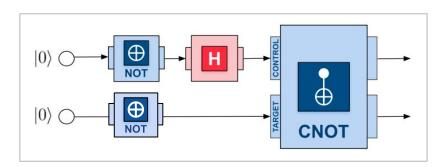
Practice Questions: Advanced Entanglement

Maximally-entangled, two qubit states are often referred to as:

- a. Feynman States
- b. CNOT States
- c. Bell States
- d. Q States

(True / False) The only way to entangle two qubits is with a CNOT and a H gate.

Determine the quantum state that results from the following circuit:



a.

$$|\mathbf{\Phi}^{+}\rangle = \frac{1}{\sqrt{2}}(|00\rangle + |11\rangle) = \frac{1}{\sqrt{2}} \begin{bmatrix} 1\\0\\0\\1 \end{bmatrix}$$
 c. $|\mathbf{\Psi}^{+}\rangle = \frac{1}{\sqrt{2}}(|01\rangle + |10\rangle) = \frac{1}{\sqrt{2}} \begin{bmatrix} 0\\1\\1\\0 \end{bmatrix}$

$$|\mathbf{\Psi}^{+}\rangle = \frac{1}{\sqrt{2}}(|01\rangle + |10\rangle) = \frac{1}{\sqrt{2}} \begin{bmatrix} 0\\1\\1\\0 \end{bmatrix}$$

b.
$$|\mathbf{\Phi}^-\rangle = \frac{1}{\sqrt{2}}(|00\rangle - |11\rangle) = \frac{1}{\sqrt{2}}\begin{vmatrix} 1\\0\\0\\\text{Advar} \ |\text{ced Entanglement PQ} \end{vmatrix} |\mathbf{\Psi}^-\rangle = \frac{1}{\sqrt{2}}(|01\rangle - |10\rangle) = \frac{1}{\sqrt{2}}\begin{vmatrix} 0\\1\\-1\\0\\\text{@ All Rights Reserved} \end{vmatrix}$$

$$|\Psi^-
angle=rac{1}{\sqrt{2}}(|01
angle-|10
angle)=rac{1}{\sqrt{2}}egin{pmatrix} 0 \ -1 \ \end{bmatrix}$$
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(True / False) The output qubits of this quantum circuit are entangled.

