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Space & Astronomy:

Hubble Telescope Discovery

Scientists have used the Hubble Space Telescope to capture images of a "nearly invisible" galaxy called NGC 45. This is a low surface brightness galaxy, which is a rare type that's fainter than the night sky itself. The galaxy is located about 22 million light-years away in the constellation Cetus. Its bright pink nebulae indicate regions of active star formation, despite its dim appearance. The study of this galaxy could provide new insights into how galaxies form and evolve, especially given its abundance of dark matter.

Skywatching Events

For skywatchers, mid-August 2025 offers several celestial events. The waning Moon will pass by Jupiter, Venus, and Mercury in the pre-dawn sky. Jupiter and Venus, the two brightest planets, are particularly striking as they rise together in the east before sunrise. Saturn is also visible in the mid-evening, nearing its closest approach to Earth for the year. This makes its rings visible even through a small telescope.

Indian Space Program (ISRO) Updates

In his Independence Day address, Indian Prime Minister Narendra Modi highlighted the country's progress in space exploration. He noted India's ambition to become self-reliant in the space sector and confirmed plans to create its own space station. He also mentioned that IAF Group Captain Shubhanshu Shukla, who recently traveled to the International Space Station, is due to return to India soon. The Prime Minister also noted that reforms in the space

sector have led to the creation of over 300 space-related startups in India.

The following video discusses how NASA confirmed the existence of a new interstellar object, 3I/ATLAS, as it passes through our solar system.

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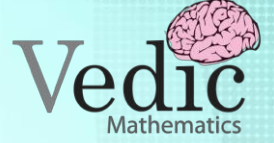
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MCQS

1. According to the news, what is a key characteristic of the galaxy NGC 45 that makes it difficult to detect?

- A) It is a low surface brightness galaxy.
- B) It has no nebulae or star-forming regions.
- C) It is located in the constellation Cetus.
- D) It is an old, dying galaxy with no active star formation.

Answer: A) It is a low surface brightness galaxy. The news states that NGC 45 is a low surface brightness galaxy, which means it is fainter than the night sky itself, making it incredibly difficult to detect. While it is in Cetus, that doesn't make it difficult to detect. It does have active star formation, as indicated by its nebulae.

2. Which of the following planetary alignments is a highlight for skywatchers in mid-August 2025?

- A) Jupiter and Mars forming a close pair.
- B) Saturn nearing its opposition, making it visible with rings.
- C) Mercury and Venus rising together in the pre-dawn sky.
- D) The Moon passing by the constellation Orion.

Answer: B) Saturn nearing its opposition, making it visible with rings. The news mentions that Saturn is nearing its opposition, which is its closest approach to Earth for the year, and this makes its rings visible even with a small telescope. While the Moon passes by Jupiter, Venus, and Mercury, the main highlight is the visibility of Saturn's rings.

3. What new initiative did PM Modi announce for India's space program in his Independence Day speech?

- A) A new lunar mission.
- B) The launch of a "Made in India" rocket.

C) The establishment of India's own space station.

D) A joint mission with NASA to explore Mars.

Answer: C) The establishment of India's own space station.

In his Independence Day address, Prime Minister Modi confirmed India's plans to create its own space station as part of the country's goal to become self-reliant in the space sector.

4. What is the name of the interstellar object that NASA has confirmed is the fastest ever recorded?

- A) NGC 45
- B) 3I/ATLAS
- C) Perseid
- D) Tethys

Answer: B) 3I/ATLAS

The news mentions a video discussing how NASA confirmed the existence of a new interstellar object, 3I/ATLAS, as it passes through our solar system, making it the fastest ever recorded.

5. How many space-related startups have been created in India due to recent reforms in the sector?

- A) Over 100
- B) Less than 50
- C) Exactly 200
- D) Over 300

Answer: D) Over 300

The news states that the reforms brought in have enabled over 300 startups to work in the space sector.

6. The bright pink nebulae in the NGC 45 galaxy are an indication of what activity?

- A) The galaxy is a low surface brightness galaxy.
- B) It is a dying galaxy.





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- C) It has an abundance of dark matter.
D) It is a region of active star formation.

Answer: D) It is a region of active star formation.
The news states that the bright pink nebulae in NGC 45 indicate regions of active star birth.

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