

Assessment 9

(1a)

Bob will use Alice's measured state to figure out the particle of the quantum state of the original particle. Let's say Bob finds the state $|\psi\rangle$ from Alice he immediately knows the state of the original particle. If the measurement he is told is $|\psi^+\rangle$, then he knows particle will be in a superposition state of $-a|0\rangle + b|1\rangle$.

(b)

The entangled state of the particle that will be sent to Bob with the state of the original particle allow Bob to recreate the state. The no clone theorem implies that if you measure a particle, the state of that particle will change. Alice will never know the original state of the particle. She only measures some part of it.