

Quantum Physics in the Universe

Quantum Physics · Answer Key · 15 Questions

1. What is the smallest unit of light, which behaves like a particle in quantum physics?

- A) Atom
- B) Photon**
- C) Electron
- D) Proton

2. Which force keeps the stars in our galaxy bound together, acting on a much larger scale than quantum forces?

- A) Gravity**
- B) Magnetism
- C) Friction
- D) Static electricity

3. What happens to the energy levels of electrons in an atom when they move between orbits?

- A) They disappear
- B) They become infinite
- C) They change by specific amounts**
- D) They stay the same

4. Which famous scientist is known for the equation $E=mc^2$, which relates energy and mass in the universe?

- A) Isaac Newton
- B) Nikola Tesla
- C) Albert Einstein**
- D) Galileo Galilei

5. What is the term for the state where a particle exists in multiple possible locations at once before it is observed?

- A) Superposition**
- B) Gravity
- C) Fusion
- D) Reflection

6. What process powers the Sun by fusing hydrogen into helium, involving quantum tunneling?

- A) Combustion
- B) Nuclear fusion**
- C) Chemical reaction
- D) Evaporation

7. Which fundamental particle is a key building block of all matter, including planets?

- A) Galaxy
- B) Atom**
- C) Nebula
- D) Comet

8. What do quantum physicists call the discrete 'packets' of energy?

- A) Waves
- B) Quanta**
- C) Solid
- D) Gas

9. What determines the color of light emitted by a star based on the energy of its photons?

- A) Its frequency**
- B) Its shape
- C) Its size
- D) Its mass

10. Which subatomic particle orbits the nucleus of an atom?

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

11. What is the name of the theory that describes the behavior of matter and energy at the smallest scale?

- A) Quantum mechanics**
- B) Relativity
- C) Thermodynamics
- D) Optics

12. In the vacuum of space, what is the maximum speed at which information and light can travel?

A) The speed of sound

B) The speed of light

C) The speed of gravity

D) The speed of an electron

13. Which heavy subatomic particle is found inside the nucleus of an atom alongside the proton?

A) Electron

B) Neutron

C) Photon

D) Ion

14. What prevents atoms from collapsing, maintaining the structure of planets and stars?

A) Quantum uncertainty

B) Air pressure

C) Wind

D) Magnetism

15. What is the most abundant element in the universe, consisting of a single proton and electron?

A) Helium

B) Oxygen

C) Hydrogen

D) Carbon