

# Milestones in Observational Cosmology

Cosmology · Answer Key · 8 Questions

---

**1. What key observation by Edwin Hubble in the late 1920s provided strong evidence for the expansion of the universe?**

- A) The detection of the Cosmic Microwave Background radiation
- B) The measurement of the redshift of distant galaxies**
- C) The discovery of dark matter in galactic halos
- D) The observation of gravitational lensing around massive objects

**2. The Cosmic Microwave Background (CMB) radiation, a cornerstone of the Big Bang model, was accidentally discovered in 1964 by:**

- A) Carl Sagan and Frank Drake
- B) Albert Einstein and Georges Lemaître
- C) Arno Penzias and Robert Wilson**
- D) Vera Rubin and Kent Ford

**3. Which astronomer is credited with proposing the 'Steady State' theory of the universe in the mid-20th century as an alternative to the Big Bang?**

- A) Fred Hoyle**
- B) Georges Lemaître
- C) Arthur Eddington
- D) Hubble

**4. The first direct detection of gravitational waves, predicted by Einstein's theory of General Relativity and a significant cosmological event, was announced in 2016 by which collaboration?**

- A) The Event Horizon Telescope
- B) The Hubble Space Telescope Science Institute
- C) The Laser Interferometer Gravitational-Wave Observatory (LIGO)**
- D) The Sloan Digital Sky Survey

**5. Georges Lemaître, in the late 1920s, is recognized for proposing what foundational concept in cosmology?**

- A) The existence of black holes
- B) The Big Bang theory (initially called the 'hypothesis of the primeval atom')**
- C) The theory of cosmic inflation
- D) The discovery of dark energy

**6. The 'Great Debate' of 1920, held at the Mount Wilson Observatory, primarily addressed the nature of:**

- A) The origin of the Milky Way galaxy
- B) The composition of the Sun's atmosphere
- C) The distance and nature of spiral nebulae (whether they were within or outside our galaxy)**
- D) The presence of life on other planets

**7. What celestial phenomenon, first widely observed and cataloged by Charles Messier in the late 18th century, represented early attempts to map and understand the universe beyond our immediate solar neighborhood?**

- A) Comets
- B) Asteroids
- C) Nebulae and star clusters**
- D) Planetary transits

**8. The work of Vera Rubin and Kent Ford in the 1970s provided compelling observational evidence for the existence of what invisible component of galaxies?**

- A) Neutrinos
- B) Dark Matter**
- C) Cosmic Rays
- D) Protoplanetary Disks