function PARTICLE-FILTERING($\mathbf{e}, N, dbn$) **returns** a set of samples for the next time step

inputs: $\mathbf{e}$, the new incoming evidence
N, the number of samples to be maintained
dbn, a DBN defined by $\mathbf{P}(\mathbf{X}_0)$, $\mathbf{P}(\mathbf{X}_1 \mid \mathbf{X}_0)$, and $\mathbf{P}(\mathbf{E}_1 \mid \mathbf{X}_1)$

persistent: S, a vector of samples of size N, initially generated from $\mathbf{P}(\mathbf{X}_0)$

local variables: W, a vector of weights of size N

for $i = 1$ to N **do**
$S[i] \leftarrow$ sample from $\mathbf{P}(\mathbf{X}_1 \mid \mathbf{X}_0 = S[i])$ // *step 1*
$W[i] \leftarrow \mathbf{P}(\mathbf{e} \mid \mathbf{X}_1 = S[i])$ // *step 2*
$S \leftarrow$ WEIGHTED-SAMPLE-WITH-REPLACEMENT(N, S, W) // *step 3*
return S