IMPOSSIBLE FUNCTIONS

$$\begin{split} f(x_1,x_2) = \begin{cases} \overline{x_1} & \text{for } n=2 \text{ using 1 single PUF} \\ \\ f(x_1,x_2,x_3) = \begin{cases} \overline{x_1 \oplus x_2} & \text{for } n=3 \text{ using 2 XORed PUFs} \end{cases} \end{split}$$

$$f(x_1, x_2, x_3, x_4) = \begin{cases} \overline{x_1 \oplus x_3} \\ x_1 \oplus x_3 \end{cases}$$
 for $n = 4$ using 3 XORed PUFs