

Cosmology Essentials

Cosmology · Answer Key · 12 Questions

1. Which theory suggests that the universe began as an extremely hot and dense point approximately 13.8 billion years ago?

- A) Steady State Theory
- B) Big Bang Theory**
- C) Nebular Hypothesis
- D) Cyclic Model

2. What is the primary component of the universe that acts as a repulsive force, causing the expansion of the universe to accelerate?

- A) Dark Matter
- B) Black Hole Radiation
- C) Dark Energy**
- D) Neutrinos

3. Which element was the first and most abundant to form following the Big Bang?

- A) Helium
- B) Lithium
- C) Carbon
- D) Hydrogen**

4. What is the faint, uniform glow detected in all directions of the sky, considered to be the 'afterglow' of the Big Bang?

- A) Cosmic Microwave Background**
- B) Solar Wind
- C) Stellar Parallax
- D) Galactic Redshift

5. Which form of matter, which does not emit, absorb, or reflect light, is believed to provide the gravitational 'glue' that holds galaxies together?

- A) Antimatter
- B) Dark Matter**
- C) Interstellar Dust
- D) Plasma

6. What do astronomers use to measure the speed at which distant galaxies are moving away from us?

- A) Redshift**
- B) Parallax
- C) Light Echoes
- D) Apparent Magnitude

7. What is the name of the era during which the first stars and galaxies began to form, ending the 'Dark Ages' of the universe?

- A) Reionization Era**
- B) Planck Epoch
- C) Inflationary Period
- D) Quark Era

8. According to the Big Bang theory, what was the state of the early universe in its first few moments?

- A) Cold and expanding
- B) Solid and static
- C) Extremely hot and dense**
- D) Composed entirely of dark energy

9. Approximately what percentage of the total energy-mass content of the universe is composed of ordinary 'baryonic' matter?

- A) About 5 percent**
- B) About 25 percent
- C) About 50 percent
- D) About 95 percent

10. What is the term for the maximum distance from which light could have traveled to an observer since the Big Bang?

- A) Parsec
- B) Light-year
- C) Observable Universe**
- D) Event Horizon

11. Which of these objects provides evidence for the expansion of the universe by showing a shift towards longer wavelengths in their light spectrum?

- A) Nearby stars
- B) Distant galaxies**
- C) Planets in our solar system
- D) The Moon

12. Which law states that the velocity at which a galaxy moves away from an observer is proportional to its distance from the observer?

- A) Kepler's Law
- B) Newton's Law
- C) Hubble's Law**
- D) Einstein's Law