

Cosmic Knowledge Assessment

Space And Astronomy · Answer Key · 20 Questions

1. Which element is the primary component of a main-sequence star's core fusion process?

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

2. What is the specific classification of the galaxy that contains our solar system?

- A) Elliptical
- B) Irregular
- C) Lenticular
- D) Barred Spiral**

3. What is the name of the boundary surrounding a black hole beyond which nothing can escape?

- A) Singularity
- B) Event Horizon**
- C) Accretion Disk
- D) Ergosphere

4. Which moon of Jupiter is recognized as the largest in the solar system, exceeding the size of Mercury?

- A) Europa
- B) Io
- C) Ganymede**
- D) Callisto

5. What is the primary constituent of the atmosphere of Venus?

- A) Nitrogen
- B) Oxygen
- C) Carbon Dioxide**
- D) Methane

6. Which physical constant defines the maximum speed at which all conventional matter and information can travel in the universe?

- A) The Planck Constant
- B) The Gravitational Constant
- C) The Speed of Light**
- D) The Hubble Constant

7. What phenomenon is responsible for the observed redshift in light from distant galaxies?

A) Gravitational Lensing

B) The Expansion of the Universe

C) Stellar Aberration

D) Interstellar Dust Absorption

8. Which astronomical body is located at the center of the Oort Cloud?

A) The Sun

B) Jupiter

C) Proxima Centauri

D) The Galactic Core

9. What is the primary chemical composition of the core of a white dwarf star?

A) Iron and Nickel

B) Carbon and Oxygen

C) Hydrogen and Helium

D) Neon and Magnesium

10. Which telescope is currently orbiting at the second Lagrange point (L2)?

A) Hubble Space Telescope

B) Kepler Space Telescope

C) James Webb Space Telescope

D) Chandra X-ray Observatory

11. What is the approximate age of the universe according to the Lambda-CDM concordance model?

A) 4.5 billion years

B) 10.2 billion years

C) 13.8 billion years

D) 20.1 billion years

12. Which spectral class of stars is the hottest?

A) M-class

B) G-class

C) A-class

D) O-class

13. What describes the process of spaghettification occurring near a black hole?

- A) Thermal expansion
- B) Tidal forces**
- C) Quantum tunneling
- D) Magnetic reconnection

14. Which planet in our solar system possesses the lowest average density?

- A) Saturn**
- B) Neptune
- C) Uranus
- D) Jupiter

15. What is the term for a massive star that has exhausted its nuclear fuel and collapsed under its own gravity?

- A) Red Dwarf
- B) Brown Dwarf
- C) Neutron Star**
- D) Protostar

16. What is the most abundant type of galaxy in the observable universe?

- A) Spiral
- B) Elliptical**
- C) Irregular
- D) Ring

17. Which planet experiences the most extreme seasonal variations due to its axial tilt of 98 degrees?

- A) Mars
- B) Uranus**
- C) Saturn
- D) Neptune

18. What cosmic radiation provides the strongest evidence for the Big Bang theory?

- A) Solar Wind
- B) Cosmic Microwave Background**
- C) Gamma Ray Bursts
- D) Synchrotron Radiation

19. Which of these moons is known for having a subsurface liquid water ocean beneath an icy crust?

- A) Phobos
- B) Deimos
- C) Europa**
- D) Titan

20. What defines the Chandrasekhar limit in stellar evolution?

- A) The maximum mass of a white dwarf**
- B) The minimum mass of a black hole
- C) The radius of a pulsar
- D) The temperature of a supernova