Q) Given a boolean function $f(x) = w.x$; where x & w are n-bits of binary string.

Give a classical algo to find w.

A) suppose, $x = (x_1, x_2, \ldots x_n)$. & $w = (w_1 \ldots w_n)$

$\therefore f(x) = \sum_{i=1}^{n} x_i w_i$

Evaluate,

$f(x^{(i)}) \quad \forall i \in \{1, 2, \ldots, n\}$

$(x^{(i)}) = (0, 0 \ldots \underset{\text{ith entry}}{1}, \ldots 0)$.

$\therefore f w = (f(x^{(1)}), f(x^{(2)}), \ldots, f(x^{(n)}))$