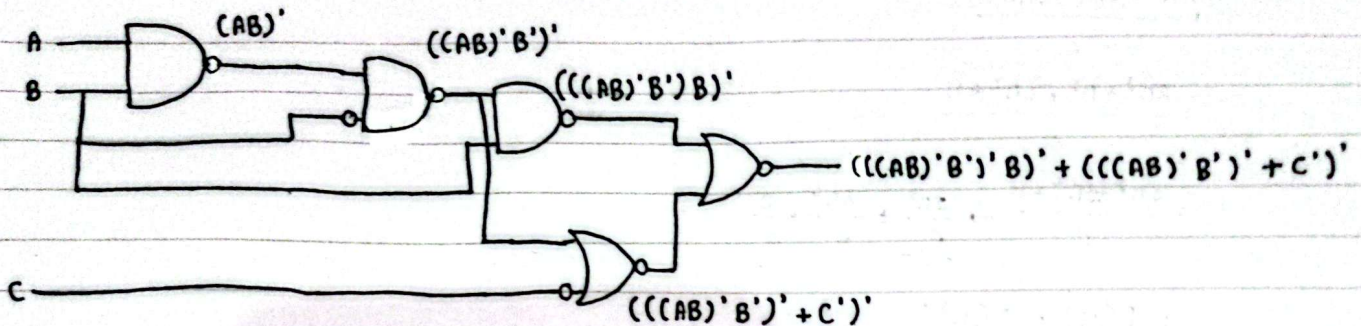


Nama : Muhammad Fadhil Mulyadi

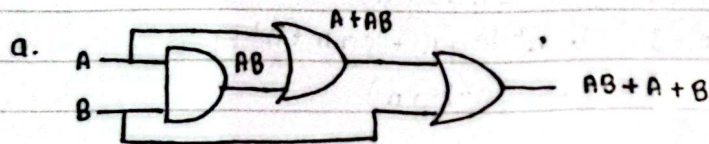
NIM : H071241011

Kelas : Logika Komputer A

1. Carilah output Y dari rangkaian logika berikut



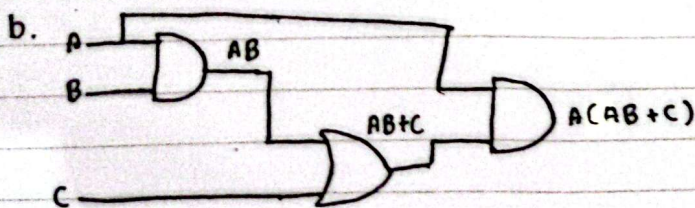
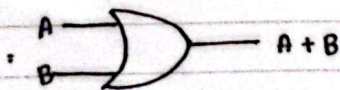
2. Diberikan rangkaian logika berikut



$$= AB + A + B$$

H. Penyerapan

$$= A + B$$

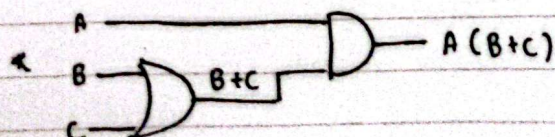


$$= A(AB+C)$$
$$= AAB + AC$$

H. Distributif

$$= AB + AC$$

H. Idempoten



$$= A(B+C) \rightarrow \text{H. Distributif}$$

3. Tentukan notasi Big O

a. $T(n) = 1 + 4 + 9 + \dots + n^2$

$$\begin{aligned}\sum_{k=1}^n k^2 &= \frac{n(n+1)(2n+1)}{6} \\ &= \frac{(n^2+n)(2n+1)}{6} \\ &= \frac{2n^3 + n^2 + 2n^2 + n}{6} \\ &= \frac{2n^3 + 3n^2 + n}{6} \rightarrow \frac{2n^3}{6} + \frac{3n^2}{6} + \frac{n}{6} \\ &= T(n) = \underline{\underline{O(n^3)}}$$

b. $T(n) = 2(n \log n + 1) + (\log n + 1)(n^2 + 1)$ $\hookrightarrow 2n \log n + 2$
 $= (2n \log n + 2) + (n^2 \log n + \log n + n^2 + 1)$ $= O(n \log n)$
 $= n^2 \log n + 2n \log n + n^2 + \log n + 3$ $\hookrightarrow n^2 \log n + \log n + n^2 + 1$
 $= T(n) = \underline{\underline{O(n^2 \log n)}}$

c. $T(n) = (n+1)^2 + 6 \cdot 2^n + 2024 \cdot n!$
 $\hookrightarrow (n+1)^2 = n^2 + 2n + 1$ $= (n^2 + 2n + 1) + (6 \cdot 2^n) + (2024 \cdot n!)$
 $= O(n^2)$ $= T(n) = \underline{\underline{O(n!)}}$
 $\hookrightarrow 6 \cdot 2^n = O(2^n)$
 $\hookrightarrow 2024 \cdot n! = O(n!)$