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## Space & Astronomy:

### Celestial Events and Discoveries

A Rare Black Moon occurred on August 23, 2025. This term describes the third new moon in a season that has four new moons, or the second new moon in a single calendar month. While not visible itself, this event makes for exceptionally dark skies, which are perfect for stargazing. The night of August 21-22 was also a "cosmic extravaganza," with the lingering Perseid meteor shower, a planetary parade featuring Venus, Jupiter, and Mercury, and satellite flyovers.

**Scientists have made new discoveries, including:**

A massive cosmic explosion traced back 12 billion years.

The potential for Venus, Earth, and Jupiter to work together in reducing the risk of extreme solar storms.

The discovery of 250 "mini galaxies" that could help in the study of dark matter.

A meteorite that may be older than Earth itself that recently punched a hole in a Georgia roof.

### ISRO's Ambitious Plans

ISRO is pushing forward with several major initiatives:

**Lunar and Human Spaceflight:** ISRO Chairman V. Narayanan announced that India aims to land astronauts on the Moon by 2035 and have a completely indigenous human space mission by 2040. The country is also developing a pool of 40 to 50 astronauts for future missions.

**Gaganyaan Mission:** The first uncrewed mission, G1, is set to launch in December 2025. It will carry the "Vyommitra" half-humanoid robot to space. This mission is a crucial precursor to sending Indian astronauts to Low Earth Orbit (LEO).

**Massive Rocket Development:** ISRO is developing a new rocket as tall as a 40-storey building, designed to carry a massive 75,000 kg payload into LEO. This project aims to place India on par with other developed nations in terms of heavy-lift capabilities.

### Global Space Missions

**Commercial and Military Launches:** SpaceX successfully launched its 100th Falcon 9 mission of the year, carrying 24 Starlink satellites. The company also launched the military's X-37B spaceplane on a Falcon 9 rocket to test laser communications and quantum navigation.

**Blue Origin's Mars Mission:** Blue Origin is set to launch NASA's twin ESCAPEDE probes to Mars aboard its New Glenn rocket. This is a significant collaboration between NASA and a commercial space company, with the mission aiming to study Mars's magnetosphere and test the New Glenn rocket's interplanetary capabilities.

**Upcoming Launches:** A busy weekend of launches is expected, including:

Blue Origin's New Shepard carrying six private passengers on a suborbital flight on August 23.

SpaceX's Starship Flight 10 test on August 24.

A SpaceX Dragon resupply mission to the International Space Station (ISS) on August 24, delivering science experiments and supplies.





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## MCQS

1. What is the definition of a "Black Moon" as provided in the text?

- a) The first full moon of the season
- b) The third new moon in a season with four new moons, or the second new moon in a single calendar month
- c) A rare lunar eclipse
- d) A new moon that is visible from Earth

**Answer:** b) The third new moon in a season with four new moons, or the second new moon in a single calendar month

The text provides this exact definition: "This term describes the third new moon in a season that has four new moons, or the second new moon in a single calendar month."

2. What is the payload capacity of the new rocket ISRO is developing?

- a) 25,000 kg
- b) 40,000 kg
- c) 75,000 kg
- d) 100,000 kg

**Answer:** c) 75,000 kg

The text states that the new rocket is "designed to carry a massive 75,000 kg payload into LEO."

3. What is the name of the half-humanoid robot that will be carried on the first uncrewed Gaganyaan mission?

- a) Chandrayaan
- b) Vyommitra
- c) Mangalyaan
- d) Gaganyaan

**Answer:** b) Vyommitra

Explanation: The text specifies that the first uncrewed mission "will carry the 'Vyommitra' half-humanoid robot to space."







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**4. What is the primary purpose of the NASA ESCAPADE probes that Blue Origin is set to launch to Mars?**

- a) To search for signs of past life on Mars
- b) To study Mars's magnetosphere
- c) To test laser communications
- d) To resupply the International Space Station

**Answer:** b) To study Mars's magnetosphere

The text states that the ESCAPADE mission aims "to study Mars's magnetosphere and test the New Glenn rocket's interplanetary capabilities."

**5. What significant milestone did SpaceX achieve with its recent Falcon 9 launch, according to the text?**

- a) The first-ever launch of the X-37B spaceplane
- b) Its 100th Falcon 9 mission of the year
- c) The launch of the Starship Flight 10 test
- d) A successful resupply mission to the ISS

**Answer:** b) Its 100th Falcon 9 mission of the year

The text notes that "SpaceX successfully launched its 100th Falcon 9 mission of the year."



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