

Celestial Cartography and Planetary Mapping

Cartography · Answer Key · 20 Questions

1. In planetary cartography, what is the 'areocentric' coordinate system used to map?

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

2. Which international body is responsible for assigning official names to features on planetary surfaces?

- A) IAU**
- B) NASA
- C) ESA
- D) COSPAR

3. What is the term for the reference surface used to define 'zero elevation' on a planet lacking a liquid ocean, such as Mars?

- A) Geoid
- B) Areoid**
- C) Ellipsoid
- D) Topoid

4. The 'IAU Working Group for Planetary System Nomenclature' mandates that craters on Venus are named after what?

- A) Famous scientists
- B) Renowned explorers
- C) Historical female figures**
- D) Mythological deities

5. What specific type of map projection is most commonly used by the USGS for rendering the entire surface of a spherical planet onto a flat plane?

- A) Mercator
- B) Equirectangular**
- C) Gnomonic
- D) Lambert Conformal

6. Which lunar feature serves as the primary longitudinal reference point (0 degrees longitude) for the Moon?

- A) Tycho Crater
- B) Mare Tranquillitatis
- C) The center of the crater Bruce**
- D) The lunar north pole

7. What measurement is used to define the 'selenographic' latitude?

- A) The angle between the equator and a point measured from the center**
- B) The angle relative to the ecliptic plane
- C) The distance from the sub-Earth point
- D) The gravitational potential gradient

8. Which cartographic tool is essential for correcting the geometric distortion in images taken by planetary orbiters with off-nadir viewing angles?

- A) Ortho-rectification**
- B) Barycentric correction
- C) Doppler shift mapping
- D) Relativistic projection

9. What defines the 'prime meridian' of Mercury according to IAU standards?

- A) The center of the crater Hun Kal**
- B) The crater Kuiper
- C) The sub-solar point at perihelion
- D) The crater Basho

10. In celestial cartography, what coordinate system is based on the Earth's orbit around the Sun?

- A) Galactic coordinate system
- B) Ecliptic coordinate system**
- C) Horizontal coordinate system
- D) Equatorial coordinate system

11. What is the 'IAG' standard reference ellipsoid for the Earth?

- A) GRS 80**
- B) WGS 84
- C) NAD 83
- D) IERS 2000

12. The mapping of the far side of the Moon was primarily accomplished using data from which mission series?

- A) Apollo
- B) Luna**
- C) Lunar Reconnaissance Orbiter
- D) Surveyor

13. Which term describes the process of aligning a planetary map to a known grid of star coordinates?

- A) Astrometric registration**
- B) Triangulation
- C) Photogrammetry
- D) Spectroscopic mapping

14. Why is the 'geoid' height concept difficult to apply directly to gas giants like Jupiter?

- A) They lack a solid, well-defined surface**
- B) They have no magnetic field
- C) They rotate too slowly
- D) They contain no heavy elements

15. What is the standard reference frame for mapping the outer Solar System, defined by the IERS?

- A) ICRF**
- B) J2000
- C) B1950
- D) Galactic plane

16. When mapping asteroid 433 Eros, what coordinate system origin is used?

- A) The asteroid's center of mass**
- B) The crater Psyche
- C) The asteroid's highest peak
- D) The sub-Earth point at discovery

17. Which map projection preserves the area of regions on planetary globes, often used for global distribution maps?

- A) Mollweide**
- B) Mercator
- C) Transverse Mercator
- D) Azimuthal Equidistant

18. What is the IAU-defined prime meridian for the planet Venus?

A) The central meridian of the crater Ariadne

B) The crater Cleopatra

C) The crater Sappho

D) The crater Alpha

19. In orbital cartography, what is 'nadir' viewing?

A) Looking directly down toward the center of the planet

B) Looking toward the horizon

C) Looking perpendicular to the orbit

D) Looking in the direction of travel

20. The 'International Celestial Reference Frame' (ICRF) is anchored by the positions of what type of objects?

A) Quasars

B) Pulsars

C) Exoplanets

D) White dwarfs