Quantum Physics Pioneers

Quantum Physics · Practice Test · 15 Questions

1. Which scientist is credited with proposing the quantum of action, later known as Planck's constant?

A) Max Planck
B) Albert Einstein
C) Niels Bohr
D) Werner Heisenberg

2. Who received the 1921 Nobel Prize in Physics for his explanation of the photoelectric effect?

A) Erwin Schrödinger
B) Albert Einstein
C) Louis de Broglie
D) Richard Feynman

3. What device, developed in the 20th century, relies entirely on the principles of stimulated emission of radiation?

A) Transistor
B) Laser
C) Electron Microscope
D) MRI Scanner

4. The uncertainty principle, which states that position and momentum cannot be simultaneously measured with absolute precision, was formulated by whom?

A) Max Born
B) Wolfgang Pauli
C) Werner Heisenberg
D) Paul Dirac

5. Which Danish physicist developed the first model of the atom to incorporate quantum theory, where electrons travel in discrete orbits?

A) Niels Bohr
B) Enrico Fermi
C) John von Neumann
D) James Chadwick

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6. In 1924, which scientist proposed that particles, such as electrons, exhibit wave-like properties?

A) Louis de Broglie
B) Hendrik Lorentz
C) Arthur Compton
D) Hideki Yukawa

7. What quantum mechanical concept was famously described by Erwin Schrödinger using a thought experiment involving a cat?

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

8. Which subatomic particle was the first to be discovered, identified by J.J. Thomson in 1897?

A) Proton
B) Neutron
C) Electron
D) Photon

9. The Stern-Gerlach experiment, conducted in 1922, provided evidence for which quantum property of particles?

A) Spin
B) Mass
C) Charge
D) Velocity

10. What solid-state electronic component, which revolutionized modern computing, was invented based on quantum semiconductor physics in 1947?

A) Vacuum Tube
B) Microchip
C) Transistor
D) Capacitor

11. Which principle states that no two electrons in an atom can occupy the same quantum state simultaneously?

A) Heisenberg Uncertainty Principle
B) Pauli Exclusion Principle
C) Aufbau Principle
D) Hund's Rule

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12. Who coined the term 'photon' to describe the quantum of electromagnetic radiation?

A) Gilbert N. Lewis
B) Max Planck
C) Albert Einstein
D) Arthur Compton

13. The discovery of the neutron, a fundamental quantum particle, is attributed to which physicist?

A) Ernest Rutherford
B) James Chadwick
C) Marie Curie
D) Lise Meitner

14. Which phenomenon allows a particle to pass through a potential barrier that it classically should not be able to overcome?

A) Quantum Entanglement
B) Quantum Tunneling
C) Superfluidity
D) Diffraction

15. Who formulated the fundamental wave equation that describes how the quantum state of a physical system changes over time?

A) Erwin Schrödinger
B) Wolfgang Pauli
C) Max Born
D) Niels Bohr

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