India's Ascent in Space: Gaganyaan, Chandrayaan-4, and NISAR's Earth View

Space Exploration · Answer Key · 15 Questions

1. What is the primary objective of India's Chandrayaan-4 mission?

A) To orbit the Moon and study its surface composition.
B) To collect lunar samples and return them to Earth.
C) To deploy a rover on the lunar south pole.
D) To establish a lunar communication relay satellite.

2. Which joint mission between NASA and ISRO is designed to provide high-resolution measurements of Earth's surface changes using dual-frequency synthetic aperture radar?

A) Aditya-L1
B) Chandrayaan-4
C) NISAR
D) Gaganyaan

3. As of recent updates, what is the targeted timeframe for India's first crewed Gaganyaan mission?

A) Late 2024
B) Early 2025
C) First quarter of 2027
D) By the end of 2028

4. What is a significant technological advancement planned for the Chandrayaan-4 mission compared to its predecessors?

A) It will utilize a single rocket launch for all modules.
B) It involves a two-phase launch strategy with multiple modules for sample return.
C) It will focus solely on orbital observation of the Moon.
D) It is designed to be a robotic-only mission without a return capability.

5. What unique capability will the NISAR satellite possess for Earth observation?

A) It will be the first satellite to use two different radar frequencies (L-band and S-band).
B) It will exclusively use optical imaging for all its observations.
C) It will focus only on polar regions for ice cap monitoring.
D) It will be capable of deep space communication.

6. The Gaganyaan mission's astronauts are undergoing training. Where did the initial phase of their comprehensive training take place?

A) At ISRO's Astronaut Training Facility in Bengaluru.
B) At NASA's Johnson Space Center in Houston.
C) At the Gagarin Cosmonaut Training Centre in Russia.
D) At the European Space Agency's training facility in Germany.

7. What is the projected launch year for India's Venus Orbiter Mission (VOM), also known as Shukrayaan?

A) 2025
B) 2026
C) 2027
D) 2028

8. Which Indian private space company successfully launched India's first privately built rocket, Vikram-S, on a suborbital mission?

A) Agnikul Cosmos
B) Pixxel
C) Skyroot Aerospace
D) Dhruva Space

9. What is the overarching goal of India's 'Debris Free Space Mission 2030' initiative?

A) To establish a space debris removal service.
B) To ensure all Indian space missions are debris-free by 2030.
C) To develop technologies for actively capturing space debris.
D) To create a global registry of all space debris.

10. The Aditya-L1 mission, India's first solar observatory, is positioned at which Lagrange point?

A) L2
B) L3
C) L4
D) L1

11. What significant scientific finding has the Aditya-L1 mission's Visible Emission Line Coronagraph (VELC) instrument enabled regarding solar activity?

A) Pinpointing the start time of a Coronal Mass Ejection (CME).
B) Detecting the presence of water vapor on the Sun's surface.
C) Measuring the magnetic field strength of distant stars.
D) Observing the formation of new galaxies.

12. Which upcoming Indian space mission is planned as a lunar sample return mission, involving multiple modules and launches?

A) Chandrayaan-3
B) Chandrayaan-4
C) Chandrayaan-5
D) Missions to Moon's poles

13. What is a key technological feature of the NISAR satellite that distinguishes it from previous Earth observation missions?

A) It uses a unique combination of X-band and K-band radar.
B) It is the first satellite to employ dual microwave frequencies (L-band and S-band).
C) It relies solely on optical sensors for data collection.
D) It is designed for interplanetary travel.

14. India aims to achieve debris-free space missions by 2030 through its 'Debris Free Space Mission' initiative. What does this initiative primarily focus on?

A) Cleaning up existing space debris.
B) Preventing the creation of new space debris from Indian missions.
C) Developing technologies for asteroid mining.
D) Establishing a space traffic management system.

15. What is the primary role of the 'Vyomitra' robot in the preliminary Gaganyaan missions?

A) To test landing systems on the Moon.
B) To collect scientific data and act as a companion for astronauts.
C) To perform spacewalks outside the spacecraft.
D) To navigate the spacecraft through asteroid fields.