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MAGAZINE NOTES

Science Reporter July 2026 - Science and Technology Digest

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SCIENCE & TECH

GS3

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Science Reporter July 2026 - Science and Technology Digest

 **Science Reporter** July 2026 **GS3**



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EDITION
July 2026

MAINS: **GS Paper 3**

Science Reporter is CSIR-NIScPR's flagship popular-science monthly, and this July 2026 digest reads the month's most exam-relevant Indian science and technology through a UPSC lens. The standout development is India's arrival as the third nation with a proven private orbital launch capability, alongside steady progress in indigenous cell-and-gene therapy and the National Quantum Mission. Each theme below is framed as analysis for aspirants, not a reproduction of the print issue.

INSIDE THIS ISSUE

The month's science story clusters around three national capabilities that UPSC repeatedly tests:

- 1 **Private spaceflight comes of age** - Skyroot Aerospace's Vikram-1 became the first privately developed Indian rocket to reach orbit from Sriharikota on July 18, 2026, a direct result of the 2020 space-sector reforms and IN-SPACe.
- 2 **Indigenous medicine goes personalised** - India's homegrown CAR-T cell therapy NexCAR19 and the wider genomics push signal a shift from generic manufacturing to advanced, gene-based therapeutics.
- 3 **The quantum leap** - The National Quantum Mission crossed the halfway mark on its targeted outcomes within three years, with multi-qubit machines and long-distance quantum communication demonstrated in India.

KEY CONCEPTS

TERM	MEANING
Low Earth Orbit (LEO)	Orbit roughly 160 to 1,000 km above Earth; Vikram-1 injected payloads near 450 km
IN-SPACE	Indian National Space Promotion and Authorisation Centre, the single-window regulator for private space activity
CAR-T therapy	Chimeric Antigen Receptor T-cell therapy; a patient's own T-cells are gene-edited to attack cancer cells
Lentiviral vector	An engineered virus used to insert the CAR gene into T-cells
Qubit	The basic unit of quantum information, able to hold superposition states unlike a classical bit
Quantum Key Distribution (QKD)	Sharing encryption keys using quantum states so eavesdropping is physically detectable

PRELIMS POINTERS

- Vikram-1 lifted off from Sriharikota on July 18, 2026, making India the third country, after the United States and China, with a privately built rocket in orbit.
- Vikram-1 is a four-stage small-satellite launcher (three solid stages plus a liquid orbital-adjustment stage), about 22 metres tall, designed for payloads up to roughly 300 to 350 kg to LEO.
- NexCAR19, developed by ImmunoACT (incubated at IIT Bombay) with Tata Memorial Centre, is India's first indigenous CAR-T therapy, approved by the CDSCO for certain B-cell blood cancers.
- The National Quantum Mission (2023-2031) has an outlay of about Rs 6,003.65 crore and targets 50 to 1,000 physical qubits over eight years.
- IN-SPACE and the 2020 reforms opened orbital launch to private builders alongside ISRO.
- India's teams have continued to win top honours at the International Physics and science Olympiads in 2026, reflecting a strong STEM talent pipeline.

UPSC GS RELEVANCE

- **GS3:** Awareness in space technology, indigenisation of biotechnology and health, quantum and emerging technologies, and the role of R and D institutions.
- **GS2:** Government policies and interventions (space-sector reforms, National Quantum Mission, Department of Biotechnology support) and their design and implementation.

| 3 Chapters in this Edition

1**Vikram-1: India's First Private Rocket Reaches Orbit****2****NexCAR19 and India's Move Into Gene-Based Cancer Therapy****3****The Quantum Leap: India's National Quantum Mission at the Halfway Mark**



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