

History of Advanced Physics

Physics History · Answer Key · 20 Questions

1. Which physicist was the first to propose the concept of 'quanta' in his 1900 derivation of the blackbody radiation law?

- A) Max Planck**
- B) Albert Einstein
- C) Niels Bohr
- D) Louis de Broglie

2. In 1932, who discovered the neutron, resolving the issue of missing mass in the atomic nucleus?

- A) Ernest Rutherford
- B) James Chadwick**
- C) Enrico Fermi
- D) Wolfgang Pauli

3. The 'Solvay Conference' of 1927 is famous for the intense debate between Einstein and Bohr regarding the interpretation of which theory?

- A) Special Relativity
- B) Quantum Mechanics**
- C) General Relativity
- D) Thermodynamics

4. Who was the first person to verify the existence of electromagnetic waves experimentally in 1887?

- A) James Clerk Maxwell
- B) Heinrich Hertz**
- C) Nikola Tesla
- D) Oliver Heaviside

5. Which scientist is credited with the 1909 oil drop experiment that determined the elementary charge of an electron?

- A) Robert Millikan**
- B) J.J. Thomson
- C) Ernest Lawrence
- D) Harvey Fletcher

6. In 1925, who formulated the exclusion principle stating that no two electrons can occupy the same quantum state simultaneously?

- A) Werner Heisenberg
- B) Erwin Schrödinger
- C) Wolfgang Pauli**
- D) Paul Dirac

7. Which experimental finding in 1919 provided the first major confirmation of General Relativity by observing the deflection of starlight?

- A) Michelson-Morley experiment
- B) Eddington's solar eclipse expedition**
- C) Pound-Rebka experiment
- D) Hafele-Keating experiment

8. Who received the 1921 Nobel Prize in Physics specifically for his discovery of the law of the photoelectric effect?

- A) Albert Einstein**
- B) Max Planck
- C) Philipp Lenard
- D) Robert Millikan

9. The concept of 'matrix mechanics' was independently developed in 1925 by which group of physicists?

- A) Heisenberg, Born, and Jordan**
- B) Bohr, Sommerfeld, and Pauli
- C) Schrödinger, de Broglie, and Dirac
- D) Feynman, Schwinger, and Tomonaga

10. Who predicted the existence of antimatter by deriving a relativistic equation for the electron in 1928?

- A) Paul Dirac**
- B) Richard Feynman
- C) Julian Schwinger
- D) Murray Gell-Mann

11. Which 1933 event marked the beginning of high-energy particle physics by confirming the existence of the positron?

- A) Carl Anderson's cloud chamber observations**
- B) The discovery of the muon
- C) The invention of the cyclotron
- D) The first fission experiment

12. What is the name of the 1935 paper that highlighted the 'spooky action at a distance' paradox in quantum mechanics?

- A) EPR paper**
- B) Bell's Theorem
- C) The Copenhagen Manifesto
- D) The Bohr-Einstein Correspondence

13. Who first proposed the existence of the neutrino in 1930 to account for energy conservation in beta decay?

- A) Wolfgang Pauli**
- B) Enrico Fermi
- C) Lise Meitner
- D) Frederick Reines

14. In 1913, who published a series of papers proposing a model of the atom where electrons travel in discrete orbits?

- A) Niels Bohr**
- B) Ernest Rutherford
- C) J.J. Thomson
- D) Arnold Sommerfeld

15. Which laboratory in Chicago achieved the first self-sustaining nuclear chain reaction in 1942?

- A) CP-1 (Chicago Pile-1)**
- B) Los Alamos
- C) Oak Ridge
- D) Hanford Site

16. Who developed the first practical maser in 1953 at Columbia University?

- A) Charles Townes**
- B) Arthur Schawlow
- C) Theodore Maiman
- D) Alfred Kastler

17. The 'BCS theory', which explains superconductivity, was proposed in 1957 by which three physicists?

- A) Bardeen, Cooper, and Schrieffer**
- B) Bloch, Casimir, and Silsbee
- C) Bogoliubov, Ginzburg, and Landau
- D) Bednorz, Müller, and Chu

18. Which experimental physicist demonstrated that parity is not conserved in weak nuclear interactions in 1956?

A) Chien-Shiung Wu

- B) Tsung-Dao Lee
- C) Chen-Ning Yang
- D) Emilio Segrè

19. The quark model of hadrons was independently proposed in 1964 by which two physicists?

A) Murray Gell-Mann and George Zweig

- B) Richard Feynman and Frank Wilczek
- C) Sheldon Glashow and Steven Weinberg
- D) Abdus Salam and Peter Higgs

20. Which massive particle was confirmed in 2012 by experiments at the Large Hadron Collider, validating the mechanism proposed in 1964?

A) Higgs boson

- B) Top quark
- C) Tau neutrino
- D) W boson