HW2

2b PROB 4.20

Logical effort of inverter

\[
\text{logical effort} = \frac{U + 1}{U + 1} = 1
\]

NOR

\[
\text{logical effort} = \frac{U + K}{U + 1}
\]

At \( U \) → logical effort of NANO = 1

As \( U \) → NOR = \( K \)

Hence NANO is better

HW2

3c PROB 4.37

\( V_{on} = 0.9 \) V

\( Freq = 450 \) MHz

Activity Factor \( \alpha = 0.1 \)

Switching CAP \( = 150 \) PF/mm²

Total Capacitance = \( 150 \) PF/mm² \( \times 70 \) mm² = \( 10500 \) PF

\[
P = \alpha C_{tot} V_{00}(Freq) = 0.1 \times (10.5 \times 10^{-9}) \times 0.9 \times (450 \times 10^6)
\]

\[
P = 382.7 \) mWatt