No.

Date :

UTS Sistem Digital

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1. Lakukan konversi bilangan berikut : (tunjukkan dengan cara yang paling efisien!)

a. $3777_8 = 7FF_{16}$

	x	x	x
3	0	1	1
7	1	1	1
7	1	1	1
7	1	1	1

0111 | 1111 | 1111

7 F F

b. $37FD_{16} = 14.333_{10} = 33775_8$

$37FD_{16} = 3\times16^3 + 7\times16^2 + 15\times16^1 + 13\times16^0$

$= 12288 + 1792 + 240 + 13$

$= 14.333_{10}$

$\frac{14.333}{8} = 1.791 \Rightarrow 5$

$\frac{1.791}{8} = 223 \Rightarrow 7$

$\frac{223}{8} = 27 \Rightarrow 7$

$\frac{27}{8} = 3 \Rightarrow 3$

$\frac{3}{8} = 0 \Rightarrow 3$

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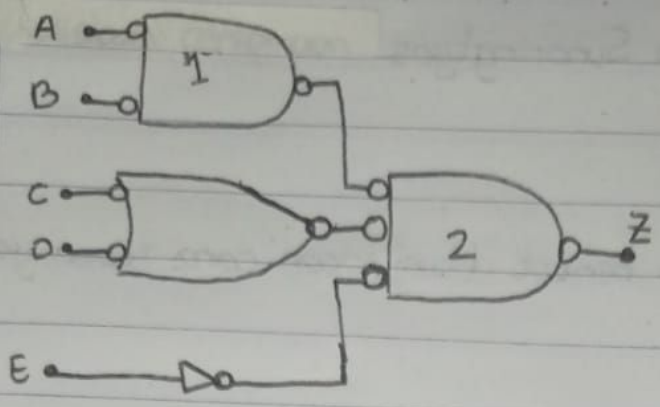
2.



a. Tulisbaan persamaan Boole untuk output Z pada gambar 1!

$Z = (\overline{\overline{A} \cdot \overline{B}})(\overline{\overline{C} + \overline{D}})(\overline{\overline{E}})$

b. Ringkasiah ekspresi logika dari persamaan (a) yang Anda dapatkan!

$Z = (\overline{\overline{A} + \overline{B}})(\overline{\overline{C} \cdot \overline{D}})(\overline{\overline{E}})$

$Z = (\overline{\overline{A} \cdot \overline{B}})(\overline{\overline{C} + \overline{D}})(\overline{\overline{E}})$

$= (A \cdot B)(C + D)(\overline{\overline{E}})$

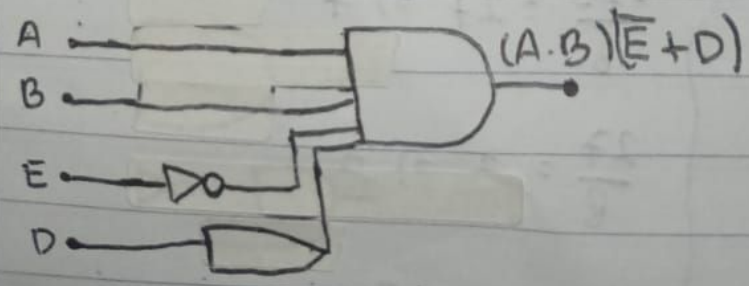
$= (A \cdot B)(C + D)(\overline{E})$

$= (A \cdot B)(C\overline{E} + D\overline{E})$

$= (A \cdot B)\overline{E} + (C \cdot D)$

$= (A \cdot B)(\overline{E} + D)$

c. Gambar ulang rangkaian logika yang baru dari persamaan yang didapat di (b)!



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3. Buktikan persamaan ini BENAR

$\bar{a}\bar{b} + ab + \bar{a}b = \bar{a} + b$

$\bar{a}b(\bar{b} + a)$

$\bar{a} + b$

4. Ringkaslah persamaan ini : $Z = ABC + A\bar{B}(\overline{\bar{A}\bar{C}})$

$ABC + A\bar{B}(\overline{\bar{A}\,\bar{C}})$

$ABC + A\bar{B}(\bar{\bar{A}} + \bar{\bar{C}})$

$ABC + A\bar{B}(A + C)$

$AC(B + \bar{B})$

$AC(1)$

AC

5. Jika diketahui $x\bar{y} + \bar{x}y = z$, buktikan Apakah persamaan dibawah ini "BENAR":

$x\bar{z} + \bar{x}z = y$

Jawab:

$x\bar{z} + \bar{x}z = y$

$x\bar{z} + \bar{x}(x\bar{y} + \bar{x}y)$

$x\bar{x}(\bar{z} + \bar{y} + y)$

$1(\bar{z} + \bar{y} + y)$

$1(\bar{y} + \bar{y}z)$

$1(y)$

y