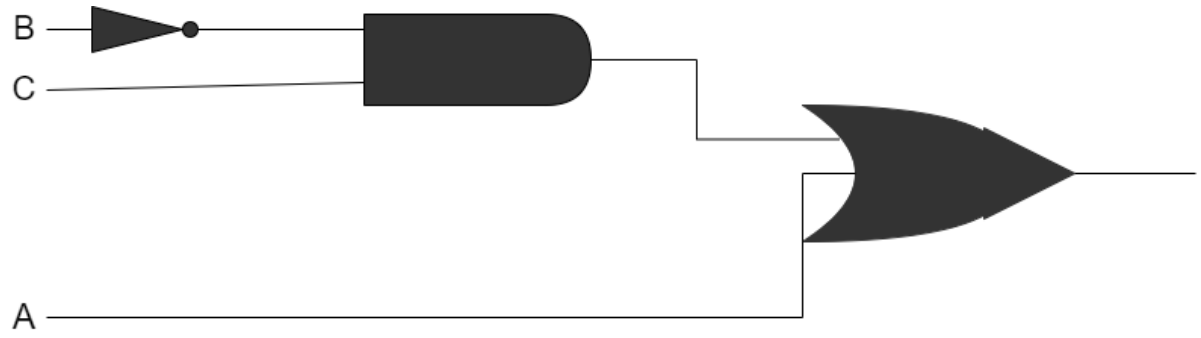


b. f(a, b, c, d) = Σm(0,1,2,4,5,10,11,13,15)

Jawaban = a'c' + abc' + abc + b'cd'

Nama : Amir Salim
Kelas : A
NPM : 140810210015
Tugas Logika Digital
1。

A	B	C	F=A+B’C
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1



2。

A	B	C	F=BC+AC
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1

1	1	0	0
1	1	1	1

3.F=A’B+ B’A

A	B	F=A’B+ B’A
0	0	0
0	1	1
1	0	1
1	1	0

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3. $F(a,b,c) = a'b'c' + a'bc' + a'bc + ab'c + abc'$

$= a'c'(b'+b) + a'bc + ab'c + abc'$

$= a'c' + a'bc + ab'c + abc'$

$= c'(a'+ab') + ab'c + a'bc$

$= c'((a'+a)(a'+b)) + ab'c + a'bc$

$= a'c' + bc' + ab'c + a'bc$

$a'c' + bc' + ab'c + a'bc$

$a'(c'+bc) + bc' + ab'c$

$a'((c'+c)(b+c')) + bc' + ab'c$

$a'b + a'c' + bc' + ab'c$

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5. $F(a,b,c) = a'b'c' + a'b'c + a'bc + ab'c' + abc$

$= a'b'(c'+c) + a'bc + ab'c' + abc$

$= a'b' + a'bc + ab'c' + abc$

$= a'b' + ab'c' + bc(a'+a)$

$= a'b' + ab'c' + bc$

$= b'(a' + ac') + bc$

$= b'((a'+a)(a'+c')) + bc$

$= a'b' + b'c' + bc$

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4. $F(x,y,z) = x'yz' + xy'z' + xy'z + xyz$

$= x'yz' + xy'z' + xz(y'+y)$

$= x'yz' + xy'z' + xz$

$= x'yz' + x(y'z' + z)$

$= x'yz' + x((z+z')(z+y'))$

$= x'yz' + xz + xy'$

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