

Forensic Science in the Cosmos

Space Forensics · Answer Key · 8 Questions

1. Which forensic method is primarily used to determine the age of rocks brought back from the Moon?

A) Radiometric dating

- B) Fingerprint analysis
- C) DNA sequencing
- D) Ballistic trajectory
- E) Radiometric dating

2. What is the primary forensic technique used to identify the chemical composition of stars by analyzing their emitted light?

A) Carbon dating

B) Spectroscopy

- C) Chromatography
- D) Gas chromatography
- E) Spectroscopy

3. Which forensic evidence category do micrometeoroids fall under when analyzing impact craters on spacecraft shielding?

A) Biological evidence

B) Ballistic and physical evidence

- C) Digital evidence
- D) Trace chemical evidence
- E) Ballistic and physical evidence

4. In the context of planetary protection, what is the forensic goal of 'bio-burden' testing on spacecraft intended for Mars?

A) Detecting extraterrestrial life

B) Ensuring no Earth bacteria contaminate samples

- C) Measuring gravity fluctuations
- D) Analyzing magnetic fields
- E) Ensuring no Earth bacteria contaminate samples

5. What forensic analysis of a meteorite's 'fusion crust' helps investigators determine its path through Earth's atmosphere?

A) Thermal and aerodynamic erosion patterns

- B) DNA analysis
- C) Isotope signature matching
- D) Reflection coefficient measurement
- E) Thermal and aerodynamic erosion patterns

6. Which specialized forensic technique is utilized to examine extraterrestrial dust grains collected by the Stardust mission?

A) Scanning Electron Microscopy (SEM)

- B) Fingerprint dusting
- C) Polygraph testing
- D) DNA profiling
- E) Scanning Electron Microscopy (SEM)

7. To determine if a piece of debris originated from a man-made satellite, forensic investigators often analyze which specific physical marker?

A) The astronomical constellation coordinates

B) Serial numbers and alloy composition

- C) The color of the dust
- D) The temperature of the vacuum
- E) Serial numbers and alloy composition

8. What does the forensic study of 'impact glass' found on planets reveal about past celestial events?

A) The frequency of cosmic dust storms

B) The pressure and temperature of past asteroid collisions

- C) The rotation speed of the planet
- D) The atmospheric oxygen levels
- E) The pressure and temperature of past asteroid collisions