

Cosmic Environmental Science

Environmental Science · Practice Test · 8 Questions

1. Which process is primarily responsible for the rapid depletion of the Martian atmosphere over geological time?

- A) Sublimation of polar ice
- B) Solar wind stripping
- C) Gravitational capture by Phobos
- D) Volcanic outgassing

2. What is the primary constituent of the haze found in the upper atmosphere of Saturn's moon, Titan, created by ultraviolet photolysis?

- A) Tholins
- B) Liquid methane
- C) Silicate dust
- D) Nitrogen oxides

3. The 'Goldilocks Zone' (habitable zone) of a star is defined by which specific physical requirement for a planet?

- A) Presence of a magnetic field
- B) Stable rotation period
- C) Liquid water stability on the surface
- D) High concentration of atmospheric oxygen

4. Which phenomenon is the primary driver of 'space weather' that impacts Earth's magnetosphere and ionosphere?

- A) Galactic cosmic rays
- B) Coronal mass ejections
- C) Meteoroid impacts
- D) Dark matter fluctuations

5. What is the chemical significance of the presence of phosphine detected in the clouds of Venus regarding environmental detection?

- A) It is a byproduct of high-pressure carbon fixation
- B) It is a potential biomarker in an anaerobic environment
- C) It acts as a catalyst for sulfuric acid formation
- D) It is a signature of heavy metal core leaching

6. Which mechanism explains the extreme surface temperatures on Venus despite its distance from the Sun?

- A) Tidal heating from solar proximity
- B) Runaway greenhouse effect
- C) Frictional heating from retrograde rotation
- D) Radioactive decay in the crust

7. The Kármán line is defined by the altitude where which environmental condition changes significantly?

- A) Oxygen concentration becomes negligible
- B) Atmospheric pressure drops below 1 millibar
- C) Aeronautic flight becomes physically impossible
- D) Gravity ceases to affect satellite orbits

8. Which isotope ratio is frequently analyzed in planetary science to determine the history of water loss on planets like Mars?

- A) Carbon-13 to Carbon-12
- B) Deuterium to Hydrogen
- C) Oxygen-18 to Oxygen-16
- D) Nitrogen-15 to Nitrogen-14