Quantum Physics for Curious Minds

Quantum Physics · Practice Test · 8 Questions

1. What is the name of the phenomenon where particles can pass through energy barriers that would be impossible to cross in classical physics?

A) Quantum Tunneling
B) Superposition
C) Entanglement
D) Wave-Particle Duality

2. Which fundamental principle states that it is impossible to know both the exact position and the exact momentum of a particle at the same time?

A) The Pauli Exclusion Principle
B) Heisenberg Uncertainty Principle
C) Schrödinger's Law
D) The Photoelectric Effect

3. In quantum mechanics, what is the term for a particle existing in multiple states simultaneously until it is observed or measured?

A) Decoherence
B) Quantum Spin
C) Superposition
D) The Observer Effect

4. Which scientist received the Nobel Prize for explaining the photoelectric effect, showing that light behaves as discrete packets of energy called photons?

A) Niels Bohr
B) Richard Feynman
C) Max Planck
D) Albert Einstein

5. According to the Pauli Exclusion Principle, which type of particles cannot occupy the exact same quantum state simultaneously within a system?

A) Fermions
B) Bosons
C) Photons
D) Gluons

6. What is the smallest unit of electromagnetic radiation, often described as a 'packet' of light energy?

A) Electron
B) Quark
C) Photon
D) Neutrino

7. What is the term for the mysterious connection between two particles where the state of one instantly influences the state of the other, regardless of distance?

A) Quantum Teleportation
B) Quantum Entanglement
C) Spooky Action at a Distance
D) Non-locality

8. What is the name of the constant, represented by the letter 'h', that relates the energy of a photon to its frequency?

A) Planck's Constant
B) The Gravitational Constant
C) The Fine-Structure Constant
D) Boltzmann's Constant