

Solar System Essentials

Astronomy · Answer Key · 25 Questions

1. Which force is primarily responsible for maintaining the orbits of planets around the Sun?

- A) Electromagnetic force
- B) Gravitational force**
- C) Nuclear strong force
- D) Centrifugal force

2. Which planet in our solar system has the highest average surface temperature?

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

3. What is the primary composition of the gas giants Jupiter and Saturn?

- A) Nitrogen and oxygen
- B) Hydrogen and helium**
- C) Iron and nickel
- D) Carbon dioxide and methane

4. The asteroid belt is located primarily between the orbits of which two planets?

- A) Earth and Mars
- B) Mars and Jupiter**
- C) Jupiter and Saturn
- D) Saturn and Uranus

5. What defines the 'habitable zone' (Goldilocks zone) of a star system?

- A) The region where magnetic fields are strongest
- B) The range of orbits where liquid water can exist**
- C) The area with the highest concentration of heavy elements
- D) The distance where solar radiation is zero

6. Which planet is known for having a day length that exceeds its orbital period (year)?

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

7. Which moon is the largest in the solar system, exceeding the size of the planet Mercury?

A) Titan

B) Ganymede

C) Io

D) Callisto

8. What is the Kuiper Belt?

A) A region of dust between Venus and Earth

B) A disk of icy objects beyond the orbit of Neptune

C) A ring system around Mars

D) The outer boundary of the Oort cloud

9. Which planet has a rotational axis tilted nearly 98 degrees relative to its orbital plane?

A) Uranus

B) Neptune

C) Saturn

D) Jupiter

10. What is the main difference between an asteroid and a comet?

A) Asteroids are made of ice, comets of rock

B) Comets possess a coma and tail when near the Sun

C) Asteroids are only found in the Oort cloud

D) Comets do not orbit the Sun

11. What is the name of the theory that best explains the formation of the solar system from a rotating cloud of gas and dust?

A) The Big Bang Theory

B) The Nebular Hypothesis

C) The Steady State Theory

D) The Panspermia Theory

12. Which planet exhibits the 'Great Red Spot', a persistent high-pressure storm?

A) Saturn

B) Neptune

C) Jupiter

D) Uranus

13. What is the approximate age of the solar system according to current scientific consensus?

- A) 4.6 million years
- B) 4.6 billion years**
- C) 13.8 billion years
- D) 100 million years

14. Which gas is responsible for the distinct blue colour of Uranus and Neptune?

- A) Methane**
- B) Oxygen
- C) Nitrogen
- D) Argon

15. What type of planet is Pluto currently classified as by the International Astronomical Union (IAU)?

- A) Terrestrial planet
- B) Gas giant
- C) Dwarf planet**
- D) Asteroid

16. Which planet has the most extensive and complex ring system?

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

17. What is the source of energy that powers the Sun's light and heat?

- A) Chemical combustion
- B) Nuclear fusion**
- C) Radioactive decay
- D) Gravitational contraction

18. Which planet is often referred to as the 'Red Planet' due to iron oxide on its surface?

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

19. What does the term 'perihelion' refer to in orbital mechanics?

A) The point in an orbit closest to the Sun

B) The point in an orbit farthest from the Sun

C) The time taken for one full rotation

D) The speed of a planet at its equator

20. Which of these planets does not have any natural moons?

A) Mars

B) Venus

C) Neptune

D) Uranus

21. What is the Oort Cloud?

A) A dense nebula inside the solar system

B) A theoretical spherical shell of icy objects surrounding the solar system

C) A collection of moons orbiting Saturn

D) A band of dust left by a supernova

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

A) Earth

B) Saturn

C) Jupiter

D) Neptune

23. How are terrestrial planets distinguished from gas giants?

A) They have rocky surfaces

B) They are located further from the Sun

C) They have larger diameters

D) They have more moons

24. Which moon of Saturn is known for having a thick nitrogen-rich atmosphere?

A) Enceladus

B) Titan

C) Mimas

D) Rhea

25. What happens to a comet's tail as it approaches the Sun?

A) It disappears

B) It grows longer and points away from the Sun

C) It turns into solid ice

D) It remains stationary