

Pioneers of Electrical Innovation

Electrical Engineering · Answer Key · 12 Questions

1. Who is credited with the invention of the first practical incandescent light bulb that utilized a carbonized bamboo filament, which could burn for over 1,200 hours?

- A) Joseph Swan
- B) Thomas Edison**
- C) Nikola Tesla
- D) Hiram Maxim

2. In 1820, who discovered the relationship between electricity and magnetism by observing that a compass needle was deflected by a current-carrying wire?

- A) Andre-Marie Ampere
- B) Michael Faraday
- C) Hans Christian Orsted**
- D) Alessandro Volta

3. Which invention by Guglielmo Marconi in 1895 is considered the foundational development for long-distance radio telegraphy?

- A) The thermionic valve
- B) The spark-gap transmitter**
- C) The frequency modulation circuit
- D) The superheterodyne receiver

4. The first practical alternating current (AC) induction motor, which operates without a commutator, was independently developed in 1887 by which two inventors?

- A) Nikola Tesla and Galileo Ferraris**
- B) Michael Faraday and Joseph Henry
- C) Charles Steinmetz and George Westinghouse
- D) Elihu Thomson and William Stanley

5. What was the primary contribution of the 'Edison Effect,' first observed by Thomas Edison in 1883, to the future of electronic engineering?

- A) Wireless power transmission
- B) The development of the vacuum diode**
- C) The invention of the lead-acid battery
- D) The realization of the transformer

6. In 1947, John Bardeen, Walter Brattain, and William Shockley invented the point-contact transistor at Bell Labs. What material was the semiconductor primarily composed of?

- A) Silicon
- B) Gallium Arsenide
- C) Germanium**
- D) Selenium

7. Who formulated the mathematical equations in 1864 that unified the theories of electricity and magnetism, proving that light is an electromagnetic wave?

- A) Heinrich Hertz
- B) James Clerk Maxwell**
- C) Lord Kelvin
- D) Oliver Heaviside

8. Which electrical engineer invented the 'Regenerative Circuit' in 1912, which significantly amplified radio signals and allowed for high-sensitivity reception?

- A) Lee de Forest
- B) Edwin Armstrong**
- C) Reginald Fessenden
- D) John Ambrose Fleming

9. What device, patented by Alessandro Volta in 1800, is recognized as the world's first true battery capable of producing a continuous steady current?

- A) The Daniell Cell
- B) The Leyden Jar
- C) The Voltaic Pile**
- D) The Leclanché Cell

10. Who is credited with the invention of the first practical cathode ray tube (CRT) in 1897, which served as the precursor to television and oscilloscope display technology?

- A) Karl Ferdinand Braun**
- B) Vladimir Zworykin
- C) Philo Farnsworth
- D) John Logie Baird

11. The first successful transatlantic telegraph cable was completed in 1866. Who was the primary project leader and electrical consultant known for his work on submarine telegraphy?

A) Samuel Morse

B) Lord Kelvin (William Thomson)

C) Cyrus West Field

D) Charles Wheatstone

12. Which seminal invention by Charles Steinmetz in the 1890s allowed for the accurate calculation of power losses in electrical transformers due to magnetic reversals?

A) Hysteresis loss formula

B) The phasor diagram method

C) Three-phase power theory

D) Symbolic method of AC calculation