

Name _____

Quantum Algorithms: Unleashing the Power of Quantum Computing

Multiple Choice Questions

1. What is the fundamental difference between classical and quantum algorithms?
 - a) Quantum algorithms use only 0s and 1s.
 - b) Quantum algorithms can explore multiple solutions at once.
 - c) Classical algorithms rely on entanglement.
 - d) Quantum algorithms are slower than classical algorithms.

2. What property of qubits allows them to explore multiple states simultaneously?
 - a) Superposition
 - b) Classical bits
 - c) Entanglement
 - d) Optimization

3. In which types of problems do quantum algorithms excel?
 - a) Solving Sudoku puzzles
 - b) Playing video games
 - c) Optimization, cryptography, and simulating quantum systems
 - d) Writing code for classical computers

4. What is the primary advantage of Grover's algorithm?
 - a) It can solve any problem faster than a classical algorithm.
 - b) It can factor large numbers exponentially faster.
 - c) It can search massive databases much faster.
 - d) It can encrypt messages more securely.

5. Why is Shor's algorithm considered a potential threat to current encryption standards?
 - a) It can factor large numbers faster than classical algorithms.
 - b) It can decrypt messages encrypted with quantum encryption.
 - c) It can encrypt messages more securely.
 - d) It can perform calculations in superposition.

