

Prelims Exam Topics

JUNGLE CATS

Context

A groundbreaking study published in Scientific Reports has provided the first comprehensive baseline for the Jungle Cat (*Felis chaus*) in India.

About Jungle cats

- **Physical Features:** Distinguishable by a white muzzle, yellow irises, and large ears with black tufts (similar to a lynx). It has long legs often marked with faint stripes.
- **Habitat Preference:** Contrary to its name, it **avoids dense forests**. It prefers "Open Natural Ecosystems" (ONEs), semi-arid regions, wetlands, and agro-pastoral landscapes.
 - They are present across Asia, with large populations in India and Nepal, among others.
- **Hotspots in India:** Madhya Pradesh, Rajasthan, and Odisha.
- **Ecological Role:** They act as natural pest controllers by keeping rodent populations in check around agricultural fields.
- **Key threat:** Conversion of Open Natural Ecosystems (ONEs)
- **IUCN Red List Status::** Least Concern
- **WPA Status:** Schedule II



SPERM WHALES

Context

Researchers have captured high-definition footage of a sperm whale birth off the coast of Mauritius, providing a firsthand look at the sophisticated "midwifery" and protective social behaviors of the pod.

About Sperm Whales

- **Physical Features:** Distinguishable by their massive, **square-shaped heads** (which house the spermaceti organ) and a single S-shaped blowhole located on the front left.
 - They have a dark, wrinkled skin texture and the **largest brain** of any animal on Earth.
- **Habitat Preference:** They are a **pelagic species** (open ocean) that prefers deep waters, typically near edge-of-shelf breaks and underwater canyons where they can dive over 2,000 meters to hunt.
- **Global Presence:** They are found across all ice-free marine waters.



- Major populations exist in the Indian Ocean, the South Pacific, and the North Atlantic.
- **Hotspots in India:** Sightings and strandings have been recorded primarily along the **Lakshadweep archipelago**, the **Andaman and Nicobar Islands**, and deep-water zones off the **Kerala and Tamil Nadu coasts**.
- **Ecological Role:** As apex predators, they regulate deep-sea ecosystems by consuming large quantities of squid (including Giant Squid).
 - Their nutrient-rich fecal plumes also stimulate **phytoplankton growth**, which traps carbon from the atmosphere.
- **IUCN Red List Status:** Vulnerable
- **WPA Status:** Schedule I
- **CITES:** Appendix I

BALTIC SEA

Context

A multinational research expedition led by Germany's GEOMAR centre has been launched to map and neutralize 1.6 million tonnes of corroding World War II munitions that are leaking carcinogenic toxins into the Baltic Sea's ecosystem.

About Baltic Sea

- **Location:** Situated in Northern Europe, it is an arm of the Atlantic Ocean, connected to it via the North Sea.
- It is often described as the **world's largest expanse of brackish water**.
- **Bordering Countries:** Sweden, Finland, Russia, Estonia, Latvia, Lithuania, Poland, Germany, and Denmark.
- **Connections:** It connects to the North Sea through the Kiel Canal (man-made) and the Danish Straits (Oresund, Great Belt, and Little Belt) via the Kattegat and Skagerrak straits.
- **Major Rivers draining into the Baltic Sea:** Vistula, Oder, Neva, Daugava, and Niemen.
- **Major Straits and canals:** The Sound, Great Belt, Little Belt, Fehmarn Belt, Kadetrinne, Kattegat, Skagerrak
- **Major Ports:** St. Petersburg (Russia), Stockholm (Sweden), Copenhagen (Denmark), Gdańsk (Poland), and Helsinki (Finland).
- Often referred to as a "**NATO Lake**" since Finland and Sweden joined the alliance, leaving Russia as the only non-NATO littoral state.
- **Environmental Concerns in Baltic Sea**
 - **WWII Munitions Leakage:** Approximately **1.6 million tonnes** of rusting conventional and chemical weapons are leaking carcinogenic toxins (like TNT) and heavy metals into the seafloor.



- **Eutrophication:** Excessive nutrient runoff (nitrogen and phosphorus) from intensive agriculture in bordering countries leads to massive algal blooms and oxygen depletion.
- **Dead Zones:** Due to its shallow, semi-enclosed nature and low water exchange, large areas of the seabed are **hypoxic** (oxygen-poor).
- **Microplastics & Shipping:** High traffic in the Danish Straits and Kiel Canal increases the risk of oil spills, invasive species from ballast water, and significant plastic pollution.

FATF REPORT ON INDIA'S ACTION ON OVASPS

Context:

- A **FATF report** on “*Understanding and Mitigating the Risks of Offshore Virtual Asset Service Providers (oVASPs)*” highlighted **India’s 1 measures** to curb **money laundering and terror financing**.

About Offshore Virtual Asset Service Providers (oVASPs)

These are digital asset entities providing exchange, custody, or transfer services to users while based in jurisdictions with weak or no Anti-Money Laundering (AML) regulations.

- **Services:** Enable **buying, selling, transferring and storing cryptocurrencies and other virtual assets**.
- **Regulatory Gap:** Many operate **without local registration**, bypassing domestic AML/CFT regulations.

How oVASPs Enable Money Laundering

- **Conversion of Illicit Funds:** Criminal proceeds are converted into **digital assets through offshore platforms**.
- **Layering of Transactions:** Funds are routed through **multiple crypto wallets and exchanges** to hide origin.
- **Re-Entry into Economy:** Crypto assets are converted back to **fiat currency via domestic platforms or bank accounts**.
- **Evasion Techniques:** Platforms promote **VPN use, anonymous wallets and shell companies** to bypass regulations.

India's Action Against Money Laundering:

- **Principal Officer:** **Indian VASPs** must appoint a **Principal Officer in India** responsible for AML compliance and transaction monitoring.
- **Crypto Tax Regime:** **30% tax on virtual assets (2022)** brought crypto transactions into the formal regulatory framework.
- **Virtual Asset Lab:** India is setting up a **Virtual Asset Lab** using analytics, open-source intelligence and web surveillance to detect illegal platforms.
- **Scam Compounds:** Investigations uncovered **cybercrime centres in Myanmar, Cambodia and Laos** where trafficked Indians were forced to run crypto scams.
- **Suspicious Transaction Reports (STRs):** Domestic crypto exchanges file **STRs with FIU-IND** to detect unusual crypto deposits.
- **Gambling Cover:** An offshore platform operating **under the cover of online gambling** was blocked for moving illicit funds across borders.

NIACIN SUPPLEMENTS AND TOXICITY RISKS

Context

- A recent medical warning highlighted cases of **niacin (vitamin B3) supplement toxicity causing liver injury**, raising concerns about the growing use of **high-dose supplements marketed for longevity, cholesterol control and wellness**.

About Niacin

- **Definition:** Niacin (vitamin B3) is a **water-soluble B-complex vitamin essential for metabolism and energy production**.
- **Physiological Role:** Helps convert **food into energy** and supports **DNA repair, nervous system function and skin health**.
- **Forms:** Occurs mainly as **nicotinic acid and nicotinamide**, both used in supplements and medicines.
- **Dietary Requirement:** Recommended intake for adults is about **14–16 mg/day**, usually obtained through food such as **meat, fish, grains and legumes**.

Uses of Niacin

- **Treatment of Dyslipidaemia:** High-dose niacin is prescribed to **lower LDL (“bad”) cholesterol and triglycerides while increasing HDL (“good”) cholesterol**.
- **Therapeutic Supplement:** Used in treatment of **niacin deficiency (pellagra)** and certain metabolic disorders.
- **Wellness and Longevity Supplements:** Niacin may increase **NAD⁺ (Nicotinamide Adenine Dinucleotide)** levels, a molecule linked to **cellular energy metabolism and repair**.

thus, niacin supports **energy metabolism, DNA repair, skin health and prevention of pellagra**, but high-dose supplementation is not a proven longevity therap

Issues in Overdose / Toxicity

- **Flushing Reaction:** High doses cause **skin flushing, redness and burning sensation** due to dilation of blood vessels.
- **Metabolic Effects:** Excess intake may lead to **increased uric acid (gout risk) and elevated blood sugar**.
- **Cardiovascular Effects:** Overdose can cause **rapid heartbeat, dizziness and low blood pressure**.
- **Liver Injury:** High doses (especially **>1,000 mg/day**) may cause **hepatotoxicity, hepatitis and even acute liver failure**.

ARAB LEAGUE (LEAGUE OF ARAB STATES)

Context

- The Council of the League of Arab States has appointed former Egyptian Foreign Minister Nabil Fahmy as the next secretary-general of the organization.

About the Arab League

It is a regional intergovernmental organisation of Arab countries in West Asia and North Africa formed to promote cooperation among Arab states.

- **Formation:** Established on **22 March 1945** in **Cairo** after signing the **Pact of the League of Arab States**.
- **Ideological Basis:** Formed as an expression of **Pan-Arabism**, aiming to unite Arab countries politically and economically.
- **Headquarters:**
Located in **Cairo, Egypt** (temporarily shifted to **Tunis** from **1979–1989**).
- **Members:** Currently **22 member states** from the **Middle East and North Africa (MENA)** region.
 - **Voting:** Each member has **one vote** **irrespective of size**.
 - **Binding Rule:** Resolutions are **binding only on states that approve them**.
- **Founding Members (1945):** Egypt, Iraq, Transjordan (Jordan), Lebanon, Saudi Arabia, Syria and Yemen.



Objectives

- **Political Coordination:** Coordinate **foreign policies and political positions** of Arab states.
- **Sovereignty Protection:** Safeguard **independence and territorial integrity** of member states.
- **Economic Cooperation:** Promote **trade, economic integration and development**.
- **Cultural Integration:** Strengthen **Arab cultural, linguistic and social ties**.
- **Conflict Resolution:** Provide a **forum to mediate disputes between member states**

Structure

- **Council:** Highest decision-making body composed of **representatives of member states**.
- **General Secretariat:** Administrative body headed by the **Secretary-General**.
- **Secretary-General:** Traditionally an **Egyptian diplomat**, reflecting Egypt's role as host of the headquarters.

India–Arab League Relations

- **Dialogue:** Consultative framework (**2002**); MoU cooperation (**2008**).
- **Institutional Framework:** Creation of **Arab–India Cooperation Forum (AICF)** for institutional engagement.
- **Delhi Declaration (2026):** Adopted during the **2nd India–Arab Foreign Ministers' Meeting**. Joint commitment on **counter-terrorism, economic cooperation and regional stability**.

- **Principles:** Support for **sovereignty, territorial integrity and peace in West Asia.**
- **Trade:** India–Arab trade ~\$240 billion; energy and diaspora linkages key.
- **Target:** Trade expansion goal \$500 billion by 2030.

EXTRACELLULAR RNA (EXRNA)

Context

- A recent study published in the journal *Clean Water* (March 2026) reported that **extracellular RNA (exRNA) from bacteria can persist in disinfected drinking water**, helping scientists understand **bacterial survival strategies and improve water disinfection methods.**

About Extracellular RNA (exRNA)

- **Definition:** RNA present **outside cells** in body fluids (blood, saliva, urine, CSF).
- **Discovery:** Earlier thought unstable outside cells; later found **actively exported for signalling** (exRNA research accelerated after **2010 NIH exRNA initiative**).
- **Transport:** Protected in **exosomes / microvesicles / protein complexes** (prevents RNase degradation).
- **Biological Role:** Acts as a **molecular signalling system enabling communication between distant cells.**
- **Packaging:** Transported in **protective carriers such as extracellular vesicles (exosomes, microvesicles) or bound to proteins/lipoproteins** to prevent enzymatic degradation.
- **Stability:** Encapsulation protects RNA from **RNase enzymes**, allowing it to remain stable in extracellular environments.

Types of Extracellular RNA

- **Messenger RNA (mRNA):** Carries **genetic instructions for protein synthesis.**
- **MicroRNA (miRNA):** Short RNA molecules regulating **gene expression and cellular processes.**
- **Long Non-coding RNA (lncRNA):** Involved in **gene regulation, epigenetic control and cellular signalling.**
- **Small interfering RNA (siRNA):** Participates in **RNA interference and gene silencing mechanisms.**

Functions of exRNA

- **Cell-to-Cell Communication:** Transfers **genetic signals between cells**, influencing cellular behaviour.
- **Immune Coordination:** Regulates **immune responses and inflammation signalling.**
- **Tissue Repair:** Helps coordinate **wound healing and tissue regeneration processes.**
- **Developmental Regulation:** Controls **gene activation during embryonic development and differentiation.**
- **Pathogenic Signalling:** Cancer cells release exRNA to **promote tumour growth, metastasis and immune evasion.**

Applications of exRNA

- **Medicine:** Used as **biomarkers in liquid biopsy** to detect diseases such as **cancer, cardiovascular disorders and neurological conditions**.
- **Diagnostics:** Blood or body-fluid analysis of exRNA enables **non-invasive disease detection and early diagnosis**.
- **Therapeutics:** Extracellular vesicles carrying RNA explored as **drug-delivery platforms for gene therapy and RNA medicines**.
- **Immunology:** Helps study **immune signalling, inflammation and tissue repair mechanisms**.
- **Cancer Research:** Cancer cells release exRNA to **promote tumour growth, metastasis and immune evasion**, aiding cancer studies.
- **Environmental Science:** exRNA in water helps detect **microbial activity and resistance strategies in bacteria**. **Water Treatment:** Studying bacterial exRNA helps design better disinfectants and water purification strategies.

INDIA–NEPAL RELATIONS

Context

Following the election of Nepal's new Prime Minister Balendra "Balen" Shah (2026), both India and Nepal expressed willingness to **strengthen bilateral ties** (open border, deep cultural links, major trade dependence).

Why India Should Invite Balen Shah

- **Diplomacy:** Early invitation signals **India's commitment to "Neighbourhood First" policy** (India's primary regional diplomacy doctrine).
- **Political Transition:** Engaging new leadership helps India understand **Nepal's emerging Gen-Z political movement and evolving foreign policy orientation**.
- **Economic Interdependence:** India remains Nepal's **largest trade partner and transit route** (Nepal is landlocked; majority trade via Indian ports).
- **Energy Cooperation:** Nepal's hydropower exports depend on **India-led regional energy grid projects** (India agreed to import **10,000 MW power from Nepal over 10 years**).
- **Strategic Balance:** Early engagement prevents **strategic drift towards China or other external powers**.
- **Infrastructure Support:** India can assist Nepal in **overflight rights for new airports and energy market access** (key Nepali demand).
- **Crisis Assistance:** Nepal may need help dealing with **fuel and fertiliser disruptions from the West Asia conflict**.
- **People Links:** Strong societal ties (open border; **millions of Nepalis live/work in India**).
- **Economic Stability:** Nepal's economy relies heavily on **remittances and tourism** (**≈14% population working abroad; ~3.5 million workers**).
- **Trust Building:** Invitation would help address **past tensions (2015 blockade perception, constitutional issues, border disputes)**.

CENTRAL ARMED POLICE FORCES (GENERAL ADMINISTRATION) BILL, 2026

Context

The Central Government presented the Central Armed Police Forces (General Administration) Bill, 2026 in the Rajya Sabha.

Overview of the bill

- **The CAPF (General Administration) Bill, 2026** establishes a legal framework for recruitment, promotion, and service conditions of Group ‘A’ General Duty Officers (GAGDOs) and other personnel in the Central Armed Police Forces.
 - It provides legislative clarity for the long-standing practice of deputing IPS officers to top CAPF posts, ensuring continuity between the Union and State policing structures.
- **Scope:** Applies to CRPF, BSF, CISF, ITBP, and SSB with the possibility to include others via notification.
- **Rule-making authority:** The central government can make rules on recruitment, deputation, and service conditions, superseding previous laws or judicial orders.
- **IPS Representation in Leadership:** Reserved quotas for IPS officers at senior levels:
 - 50% of Inspector General posts
 - At least 67% of Additional Director General posts
 - 100% of Special Director General and Director General posts
- **Protection of Benefits:** All pre-existing financial and service benefits for Group ‘A’ officers remain intact.
- **Personnel Coverage:** Includes Group ‘A’ executive officers (Assistant Commandant and above), IPS officers on deputation, and Army officers on deputation or re-employment.

Rationale behind the bill

- **Inter-agency coordination:** IPS officers bridge CAPFs and State police, enabling smooth operations during internal security challenges.
- **Preserving force identity:** Ensures CAPFs retain their character as forces supporting civil authority, aligning with the Supreme Court’s observations in Sanjay Prakash (2025).
- **National integration:** Reflects the vision of Sardar Patel by using IPS officers to maintain a uniform approach across states.
- **Legislative supremacy:** Clarifies that executive and legislative bodies govern service policies, limiting judicial overreach.
- **Training & Camaraderie:** Central deputation stints for IPS officers strengthen coordination with CAPF cadre officers.

Associated challenges

- **Promotion bottlenecks:** Reserved IPS quotas limit career growth for direct-entry CAPF officers.
- **Judicial conflicts:** The Bill effectively reverses certain Supreme Court directives on reducing IPS deputation.
- **Perceived “parachuting”:** Some CAPF officers feel IPS leaders may lack specialized CAPF experience.
- **Federal tensions:** Centralized IPS leadership may occasionally conflict with state-level operational needs.
- **Legal concerns:** The “notwithstanding” provisions may face constitutional challenges.

Way Forward

- **Regular cadre reviews:** Expand available posts to allow growth for both IPS and CAPF officers.
- **Balanced deputation:** Increase the role of cadre officers in technical or training wings while maintaining IPS leadership at the top.
- **Specialized training:** Mandatory CAPF induction for IPS officers to familiarize them with force-specific operations.
- **Strengthening OGAS rights:** Ensure full financial and administrative benefits for CAPF cadre officers.

Conclusion

The CAPF (General Administration) Bill, 2026 codifies the leadership role of the IPS in India's internal security framework, promoting coordination and unified command. However, it must also address career progression and recognition for CAPF cadre officers to maintain morale and operational efficiency.

TELANGANA ENACTS BILL TO ENSURE FINANCIAL SUPPORT FOR THE ELDERLY

Context

The Telangana Employees Accountability and Monitoring of Parental Support Bill, 2026 has been passed by the Telangana Assembly to enhance financial security for senior citizens. The law requires government employees, elected officials, and private sector workers to provide adequate care and financial support to their elderly parents, representing a significant move in the state's social welfare framework.

Key highlights of the bill

- **Eligibility:** The Bill applies to government employees, private sector employees, MLAs, MPs, and local body representatives.
- **Purpose:** To extend the responsibility of parental care beyond moral obligation, making it legally enforceable.
- **Explanatory note:** By including both public and private employees, the Bill addresses gaps in existing laws like the Maintenance and Welfare of Parents and Senior Citizens Act, 2007, which had limited enforceability.
- **Mechanism:** Salary deductions of up to 15% or ₹10,000 per month, whichever is lower, can be imposed on employees neglecting their dependent parents.
- **Process:** Parents can file a complaint with the District Collector, who will assess the case and issue an order after hearings.
- **Explanatory note:** The direct credit of deducted salary to parents ensures that financial support reaches those in need without delays.
- **Role of district collector:** Parents must provide details of their income and reasons for seeking support.
 - **Timeframe:** The Collector must dispose of petitions within 60 days, hearing both the parent(s) and the employee.
 - The Collector acts as the first-level authority to enforce the Bill, ensuring speedy resolution.
- **Senior citizen commission:** Led by a retired High Court judge as Chief Commissioner, with two experienced members from administration, government, or social sectors.
 - **Functions:**

- Hear appeals against Collector's orders
- Handle delays in disposal
- Exercise quasi-judicial powers (conduct inquiries, summon witnesses, impose penalties)
- **After parent's death:** Surviving parent can claim deducted amounts. If both parents pass away, the employee may apply for cancellation of the order

Quote from CM A. Revanth Reddy

"The rights of parents should be protected by goodwill. But the Bill ensures that the law is on the parents' side when they are neglected."

