Name: _____ **Date:** _____

Wrangle Orbital Mechanics: An Introductory College Astronomy Quiz

How does Earth’s geometry impact celestial observation? Identify fundamental interactions between the barycenter, axial precession, and tidal locking.

---

1. Which astronomical phenomenon is primarily responsible for the 26,000-year cycle that gradually changes the orientation of Earth's axis relative to the stars?

A. Axial Precession
B. Orbital Eccentricity
C. Retrograde Motion
D. Tidal Locking

2. The Earth and Moon revolve around a common center of mass known as the barycenter, which is located inside the Earth's interior.

A. True
B. False

3. During a lunar eclipse, the Moon passes through the darkest part of Earth's shadow. What is the technical term for this central shadow region?

A. Penumbra
B. Antumbra
C. Umbra
D. Zenith

4. Earth is closest to the Sun during the month of January; this specific point in its elliptical orbit is known as _____.

A. Aphelion
B. Perihelion
C. Equinox
D. Solstice

5. What is the primary cause of the 'Lagging of the Tides,' where high tide occurs about 50 minutes later each day?

A. Earth's changing orbital speed
B. The Moon's orbital motion around Earth
C. Atmospheric pressure changes
D. Oceanic salinity gradients

6. A Sidereal Day, measured against distant stars, is approximately 4 minutes shorter than a standard Solar Day.

A. True

B. False

7. The apparent shift in the position of a nearby star against a background of distant stars, caused by Earth's orbit, is called _____.

A. Stellar Parallax
B. Doppler Shift
C. Refraction
D. Aberration

8. Which angle represents the current approximate tilt of Earth’s rotational axis relative to its orbital plane (the ecliptic)?

A. 0 degrees
B. 23.5 degrees
C. 45.0 degrees
D. 90.0 degrees

9. Tides that occur during the first and third quarter moon phases, resulting in the lowest tidal range, are known as _____ tides.

A. Spring
B. Proxigean
C. Neap
D. Diurnal

10. The 'Foucault Pendulum' provides physical evidence that the Earth is rotating on its axis.

A. True
B. False