

Milestones in Advanced Physics

Advanced Physics · Answer Key · 15 Questions

1. Who was the first person to successfully demonstrate the existence of electromagnetic waves, confirming Maxwell's theory?

- A) Heinrich Hertz**
- B) James Clerk Maxwell
- C) Guglielmo Marconi
- D) Michael Faraday

2. In 1911, Heike Kamerlingh Onnes was the first to observe which phenomenon in mercury when cooled to near absolute zero?

- A) Bose-Einstein Condensation
- B) Superconductivity**
- C) Superfluidity
- D) Quantum Tunneling

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

- A) Proton
- B) Neutron
- C) Electron**
- D) Positron

4. Who is credited with the first experimental observation of the photoelectric effect in 1887?

- A) Albert Einstein
- B) Heinrich Hertz**
- C) Philipp Lenard
- D) Max Planck

5. The first controlled, self-sustaining nuclear chain reaction was achieved in 1942 at which location?

- A) Los Alamos National Laboratory
- B) Oak Ridge National Laboratory
- C) University of Chicago**
- D) Massachusetts Institute of Technology

6. Who performed the first experimental measurement of the gravitational constant (G) in 1798?

A) Isaac Newton

B) Henry Cavendish

C) Albert Einstein

D) Charles-Augustin de Coulomb

7. Which scientist is credited with the first successful measurement of the speed of light using a rotating mirror apparatus in 1849?

A) Hippolyte Fizeau

B) Léon Foucault

C) Ole Rømer

D) Albert Michelson

8. The first observation of gravitational waves, predicted by General Relativity, was announced by the LIGO collaboration in which year?

A) 2010

B) 2012

C) 2014

D) 2016

9. Who was the first physicist to propose the concept of 'quanta' to explain black-body radiation?

A) Niels Bohr

B) Max Planck

C) Werner Heisenberg

D) Erwin Schrödinger

10. In 1932, Carl Anderson became the first to discover which antimatter particle in cosmic rays?

A) Antiproton

B) Antineutron

C) Positron

D) Muon

11. Which physicist led the team that built the first laser, which was successfully operated in 1960?

A) Theodore Maiman

B) Charles Townes

C) Arthur Schawlow

D) Gordon Gould

12. Who conducted the first experiment to demonstrate the wave-particle duality of electrons using diffraction?

A) Louis de Broglie

B) Clinton Davisson and Lester Germer

C) George Paget Thomson

D) C.J. Davisson

13. The first artificial transuranium element, Neptunium, was synthesized in 1940 by which researchers?

A) Ernest Lawrence and Glenn Seaborg

B) Edwin McMillan and Philip Abelson

C) Enrico Fermi and Emilio Segrè

D) Marie and Pierre Curie

14. Who was the first to mathematically predict the existence of the positron as a solution to the relativistic electron equation?

A) Paul Dirac

B) Richard Feynman

C) Wolfgang Pauli

D) Subrahmanyan Chandrasekhar

15. The first successful test of the parity violation in weak interactions was conducted in 1956 by which physicist?

A) Chien-Shiung Wu

B) Tsung-Dao Lee

C) Chen-Ning Yang

D) Enrico Fermi