

Weekly **EXPECTED** **CURRENT** **AFFAIRS**

for

IAS EXAMINATION



From
07th Sep *to* **12th Sep 2026**



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POLITY & GOVERNANCE

1.1. NICOTINE POUCHES AND INDIA'S REGULATORY GAP

Context

- A recent study by **ICMR–National Institute of Cancer Prevention and Research (NICPR)** has highlighted the growing availability of **nicotine pouches** in India through online platforms, tobacco/hookah shops and delivery services.
- The concern is that these products contain **nicotine but no tobacco**, and are **neither electronic cigarettes nor conventional tobacco products**. This raises an important question: **Which Indian law regulates them?**



What are Nicotine Pouches?

- Nicotine pouches are **small, tobacco-free oral products** containing:
 - Nicotine
 - Flavouring agents
 - Plant-based fibres and other ingredients
- They are placed between the **lip and gum**, from where nicotine is absorbed through the oral mucosa.

Why does a Regulatory Gap Arise?

India's major nicotine-related laws were designed around **specific categories of products**, such as:

1. COTPA, 2003

- The Cigarettes and Other Tobacco Products Act (COTPA) regulates cigarettes and tobacco products.
- Since nicotine pouches are marketed as **tobacco-free**, their automatic classification under COTPA is legally problematic.

2. PECA, 2019

- The **Prohibition of Electronic Cigarettes Act (PECA)** prohibits the production, manufacture, import, export, transport, sale, distribution, storage and advertisement of **electronic cigarettes**.

Why nicotine pouches fall outside this framework?

- Because they are:
 - Not electronic
 - Do not generate vapour/aerosol
 - Do not require a vaping device

Could Nicotine Pouches Be Treated as Drugs?

- This is another issue raised by their legal classification.
- The **Drugs and Cosmetics Act, 1940** regulates drugs and certain therapeutic products.
- Nicotine is used in **nicotine-replacement therapies (NRTs)** such as: Nicotine patches, Nicotine lozenges.
- These are intended to help in **tobacco cessation**.
- However, a nicotine pouch intended for **recreational nicotine consumption** cannot automatically be treated as a therapeutic drug merely because it contains nicotine.

Can They Be Sold at Duty-Free Shops?

- Duty-free does not mean law-free.
- A duty-free shop primarily concerns customs-duty treatment. It does not automatically exempt a product from other applicable laws or import restrictions.
- Hence, the mere presence of a nicotine pouch in a duty-free environment does **not by** itself establish that its import or sale is legally permissible.

Q. Consider the following statements regarding nicotine pouches in India:

1. They contain tobacco leaves and are therefore automatically regulated as tobacco products under COTPA.
2. The Prohibition of Electronic Cigarettes Act, 2019 directly prohibits nicotine pouches.
3. Indian food-safety regulations prohibit the use of nicotine as an ingredient in food products.

Which of the statements given above is/are correct?

- A. 1 only
- B. 3 only
- C. 1 and 2 only
- D. 2 and 3 only

Answer: B. 3 only

Statement 1 is Incorrect: Nicotine pouches are **tobacco-free oral products**. They contain nicotine but not tobacco leaves. Therefore, they cannot be automatically treated as tobacco products under **COTPA, 2003** merely because they contain nicotine.

Statement 2 is Incorrect: The **Prohibition of Electronic Cigarettes Act (PECA), 2019** specifically targets **electronic cigarettes**. Nicotine pouches are **non-electronic** and do not produce vapour/aerosol. Hence, PECA does not directly cover them.

Statement 3 is Correct: Under India's food-safety framework, **nicotine and tobacco cannot be used as ingredients in food products**. Therefore, the statement is correct.

1.2. FSSAI's FRONT-OF-PACK WARNING LABELS ON PACKAGED FOODS

Context

- Recently, the **Supreme Court** has sought clarity from the **Food Safety and Standards Authority of India (FSSAI)** on its proposed **front-of-pack warning labels** for packaged foods high in **added sugar, salt and fat**. FSSAI has proposed **red hexagonal warning labels**, with nutrient thresholds linked to the **Dietary Guidelines for Indians, 2024**.



Supreme Court's Key Concerns

- **Ambiguous Nutrient Thresholds:** Questioned the clarity and scientific methodology FSSAI uses to determine when packaged food is classified as "high" in salt, sugar, or saturated fats.
- **Child and Public Health Risks:** Emphasized that weak or delayed food safety standards pose direct long-term health risks, particularly to growing children.
- **Regulatory Laxity:** Urged FSSAI to treat **front-of-pack** warning label enforcement as a critical matter of "national interest" rather than delaying action.

What are Front-of-Pack Warning Labels?

- **Front-of-Pack Labelling (FoPL)** provides simplified nutritional information on the **front side of packaged food**, allowing consumers to identify important health-related information quickly.
- Warning labels are intended to highlight products containing **high levels of nutrients of concern**, such as sugar, salt/sodium and fats.
- FSSAI's proposed system uses a **red hexagonal warning** to alert consumers when a packaged food crosses the prescribed threshold for specified nutrients.

Basis for Determining "High" Levels

- FSSAI has indicated that the proposed thresholds would be based on the **Dietary Guidelines for Indians, 2024**.
- These guidelines were developed by the **ICMR–National Institute of Nutrition (ICMR-NIN)**.
- The Supreme Court has sought greater clarity on **how the regulator will determine the threshold beyond which a food product will be classified as "high"** in sugar, salt or fat.

About FSSAI

- **FSSAI** is India's statutory food-safety regulator.
- It was established under the **Food Safety and Standards Act, 2006**.
- It works under the **Ministry of Health and Family Welfare**.
- Its broad mandate includes:
 - Setting **food standards**.
 - Regulating the **manufacture, storage, distribution, sale and import of food**.
 - Ensuring the **availability of safe and wholesome food**.
 - Providing scientific and regulatory frameworks for food safety.

Q. With reference to front-of-pack warning labels in India, consider the following statements:

1. FSSAI has proposed prominent warning labels on packaged foods containing high levels of specified nutrients such as added sugar, added fat and salt.
2. The proposed thresholds are linked to the Dietary Guidelines for Indians, 2024.
3. FSSAI is a statutory authority established under the Food Safety and Standards Act, 2006.
4. Front-of-pack labelling is intended only to provide information about the manufacturing and expiry dates of packaged food.

Which of the statements given above are correct?

- (a) 1, 2 and 3 only
(b) 1 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

Answer: (a) 1, 2 and 3 only

Explanation

- **Statement 1 – Correct:** FSSAI has proposed prominent warning labels for packaged foods high in specified nutrients such as added fat, added sugar and salt.
- **Statement 2 – Correct:** The proposed thresholds are to be based on the **Dietary Guidelines for Indians, 2024**, issued by ICMR-NIN.
- **Statement 3 – Correct:** FSSAI is a statutory authority established under the **Food Safety and Standards Act, 2006**.
- **Statement 4 – Incorrect:** Front-of-pack labelling primarily provides **simplified nutritional information**, not merely manufacturing or expiry details.

1.3. FOREST RIGHTS ACT & GRAM SABHA CONSENT

Context

- A recent debate has emerged over whether Gram Sabha consent is legally mandatory for projects involving diversion of forest land under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA).



Core Dispute

- **MoTA's Legal Standpoint:** Ministry of Tribal Affairs clarified that the Forest Rights Act (FRA), 2006 does not contain any provision requiring Gram Sabha consent for **stage –II forest clearance**, matters concerning such consent do not fall under the Ministry's purview.
- **The Regulatory Mandate (Forest Conservation Guidelines):** While the text of the FRA lacks the explicit terminology, guidelines under the **Forest (Conservation) Act, 1980** specifically require that all FRA processes be completed—and a No-Objection Certificate (NOC) secured from affected Gram Sabhas—before forest land can be formally diverted.

What is the Forest Rights Act, 2006?

Parameter	Statutory Provision
Nodal Authority	Ministry of Tribal Affairs (MoTA). Implementation at the ground level rests with State/UT Governments.
Beneficiaries	FDST: Forest Dwelling Scheduled Tribes living in the area prior to December 13, 2005 . OTFD: Other Traditional Forest Dwellers residing for at least 3 generations (75 years) prior to Dec 13, 2005.
Ceiling Limit	Individual Forest Rights (IFR) land holding is capped at a maximum of 4 hectares per family for actual occupation.
Gram Sabha Authority	Statutory authority to initiate the process of determining nature and extent of individual or community forest rights (CFR).

Appellate Machinery	3-Tier Structure: Gram Sabha → Sub-Divisional Level Committee (SDLC) → District Level Committee (DLC). The DLC's decision is final and binding.
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Role of the Gram Sabha under FRA

- The **Gram Sabha is the primary authority** under the FRA for initiating and determining forest rights claims.
- Key functions:
 - Receives and verifies claims.
 - Prepares resolutions on forest rights.
 - Determines the nature and extent of rights.
 - Plays a crucial role in protecting **community forest resources**.
 - Exercises responsibilities relating to conservation and management of forest resources.
- Niyamgiri Judgment (2013):** *Orissa Mining Corporation v. Ministry of Environment & Forest* — The Supreme Court held that the Gram Sabha has the ultimate authority under **PESA and FRA** to decide whether mining/diversion affects religious, cultural, or community rights over forest land.

Key takeaway

- The controversy is essentially about **the distinction between:**
- “Consent expressly mandated by the FRA” and “Procedural requirements imposed through forest-diversion guidelines to ensure FRA compliance.”**

Proposed Reform

- A **Parliamentary Standing Committee on Public Undertakings** examined delays in forest clearances for NHPC hydropower projects.
- Average forest-clearance time for under-construction hydropower projects was reported at **106 months**.
- Teesta-IV Hydroelectric Project** was reportedly stalled due to pending consent from some Gram Panchayats.
- The committee supported replacing **unanimous consent** with a **70–75% “qualified super-majority”** for large hydropower projects of national importance.
- It recommended that the **Power Ministry** examine the proposal in consultation with the **Ministry of Tribal Affairs**.

Q. With reference to the Forest Rights Act (FRA), 2006, consider the following statements:

- The Ministry of Tribal Affairs is the nodal ministry for implementation of the FRA.
- The FRA explicitly mandates 100% Gram Sabha consent for diversion of forest land for non-forest purposes.
- Gram Sabha plays a central role in the recognition and determination of forest rights under the FRA.
- The proposal for 70–75% “qualified super-majority consent” is an existing statutory requirement under the FRA.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 1, 2 and 3 only
- (c) 2 and 4 only
- (d) 1, 3 and 4 only

Answer: a) 1 and 3 only

Explanation:

- **Statement 1 is Correct:** The Ministry of Tribal Affairs is the nodal ministry for the FRA.
- **Statement 2 is Incorrect:** The FRA does **not explicitly mandate 100% Gram Sabha consent** for Stage-II forest clearance.
- **Statement 3 is Correct:** Gram Sabha is a key authority in the recognition and determination of forest rights.
- **Statement 4 is Incorrect:** The **70–75% qualified super-majority** was a proposal / recommendation for large hydropower projects, not a statutory provision under the FRA.

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INTERNATIONAL RELATIONS

2.1. INDIA–U.S. ARMIES COMMENCE EXERCISE YUDH ABHYAS 2026

Context

- The Indian and U.S. Armies have commenced the 22nd edition of Exercise Yudh Abhyas 2026, the exercise focuses on high-altitude warfare, long-range precision fires, counter-drone capabilities, and enhanced operational interoperability.



About Yudh Abhyas

- Yudh Abhyas** is an **annual bilateral Army exercise** between **India and the United States**.
- It has been conducted **since 2004**, with the venue generally alternating between India and the U.S.
- The **21st edition (2025)** was held at **Fort Wainwright, Alaska**, involving the Indian Army and the U.S. Army's **11th Airborne Division**.
- The exercise aims to enhance **interoperability, joint operational capabilities and sharing of military best practices**.

Key Features of Yudh Abhyas 2026

- Focus on **long-range precision fires**, integrated command-and-control and **counter-drone capabilities**.
- The exercise is being conducted in **two theatres—Mahajan Field Firing Ranges in Rajasthan and Auli in Uttarakhand**, combining desert and high-altitude operational environments.

Major India–USA Military Exercises

Exercise	Participating Forces	Key Focus
Yudh Abhyas	Indian Army + U.S. Army	Joint land warfare, interoperability
Vajra Prahar	Indian Army Special Forces + U.S. Special Forces	Special operations, counter-terrorism
Tiger Triumph	Tri-Service	Amphibious operations + HADR
Cope India	Indian Air Force + U.S. Air Force	Air combat and air operations
Red Flag	Indian Air Force + U.S. Air Force and other countries	Multinational air combat training
Tiger Claw	Indian Air Force + U.S. Air Force Special Forces	Airborne/Special Forces operations
Malabar	India + USA + Japan + Australia	Naval/maritime operations

Q. With reference to Exercise Yudh Abhyas, consider the following statements:

1. **Yudh Abhyas** is an annual bilateral military exercise conducted between the **Indian Army and the U.S. Army**.
2. The exercise has been conducted since **2004**, with its venue generally alternating between India and the United States.
3. The **2026 edition** focuses, among other things, on **high-altitude warfare, long-range precision fires and counter-drone capabilities**.
4. **Yudh Abhyas** is a **tri-service exercise** involving the Indian Army, Indian Navy and Indian Air Force along with their U.S. counterparts.

Which of the statements given above are correct?

- (a) 1, 2 and 3 only
- (b) 1 and 4 only
- (c) 2 and 3 only
- (d) 1, 2, 3 and 4

Correct Option: (a)

Explanation:

- **Statement 1 is correct:** Yudh Abhyas is a bilateral Army exercise between India and the United States.
- **Statement 2 is correct:** The exercise has been conducted since 2004, generally alternating between India and the U.S.
- **Statement 3 is correct:** Yudh Abhyas 2026 focuses on areas such as high-altitude warfare, long-range precision fires, integrated command-and-control and counter-drone capabilities.
- **Statement 4 is incorrect:** Yudh Abhyas is an **Army-to-Army exercise**, not a tri-service exercise. **Tiger Triumph** is the India–U.S. tri-service exercise.

2.2. NORTH KOREA EXPANDS URANIUM ENRICHMENT CAPACITY AT YONGBYON AND KANGSON

Context

- Recently, The **International Atomic Energy Agency (IAEA)** has reported that North Korea is expanding its uranium-enrichment infrastructure, including a **new enrichment facility at the Yongbyon nuclear complex** capable of accommodating up to **28 gas-centrifuge cascades**.



What has the IAEA found?

- A new two-storey uranium-enrichment building has been identified at Yongbyon.
- The facility has been designated Yongbyon Uranium Enrichment Facility 2 (UEF2) by the IAEA.
- It can accommodate up to **28 centrifuge cascades**.
 - Since a **single centrifuge cannot achieve** the required enrichment, many centrifuges are connected in stages to form a cascade, progressively increasing the U-235 concentration.
- The IAEA also found indications of expanded operations at the Kangson **Uranium Enrichment Facility**.

Why is Uranium Enrichment Important?

- In nature, mined uranium consists of about 99.3% non-fissionable Uranium-238 and only **0.7% fissionable Uranium-235**.
- Enrichment increases the U-235 concentration, making uranium suitable for many nuclear applications.
- **Types of Enriched Uranium**
 - **Low-Enriched Uranium (LEU, 3–5% U-235):** Mainly used as fuel in civilian nuclear power reactors.
 - **High-Assay Low-Enriched Uranium / Medium Enrichment (5–20% U-235):** Used in advanced/research reactors and some naval applications.
 - **Highly Enriched Uranium (HEU, 20% to 90%+ U-235):** Used for certain specialized reactor applications; at around 90% U-235, it is generally considered weapons-grade.

About IAEA

- **Established:** 1957
- **Headquarters:** Vienna, Austria
- **Nature:** Intergovernmental organisation within the UN family; works as the world's "Atoms for Peace and Development" organisation.
- **Members:** 180+ Member States.
- It reports to **both the UNGA and the UN Security Council**.
- **General Conference:** Highest policy-making body; includes all Member States.
- **2005 Nobel Peace Prize:** Awarded jointly to the IAEA and Mohamed ElBaradei for efforts to prevent nuclear energy from being used for military purposes.

Core Objectives

- **Peaceful Use of Nuclear Energy:** Promotes safe, secure and peaceful applications of nuclear technology.
- **Nuclear Safety:** Develops international **safety standards** for nuclear facilities and activities.
- **Nuclear Security:** Helps prevent nuclear and radioactive materials from being used for malicious purposes.
- **Nuclear Safeguards:** Verifies that nuclear material is **not diverted from peaceful uses to nuclear weapons programmes**.
- **Technology & Development:** Supports nuclear applications in **health, agriculture, water, food and industry**.

IAEA & NPT

- **NPT = Treaty on the Non-Proliferation of Nuclear Weapons (1968).**
- IAEA safeguards help verify compliance with the NPT's **non-proliferation obligations**.
- **India is not a party to the NPT**, but India has an **IAEA safeguards agreement** covering its designated civilian nuclear facilities.
- **North Korea joined the NPT in 1985**, but later announced its withdrawal and has subsequently operated outside the treaty framework.
- **Important:** IAEA **does not itself impose sanctions**; the **UN Security Council** can take enforcement action.

Q. Yongbyon and Kangson, recently in the news, are located in which country?

- (a) North Korea
- (b) South Korea
- (c) Japan
- (d) China

The correct answer is (a) North Korea.

Explanation:

Yongbyon is North Korea's principal nuclear facility, housing its major research reactors, power plants, and uranium enrichment facilities (including the newly reported **UEF2**).

Kangson is another key site in North Korea identified by intelligence and international monitors (including the IAEA) as harboring a covert or expanded uranium enrichment facility.

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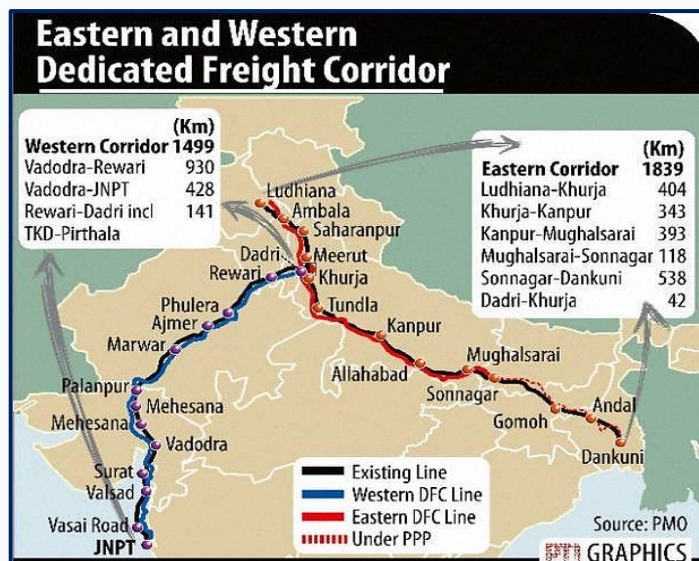
3.1. DEDICATED FREIGHT CORRIDOR (DFC) & COMPLETION OF THE WESTERN DFC

Context

- The Prime Minister inaugurated final key sections of the **Western Dedicated Freight Corridor (WDFC)** connecting Jawaharlal Nehru Port Trust (JNPT) in Navi Mumbai (Maharashtra) to Dadri (Uttar Pradesh), marking the operational completion of the corridor.

What are Dedicated Freight Corridors (DFCs)?

- DFCs are specialized railway tracks designed solely for freight transport. These corridors, utilizing double-stack container and heavy-haul trains, increase capacity and ensure faster freight transit.



Key Features of Western Dedicated Freight Corridor (WDFC)

- Terminals:** Connects **Dadri (Uttar Pradesh)** to **JNPT (Navi Mumbai, Maharashtra)** spanning approximately 1,504 km.
- State Coverage:** Traverses 5 major states — **Uttar Pradesh, Haryana, Rajasthan, Gujarat, and Maharashtra.**
- Funding Agency:** Funded primarily by the **Japan International Cooperation Agency (JICA).**
- Designed for **double-stack container train operations** using high-reach Overhead Equipment (OHE).
- Maximum design speed of **100 km/h** for freight trains (compared to ~25 km/h average on traditional tracks).

About India's Dedicated Freight Network

- **DFCCIL (Dedicated Freight Corridor Corporation of India Limited):**
 - A Special Purpose Vehicle (SPV) incorporated as a Public Sector Undertaking under the **Companies Act, 1956** (not a statutory body).
 - Functions under the administrative control of the **Ministry of Railways.**
- **Eastern Dedicated Freight Corridor (EDFC):**
 - Connects **Sahnewal/Ludhiana (Punjab)** to **Dankuni (West Bengal)** covering ~1,875 km.
 - Funded primarily by the **World Bank.**
- **Present Status of Dedicated Freight Corridor (DFC)**
 - DFCs now handle over **10% of Indian Railways' freight.**
 - **An average of 325 trains run on DFC tracks daily**, a 60% increase from previous years.

- Since their inception, DFCs have managed **over 232 billion Gross Tonne Kilometres (GTKMs) and 122 billion Net Tonne Kilometres (NTKMs)**, underscoring their role in enhancing rail freight capacity.

Objectives

- **Traffic Segregation:** Separates freight from passenger rail corridors to release capacity on trunk routes.
- **Logistics Cost Reduction:** Targets lowering India's logistics cost from ~13-14% of GDP down to single digits.
- **Decarbonization:** Shift of freight from road to energy-efficient electric rail reduces global greenhouse-gas emissions.
- **Integration:** Key element under the **PM Gati Shakti National Master Plan** for multi-modal connectivity.

Q. With reference to Dedicated Freight Corridors (DFCs) in India, consider the following statements:

1. The Western Dedicated Freight Corridor (WDFC) connects Dadri in Uttar Pradesh directly to Jawaharlal Nehru Port Trust (JNPT) in Maharashtra.
2. The Western DFC is funded primarily by the World Bank, whereas the Eastern DFC is funded by the Japan International Cooperation Agency (JICA).
3. The Dedicated Freight Corridor Corporation of India Limited (DFCCIL) is a statutory body established through a dedicated Act of Parliament.

Which of the statements given above is/are correct?

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

Answer: (a) 1 only

Explanation:

- **Statement 1 is correct:** The WDFC runs ~1,504 km from Dadri (UP) to JNPT in Navi Mumbai (Maharashtra).
- **Statement 2 is incorrect:** The funding agencies are reversed. The **WDFC** is funded by **JICA (Japan)**, while the **EDFC** is funded by the **World Bank**.
- **Statement 3 is incorrect:** DFCCIL is not a statutory body; it is a Special Purpose Vehicle registered as a Public Sector Enterprise under the **Companies Act, 1956**, under the Ministry of Railways.

ENVIRONMENT & GEOGRAPHY

4.1. FIVE YOUNG ORANGUTANS RESCUED IN ODISHA

Context

- Recently, the **Odisha Forest Department** rescued **five young orangutans** from a **casuarina plantation** in **Balasore's Udayapur-Talsari area**. Found abandoned during patrolling, the animals were shifted to **Nandankanan Zoological Park** for medical examination.



About Orangutan

Feature	Key Information
Scientific genus	<i>Pongo</i>
Taxonomic group	Great ape; Family Hominidae
Native Habitat & Endemism	Orangutans are native exclusively to the tropical rainforests of Southeast Asia, specifically restricted to the islands of Borneo and Sumatra (shared across Indonesia, Malaysia, and Brunei). They are Asia's only living non-human great ape species.
Lifestyle	Predominantly arboreal
Diet	Primarily frugivorous, but broadly omnivorous
IUCN Status	Critically Endangered
CITES	Appendix I

Physical & Anatomical Adaptations

- Arboreal Lifestyle:** Among the largest tree-dwelling mammals; spend most of their time in forest canopies.
- Long Arms:** Arm span can reach **~2.2 m**, much greater than body height.
- Flexible Joints:** Highly mobile shoulders and hips, with **grasping hands and feet**, facilitate movement through trees.

Behaviour & Cognition

- Tool Use:** Use sticks, leaves and other objects for **feeding, protection and communication**.

Three Species of Orangutan

Same genus | Different traits | All Critically Endangered

Bornean Orangutan

(*Pongo pygmaeus*)



Key Characteristics

- Darker red/maroon coat.
- Males develop large, forward-facing cheek pads (flanges).

CR Status Critically Endangered

Sumatran Orangutan

(*Pongo abelii*)



Key Characteristics

- Lighter cinnamon fur.
- Longer face.
- Form closer social ties than Bornean species.

CR Status Critically Endangered

Tapanuli Orangutan

(*Pongo tapanuliensis*)



Key Characteristics

- Identified as a separate species in 2017.
- Rarest ape with fewer than 800 individuals.

CR Status Critically Endangered

Three species. One fight for survival.

Genus : Pongo
Family : Hominidae
Group : Great Apes

Natural Range
Borneo & Sumatra
Countries
Indonesia & Malaysia

Habitat
Tropical rainforests
Diet
Mainly fruits (broadly omnivorous)

Quick Note
India has no naturally occurring wild population of orangutans.

- **Mostly Solitary:** Adult orangutans are largely solitary; **females remain with offspring**, while males maintain large ranges.
- **Extended Maternal Care:** Young may remain with their mothers for **7–8 years**, learning feeding techniques, nest-building and movement through the forest.

Q. With reference to Orangutans, consider the following statements:

1. Orangutans are naturally found in India.
2. All three living orangutan species are classified as Critically Endangered by the IUCN.
3. Orangutans are listed under CITES Appendix I.

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: B. 2 and 3 only

Statement 1 is Incorrect: Orangutans are **not native to India**; their natural range is restricted to **Borneo and Sumatra**.

Statement 2 is Correct: The **Bornean, Sumatran and Tapanuli orangutans** are all **Critically Endangered**.

Statement 3 is Correct: All three orangutan species are included in **CITES Appendix I**, providing the highest level of protection against international commercial trade.

4.2. DECARBONISATION OF INDIA'S STEEL SECTOR & GREEN STEEL TRANSITION

Context

- A recent analysis argues that India can substantially reduce future steel-sector emissions by redirecting investments from new or relined coal-based blast furnaces towards Direct Reduced Iron (DRI), Electric Arc Furnaces (EAFs) and eventually green hydrogen-based production.



India's Steel Production and Emissions Profile

- Steel is called a "**hard-to-abate**" sector — high heat and carbon (as reducing agent) are intrinsic to conventional production.
- India is the **second-largest** crude steel producer in the world, after China.
- India produced around 160 million tonnes of crude steel in FY 2025–26.
- Steelmaking accounts for nearly 12% of India's greenhouse-gas emissions.
- India's steelmaking emissions intensity is around 2.55–2.65 tCO₂e per tonne of crude steel, higher than the global average.
- India is targeting **net-zero emissions by 2070**; steel is one of the toughest sectors to align with this goal.

The Problem of "Carbon Lock-in"

- **Carbon lock-in** occurs when investment in long-lived fossil-fuel infrastructure makes continued emissions economically and institutionally difficult to avoid. This is particularly important for blast furnaces.
- **Blast furnaces (BF)** typically operate **20–25 years**; a mid-life "**relining**" (capital-intensive relining of the furnace lining) extends life by another **15–20 years**.

Key Steelmaking Production Routes in India

- **BF-BOF (Blast Furnace–Basic Oxygen Furnace):** Uses coal/coke to melt iron ore; **highly carbon-intensive**. Accounts for ~43% of Indian steel production and 70.4% of global steelmaking still uses BF-BOF.
- **Electric Arc Furnace (EAF):** EAF uses electricity to melt steel scrap and DRI, and can have much lower emissions than the coal-based BF–BOF route when powered by clean electricity.
- **Direct Reduced Iron (DRI):** DRI removes oxygen from iron ore without melting it, using natural gas or hydrogen as the reducing agent.
 - Direct Reduced Iron – Electric Arc / Induction Furnace Accounts for ~57% of Indian production.
- **Hydrogen-based DRI-EAF ("Green Steel"):** Green hydrogen replaces natural gas/coke as the reducing agent; **near-zero emissions** if hydrogen is produced from renewables.

Major Initiatives & Policy Frameworks

- **National Mission on Green Steel / National Green Hydrogen Mission linkage:**
 - **Target:** lower steel sector emissions intensity from current **~2.55–2.65 tCO₂e/tonne** to **2.2 tCO₂e/tonne of crude steel by 2029-30**.
 - A **2024 Green Steel certification scheme** labels steel with emissions intensity below 2.2 tCO₂e as "**green**."
 - **Note:** Even India's "green" threshold (2.2 tCO₂e) remains well above the **global average of ~1.85 tCO₂e**.
- **Draft National Steel Policy 2025:**
 - Aims to cut emissions intensity to **2 tCO₂/tonne by 2035-36**.
 - Targets more than doubling crude steel capacity to **400 million tonnes/year by 2035-36**.
 - Reduce coking coal import dependence from roughly 90% down to 80%.
- **Ministry of New and Renewable Energy (MNRE)** funded pilot projects (~₹400+ crore) to validate 100% green hydrogen injection in DRI (Direct Reduced Iron) and blast furnaces.

Q. With reference to green steel and the Indian steel industry, consider the following statements:

1. The BF-BOF route uses coking coal as a reducing agent, resulting in higher emissions intensity than the scrap-based Electric Arc Furnace route.
2. Under the National Mission on Green Steel, any steel produced with an emissions intensity below 2.2 tonnes of CO₂-equivalent per tonne of crude steel can be certified as green steel.
3. Electric Arc Furnaces cannot utilize Direct Reduced Iron (DRI) and must rely entirely on imported steel scrap.

4. India's average emissions intensity per tonne of crude steel is currently lower than the global average.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 2, and 4 only
- (d) 1, 3, and 4 only

Answer: (a) 1 and 2 only

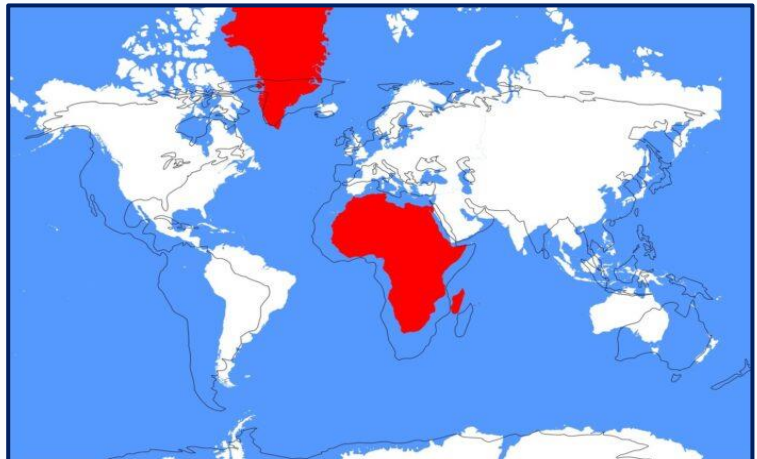
Explanation:

- **Statement 1 is correct:** BF-BOF burns coking coal to strip oxygen from iron ore, making it significantly more carbon-intensive than EAF setups using scrap or DRI.
- **Statement 2 is correct:** The official certification scheme classifies steel produced with emissions intensity below 2.2 tCO₂e/tonne as "green."
- **Statement 3 is incorrect:** Electric Arc Furnaces can process both scrap and Direct Reduced Iron (DRI)/sponge iron.
- **Statement 4 is incorrect:** India's steelmaking emissions intensity (~2.55–2.65 tCO₂e) is approximately 32% higher than the global average (~1.85 tCO₂e).

4.3. CORRECT THE MAP RESOLUTION

Context

- Recently, The UN General Assembly adopted the resolution "Correct the Map: Rebalancing Global Cartographic Representation and Promoting Equitable Representation of the World's Regions, Particularly Africa" on 4 September 2026.
- The resolution, led by **Togo and the African Union**, was adopted with **164 votes in favour, 1 against and 6 abstentions**. India voted in favour.



What is the issue?

- The initiative seeks to promote world maps that **better represent the relative size of continents**, particularly correcting the disproportionate visual representation of Africa and other equatorial regions.

The Problem with the Mercator Projection

- The Mercator projection (1569) is a conformal projection designed primarily for navigation.
- It:
 - Preserves local angles and direction
 - Greatly distorts area, especially towards the poles
 - Makes Greenland and other high-latitude regions appear disproportionately large
 - Makes equatorial regions such as Africa appear relatively smaller

What Does "Correct the Map" Seek to Change?

- The resolution promotes the wider use of cartographic projections that represent the relative size of continents more accurately.
- It particularly highlights the **Equal Earth projection**, developed in 2018.

Equal Earth Projection

- Preserves the relative area of continents more accurately.
- Gives a more proportionate visual representation of Africa, South Asia and Latin America
- Parallels are straight horizontal lines, making it easy to compare latitude across different regions.

What Does It Mean for India?

- India **supported** the resolution.
- However, India also clarified that any cartographic representation must accurately reflect India's sovereign territory and official position on its boundaries, including Jammu & Kashmir and Ladakh.

Mercator vs Equal Earth Projection		
Two world maps, different goals — shape vs size.		
Mercator Projection	Equal Earth Projection	
		
	(Greenland and Antarctica appear much larger than their actual size)	(Landmasses retain their true relative size, with minimal distortion)
 Primary Property	Conformal Preserves shapes, angles and directional bearings locally.	Equal-Area Preserves the relative proportions and real-world sizes of landmasses.
 Area Accuracy	Distorted High-latitude areas (e.g., Greenland, Antarctica) appear massively inflated.	Accurate Continents like Africa, South America and Asia retain their true relative scale.
 Grid Lines	Meridians and parallels are straight lines intersecting at 90° angles.	Parallels are straight horizontal lines; meridians are smooth curves.
 Polar Regions	Cannot display the poles Extends infinitely to top/bottom.	Displays flat poles With minimal aesthetic distortion.
 Primary Uses	Marine navigation, aeronautical charting, web maps (e.g., Google Maps, OpenStreetMap).	World thematic maps, educational materials, global data distribution (e.g., climate, population).

Is the New Map Compulsory?

- The UN resolution is **not a legally binding** order requiring every country to replace the Mercator projection.
- It encourages governments, educational institutions and other stakeholders to promote more accurate representations of relative continental size.

Q. Consider the following statements regarding the "Correct the Map" resolution and map projections:

- The Mercator projection preserves area accurately across the globe.
 - The Equal Earth projection is an equal-area projection.
 - No flat map projection can simultaneously preserve area, shape, distance and direction perfectly.
- 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: **B. 2 and 3 only**

Statement 1 is Incorrect: The **Mercator projection** is a **conformal projection** that preserves local angles and direction, but **distorts area**, with distortion increasing towards the poles.

Statement 2 is Correct: The **Equal Earth projection** is an **equal-area projection**, designed to represent the relative size of continents more accurately.

Statement 3 is Correct: Since the Earth's surface is curved and maps are generally flat, every projection involves some **trade-off between area, shape, distance and direction**. No single flat projection can preserve all these properties perfectly.

4.4. INDIA'S FIRST OVERSEAS LITHIUM ORE SHIPMENT

Context

- Recently, Indian critical-minerals company **LOHUM** dispatched its first shipment of lithium ore from Zimbabwe, marking the start of its overseas lithium mining operations and, according to the company, making it the **first Indian company** to produce lithium **from overseas mining assets**.



Strategic & Policy Dimensions

- Critical Mineral Security:** India has no commercial domestic lithium production and relies on **100% imports**. Securing overseas reserves builds supply chain resilience for Electric Vehicle (EV) batteries and grid storage tenders under national initiatives.
- Institutional & Policy Support:**
 - National Critical Mineral Mission (NCMM):** Administered by the Ministry of Mines, focusing on building self-reliance across 30 identified critical minerals (including Lithium, Cobalt, Nickel, and REEs).
 - KABIL (Khanij Bidesh India Ltd.):** A Joint Venture of NALCO, HCL, and MECL focused on acquiring overseas strategic mineral assets (such as lithium blocks in Argentina's Lithium Triangle).

About Zimbabwe

- A landlocked sovereign republic situated in southern Africa, **between the Zambezi and Limpopo River**.
- Capital:** Harare
- Bordering Countries:** Bordered by South Africa, Botswana, Zambia, and Mozambique.
- Victoria Falls:** It is one of the world's largest and most spectacular waterfalls, is located in the country's extreme northwest and is part of the Zambezi river.
- Matabeleland South Province:** located in southwestern Zimbabwe, where the lithium blocks are situated



Q. With reference to Zimbabwe, which one of the following statements is correct?

- (a) Zimbabwe is a coastal country in southern Africa.
- (b) Matabeleland South Province is located in southwestern Zimbabwe.
- (c) Zimbabwe shares a border with Namibia and Angola.
- (d) Victoria Falls is located on the Limpopo River.

The correct statement is (b) Matabeleland South Province is located in southwestern Zimbabwe.

Fact Breakdown

- **Statement (a) is incorrect:** Zimbabwe is a **landlocked** country in southern Africa, surrounded by South Africa, Botswana, Zambia, and Mozambique.
- **Statement (b) is correct:** Matabeleland South is a administrative province situated in the **southwestern part of Zimbabwe**, bordering Botswana to the west and South Africa to the south.
- **Statement (c) is incorrect:** Zimbabwe shares land borders with South Africa, Botswana, Zambia, and Mozambique. It **does not border Angola or Namibia** (though Zimbabwe comes close to Namibia's Caprivi Strip at the Kazungula quadripoint, they do not share an official land border).
- **Statement (d) is incorrect:** Victoria Falls is located on the **Zambezi River** at the border between Zimbabwe and Zambia (not the Limpopo River, which forms Zimbabwe's southern border with South Africa).

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5.1. ORV SAGAR MANTHAN

Context

- Recently, India launched **ORV Sagar Manthan**, an advanced indigenous **Ocean Research Vessel**, built by **GRSE for NCPOR under the Ministry of Earth Sciences**, to strengthen deep-ocean exploration, marine scientific research, climate studies and India's maritime capabilities.



Some Key Facts

1. Nodal Ministry & Agencies

- Designed, engineered and constructed by:** Garden Reach Shipbuilders & Engineers Limited (GRSE), a defence Public Sector Undertaking (PSU).
- For:** National Centre for Polar and Ocean Research (NCPOR), under the **Ministry of Earth Sciences (MoES)**.

2. Mission Purpose and Strategic Succession

- Mission Alignment:** Direct operational asset under Vertical-4 (Deep Ocean Survey and Exploration) of India's flagship Deep Ocean Mission (DOM).
- Replacement:** It will gradually replace ORV **Sagar Kanya**, a 43-year-old vessel procured from Germany in 1983

3. Technical Specifications & Features

Feature	Technical Detail / Significance
Dimensions & Tonnage	89.5-m long and 18.8-m wide
Operational Capabilities	Max speed of 14 knots; capable of surveys up to depths of 6,000 metres (6 km) .
Station Keeping	Dynamic Positioning System: Holds coordinates precisely without anchor deployment.
Sensor Deployment	Drop Keels: Lowers acoustic instruments below the hull to avoid vessel noise and bubble interference.
Subsea Vehicles	Functions as a mothership to launch ROVs (Remotely Operated Vehicles) and AUVs (Autonomous Underwater Vehicles).
Certification	Dual-class certified by the Indian Register of Shipping (IRS) and American Bureau of Shipping (ABS) .

4. Operational & Research Verticals

- Deep-Sea Mineral Exploration:** Surveying mid-oceanic ridges to map **hydrothermal sulphide deposits**, polymetallic crusts, and critical raw materials.

- **Geophysical & Seabed Mapping:** Executes 3D multibeam **bathymetric mapping**, sub-bottom sedimentary profiling, and multichannel seismic subsurface analysis.
- **Ocean-Climate Interactions:** Upper-air observations, Conductivity-Temperature-Depth (CTD) profiling, and water column sampling to study climate dynamics and Southern Ocean conditions.

GRSE's Growing Capabilities

- GRSE has nearly **four decades of experience** in building **survey vessels** for the Indian Navy.
- GRSE has delivered **four large survey vessels** to the Navy; **the latest, INS Sanshodhak**, was delivered in **March 2026**.
- Currently, GRSE is building nine warships, including:
 - **1 Project 17A** guided-missile frigate
 - 4 ASW-SWC corvettes
 - 4 Next-Generation Offshore Patrol Vessels (NGOPVs)

Project 17A (Nilgiri Class)

1. **Project 17A** is a programme to build **7 advanced stealth guided-missile frigates** for the Indian Navy.
2. **Builder: GRSE – 3 ships; Mazagon Dock Shipbuilders Limited (MDL) – 4 ships.**
3. It is an improved successor to the **Project 17 (Shivalik-class) frigates**.
4. Key features include **enhanced stealth, advanced sensors, improved automation and indigenous systems**.
5. **GRSE-built ships: INS Himgiri, INS Dunagiri and INS Vindhyagiri.**
6. **MDL –built ships: INS Nilgiri, INS Udaygiri, INS Taragiri and INS Mahendragiri.**

Q. Consider the following statements regarding ORV Sagar Manthan:

1. It is an indigenously built Ocean Research Vessel constructed by Garden Reach Shipbuilders & Engineers (GRSE).
2. It operates under the aegis of the Ministry of Ports, Shipping, and Waterways.
3. It is designed to conduct deep-sea surveys at depths up to 6,000 metres under the Deep Ocean Mission.

Which of the statements given above are correct?

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

Answer: (c) 1 and 3 only

- **Explanation: Statement 2 is incorrect.** The vessel operates under the **Ministry of Earth Sciences (MoES)** via the National Centre for Polar and Ocean Research (NCPOR).

5.2. ISRO LAUNCHES ADVANCED EARTH OBSERVATION SATELLITE EOS-05

Context

- Recently, the **Indian Space Research Organisation (ISRO)** launched **Earth-observation satellite EOS-05** aboard **GSLV-F17** from Satish Dhawan Space Centre, Sriharikota to establish persistent geo-imaging over the Indian subcontinent and adjoining regions.

About EOS-05 Earth Observation Satellite

- First geosynchronous imaging satellite:** EOS-05 is India's first-ever imaging satellite from a **geosynchronous orbit (Orbital period equals Earth's rotation)**.
- Payload Weight:** At 2,367 kg, EOS-05 is the **heaviest satellite ever** placed into orbit by a GSLV rocket.
- Replaces **EOS-03**, which was lost in the unsuccessful GSLV-F10 mission (August 2021).
- The satellite is designed to provide near-real-time observation ("**Eye in the Sky**") of Earth's surface.
- Launch Vehicle: GSLV-F17** (3-stage, 51.7-meter-tall rocket with a cryogenic 3rd stage and a lift-off mass of ~420.5 tonnes).
- Multi-Band Imaging:** Features advanced optical sensors across visible, infrared, multi-spectral, and hyperspectral bands.
- Mission life:** 9 years.
- Applications:** Agriculture, disaster management, water resources, forestry and urban planning.



What is Geosynchronous Satellite Launch Vehicle?

- Geosynchronous Satellite Launch Vehicle (GSLV)** are **Indian rockets developed by ISRO**.
- It is primarily designed to launch **heavier communication and other satellites into Geosynchronous Transfer Orbit (GTO)**.
- Three-stage vehicle:**
 - First stage – Solid-fuel core (S139) with four liquid strap-on boosters
 - Second stage – Liquid fuel (Vikas engine)
 - Third stage – **Cryogenic Upper Stage (CUS)** — the most technologically critical part
- Variants:**
 - GSLV Mk II** – Uses the indigenous cryogenic stage; operational since 2014 (after early failures).
 - GSLV Mk III (now called LVM3)** – A more powerful, next-generation vehicle with a more powerful **CE-20 cryogenic engine**; used for larger missions like **Chandrayaan-2, Chandrayaan-3**, and crewed **Gaganyaan** test flights.
- High-Profile Projects:**
 - GSLV/LVM3 variants have launched major missions such as Chandrayaan-2, Chandrayaan-3, GSAT, NVS, and OneWeb satellites, and are also designated for Gaganyaan human spaceflight missions.

Key Difference: PSLV vs GSLV

Feature	PSLV	GSLV Mk II
Primary use	Polar, Sun-synchronous & LEO satellites	Geosynchronous Transfer Orbit (GTO) & higher orbits
Stages	4 stages	3 stages + liquid strap-ons
Propulsion	Solid + Liquid stages	Solid + Liquid + Cryogenic
Cryogenic engine	No	CE-7.5

Q. With reference to the Earth Observation Satellite-05 (EOS-05) recently launched by ISRO, consider the following statements:

1. It is India's first dedicated imaging satellite placed in a geosynchronous orbit (~36,000 km above Earth).
2. The satellite was injected directly into its final geostationary orbit using the Polar Satellite Launch Vehicle (PSLV).
3. It serves as a replacement for the EOS-03 satellite lost during the GSLV-F10 mission.

Which of the statements given above are correct?

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

Answer & Explanation

Correct Answer: (c) 1 and 3 only

- **Statement 1 is correct:** EOS-05 is India's first dedicated imaging satellite designed to monitor the Earth from a geosynchronous orbit (~36,000 km altitude), enabling near real-time persistent monitoring.
- **Statement 2 is incorrect:** EOS-05 was launched aboard the **GSLV-F17** (Geosynchronous Satellite Launch Vehicle), not PSLV. Furthermore, it was injected into a **Sub-Geosynchronous Transfer Orbit (Sub-GTO)** from where onboard propulsion engines will raise it to its final operational orbit.
- **Statement 3 is correct:** EOS-05 replaces the EOS-03 satellite, which was lost during the unsuccessful GSLV-F10 mission in August 2021.

5.3. SPIDER VENOM SHOWS ANTI-CANCER POTENTIAL IN STEGODYPHUS SARASINORUM

Context

- Recently, Indian researchers conducted the first detailed study of the venom gland of *Stegodyphus sarasinorum*, identifying bioactive molecules that showed effects against cancer cells in laboratory tests.



What Did the Researchers Study?

I. A Multi-Omics Approach

- Researchers combined multiple techniques to understand the venom gland at the molecular level:
 - **Transcriptomics** → studies RNA/transcribed genes.

- **Proteomics** → identifies and studies proteins.
- **Metabolomics** → identifies small molecules/metabolites.
- **Confocal Raman Spectroscopy** → helps identify and map biomolecules within biological tissues.

II. Key Findings

- **31 protein components** were identified through transcriptomic analysis.
- **32 proteins** were identified through proteomic analysis.
- **81 metabolites** were detected using Ultra High-Performance Liquid Chromatography-Mass Spectrometry (UHPLC-MS)
- These included **amino acids, biogenic amines, nucleotides, nucleosides and organic acids.**

Cytotoxicity & Drug Discovery Potential

- **Cytotoxicity** means the ability of a substance to **damage or kill cells.**
- Venom-gland extracts were tested against **Dalton's Lymphoma Ascites (DLA) cancer cells.**
 - Dalton's Lymphoma Ascites (DLA) is a widely used transplantable mouse tumour model in cancer research
- The extracts demonstrated **dose-dependent cytotoxicity.**
- Higher concentrations resulted in greater destruction of cancer cells.
- This does not mean that spider venom is a proven cancer treatment. The findings are preliminary and laboratory-based.

Why is Spider Venom Interesting?

- Spider venoms contain diverse **peptides, proteins and other bioactive molecules.**
- Some venom components can interact with **ion channels, cell membranes and signalling pathways.**
- Earlier research has also investigated spider-venom compounds for potential **anticancer activity,** including against breast-cancer cells.

About Stegodyphus sarasinorum

- It is commonly known as the Indian cooperative spider, is a social species of velvet spider in the family Eresidae found across parts of **South and Southeast Asia.**
- **Habitat and Distribution:** Native to India, Sri Lanka, Nepal, and Myanmar.
- **Key Characteristics:**
 - Unlike most eresid spiders that live on the ground, Stegodyphus sarasinorum is arboreal (living in trees and bushes).
 - It is a **social spider**, living in permanent colonies.
 - It builds **communal silk nests** and can **cooperatively** capture prey.
 - Females practice **suicidal maternal care.** After hatching, spiderlings first feed on regurgitated fluids and eventually consume the mother entirely (matrphagy).
- Its venom represents a potential source of **bioactive molecules for pharmaceutical research.**

Q. With reference to *Stegodyphus sarasinorum* (Indian cooperative spider), recently in the news, consider the following statements:

1. It is a social spider that lives in permanent colonies.
2. Unlike most eresid spiders that live on the ground, *Stegodyphus sarasinorum* is arboreal.
3. Males practice suicidal maternal care.

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: A. 1 and 2 only

- **Statement 1 is correct:** *Stegodyphus sarasinorum* (commonly known as the Indian cooperative spider) is one of the very few **permanently social spider species** worldwide. They build communal silk nests and live in permanent cooperative colonies where they hunt, feed, and raise young together.
- **Statement 2 is correct:** While the vast majority of spiders in the family Eresidae (velvet spiders) are ground-dwelling or terrestrial, *Stegodyphus* is the **only genus in the family Eresidae that is strictly arboreal**. They construct their nests on trees, bushes, and shrubs.
- **Statement 3 is incorrect:** Suicidal maternal care (a phenomenon known as **matriphagy**, where adults liquefy their internal organs to feed their young and ultimately sacrifice their bodies for their offspring to consume) is practiced by **females** (mothers and unmated virgin females), **not males**. Males do not engage in suicidal care or matriphagy.

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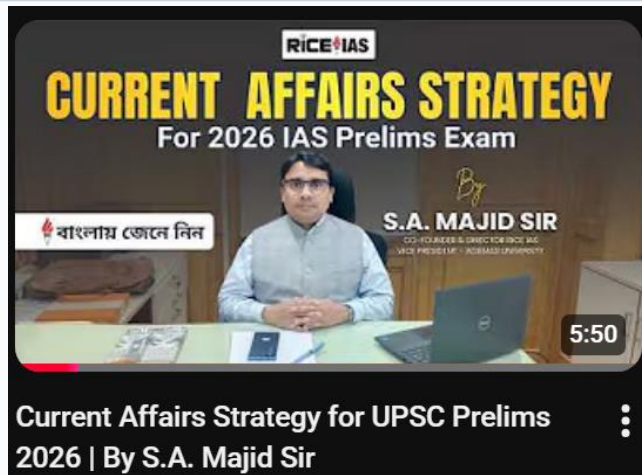
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