

Modern Scientific History

History Of Science · Answer Key · 20 Questions

1. Which specific isotope was utilized by Lise Meitner and Otto Frisch in 1939 to perform the first physical interpretation of nuclear fission?

- A) Uranium-235**
- B) Uranium-238
- C) Plutonium-239
- D) Thorium-232

2. In 1952, which experimental setup was used by Alfred Hershey and Martha Chase to confirm that DNA, rather than protein, is the genetic material?

- A) Tobacco Mosaic Virus
- B) T2 Bacteriophage**
- C) *Drosophila melanogaster*
- D) *Neurospora crassa*

3. The 1964 discovery of the Cosmic Microwave Background radiation by Penzias and Wilson provided empirical evidence for which cosmological model?

- A) Steady State Theory
- B) Big Bang Theory**
- C) Plasma Cosmology
- D) Cyclic Model

4. Which scientist performed the first controlled, self-sustaining nuclear chain reaction at the University of Chicago in 1942?

- A) J. Robert Oppenheimer
- B) Edward Teller
- C) Enrico Fermi**
- D) Leo Szilard

5. What was the primary chemical component identified by Mario Molina and F. Sherwood Rowland in 1974 as the cause of stratospheric ozone depletion?

- A) Chlorofluorocarbons**
- B) Sulfur Dioxide
- C) Nitrous Oxide
- D) Methane

6. The 1927 Solvay Conference focused on the interpretation of which foundational physical theory?

A) General Relativity

B) Quantum Mechanics

C) Thermodynamics

D) Electromagnetism

7. Which Nobel laureate discovered the phenomenon of 'transposable elements' (jumping genes) in maize during the 1940s and 1950s?

A) Barbara McClintock

B) Rosalind Franklin

C) Erwin Chargaff

D) George Beadle

8. In 1919, Arthur Eddington's observation of the deflection of starlight during a solar eclipse provided the first empirical confirmation of which theory?

A) Special Relativity

B) Quantum Field Theory

C) General Relativity

D) Newtonian Gravity

9. Which molecular structure was identified by Dorothy Hodgkin using X-ray crystallography in 1956?

A) Penicillin

B) Insulin

C) Hemoglobin

D) DNA

10. The 1995 discovery of the first exoplanet orbiting a sun-like star, 51 Pegasi b, was made using which observational technique?

A) Transit Photometry

B) Radial Velocity

C) Direct Imaging

D) Gravitational Microlensing

11. What is the name of the 1947 mathematical theorem, proposed by Claude Shannon, that established the fundamental limits of data transmission?

A) Nyquist-Shannon Sampling Theorem

B) Noisy-Channel Coding Theorem

C) Information Entropy Theorem

D) Source Coding Theorem

12. Which astronomer formulated the empirical relationship known as the Tully-Fisher relation in 1977, linking galaxy luminosity to rotation speed?

- A) Edwin Hubble
- B) Vera Rubin
- C) R. Brent Tully**
- D) George Gamow

13. In 1967, Jocelyn Bell Burnell discovered the first pulsar, an object initially designated as what due to its periodic signal?

- A) LGM-1**
- B) quasar-01
- C) nebula-X
- D) dark-matter-1

14. Which synthetic element, created in 1940 at the University of California, Berkeley, was the first transuranic element to be synthesized?

- A) Americium
- B) Curium
- C) Neptunium**
- D) Plutonium

15. The 1980 Alvarez hypothesis proposed that an asteroid impact caused the K-Pg extinction; what chemical element was found in high concentrations in the boundary clay?

- A) Iridium**
- B) Osmium
- C) Platinum
- D) Palladium

16. Which biologist coined the term 'selfish gene' in his 1976 book to describe the gene-centered view of evolution?

- A) Stephen Jay Gould
- B) Richard Dawkins**
- C) E.O. Wilson
- D) Ernst Mayr

17. In 1928, Alexander Fleming discovered the antibacterial properties of *Penicillium notatum*, but which team later succeeded in mass-producing it in 1940?

- A) Florey and Chain**
- B) Watson and Crick
- C) Banting and Best
- D) Salk and Sabin

18. The 1932 discovery of the neutron, a subatomic particle with no charge, was made by which physicist?

A) Werner Heisenberg

B) James Chadwick

C) Ernest Rutherford

D) Niels Bohr

19. Which geological theory, accepted in the 1960s after the discovery of seafloor spreading, unified the concept of moving continents?

A) Geosyncline Theory

B) Plate Tectonics

C) Expanding Earth

D) Contraction Theory

20. What breakthrough in 1983 by Kary Mullis allowed for the rapid amplification of specific DNA segments?

A) CRISPR-Cas9

B) Polymerase Chain Reaction

C) Sanger Sequencing

D) Southern Blotting