



DAILY CURRENT AFFAIRS-

1. **Gaganyaan Crew Module: Ensuring Safe Human Spaceflight**
2. **Discovery of Erythrulose in Deep Space**
3. **Supreme Court's Proposed SOP for Urgent Cases**
4. **Draft National Health Research Policy, 2026**
5. **Rights of Persons with Disabilities (Amendment), 2026: Inclusion of Acid Ingestion Victims**

1. Gaganyaan Crew Module: Ensuring Safe Human Spaceflight

Why in News?

- ISRO has explained how the **Gaganyaan Crew Module** is designed to safely bring astronauts back to Earth by balancing **aerodynamics, stability and thermal protection** during atmospheric re-entry.

Mission Architecture

Component	Function
Human-rated LVM3 (HLVM3)	Launches the spacecraft into Low Earth Orbit
Orbital Module (OM)	Consists of Crew Module and Service Module
Crew Module (CM)	Accommodates astronauts and returns safely to Earth
Service Module (SM)	Provides propulsion, power and mission support; separates before re-entry and burns up in the atmosphere

Why is the Crew Module Sphere-Cone Shaped?

Design Feature	Purpose
Blunt spherical front	Creates a detached shock wave that pushes extreme heat away from the capsule.
Conical body	Improves aerodynamic stability during re-entry.
Compact structure	Reduces structural stress during launch and landing.
Lift and drag balance	Enables controlled descent and accurate splashdown.

How Does the Crew Module Survive Re-entry?

- It separates from the **Service Module** before entering Earth's atmosphere.
- It uses **aero-braking**, where atmospheric drag slows the spacecraft instead of engines.
- It employs a **Thermal Protection System (TPS)** to withstand temperatures generated during re-entry.
- It maintains proper orientation using **Reaction Control Thrusters (RCS)**.
- It deploys parachutes before making a controlled **splashdown**, followed by recovery by the **Indian Navy**.

Key Engineering Challenges

Challenge	Safety Mechanism
Extreme heat	Thermal Protection System and detached shock wave
High-speed deceleration	Aero-braking and optimized shape
Dynamic instability (oscillations)	Reaction Control Thrusters and Guidance, Navigation & Control (GNC) system
Water landing	Parachute system and impact-resistant structure
Capsule overturning	Automatic up-righting system restores upright position

Comparison with Other Human Spacecraft

Spacecraft	Configuration
Gaganyaan (India)	Crew Module + Service Module
Apollo (USA)	Command Module + Service Module
Soyuz (Russia)	Orbital Module + Descent Module + Service Module
Shenzhou (China)	Three-module configuration similar to Soyuz

Difference: Soyuz and Shenzhou include an additional **Orbital Module**, providing extra living space and docking capability.

Significance

- It demonstrates India's indigenous human spaceflight capability.
- It strengthens India's preparedness for the **Bharatiya Antariksh Station** and future lunar missions.
- It advances technologies in **human-rating, re-entry systems, avionics and life-support**.
- It promotes **Atmanirbhar Bharat** in strategic space technologies.
- It places India among the select nations capable of independent human spaceflight.



About Gaganyaan Mission

Feature	Details
Implementing Agency	ISRO

Mission Type	India's first human spaceflight mission
Orbit	Low Earth Orbit (~400 km)
Crew Capacity	Three astronauts
Mission Duration	Up to 3 days
Landing	Sea splashdown
Recovery Agency	Indian Navy

UPSC Prelims MCQ

Q. With reference to the Gaganyaan Mission, consider the following statements:

1. The Orbital Module consists of a Crew Module and a Service Module.
2. The Service Module separates before atmospheric re-entry and burns up in the atmosphere.
3. The Crew Module adopts a sphere-cone configuration to improve thermal protection and aerodynamic stability.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)

UPSC Mains Question (15 Marks)

Discuss the significance of the Gaganyaan Mission for India's space programme. Explain how the design of the Crew Module ensures astronaut safety during atmospheric re-entry.

2.Discovery of Erythrulose in Deep Space

Why in News?

- Scientists have detected **erythrulose**, a **complex sugar molecule**, in an interstellar molecular cloud near the **centre of the Milky Way**, providing new evidence that essential chemical building blocks of life may originate in space.

Key Highlights

Aspect	Details
Discovery	First detection of a sugar molecule (erythrulose) in interstellar space
Location	Giant molecular cloud near the centre of the Milky Way
Published In	<i>Nature Astronomy</i> (13 July 2026)
Detection Method	Radio telescopes using molecular spectroscopy
Significance	Supports the possibility that life's building blocks formed before planets existed

SUGAR OF LIFE, BORN IN SPACE

Erythrulose, a complex sugar, discovered in **interstellar space**

MEMORY ANCHOR



FIRST SUGAR FOUND BETWEEN STARS
Ingredients of life are **cosmic and common**.

Giant molecular cloud near the center of the Milky Way

ERYTHRULOSE

$$\begin{array}{c}
 \text{CH}_2\text{OH} \\
 | \\
 \text{O}=\text{O} \\
 | \\
 \text{HO}-\text{C}-\text{H} \\
 | \\
 \text{H}-\text{C}-\text{OH} \\
 | \\
 \text{CH}_2\text{OH}
 \end{array}$$

1 WHAT WAS DISCOVERED?



Erythrulose, a complex sugar, detected in a giant interstellar molecular cloud near the center of the Milky Way.

First time a **sugar molecule** itself found between stars.

2 WHY IS IT IMPORTANT?





Complex chemical ingredients Key for metabolic energy Building block of **RNA & DNA**

Shows life's building blocks can form in **extreme space conditions**.

3 IMPLICATIONS





Comets & asteroids Could have seeded early Earth Essential ingredients for life delivered naturally

4 THE BIG PICTURE





Life's molecules are not rare Universe is chemically fertile Search for life gets stronger foundation

About Erythrulose

Feature	Details
Type	Four-carbon monosaccharide (ketose sugar)
Importance	Intermediate in carbohydrate chemistry and metabolism
Biological Significance	Sugars are essential for the formation of RNA, DNA and energy metabolism
Special Property	Chiral molecule (exists in right- and left-handed forms)

How Was It Formed?

- It likely formed on the **icy surfaces of interstellar dust grains**.
- It resulted from reactions between simple organic molecules such as **glycolaldehyde** and **ethylene glycol**.

- Ultraviolet radiation and cosmic rays facilitated these chemical reactions in extremely cold interstellar environments.
- It was later released into space as the icy dust grains warmed.

Significance of the Discovery

- It demonstrates that **complex organic molecules** can form naturally in deep space.
- It strengthens the theory that **comets and asteroids** could have delivered prebiotic molecules to the early Earth.
- It provides evidence that the **chemical ingredients of life** may be widespread across the Universe.
- It advances research into **astrobiology** and the origin of life.
- It offers new insights into the origin of **molecular chirality**, a fundamental feature of biological systems.

Challenges

- The discovery does **not** prove that life exists elsewhere.
- Formation of sugars alone is insufficient for the origin of life, which requires many other complex biochemical processes.
- The exact pathways through which extraterrestrial organic molecules contributed to life on Earth remain uncertain.

UPSC Prelims MCQ

Q. With reference to the recent discovery of erythrulose in interstellar space, consider the following statements:

1. Erythrulose is a complex sugar molecule detected in an interstellar molecular cloud.
2. The discovery supports the possibility that complex organic molecules can form in space.
3. The Panspermia hypothesis proposes that the building blocks of life may be transported through comets and asteroids.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

UPSC Mains Question (10 Marks)

The discovery of complex organic molecules in interstellar space has renewed interest in understanding the origin of life. Discuss the significance of the recent detection of erythrulose in the context of astrobiology and the Panspermia hypothesis.

3. Supreme Court's Proposed SOP for Urgent Cases

Why in News?

- The **Supreme Court** is considering a **Standard Operating Procedure (SOP)** to ensure **24×7 judicial access** in urgent matters involving **life, liberty and fundamental rights**, enabling immediate judicial intervention even during nights, weekends and court holidays.

Key Highlights

Aspect	Details
Proposal	24×7 Standard Operating Procedure (SOP) for urgent judicial hearings
Bench	CJI Surya Kant , Justice Joymalya Bagchi and Justice N. Kotiswar Singh
Trigger	Petition seeking continuous judicial access in cases affecting life and liberty
Objective	Ensure immediate judicial remedy in emergencies outside normal court hours
Proposed Response Time	Cases may be listed within one hour , where necessary

Need for the SOP

- It protects **Article 21 (Right to Life and Personal Liberty)** against irreversible executive actions.

- It provides immediate judicial remedy in cases of:
 - Illegal detention or arrest.
 - Demolition of property.
 - Habeas corpus petitions.
 - Death penalty and other irreversible actions.
- It bridges the gap between emergency situations and court working hours.
- It strengthens citizens' constitutional right to timely access to justice.

Constitutional & Legal Framework

Provision	Significance
Article 21	Protects life and personal liberty; procedure must be fair, just and reasonable.
Article 32	Right to directly approach the Supreme Court for enforcement of Fundamental Rights.
Article 226	Empowers High Courts to issue writs for Fundamental Rights and other legal rights.
Article 39A	Directs the State to ensure equal access to justice and free legal aid.

Access to Justice: Major Initiatives

Initiative	Objective
E-Courts Mission Mode Project	Digitisation of courts and online judicial services
Virtual Courts & e-Filing	Online filing and hearings
Tele-Law Scheme	Legal advice through Common Service Centres
NALSA & Legal Services Authorities	Free legal aid for eligible persons
Lok Adalats	Speedy and inexpensive dispute resolution
Gram Nyayalayas Act, 2008	Justice at the grassroots level

Significance

- It reinforces the principle that **constitutional rights cannot remain suspended outside court hours**.
- It strengthens the rule of law by ensuring continuous judicial oversight.
- It improves access to justice through digital technology and institutional reforms.
- It enhances public confidence in the justice delivery system.
- It aligns India's judicial system with global best practices for emergency judicial access.

Way Forward

- Institutionalise a **24×7 emergency judicial roster** for constitutional courts.
- Define clear categories of cases qualifying for urgent hearing.
- Strengthen e-filing, virtual hearing and digital case management systems.
- Coordinate with High Courts for a uniform emergency access framework while respecting the federal judicial structure.

UPSC Prelims MCQ

Q. With reference to access to justice in India, consider the following statements:

1. Article 32 guarantees the right to directly approach the Supreme Court for enforcement of Fundamental Rights.
2. Article 39A directs the State to ensure equal access to justice through free legal aid.
3. The E-Courts Project aims to digitise judicial processes and improve accessibility.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)

UPSC Mains Question (10 Marks)

**"Timely access to justice is an essential component of the Right to Life under Article 21."
Discuss the significance of the proposed 24×7 Standard Operating Procedure (SOP) for urgent judicial hearings in strengthening access to justice in India.**

4.Draft National Health Research Policy, 2026

Why in News?

- The **Department of Health Research (DHR)** has released the **Draft National Health Research Policy, 2026**, proposing a comprehensive overhaul of India's health research ecosystem to promote **evidence-based policymaking, indigenous innovation and research aligned with national health priorities**.

Key Highlights

Aspect	Details
Policy	Draft National Health Research Policy, 2026
Nodal Ministry	Ministry of Health & Family Welfare
Prepared By	Department of Health Research (DHR)
Scientific Lead	Indian Council of Medical Research (ICMR)
Nature	First unified national framework for health research
Vision	Build an equitable, innovation-driven and evidence-based health research ecosystem

Objectives

- It aligns health research with **India's disease burden and public health priorities**.
- It strengthens indigenous innovation in medical science and healthcare technologies.
- It bridges the gap between laboratory research and healthcare delivery.
- It promotes evidence-based policymaking for improved health outcomes.
- It reduces regional disparities in research infrastructure and capacity.

Three-Tier Governance Structure

Level	Responsibility
National Health Research Stewardship Committee	Provides strategic direction, policy oversight and priority setting.
Department of Health Research (DHR)	Nodal agency for policy implementation, coordination and monitoring.
Indian Council of Medical Research (ICMR)	Scientific leadership, research coordination, standards and capacity building.

Major Provisions

Area	Proposal
Research Prioritisation	Periodic identification of priority research areas based on disease burden, scientific opportunities and national needs.
Research Scope	Covers biomedical science, clinical research, public health, epidemiology, digital health, genomics and emerging technologies.
State Participation	Integrates research with State health programmes and local healthcare delivery.
Ethics & Governance	Strengthens research ethics, integrity, data governance, cybersecurity and community participation.
Innovation	Promotes indigenous technologies, medical devices, diagnostics and vaccines.
Monitoring	Introduces measurable targets for research funding, publications, patents and human resource development.

Issues Addressed

- It addresses fragmented health research across institutions.
- It reduces duplication of research efforts.
- It improves translation of research into healthcare practice.
- It bridges regional imbalances in research infrastructure.
- It enhances preparedness for pandemics and emerging diseases.

- It strengthens coordination among research institutions, academia and industry.

About Department of Health Research (DHR) & ICMR

Institution	Role
Department of Health Research (DHR)	Formulates policies, promotes health research and coordinates research institutions under the Ministry of Health & Family Welfare.
Indian Council of Medical Research (ICMR)	Apex body for biomedical research in India, responsible for scientific research, disease surveillance and public health research.

Way Forward

- Increase investment in health research and innovation.
- Strengthen research institutions across all States.
- Promote multidisciplinary and translational research.
- Develop robust digital health research infrastructure.
- Foster stronger partnerships among government, academia, startups and industry.

UPSC Prelims MCQ

Q. With reference to the Draft National Health Research Policy, 2026, consider the following statements:

1. It proposes the first unified national framework for health research in India.
2. The Indian Council of Medical Research (ICMR) is proposed to serve as the scientific lead under the policy.
3. The policy emphasizes indigenous innovation, research ethics and evidence-based policymaking.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)

UPSC Mains Question (10 Marks)

The Draft National Health Research Policy, 2026 seeks to transform India's health research ecosystem. Discuss its major features and examine how it can strengthen evidence-based public health and indigenous innovation.

5.Rights of Persons with Disabilities (Amendment), 2026: Inclusion of Acid Ingestion Victims

Why in News?

The Central Government has amended the **Rights of Persons with Disabilities (RPwD) Act, 2016** to include **victims of acid ingestion** within the definition of "acid attack victim." The amendment, notified on **22 May 2026**, follows the Supreme Court's intervention to remove a legislative gap.

Key Amendment

Earlier Position	Amended Position
Only victims injured due to acid being thrown or spilled were covered.	Victims suffering external or internal injuries due to throwing, administering, spilling acid or other corrosive substances are covered.
Acid ingestion victims were not entitled to disability benefits.	Acid ingestion victims are eligible for all benefits under the RPwD Act.
No retrospective benefit.	Amendment applies retrospectively , covering earlier victims as well.

Why was the Amendment Needed?

- Victims of forced acid ingestion suffer severe damage to the mouth, throat, digestive system and internal organs despite having little or no external disfigurement.
- They were denied disability benefits despite permanent impairment.
- The amendment ensures equal treatment for all acid attack survivors based on the extent of disability rather than the mode of attack.

Supreme Court's Observations

- The Court held that acid ingestion is as brutal as acid throwing and victims deserve equal legal protection.
- Using its powers under **Article 142**, the Supreme Court directed the Centre to amend the law.
- It emphasized that disability laws must focus on **functional disability and rehabilitation**, not merely visible injuries.

Rights of Persons with Disabilities (RPwD) Act, 2016

Particular	Details
Replaced	Persons with Disabilities Act, 1995
Basis	UN Convention on the Rights of Persons with Disabilities (UNCRPD)
Nature	Rights-based legislation ensuring equality, dignity and inclusion
Disabilities Recognised	Increased from 7 to 21 categories
Reservation	4% in Government jobs; 5% in higher educational institutions
Accessibility	Barrier-free public infrastructure, transport and digital services

Benefits Available to Acid Attack Victims

- Disability certificate
- Reservation in education and public employment
- Healthcare and rehabilitation support
- Social security and financial assistance
- Skill development and livelihood programmes

Link with Bharatiya Nyaya Sanhita (BNS), 2023

Provision	Details
Section 124	Punishes both acid throwing and acid administration
Punishment	Minimum 10 years imprisonment, extendable to life imprisonment, along with fine

Significance

- Removes discrimination between acid throwing and acid ingestion victims.
- Expands the social security net under the RPwD Act.
- Aligns disability law with criminal law.
- Strengthens India's rights-based approach towards persons with disabilities.
- Ensures retrospective justice for previously excluded victims.

Way Forward

- Develop standardized medical assessment protocols for internal acid injuries.
- Strengthen rehabilitation, counselling and livelihood support.
- Ensure speedy certification and effective implementation across States.
- Improve coordination between health, legal and social welfare institutions.

UPSC Prelims MCQ

Q. With reference to the Rights of Persons with Disabilities (RPwD) Act, 2016, consider the following statements:

1. The 2026 amendment includes victims of acid ingestion within the definition of acid attack victims.
2. The amendment has retrospective effect.
3. The RPwD Act, 2016 was enacted to implement India's obligations under the UN Convention on the Rights of Persons with Disabilities (UNCRPD).

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) **1, 2 and 3**

Answer: (d)

UPSC Mains Question (10 Marks)

The Rights of Persons with Disabilities (RPwD) Act, 2016 reflects India's transition from a welfare-based to a rights-based approach. In this context, examine the significance of the 2026 amendment expanding the definition of acid attack victims to include acid ingestion victims. (150 words)



