

Cosmology Fundamentals

Cosmology · Practice Test · 20 Questions

1. In what year did Edwin Hubble publish his discovery that the universe is expanding?

- A) 1929
- B) 1945
- C) 1915
- D) 1950

2. Approximately how many years ago did the Big Bang occur?

- A) 1.5 billion
- B) 6.8 billion
- C) 13.8 billion
- D) 25.4 billion

3. What is the approximate percentage of dark energy in the composition of the universe?

- A) 5%
- B) 27%
- C) 68%
- D) 95%

4. Who proposed the 'Big Bang' theory in 1927?

- A) Albert Einstein
- B) Georges Lemaître
- C) Stephen Hawking
- D) Carl Sagan

5. How many degrees Kelvin is the Cosmic Microwave Background radiation?

- A) 0.5 K
- B) 2.7 K
- C) 10.2 K
- D) 100 K

6. In which decade was the Cosmic Microwave Background radiation first discovered?

- A) 1940s
- B) 1960s
- C) 1980s
- D) 2000s

7. How many fundamental forces are there in the standard model of cosmology?

- A) 2
- B) 4
- C) 6
- D) 8

8. What is the approximate age of the Earth?

- A) 4.5 billion years
- B) 10 billion years
- C) 13.8 billion years
- D) 1 billion years

9. The 'Hubble Constant' measures the rate at which the universe is what?

- A) Shrinking
- B) Rotating
- C) Expanding
- D) Cooling

10. Which spacecraft was launched in 2001 to map the Cosmic Microwave Background?

- A) Voyager 1
- B) Hubble
- C) WMAP
- D) Kepler

11. What percentage of the universe is composed of ordinary matter (atoms)?

- A) 5%
- B) 25%
- C) 70%
- D) 90%

12. How many astronomical units (AU) are in one light-year?

- A) 10,000
- B) 63,000
- C) 1,000,000
- D) 500

13. Which element makes up the vast majority of the universe's baryonic matter?

- A) Oxygen
- B) Carbon
- C) Hydrogen
- D) Iron

14. In 1998, which observation changed our understanding of the universe's expansion rate?

- A) Dark energy acceleration
- B) Black hole formation
- C) Stellar birth
- D) Supernova dimming

15. How many spatial dimensions are typically considered in standard general relativity?

- A) 2
- B) 3
- C) 4
- D) 5

16. What is the speed of light in a vacuum in kilometers per second?

- A) 150,000
- B) 300,000
- C) 450,000
- D) 600,000

17. The first direct image of a black hole was captured in which year?

- A) 2015
- B) 2017
- C) 2019
- D) 2021

18. How many years does light take to travel from the Sun to the Earth?

- A) 8 minutes
- B) 1 hour
- C) 1 day
- D) 1 week

19. What was the name of the first satellite launched into orbit in 1957?

- A) Explorer 1
- B) Sputnik 1
- C) Vostok 1
- D) Apollo 1

20. Approximately how many galaxies are estimated to be in the observable universe?

- A) 100 billion
- B) 500 million
- C) 10 trillion
- D) 1 billion