**1. \_\_\_\_\_\_\_\_\_ was the first person to measure the circumference of the Earth.**

A. Ptolemy

B. Copernicus

C. Eratsothenes

D. Galileo

E. Aristarchus

**2. When was it first known that the Earth was spherical in shape?**

A. It was always known to be spherical

B. at the time of the Greeks

C. at the beginning of the Renaissance

D. only after Galileo used a telescope to study other planets

**3. The angular size of an object increases as the distance to the observer increases.**

1. **FALSE b. TRUE**

**4. The curved shape of the Earth’s shadow during an eclipse was evidence for \_\_\_\_\_\_\_\_\_.**

A. a flat, circular Earth

B. a spherical Earth

C. a spherical Moon

D. A flat, circular Moon

E. None of these choices is correct

**5. Which of the following is a contribution that Eratosthenes made to astronomy?**

A. He determined the circumference of the Earth.

B. He discovered epicycles.

C. He discovered his Three laws (of Planetary Motion).

D. He was the first person known to have pointed a telescope at the sky.

**6. What is meant by the phrase "angular size"?**

A. an object's diameter

B. how big an object looks, expressed as an angle

C. the distance around an object

D. the angle between two circular objects

**7. If you triple your distance from an object, what happens to its angular size?**

A. It decreases by one half.

B. It stays the same.

C**.** It reduces to one third of what it was.

D. It increases by a factor of nine.

**8. The Sun and the Moon have an angular size of approximately \_\_\_\_.**

A. 1 degree

B. 5 degrees

C. 0.5 degree

D. 23.5 degrees

**9. The similarity of the Sun’s and the Moon’s angular sizes allow \_\_\_\_ to occur.**

A. tides

B. lunar phases

C. eclipses

D. sunspots

**10. The apparent size of an object based on the amount of sky it covers is called its \_\_\_\_.**

A. diameter

B. shadow-width

C. horizon

D. angular size

E. celestial extent

**11. One of two identical buildings is nearby, the other is twice as far away as the first. The angular size of the more distant building in\_ the nearby building’s angular size.**

A. two times

B. four times

C. one half

D. one fourth

E. the same as

**12. When the Moon is on the horizon, it appears larger than when it is high in the sky. Why?**

A. When it is on the horizon, it is closer to us.

B. This is an optical illusion.

C. The brightness of the Moon makes it seem larger.

D. The Earth’s atmosphere acts like a lens, magnifying it.

E. Its angular size is larger on the horizon.

**13. One observation that supported an Earth-centered solar system is \_\_\_\_\_\_\_\_\_.**

A. retrograde motion

B. the phases of the Moon

C. the lack of parallax in the stars

D. the shape of the Earth’s shadow on the Moon

E. the phases of Venus

**14. The shift of a star’s apparent position due to the Earth’s motion around the Sun is called \_\_\_\_.**

A. parallax

B. retrograde motion

C. prograde motion

D. geocentricity

E. proper motion

**15. One of the methods used to date supernova remnants (the remains of exploded stars) today is by using**

A. the notebooks of Galileo.

B. the records of ancient Chinese, Japanese, and Korean astronomers.

C. the works of Ptolemy.

D. Kepler’s laws.

**16. Which of the following objects passes through the zodiac?**

A. Sun.

B. Planets.

C. Earth and Moon.

D. All of these choices are correct.

**17. What is retrograde motion?**

A. East to west motion of the Sun over many successive nights

B. east to west motion of the Moon relative to the stars over many successive nights

C. occasional east to west motion of the planets relative to the stars over many successive nights

D. occasional west to east motion of the planets relative to the stars over many successive nights

**18. During retrograde motion, a planet moves from \_\_\_\_\_\_ to \_\_\_\_\_\_ relative to the stars.**

A. east; west (moves westward)

B. west; east (moves eastward)

**19. Retrograde motion is discernible by watching a planet over the course of**

A. a few minutes.

B. many hours.

C. many nights.

D. many years.

**20. During the course of a single night, a planet that is moving in retrograde motion will move**

A. east to west.

B. west to east.

C. not at all.

D. randomly about the sky.

**21. Where on the celestial sphere would you look for the planets?**

A. on the celestial equator

B. on the galactic equator

C. in the zodiac (near the ecliptic)

D. at the north celestial pole

**22. If you see a bright "star" in the sky, how could you tell whether it is a star or a planet?**

A. Planets are too dim to be seen without a telescope.

B. Planets are round; stars have five points.

C. Planets always appear right next to the Moon.

D. Look at it several days later—if it's a planet, it will move across the background stars.

**23. The planets (other than Earth) known to ancient Western cultures were \_\_\_\_.**

A. Mercury, Venus, and Mars

B. Venus, Mars, Jupiter, and Saturn

C. Venus, Jupiter, Saturn, Uranus, and Neptune

D. Mercury, Venus, Mars, Jupiter, and Saturn

**24. As the planets orbit the Sun, they are never far from the \_\_\_\_ on the celestial sphere.**

A. ecliptic

B. celestial equator

C. horizon

D. celestial pole

**25. The path of the planets through the sky is tipped 23.5 degrees from the \_\_\_\_.**

A. celestial equator

B. ecliptic

C. zodiac

D. the plane of the galaxy

**26. The geocentric model was based on the observation that \_\_\_\_\_\_\_\_\_.**

A. everything moves around the Earth from east to west

B. the sphere was a divine shape

C. crystalline spheres rotated through the sky

D. the Earth is motionless in space

**27. One phenomenon that the geocentric models struggled to explain was \_\_\_\_.**

A. sunspots

B. the rotation of the Earth

C. retrograde motion

D. parallax

E. epicycles

**28. An epicycle was used in geocentric models to explain \_\_\_\_.**

A. parallax

B. aurora

C. retrograde motion

D. eclipses

E. the Earth’s circular shadow

**29. Kepler's Third, or harmonic, law states that the**

A. period of an orbit cubed equals the semi-major axis squared.

B. semi-major axis of an orbit cubed equals the period squared.

C. planets move fastest when they are closest to the Sun.

D. semi-major axis of an orbit is inversely proportional to the period.

**30. One of Tycho Brahe's major contributions to astronomy was to prove that \_\_\_\_\_\_\_\_\_ was \_\_\_\_\_\_\_\_\_.**

A. a supernova (exploding star); much farther away than the planets

B. a comet; outside the Earth's atmosphere

C. the Sun; the center of the solar system

D. both A; and B

E. A; B and C

**31. In \_\_\_\_\_\_\_\_\_ models, the Sun is assumed as the center of the solar system.**

A. Heliocentric

B. Geocentric

**32. Galileo was the first to observe the phases of \_\_\_\_\_.**

A. the moon

B. the venus

C. the earth

**33. \_\_\_\_\_\_\_ used the extensive records of planetary positions measured by \_\_\_\_\_\_ to discover that the orbits of the planets are \_\_\_\_\_\_\_\_.**

A. Tycho; Kepler; circular

B. Tycho; Kepler; elliptical

C. Kepler; Tycho; elliptical

D. Kepler; Galileo; elliptical

**35. Kepler's \_\_\_\_ law states that the orbits of planets are elliptical, with the Sun at one focus.**

A. First

B. Second

C. Third

**36. From Kepler's \_\_\_\_ law, we conclude that the planets do not move with constant speed.**

A. First

B. Second

C. Third

**37. From Kepler's \_\_\_\_ law, we conclude that Mars completes a full orbit much faster than Pluto.**

A. First

B. Second

C. Third

**38. Observations indicate that it takes Saturn longer than Jupiter to complete one orbit about the Sun. This is in agreement with which of Kepler's laws?**

A. First

B. Second

C. Third

**39.**  **Which of the following is a contribution that Kepler made to astronomy?**

A. He determined the size of the Earth.

B. He discovered epicycles.

C. He discovered his Three laws (of Planetary Motion).

D. He discovered four moons (or satellites) of Jupiter.

**40. Galileo’s observation of sunspots showed that \_\_\_\_\_\_\_\_\_.**

A. the Sun was not a flawless sphere

B. the Earth revolved around the Sun

C. planets moved along elliptical orbits around the Sun

D. the stars could change

E. none of these choices is correct

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