

Cosmic Physics Fundamentals

Physics · Answer Key · 20 Questions

1. Which planet in our solar system has the most extensive and visible ring system?

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

2. What is the primary gas that makes up the majority of the Sun's mass?

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

3. Which moon of Jupiter is considered the largest moon in our solar system?

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

4. What is the approximate age of the universe according to current cosmological models?

- A) 13.8 billion years**
- B) 4.5 billion years
- C) 8.2 billion years
- D) 20.1 billion years

5. Which force is primarily responsible for the formation of stars and galaxies from nebular clouds?

- A) Electromagnetism
- B) Strong nuclear force
- C) Gravity**
- D) Weak nuclear force

6. Which planet is known as the 'Red Planet' due to iron oxide on its surface?

- A) Venus
- B) Mars**
- C) Mercury
- D) Saturn

7. What is the name of the boundary around a black hole from which nothing, not even light, can escape?

- A) Singularity
- B) Accretion disk
- C) Event horizon**
- D) Photon sphere

8. Which chemical element is primarily fused into helium within the core of a main-sequence star?

- A) Lithium
- B) Hydrogen**
- C) Iron
- D) Neon

9. What is the hottest planet in our solar system?

- A) Mercury
- B) Mars
- C) Venus**
- D) Jupiter

10. Approximately how many minutes does it take for light from the Sun to reach Earth?

- A) 1 minute
- B) 8 minutes**
- C) 15 minutes
- D) 30 minutes

11. What type of galaxy is the Milky Way classified as?

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

12. Which planet rotates on its side, with its axis of rotation nearly parallel to its orbital plane?

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

13. What is the name of the nearest large spiral galaxy to the Milky Way?

- A) Triangulum
- B) Andromeda**
- C) Whirlpool
- D) Sombrero

14. Which physical phenomenon causes the apparent shift in the wavelength of light from stars moving away from Earth?

- A) Redshift**
- B) Blueshift
- C) Refraction
- D) Diffraction

15. What is the term for a massive star that explodes at the end of its life cycle?

- A) White dwarf
- B) Supernova**
- C) Protostar
- D) Neutron star

16. Which planet has the strongest surface gravity in our solar system?

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

17. What is the main component of the atmosphere of Venus?

- A) Nitrogen
- B) Oxygen
- C) Carbon dioxide**
- D) Argon

18. Which subatomic particle is emitted in vast quantities during a supernova and is notoriously difficult to detect?

- A) Neutrino**
- B) Electron
- C) Proton
- D) Muon

19. What is the name of the region beyond Neptune that contains many icy objects and dwarf planets?

- A) Asteroid Belt
- B) Oort Cloud
- C) Kuiper Belt**
- D) Galactic Halo

20. Which element is the heaviest that can be produced by fusion in the core of a typical star before it collapses?

- A) Oxygen
- B) Silicon
- C) Iron**
- D) Gold