INDEX

01

POLITY

- Booth Level Officer - p: 5
- Indian Statistical Institute Act, 1959 - p: 6
- Assam Accord - p: 7
- Right to Vote - p: 8

02

ECONOMICS

- Masala Bonds - p: 10
- Open Market Operations - p: 11
- Trade Enablement and Marketing Scheme - p: 12
- New Geographical Indication Products - p: 13
- RBI Integrated Ombudsman Scheme - p: 14
- Infrastructure Investment Trust - p: 15
- Quality Council of India - p: 16
- Investor Education and Protection Fund Authority- p: 17
- National Mission on Edible Oils - p: 18
- Regional Rural Banks - p: 19-20
- Financial Fraud Risk Indicator - p: 21
- Health and National Security Cess - p: 22
- Goldilocks Phase - p: 23
- The Atomic Energy Bill 2025 - p: 24
- New Insurance Bill 2025 - p: 25
- Exclusive Economic Zone - p: 26

CHANAKYA IAS ACADEMY

03

INTERNATIONAL RELATIONS

- UNESCO's Creative Cities Network - p: 28
- Intergovernmental Committee for Safeguarding of the Intangible Cultural Heritage - p: 29
- Pax Silica Initiative - p: 30
- UN Environment Assembly - p: 30-31
- International Fund for Agricultural Development - p: 31
- Minamitori Island - p: 32
- India-Russia Summit 2025 - p: 33
- India–New Zealand FTA - p: 34
- Places in News - p: 35-39
- Key Facts about Syria - p: 40
- World Anti-Doping Agency - p: 40

04

GEOGRAPHY

- Cold Wave - 42
- Afar Region - p: 42
- Alaknanda Galaxy - p: 43
- Kilauea Volcano - p: 43-44
- Sudden Stratospheric Warming Event - p: 44
- Supernova - p: 45
- Cosmic Filament - p: 45
- Pyrite - p: 46
- Southern Ocean - p: 47
- Micrometeoroids and Orbital Debris - p: 48
- Bezymianny Volcano - p: 49
- Titan - p: 50
- Tsunami Ready Recognition Programme - p: 51
- Aravalli Mountain Range - p: 52

05

ENVIRONMENT

- Protosticta sooryaprakashi - p: 54
- Dolomedes indicus - p: 54
- Bamboo Shrimp - p: 55
- Bar-Headed Goose - p: 55
- Bioremediation - p: 56
- Rock Eagle Owl- p: 57
- Western Tragopan - p: 57
- Horn-Eyed Ghost Crab - p: 58
- Red-Breasted Parakeet - p: 59
- Channa Bhoi - p: 59
- Hoolock Gibbon - p: 60
- Pallas's Gull - p: 61
- Kuttanad Wetland Agricultural System - p: 62
- Champions of the Earth Award - p: 62-63
- Charaichung Royal Bird Sanctuary - p: 63
- Goniopora Coral - p: 64
- Hard Corals - p: 65
- New Ramsar Sites - p: 66
- Black-Capped Capuchin Monkey - p: 67
- Coringa Wildlife Sanctuary - p: 68
- Deodar Tree - p: 68-69
- Long-Billed Vulture - p: 69
- Camellia sinensis - p: 70
- Air Pollution - p: 71

CHANAKYA IAS ACADEMY

06

SCIENCE AND TECHNOLOGY

- Heron Mk II - p: 73
- K-4 Missile - p: 73
- Biological Weapons Convention - p: 74
- Digital Hub for Reference and Unique Virtual Address - p: 75
- Tensor Processing Unit - p: 76
- Artemisinin - p: 76
- Centre for Chronic Disease Control - p: 77
- MAVEN Mission - p: 77
- AstroSat - p: 78
- National Intelligence Grid - p: 79
- India International Science Festival - p: 80
- Agentic AI - p: 81
- GhostPairing - p: 82
- GLP-1 Drugs - p: 82
- GlowCas9 Protein - p: 83
- Gonorrhoea - p: 84
- Bluebird 6 Satellite - p: 85
- Nitrofurans - p: 86
- Freshwater Sponge - p: 86
- Carbon-based Filter for PFAS Removal from Groundwater - p: 87
- Doppler Weather Radar - p: 88
- Autophagy - p: 89
- Global Capability Centres - p: 90
- Rabies - p: 91

07

HISTORY & CULTURE

- Deepavali - p: 93
- Uchi Pillaiyar Temple - p: 94
- Hornbill Festival - p: 94
- Chenchu Tribe - p: 95
- Dandami Madia Tribe - p: 96
- Santhali Language - p: 96
- Perumbidugu Mutharaiyar - p: 97
- Haka Dance - p: 97

CHANAKYA IAS ACADEMY

08

OTHER NEWS

- Vande Mataram 150 Years Celebration - p: 99
- Sanchar Saathi- p: 100
- National Centre for Polar and Ocean Research - p: 101
- Caller Name Presentation - p: 102
- National Forensic Infrastructure Enhancement Scheme - p: 102
- Director General of Civil Aviation - p: 103
- Bankim Chandra Chattopadhyay - p: 104
- NewSpace India Limited - p: 105
- NSSH Scheme - p: 105
- ‘Your Money, Your Right’ Movement - p: 106
- Param Vir Chakra - p: 107
- SabhaSaar Initiative - p: 108
- Pradhan Mantri Rashtriya Bal Purask - p: 109
- TIDE 2.0 Scheme - p: 109
- VB–G RAM G Bill - p: 110

Indian Polity

CHANAKYA IAS ACADEMY



Booth Level Officer



Recently, concerns have been raised with several Booth Level Officers (BLOs) deaths have been reported from the states undergoing Special Intensive Revision (SIR) of electoral rolls.

About Booth Level Officer

- A BLO is a representative of the Election Commission of India (ECI) at the grass-root level who assists in updating the roll using his local knowledge.
- They are local government/semi-government officials who are familiar with the local electors and enrolled as voters in the same polling area.
  - Teachers, Anganwadi workers, Panchayat Secretary, Village Level Workers, Electricity Bill Readers, etc are mainly appointed as BLOs.
- BLOs are not full-time electoral officials.
  - Section 13B (2) of the Representation of People Act, 1950 provision paved the way for the introduction of appointing a BLO for the first time in August 2006.

CHANAKYA IAS ACADEMY

ECI

- Constitutional Body: Established under Article 324 of the Indian Constitution.
- Core Function: Responsible for the superintendence, direction, and control of elections to Parliament, State Legislatures, President, and Vice-President.
- Composition: Consists of one Chief Election Commissioner (CEC) and two Election Commissioners
- Appointment: The CEC and ECs are appointed by the President of India; appointment process is currently guided by parliamentary law and executive procedure.
- Tenure & Service Conditions: Tenure is 6 years or up to 65 years of age, whichever is earlier; service conditions are similar to those of a Supreme Court judge.

RPA, 1950

- Nature of Law: The Representation of the People Act, 1950 is a procedural law that deals primarily with the pre-electoral framework, unlike RPA, 1951 which deals with conduct of elections and offences.
- Constitutional Basis: Enacted under Article 327 of the Constitution, which empowers Parliament to make laws relating to elections.
- Main Objective: To provide for the allocation of seats, delimitation of constituencies, and preparation of electoral rolls for elections.
- Applicability: Applies to elections to the Lok Sabha and State Legislative Assemblies, not to Panchayats and Municipalities.

Indian Statistical Institute Act, 1959



More than 1,500 academics have expressed grave concerns and held demonstrations in Kolkata to protest a Central government plan to repeal the Indian Statistical Institute (ISI) Act, 1959.

About Indian Statistical Institute (ISI) Act, 1959

- The Indian Statistical Institute was founded by Professor P.C. Mahalanobis in Kolkata on 17th December, 1931.
- **The ISI, established earlier as a society, plays a crucial role in statistical research, education, and training in India.**
- The ISI Act 1959 primarily applies to the ISI, its governing body, employees, and students.
- The Act aimed to recognize the ISI's contributions to national development and provide it with the necessary autonomy and support to carry out its functions effectively.
- The ISA Act 1959 declared the ISI an institution of national importance.
- This Act falls under the Ministry of Statistics and Programme Implementation.

Salient Features of Indian Statistical Institute (ISI) Act, 1959

- Empowers the ISI to grant degrees and diplomas in statistics, mathematics, quantitative economics, computer science, and related subjects.
- Provides for grants, loans, and other financial assistance from the Central Government.
- Mandates the audit of the Institute's accounts by qualified auditors.
- Requires prior approval from the Central Government for certain actions by the Institute, such as altering its objectives, amending its memorandum, or disposing of certain properties.
- Provides for the constitution of committees by the Central Government to prepare the Institute's program of work and review its activities.
- Empowers the Central Government to issue directions to the Institute.
- Allows the Central Government to assume control of the Institute under certain circumstances.

CHANAKYA IAS ACADEMY

MOPSI

MoSPI – UPSC Prelims MUST-KNOW Points (Ultra-Concise)

- Ministry of Statistics and Programme Implementation
- Established: 15 Oct 1999
- Role: Nodal ministry for official statistics + monitoring central sector projects

Two Wings

Statistics Wing → via National Statistical Office (NSO)

- Releases: GDP, GVA, CPI, IIP
- Conducts: PLFS, ASI, NSS surveys

Programme Implementation Wing

- Monitors: Infrastructure projects, MPLADS, Twenty Point Programme

MOPSI KEY OUTPUTS

- GDP & GVA estimates
- Index of Industrial Production (IIP)
- Consumer Price Index (CPI)
- Annual Survey of Industries (ASI)
- Periodic Labour Force Survey (PLFS)

Assam Accord



The Supreme Court recently asked the Centre if a new order allowing persecuted minorities entry to India violates the Assam Accord's 1971 deadline.

About Assam Accord

- The Assam Accord was signed on 15th August, 1985, amongst the Union of India, the Govt. of Assam, the All Assam Students' Union (AASU), and the All Assam Gana Sangram Parishad.
- The signing of the Accord brought an end to the 6-year-long agitation, the Assam Movement (1979-1985), aimed at dispelling foreigners from the state of Assam.
- The aim of the accord was to detect and deport all immigrants in the state who had come to the territory post-24 March 1971.

Main Provisions of Assam Accord

- It determined 1st January 1966 as the cut-off date for the purpose of detection and deletion of foreigners.
- It allowed for citizenship for all persons coming to Assam from "Specified Territory" before the cut-off date.
- It further specifies that all persons who came to Assam prior to 1st January 1966 (inclusive) and up to 24th March 1971 (midnight) shall be detected in accordance with the provisions of the Foreigners Act, 1946, and the Foreigners (Tribunals) Order, 1939.
    - The names of foreigners so detected will be deleted from the Electoral Rolls in force.
    - Such persons will be required to register themselves before the Registration Officers of the respective districts in accordance with the provisions of the Registration of Foreigners Act, 1939, and the Registration of Foreigners Rules, 1939.
    - The Assam Accord does not call for their deportation, but they were to get voting rights only after expiry of 10 years from the date of their detection or declaration as foreigner.
- Foreigners who came to Assam on or after 25th March 1971 shall continue to be detected, deleted, and expelled in accordance with law.
- Clause 6:
    - It promises to provide constitutional, legislative, and administrative safeguards to protect, preserve, and promote the cultural, social, and linguistic identity, and heritage of the Assamese people.
    - These safeguards aim to address concerns regarding the state's demographic and cultural integrity amidst the influx of migrants.

CHANAKYA IAS ACADEMY

Right to Vote



The Supreme Court is hearing cases filed against the Special Intensive Revision (SIR) of electoral rolls in Bihar.

Context

- The Supreme Court of India is examining petitions related to the Special Intensive Revision (SIR) of electoral rolls in Bihar.
- The issue has revived the long-standing legal debate on the nature of the right to vote.
- The classification has direct implications for electoral integrity, citizen rights, and judicial remedies.

Classification of Rights in India

- Natural Rights: Inherent rights like life and liberty; reflected through Fundamental Rights.
- Fundamental Rights (Part III): Enforceable via Article 32 (e.g., equality, speech).
- Constitutional Rights: Provided in the Constitution but outside Part III (e.g., right to property); enforceable via Article 226.
- Statutory Rights: Created by ordinary laws (e.g., MGNREGA, NFSA).

The right to vote, though rooted in the Constitution, is largely treated as a statutory right.

Constitutional & Statutory Framework

- Article 326: Mandates universal adult franchise (18+ citizens, subject to disqualifications by law).
- Representation of the People Act, 1950:
  - Section 16: Disqualification of non-citizens.
  - Section 19: Ordinary residence + age requirement.
- Representation of the People Act, 1951:
  - Section 62: Voting rights subject to lawful disqualifications (e.g., imprisonment).

Voting is conditional and regulated by statute, not absolute.

CHANAKYA IAS ACADEMY

Judicial Interpretation: Key Trends

- Ponnuswami (1952) & Jyoti Basu (1982): Right to vote is purely statutory.
- PUCL (2003): Suggested voting may be a constitutional right.
- Kuldip Nayar (2006): Reverted to statutory view.
- Raj Bala (2015): Leaned towards constitutional character.
- Anoop Baranwal (2023): Majority held voting is statutory, but with a strong dissent.

Jurisprudence shows oscillation between textualism and democratic principles.

Dissenting View (Anoop Baranwal, 2023)

- Voting is an expression of choice → protected under Article 19(1)(a).
- Free and fair elections are part of the Basic Structure.
- Though operationalised by statute, the source lies in Article 326.

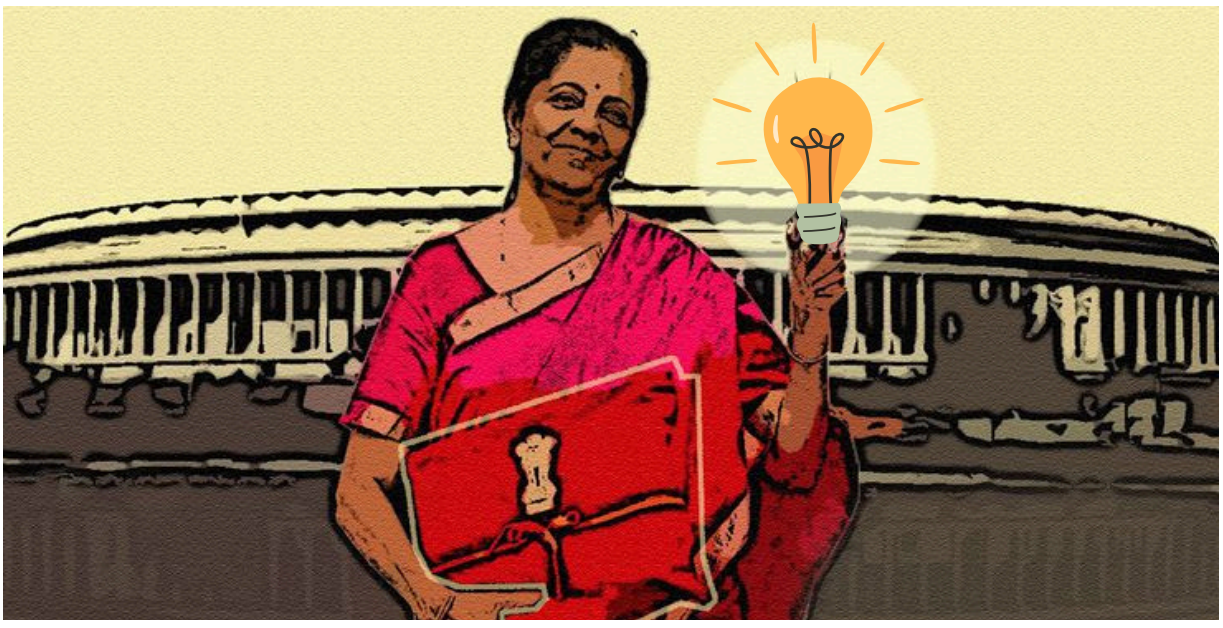
Opens scope for future elevation of voting as a constitutional right.

Implications for Democracy

- Statutory Status:
  - Parliament can impose disqualifications and procedural restrictions.
- Enforcement Limits:
  - Cannot be directly enforced via Article 32.
- Contemporary Concerns:
  - Electoral roll errors, digital exclusion, and voter suppression debates make legal clarity crucial.



CHANAKYA IAS ACADEMY



Masala Bonds



The Enforcement Directorate's (ED) recent decision to issue notices to the Kerala Chief Minister in the KIIFB masala bond investigation marks a significant escalation in a long-running conflict between the LDF government and central agencies over the state's financing model.

About Masala Bonds

- They are rupee-denominated bonds issued outside India by Indian entities.
- The International Finance Corporation (IFC), an arm of the World Bank, issued the first masala bonds in October 2013 as part of its $2 billion dollar offshore rupee programme.
- They are debt instruments which help to raise money in local currency from foreign investors.
- That means the currency risk—if exchange rates change—is on the investor, not the issuer. This helps Indian companies manage their risks better.
- To offset the risk of exchange rate fluctuations, bonds typically offer attractive interest rates that are frequently greater than those offered in the investors' home countries.
- Both the government and private entities can issue these bonds.
- Who Can Invest?
  - Investors outside India who would like to invest in assets in India can subscribe to these bonds.
  - Any resident of that country can subscribe to these bonds which are members of the Financial Action Task Force (FATF).
  - That includes individuals, institutions, and even financial organisations from countries that follow international standards for fair and secure investing, like those under IOSCO (International Organisation of Securities Commissions).
  - It also covers multilateral and regional financial institutions of which India is a member.
- Maturity Period:
  - It depends on the size of the bond.
  - For bonds up to USD 50 million, the maturity is usually 3 years.
  - For larger amounts, it can go up to 5 years, giving investors more flexibility based on their goals.
- What Can The Money Be Used For?
  - The funds raised through Masala bonds are generally earmarked for productive and regulated purposes.
  - The proceeds can fund affordable housing, infrastructure, refinance rupee loans, or meet corporate working capital requirements.
  - Activities like buying land, investing in the stock market, or funding real estate projects are off-limits—unless they've received specific government approvals.

CHANAKYA IAS ACADEMY

IFC

- Established: 1956
- Headquarters: Washington D.C., USA
- Member of: World Bank Group
- Nature: Private sector development arm
- Promote private sector investment in developing countries
- Focus on poverty reduction through sustainable private enterprise
- Provides loans, equity, guarantees & advisory services
- Invests without sovereign guarantee
- Operates on commercial principles
- Capital subscribed by member countries
- India is a founder member

FATF

- Established: 1989
- Founded by: G-7 countries
- Headquarters: Paris, France
- Nature: Inter-governmental policy-making body
- Core Objective: Combat: Money laundering, Terrorist financing, Proliferation financing
- Lists Issued by FATF: Grey List, Black List.
- India became a full member in 2010
- India is also a member of the Asia/Pacific Group (APG) on AML
- FATF has no legal binding force

Open Market Operations



The Reserve Bank of India (RBI) recently said it will conduct Open Market Operation (OMO) purchases of government securities worth ₹1 trillion and a three-year dollar–rupee buy/sell swap of $5 billion to inject further durable liquidity into the financial system.

About Open Market Operations

- OMOs refer to a central bank selling or purchasing securities in the open market in an effort to influence the money supply.
- In India, the Reserve Bank of India (RBI) uses OMOs to manage liquidity and ensure financial stability.
- By influencing the availability of funds in the banking system, OMOs play a critical role in shaping interest rates and controlling inflation.
    - When the RBI buys government securities, it injects money into the banking system, increasing liquidity and lowering interest rates.
    - When the RBI sells government securities, it reduces liquidity by absorbing money, leading to higher interest rates.
- OMOs are used to:
    - Control inflation: By selling government securities, the RBI reduces liquidity, causing interest rates to rise. This, in turn, helps control inflation by curbing excess demand.
    - Boost economic growth: During economic slowdowns, the RBI can buy securities to inject liquidity into the system. Lower interest rates encourage borrowing and investment, which can help stimulate growth.
    - Manage exchange rates: OMOs can influence the exchange rate of the Indian Rupee by impacting the supply of money. This can be particularly relevant in maintaining stability amidst volatile foreign exchange markets.

CHANAKYA IAS ACADEMY

RBI

- Established: 1935 (RBI Act, 1934)
- Nationalised: 1949
- Headquarters: Mumbai
- Governor: Appointed by Central Government
- Role: India's central bank & monetary authority

Core Functions

- Monetary policy (inflation targeting)
- Currency issuance (₹ notes except ₹1)
- Banker to Government
- Banker's bank & lender of last resort
- Regulator of banks & NBFCs
- Custodian of foreign exchange reserves

Trade Enablement and Marketing Scheme

Recently, the Minister of state for Micro, Small & Medium Enterprises informed the Rajya Sabha about the Trade Enablement and Marketing Scheme.

About Trade Enablement and Marketing Scheme

- It is the sub scheme of the scheme 'Raising and Accelerating MSME Performance' (RAMP), which is a Central Sector Scheme.
- The initiative will empower MSMEs with digital tools and guidance to effectively utilize the e-commerce marketplace.
- Objective: To support MSMEs to help them access different markets by integrating them with e-commerce platforms.
- Financial Outlay and Duration: The outlay is Rs. 277.35 Cr. for the duration of 3 years from 2024 to 2027.
- Eligibility Criteria: All the Udyam registered Micro and Small Enterprises (MSEs) under manufacturing and services sectors will be eligible for benefits under the Initiative.
- Targeted beneficiaries: It envisages benefiting 5 lakh Micro and Small Enterprises (MSEs) of which 50% are to be women owned MSEs.
- It focus on;
  - Connecting MSMEs with the ONDC Network.
  - Provides access to digital storefronts, integrated payment systems, and logistics support.
  - Reduce operational barriers and help businesses tap into wider customer bases.
  - It emphasizes formalizing operations and establishing digital transaction histories, which will enhance the credibility and trust of participating MSMEs.
- Implementing Agency: National Small Industries Corporation (NSIC)

CHANAKYA IAS ACADEMY

Consider the following statements regarding the TEAM Scheme:
1. It aims to integrate MSMEs with e-commerce platforms.
2. It focuses exclusively on export promotion of MSMEs.
3. It supports MSMEs in establishing digital transaction histories.
Which of the statements given above are correct?

A. 1 and 2 only | **B. 1 and 3 only**

C. 2 and 3 only | **D. 1, 2 and 3**

New Geographical Indication Products

Recently, five products from Tamil Nadu have secured the Geographical Indications (GI) tag.

About New Geographical Indication Products

Woraiyur Cotton Sari

- It is native to Tiruchi district, and is woven in Manamedu on the banks of the Cauvery.
- They are known for their distinctive Korvai border (a continuous running pattern) — block colour palettes, and geometric motifs.
- The border has different motifs, including many geometrical shapes.
- The Devanga community has been the driving force behind the Woraiyur cotton sarees for generations.

Thooyamalli Rice

- Thooyamalli, meaning 'pure jasmine', is a traditional sambha-season rice variety grown over 135 - 140 days.
- It is often referred to as 'pearl rice' due to its shiny nature and is regarded highly for its nutritional benefits.

Kavindapadi 'Naatu Sakkarai'

- Kavindapadi in Erode district is a major supplier of jaggery powder in Tamil Nadu, with vast stretches of sugarcane fields nourished by the Lower Bhavani Project canal.
- It is made locally by mechanically crushing the cane and slowly evaporating the extracted juice.

Namakkal 'Kalchatti'

- Namakkal's famed cookware is made using soapstone (makkal pathirangal).
- It is popularly known as kalchatti, and has been a staple in South Indian kitchens for generations.

Ambasamudram 'Choppu Saman'

- Origin: The art of making choppu saman (wooden toys) has been practiced for over two centuries, with origins tracing back to the 18th century.
- This craft involves the careful handcrafting of miniature wooden toys — from tiny kitchen utensils to small tables, chairs, and other play objects.
- Material used:Traditionally, these toys were carved from indigenous trees like the Manjal Kadamba tree (Neolamarckia cadamba), teak, and rosewood.

CHANAKYA IAS ACADEMY

Question : (150 words)

"How can Geographical Indication (GI) tagging of traditional agricultural produce and artisanal goods —such as Woraiyur Cotton Sari, Thooyamalli rice, Kavindapadi Naatu Sakkarai, Namakkal Kalchatti, and Ambasamudram Choppu Saman—contribute to rural industrialisation, value addition, and inclusive economic growth in India? Examine the economic and institutional challenges in leveraging GI tags effectively."

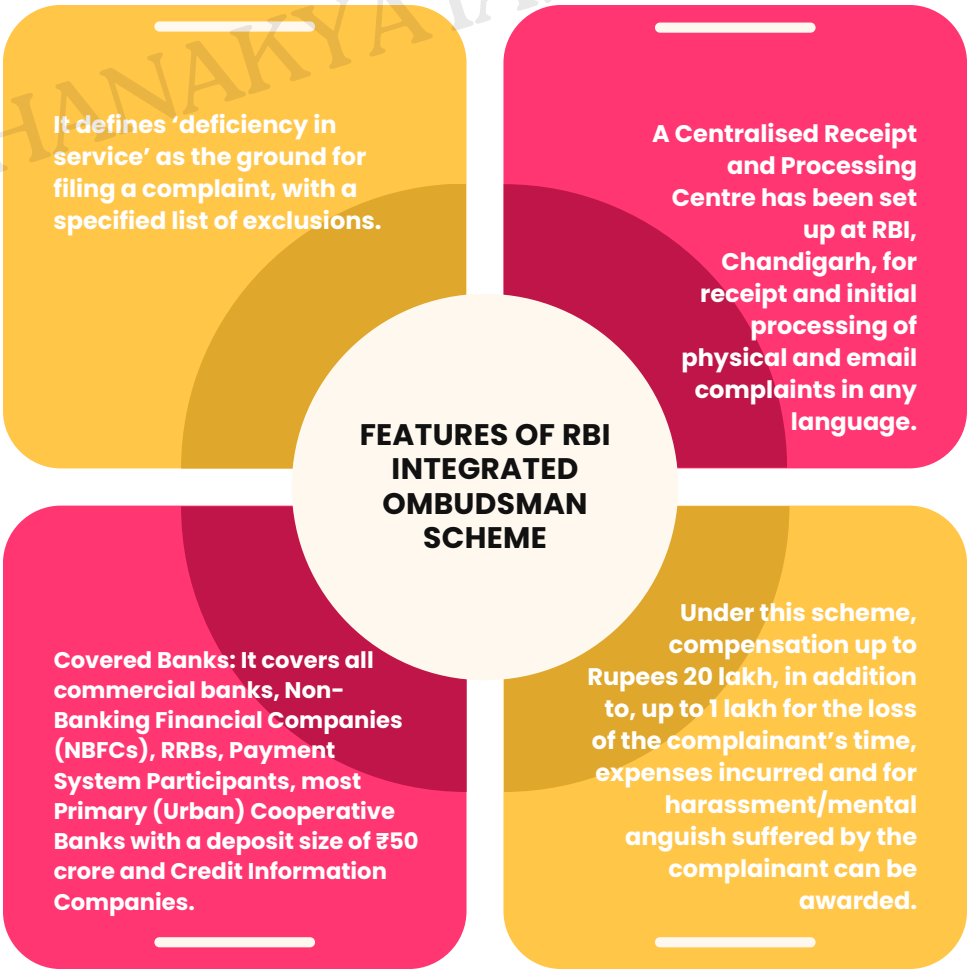
RBI Integrated Ombudsman Scheme

According to the RBI's Annual Report, the complaints registered under the Reserve Bank of India's Integrated Ombudsman Scheme (RB-IOS) were up by 13.55 per cent in FY25.

About RBI Integrated Ombudsman Scheme

- It was launched on November 12, 2021.
- It integrated the erstwhile three Ombudsman schemes of RBI namely: the Banking Ombudsman Scheme, 2006, the Ombudsman Scheme for Non-Banking Financial Companies, 2018 and the Ombudsman Scheme for Digital Transactions, 2019.
- It adopted the 'One Nation One Ombudsman' approach by making the RBI Ombudsman mechanism jurisdiction neutral.
- Objective: To provide customers of regulated entities (REs) a speedy, cost-effective and expeditious alternate grievance redress mechanism.

CHANAKYA IAS ACADEMY



Infrastructure Investment Trust



Recently, National Highways Authority of India received the Securities and Exchange Board of India's (SEBI) in-principle approval for 'Raajmarg Infra Investment Trust' (RIIT) as an Infrastructure Investment Trust (InvIT).

About Infrastructure Investment Trust (InvIT)

- It is Collective Investment Scheme similar to a mutual fund, which enables direct investment of money from individual and institutional investors in infrastructure projects
- These are like mutual funds in structure which can be established as a trust and registered with Sebi.
- Objective: To provide retail investors with access to investment opportunities in infrastructure projects, which were previously only available to large institutional investors.

Features of the Infrastructure Investment Trust (InvIT)

- An InvIT has 4 parties namely; Trustee, Sponsor(s) and Investment Manager and Project Manager.
- INVITs are created by sponsors, who are typically infrastructure companies or private equity firms.
- The sponsor sets up the INVITs and transfers ownership of the underlying infrastructure assets to the trust.
- The trust then issues units to investors, which represent an ownership stake in the trust and thus the underlying assets.
- While the trustee (certified by Sebi) has the responsibility of inspecting the performance of an InvIT, sponsor(s) are promoters of the company that set up the InvIT.
- InvITs are regulated by the SEBI (Infrastructure Investment Trusts) Regulations, 2014.

CHANAKYA IAS ACADEMY

SEBI

- Established: 1988 (statutory status in 1992)
- Act: SEBI Act, 1992
- Headquarters: Mumbai
- Nature: Statutory regulatory body

Core Objective

- Protect investors
- Regulate securities market
- Promote orderly market development

Key Functions

- Regulates stock exchanges, brokers, merchant bankers, mutual funds
- Prevents insider trading & unfair trade practices
- Registers & regulates FIIs/FPIs
- Regulates mutual funds & collective investment schemes
- Oversees corporate governance & disclosures

Powers

- Quasi-legislative (make regulations)
- Quasi-executive (investigation & enforcement)
- Quasi-judicial (penalties, directions)

Quality Council of India

The Quality Council of India (QCI) recently announced a comprehensive set of next-generation quality reforms aimed at strengthening India's quality ecosystem across healthcare, laboratories, MSMEs, and manufacturing sectors.

About Quality Council of India

- It is a non-profit autonomous organisation registered under Societies Registration Act XXI of 1860.
- It was set up in 1997 jointly by the Government of India and the Indian Industry, represented by the three premier industry associations, i.e.,
- Associated Chambers of Commerce and Industry of India (ASSOCHAM)
- Confederation of Indian Industry (CII)
- Federation of Indian Chambers of Commerce and Industry (FICCI).
- It is under the administrative control of the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry.
- Functions:
  - It works as the national accreditation body.
  - It has been established to create a mechanism for independent third-party assessment of products, services, and processes.
  - It also promotes the adoption of quality standards relating to Quality Management Systems, Food Safety Management Systems, and Product Certification and Inspection Bodies through the accreditation services provided by the National Accreditation Board for Certification Bodies (NABCB).
  - It plays a pivotal role at the national level in propagating, adoption, and adherence to quality standards in all important spheres of activities.
  - It leads a nationwide quality movement in the country through the National Quality Campaign.
- Boards/divisions under QCI:
  - National Accreditation Board for Testing & Calibration Laboratories (NABL)
  - National Accreditation Board for Hospitals & Healthcare Providers (NABH)
  - National Accreditation Board for Education & Training (NABET)
  - National Accreditation Board for Certification Bodies (NABCB)
  - National Board for Quality Promotion (NBQP).
- Every board is functionally independent and works within its area of expertise.
- The council comprises 38 members, with equal representation from the government, industries, and other stakeholders.

CII

- Founded: 1895 (as Engineering & Iron Trades Association)
- Type: Non-governmental, non-profit industry association
- Headquarters: New Delhi
- Oldest industry body in India

Objectives & Functions

- Promotes industry growth, competitiveness, and innovation
- Acts as a policy advocacy and advisory body to government
- Facilitates public-private partnership (PPP)
- Works on ease of doing business, reforms, sustainability
- Represents 9,000+ direct members
- Covers 3,00,000+ enterprises through indirect membership
- Includes MSMEs, large corporates, PSUs, MNCs

FICCI

- Founded: 1927
- Founder: G. D. Birla
- Nature: Apex business organisation
- Headquarters: New Delhi
- Type: Non-governmental, non-profit, non-statutory body

Core Functions

- Policy advocacy & lobbying with Government
- Industry-government interface
- Promotes trade, investment, industrial growth
- Inputs on Budget, taxation, trade policy

Membership : 2.5 lakh+ companies,MSMEs, corporates, PSUs, MNCs, Network of state & sectoral chambers

LAKSHYA IAS ACADEMY

NABCB

- Established: 2007
- Nature: Non-governmental, non-profit
- Parent Body: Quality Council of India (QCI)
- Headquarters: New Delhi
- Type: National accreditation body (not a regulator)

Core Function

- Accredits certification bodies that certify:
  - Management systems (ISO standards)
  - Product certification
  - Personnel certification
- Ensures competence, impartiality, and credibility of certification bodies

Key Standards Covered

- ISO 9001 (Quality Management)
- ISO 14001 (Environmental Management)
- ISO 45001 (Occupational Health & Safety)
- ISO 22000 (Food Safety)
- Information security & other sectoral standards

- NABCB ≠ certification body → it accredits certification bodies

Investor Education and Protection Fund Authority

CHANAKYA IAS ACADEMY

Recently, the Investor Education and Protection Fund Authority (IEPFA) collaborated with the Securities and Exchange Board of India (SEBI) organised a "Niveshak Shivir" in Jaipur

About Investor Education and Protection Fund Authority

- It was established in 2016 under the Companies Act, 2013.
- Purpose: It is dedicated to promoting investor awareness and protection through sustained outreach, education, and strategic collaborations.
- Functions
  - It manages the Investor Education and Protection Fund (IEPF) and promotes investor awareness and financial protection.
  - It makes refunds of shares, unclaimed dividends, matured deposits/debentures etc. to investors and promotes awareness among investors.
  - It is dedicated to safeguarding investor interests by facilitating the return of unclaimed shares and dividends and advancing financial literacy nationwide.
- Nodal Ministry: Ministry of Corporate Affairs
- Initiatives: Through flagship initiatives such as Niveshak Didi, Niveshak Panchayat, and Niveshak Shivir, IEPFA empowers individuals to make informed financial choices and fosters a financially aware citizenry.
- The IEPF consists of amounts that remained unclaimed for 7 years, including:
  - Unpaid dividends,
  - Application money is due for refund,
  - Matured deposits and debentures,
  - Interest on investments from the fund,
  - Grants or donations received from the government or other entities.

National Mission on Edible Oils



The National Mission on Edible Oils (NMEO) embodies India's commitment to realizing the vision of Atmanirbhar Bharat by transforming the edible oil sector from an import-dependent to a self-reliant one.

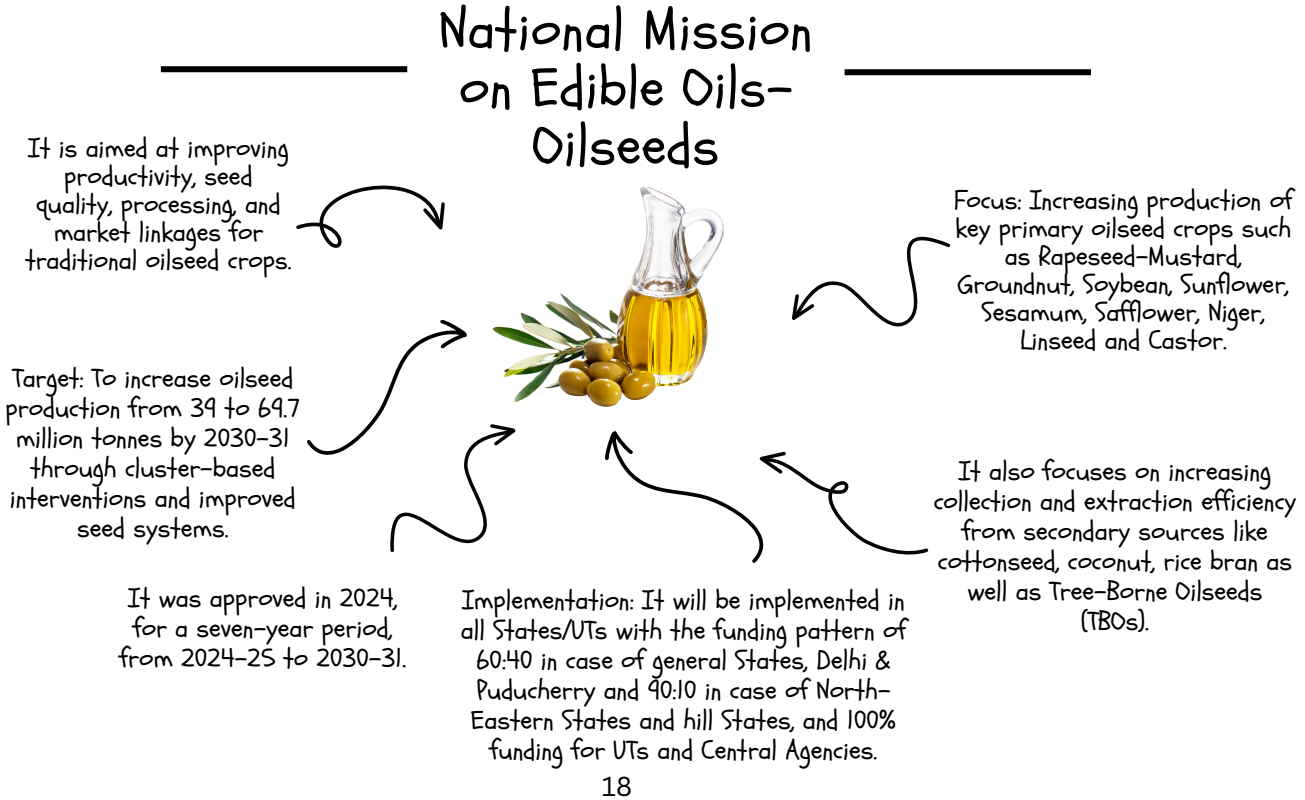
\About National Mission on Edible Oils

- It aims to strengthen the country's oilseed ecosystem and achieve Atmanirbharta in edible oil production.
- Targets of the mission
  - It targets to increase the area coverage from 29 million ha (2022-23) to 33 million ha, primary oilseed production from 39 million tonnes (2022-23) to 69.7 million tonnes, and yield from 1,353 kg/ha (2022-23) to 2,112 kg/ha by 2030-31.
  - This mission targets domestic edible oil production at 25.45 million tonnes by 2030-31.
  - The Mission also seeks to expand oilseed cultivation by an additional 40 lakh hectares by targeting rice and potato fallow lands.
- It has two-pronged approach which is as follows

National Mission on Edible Oils-Oil Palm

- It is focused on expanding oil palm cultivation and increasing domestic crude palm oil output.
- It was approved in 2021, as a Centrally Sponsored Scheme, with the aim to enhance the edible oilseeds production and oils availability in the country by area expansion and increasing Crude Palm Oil (CPO) production.
- It focuses on increasing production of seedlings by establishment of seed garden, and nurseries of oil palm in order to assure domestic availability of seedlings as per target fixed under NMEO-OP.
- Targets: To bring 6.5 lakh hectares under oil palm cultivation by 2025–26 and increase crude palm oil production to 28 lakh tonnes by 2029–30.
- Implementation: The Department of Agriculture & Farmers Welfare (DA&FW) serves as the nodal central authority.

CHANAKYA IAS ACADEMY



Regional Rural Banks



The Finance Ministry recently unveiled a new logo for Regional Rural Banks (RRBs) to signify a single and unified brand identity.

About Regional Rural Banks (RRBs)

- RRBs were established in India to promote financial inclusion in rural areas.
- They are formed in collaboration by the Central Government, State Governments, and Sponsoring Commercial Banks to give loans to rural areas.
- Their mission is to fulfill the credit needs of the relatively unserved sections in rural areas: small and marginal farmers, agricultural labourers, and socio-economically weaker sections.
- Origin:
  - It was established under the Regional Rural Banks Act, 1976, on the recommendation of the Narasimham Committee on Rural Credit (1975).
  - Rathama Grameen Bank was the first RRB bank and was established on 2nd October 1975.
- RRBs were configured as hybrid microbanking institutions, combining the local orientation and small-scale lending culture of the cooperatives with the business culture of commercial banks.
- The RRBs mobilize financial resources from rural/semi-urban areas and grant loans and advances mostly to small and marginal farmers, agricultural labourers, artisans, and small entrepreneurs.
- RRBs perform various functions in the following heads:
  - Providing banking facilities to rural and semi-urban areas.
  - Carrying out government operations like the disbursement of wages of MGNREGA workers, distribution of pension, etc.
  - Providing Para-Banking facilities like locker facilities, debit and credit cards, mobile banking, internet banking, UPI, etc.
- The RBI has set a Priority Sector Lending (PSL) target of 75% of total outstanding advances for RRBs as against 40% for Scheduled Commercial Banks.
- Ownership: Sponsored by the Commercial Banks, the equity of RRBs is held by the central government, concerned state government, and the sponsor bank in the proportion of 50:15:35.
- The area of operation of RRBs is limited to the area as notified by the Government of India, covering one or more districts in the State.
- Regulation: Regional Rural Banks are regulated by the RBI and supervised by the National Bank for Agriculture and Rural Development (NABARD).
- Sources of Funds: It comprises owned funds, deposits, borrowings from NABARD, sponsor banks and other sources, including SIDBI and the National Housing Bank.
- Management: The Board of Directors manages these banks, overall affairs, which consists of one Chairman, three Directors as nominated by the Central Government, a maximum of two Directors as nominated by the concerned State Government, and a maximum of three Directors as nominated by the sponsor bank.
- At present, 28 RRBs operate across the country with a vast network of over 22 thousand branches in more than 700 districts.

CHANAKYAS ACADEMY

NABARD

- Established: 1982
- Statutory Basis: NABARD Act, 1981
- Type: Apex development financial institution
- Headquarters: Mumbai
- Owner: Government of India (100% shareholding)

Core Functions

- Refinancing institution for:
  - Cooperative banks
  - Regional Rural Banks (RRBs)
  - Scheduled Commercial Banks (SCBs) for agriculture & rural development
- Supervisory role over:
  - Cooperative banks
  - RRBs (on behalf of RBI)
- Policy planning & monitoring for rural credit

Important Funds Managed by NABARD

- RIDF (Rural Infrastructure Development Fund) – created in 1995–96
- Long-Term Irrigation Fund
- Warehouse Infrastructure Fund
- Producers Organisation Development Fund (PODF)

SIDBI

- Established: 1990
- Statutory Basis: SIDBI Act, 1989
- Type: Apex financial institution for MSMEs
- Headquarters: Lucknow
- Owner: Government of India (under Ministry of Finance)

Core Functions

- Refinance to banks, NBFCs, and MFIs for MSME lending
- Direct lending to MSMEs
- Promotion, financing, and development of Micro, Small & Medium Enterprises
- Acts as principal financial institution for MSME sector

Important Subsidiaries / Initiatives

- SIDBI Venture Capital Ltd. (SVCL)
- SIDBI Trustee Company Ltd.
- Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) – with GoI
- Fund of Funds for Startups (FFS) – operated through SIDBI

Prelims-Trap Clarifications

- SIDBI is not a commercial bank
- Focus is MSMEs only (unlike NABARD → agriculture/rural)
- Works as a refinancing + development institution

CHANAKYA IAS ACADEMY

Q. Consider the following statements regarding Regional Rural Banks (RRBs), NABARD and SIDBI:

1. Regional Rural Banks are mandated to achieve a Priority Sector Lending (PSL) target higher than that prescribed for Scheduled Commercial Banks.
2. National Bank for Agriculture and Rural Development regulates and supervises Regional Rural Banks under the provisions of the NABARD Act, 1981.
3. Small Industries Development Bank of India functions as an apex financial institution for MSMEs and undertakes both refinance operations and direct lending.
4. Borrowings of RRBs may include funds from NABARD, sponsor banks, SIDBI and the National Housing Bank.

Which of the statements given above are correct?

A. 1, 3 and 4 only ✔
B. 1 and 4 only
C. 2 and 3 only
D. 1, 2, 3 and 4

- Statement 1 – Correct: RRBs have a PSL target of 75%, compared to 40% for Scheduled Commercial Banks.
- Statement 2 – Incorrect: RRBs are regulated by RBI and supervised by NABARD on behalf of RBI, not regulated by NABARD.
- Statement 3 – Correct: SIDBI performs both refinance and direct lending functions for MSMEs.
- Statement 4 – Correct: RRBs can borrow from NABARD, sponsor banks, SIDBI and NHB, along with other permitted sources.

Financial Fraud Risk Indicator



The Department of Telecommunications (DoT) recently said that the financial fraud risk indicator (or FRI) has prevented potential losses of ₹660 crore across the banking ecosystem within six months of the rollout of this initiative.

About Financial Fraud Risk Indicator (FRI)

- It was launched in May 2025 by the Department of Telecommunications (DoT's) Digital Intelligence Unit (DIU).
- It is a risk-based metric that classifies mobile numbers into three categories: Medium, High, and Very High Risk based on their likelihood of involvement in financial fraud.
- The classification draws from a comprehensive analysis using inputs from various platforms, including the Indian Cybercrime Coordination Centre's National Cybercrime Reporting Portal (NCRP), DoT's Chakshu platform, and intelligence shared by banks and financial institutions.
- By flagging high-risk numbers early, the tool enables banks, non-banking financial companies (NBFCs), and UPI service providers to take appropriate measures for customer protection and transaction validation.

How Advance Notification Helps Prevent Fraud?

CHANAKYA IAS ACADEMY

01 The DoT's Digital Intelligence Unit (DIU) regularly disseminates the Mobile Number Revocation List (MNRL), which details mobile numbers disconnected due to involvement in cybercrime, failed verification, or exceeding permissible usage limits.

02 These numbers often surface in financial fraud activities.

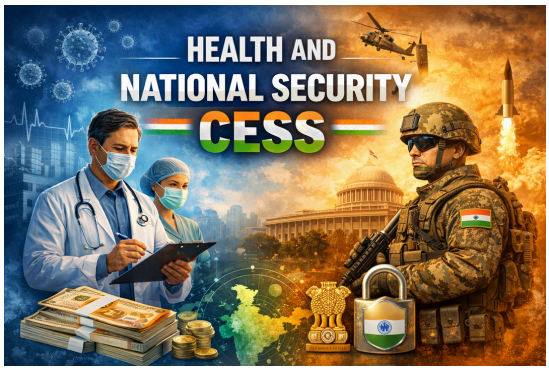
03 Given that fraudulent mobile numbers are often short-lived and verification processes can take time, a preemptive indicator such as the FRI becomes highly effective.

04 Thus, as soon as a suspected mobile number is flagged by a stakeholder, it undergoes multidimensional analysis, and classifies it into Medium, High, or Very High financial risk associated with it.

05 It then shares this assessment about the number immediately with all stakeholders through DoT's Digital Intelligence Platform (DIP).

06 Banks and financial institutions can use FRI in real time to take preventive measures such as declining suspicious transactions, issuing alerts or warnings to customers, and delaying transactions flagged as high risk.

Health and National Security Cess



The Union Finance Minister recently introduced the Health Security Se National Security Cess Bill, 2025 in Parliament, clarifying that the proposed cess will apply only to demerit goods such as pan masala and will not affect essential commodities.

Health and National Security Cess

- Introduces a new cess to raise dedicated funds for public health and national security, reflecting rising fiscal needs in these priority sectors.
- Levied only on demerit goods linked to serious public health risks such as pan masala; essential household goods are excluded, preventing inflationary pressure on daily consumption.
- Designed to achieve a dual objective:
  - Discourage consumption of harmful products (sin-tax logic)
  - Generate predictable welfare-oriented revenue
- Not consumption-based; follows a capacity-based, machine-linked taxation system at the manufacturing stage, with liability determined by installed machinery and production capacity.
- Machine-linked assessment aims to reduce tax evasion, improve transparency, and regulate sectors historically prone to under-reporting.
- Independent of the GST framework; does not affect GST rates, GST Council decisions, or GST revenue sharing. Existing levies like 28% GST and compensation cess continue separately.
- Partial revenue sharing with States for health awareness and health-related schemes, marking a shift from traditional non-shareable cesses and strengthening cooperative fiscal federalism.
- Intended to create a traceable and accountable funding stream, with the government claiming explicit tracking of every rupee collected.
- Concerns raised include potential compliance burden on MSMEs, risk of increased inspections and regulatory discretion ("inspector raj"), and criticism of growing reliance on cesses ("cessification of governance").
- Government's defence highlights national interest, objective machine-based assessment, reduced evasion in demerit goods sectors, and the necessity of assured funding for health and security.

CHANAKYA IAS ACADEMY

GST

- Introduced: 1 July 2017
- Nature: Indirect, destination-based, value-added tax
- Objective: "One Nation, One Tax"
- Constitutional Basis: 101st Constitutional Amendment Act, 2016

Types of GST

- CGST – Central GST
- SGST – State GST
- IGST – Inter-State GST
- UTGST – Union Territory GST

Taxes Subsumed

- Central: Excise Duty, Service Tax, Additional Customs Duty, etc.
- State: VAT, Entry Tax, Entertainment Tax, Luxury Tax, etc.

GST COUNCIL

- Status: Constitutional body
- Article: Article 279A
- Chairperson: Union Finance Minister
- Members:
  - Union Minister of State (Finance)
  - Finance/Taxation Ministers of all States & UTs with legislature

Voting Pattern (Very Important)

- Centre: 1/3 weight
- States (combined): 2/3 weight
- Decision requires: ¾ majority

Goldilocks Phase



India is in a rare "Goldilocks" phase, with low inflation (2.2%) and strong GDP growth (~8%), enabling the RBI to cut the repo rate to 5.25% despite global economic turmoil.

Goldilocks Phase of India's Economy

- India is witnessing a goldilocks macroeconomic phase with robust growth and sharply declining inflation, even as the rupee depreciated by over 5% in 2025 and crossed ₹90 per US dollar.
- Economists consider the rupee depreciation non-threatening, and the Reserve Bank of India has rightly avoided active currency defence, allowing exchange rate flexibility to absorb external shocks.
- The RBI cut the repo rate by 25 basis points, taking total easing in 2025 to 125 bps, reflecting policy consistency under flexible inflation targeting.
- Monetary policy symmetry is evident: tightening when inflation remains above 6%, and easing when inflation stays below 2% for a sustained period.
- With inflation well below the lower tolerance limit of the 2–6% band, the rate cut aligns with the RBI's mandate to anchor inflation around 4% in the medium term.
- Inflation in 2025 declined faster than expected and breached the lower band for the first time under the FIT framework.
- Disinflation was broad-based and structural, expanding the RBI's policy space without risking overheating.
- The December rate cut was presented as calibrated continuation, not the start of an aggressive easing cycle.
- The RBI views the disinflation trend as durable rather than temporary, justifying further monetary accommodation.
- Rate cuts aim to support domestic demand amid global headwinds such as slowing trade, financial volatility, and geopolitical tensions.
- Policy actions underline the RBI's data-dependent and credible approach.
- Despite 8.2% GDP growth in Q2 (July–September), the RBI cut rates and lowered its 2025–26 inflation forecast to about 2%.
- Forward guidance remains flexible, leading economists to expect another rate cut.
- Growth is expected to moderate in the second half of 2025–26 due to lower government spending and external shocks like higher U.S. tariffs on Indian exports.
- RBI projects GDP growth to slow to around 7% in Q3 and 6.5% in Q4 of 2025–26.
- The RBI has adopted a more flexible exchange-rate management strategy, intervening only to curb excessive volatility.
- The IMF reclassified India's exchange-rate regime from "stabilised" to "crawl-like arrangement", acknowledging greater flexibility.
- The sustainability of the current goldilocks phase remains uncertain, especially with new GDP and inflation series expected in 2026 and persistent global risks.

CHANAKYA IAS ACADEMY

UPSC MAINS PYQ

1. *"Do you think India's economy is on a path of sustainable growth? Discuss the major macroeconomic indicators in support of your answer."(2023)*
2. *"How does inflation affect economic growth? Explain the role of monetary policy in balancing growth and price stability."(2022)*
3. *"What are the objectives of inflation targeting in India? Has the adoption of a flexible inflation targeting framework strengthened macroeconomic stability?"(2021)*

The Atomic Energy Bill 2025



The SHANTI Bill, 2025 amends the Atomic Energy Act, 1962 to open India's nuclear sector to private and foreign participation. It aims to boost clean baseload power, strengthen energy security, and support India's climate and grid-stability goals.

Atomic Energy (Amendment) Bill, 2025 (SHANTI Bill)

- The Atomic Energy (Amendment) Bill, 2025, renamed the SHANTI Bill, amends the Atomic Energy Act, 1962 to reform India's closed nuclear sector and allow limited private and foreign participation in civil nuclear power.
- The reform aims to strengthen energy security, support climate commitments, and improve grid stability, especially as renewable energy expansion has increased intermittency challenges.
- Nuclear power is positioned as a reliable baseload, low-carbon energy source, particularly when coal expansion faces environmental and political constraints.
- India's renewed nuclear push is driven mainly by capital constraints rather than technological gaps, with interest from global investors and sovereign wealth funds.
- The Bill permits up to 49% minority private equity in nuclear power projects, including foreign participation through joint ventures.

The scope of private participation is expanded to include:

  - Atomic mineral exploration
  - Fuel fabrication
  - Equipment manufacturing
  - Select aspects of plant operations
  - Civil nuclear research and development, especially Small Modular Reactors (SMRs)
- Nuclear Power Corporation of India Ltd will retain ownership and operational control of nuclear plants, ensuring strategic and sovereign oversight.
- India plans to scale nuclear capacity from about 8 GWe at present to 100 GWe by 2047, aligning with long-term electricity demand and decarbonisation goals.
- A dedicated Nuclear Energy Mission has been announced with an outlay of ₹20,000 crore for SMR research and development, targeting at least five indigenous SMRs by 2033.
- SMRs are prioritised due to modular construction, faster deployment, suitability for industrial decarbonisation, and their ability to complement renewable energy with firm power.
- Indigenous SMR designs are being developed by Bhabha Atomic Research Centre, with initial emphasis on self-reliance rather than foreign technology.
- Several large Indian companies have shown interest in SMR projects, with multiple potential sites identified across different states.
- Under the proposed model, private players will finance the full project lifecycle, including decommissioning, in return for assured long-term captive power supply.
- A major bottleneck remains the Civil Liability for Nuclear Damage Act, 2010, especially the "right of recourse" clause that discourages foreign suppliers.
- Proposed solutions include capping supplier liability, creating a state-backed insurance or compensation pool, and aligning domestic law with international nuclear liability norms.
- Overall, the SHANTI Bill represents a paradigm shift from a state-dominated nuclear framework to a calibrated, investment-friendly model, while balancing **safety, sovereignty, and openness**—a key theme for UPSC mains answers.

© CHANAKYA IAS ACADEMY

New Insurance Bill 2025



The Sabka Bima Sabki Raksha Bill, 2025 seeks to modernise insurance laws, expand coverage, and strengthen regulation, with 100% FDI as its key reform. However, diluted industry demands like a composite licence may trigger parliamentary debate.

Sabka Bima Sabki Raksha Bill, 2025

- Approved by the Union Cabinet to reform India's insurance framework by amending the Insurance Act, 1938, LIC Act, 1956 and IRDAI Act, 1999.
- Objective: modernisation of the sector, higher insurance penetration, stronger regulation, consumer protection, and ease of doing business.
- 100% FDI in insurance allowed (raised from 74%) to attract long-term foreign capital, boost competition, promote technology transfer, and support the goal of Insurance for All by 2047.
- Foreign reinsurers benefit from reduced Net Owned Funds requirement (₹5,000 crore to ₹1,000 crore), aimed at expanding reinsurance capacity, improving risk diversification, and reducing reliance on public sector players.

Enhanced powers of Insurance Regulatory and Development Authority of India (IRDAI):

- Disgorgement powers to recover wrongful gains.
- One-time registration for intermediaries to simplify compliance.
- Higher threshold for approval of equity transfers (1% → 5%).
- Mandatory SOPs and clear penalty norms for transparency and predictability.

Greater operational autonomy for Life Insurance Corporation of India (LIC):

- Freedom to open new zonal offices without prior government approval.
- Flexibility to restructure overseas operations as per host-country laws.

Overall assessment:

- Strong step towards liberalisation and regulatory strengthening through FDI and IRDAI empowerment.
- Missed opportunity for deeper structural reforms that could have accelerated competition, innovation, and financial inclusion.

Key exclusions / limitations

1. No composite licence; life and non-life insurance businesses remain separate.

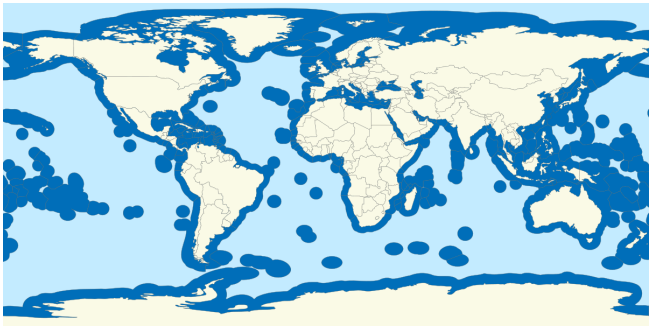
2. No reduction in minimum capital requirements for new insurers and reinsurers.

3. Earlier draft proposals dropped, including cross-selling of other financial products, flexible investment norms, and multi-insurer agency permissions.

4. No provision for captive insurance companies for large corporates.

CHANAKYA IAS ACADEMY

Exclusive Economic Zone



Fisher-folk recently urged the Centre to include their representatives in policymaking bodies so that their practical expertise can be utilized, without which the goal of responsible fishing in the Exclusive Economic Zone (EEZ) cannot be achieved.

About Exclusive Economic Zone (EEZ)

- An EEZ is an area of the ocean, generally extending 200 nautical miles (230 miles) beyond a nation's territorial sea, within which a coastal nation has jurisdiction over both living and nonliving resources.
- The concept of an exclusive economic zone (EEZ) was adopted through the 1982 United Nations Convention on the Law of the Sea.
- Under international law, within its defined EEZ, a coastal nation has:
  - Sovereign rights for the purpose of exploring, exploiting, conserving, and managing natural resources of the seabed, subsoil, and waters above it.
  - Jurisdiction as provided for in international law with regard to the establishment and use of artificial islands, installations, and structures; marine scientific research; and the protection and preservation of the marine environment.
- Other rights and duties provided for under international law.
- UNCLOS (United Nations Convention on the Law of the Sea) indicates that the coastal state determines the acceptable level of fishing quotas in its EEZ, with a focus on sustainable management.
- The coastal state is entitled to fish the entire quota or to award the surplus to other countries.
- Provisions under UNCLOS also provide for the regular exchange of information about the populations of resources in an EEZ in order to promote international scientific cooperation.
- EEZs have also been used to determine which country is responsible for removing marine hazards such as space debris.
- UNCLOS establishes rights for how other countries may access the waters in an EEZ.
  - Other States have the right for their ships and aircraft to traverse the EEZ and its airspace and to lay cables and pipelines.

What is the Territorial Sea?

- The territorial sea (also called territorial waters), under the UNCLOS, is that area of the sea immediately adjacent to the shores of a country and subject to the territorial jurisdiction of that country.
- Extend: The territorial sea extends to a limit of 12 nautical miles from the baseline of a country's coast.
- Importance of Territorial waters:
  - Within its territorial waters, a country exercises full sovereignty over the air space above the sea and over the seabed and subsoil.
  - The government can legislate on matters concerning the safety of navigation, the preservation of the environment, and the prevention, reduction, and control of pollution within its territorial waters.
  - Resource use within the territorial sea is strictly reserved to the coastal nation.
  - All countries have the right of innocent passage (passage that is not prejudicial to the security of the coastal country) through the territorial sea of another country, although there is no right of innocent airspace passage.

CHANAKYA IAS ACADEMY

International Relations



CHANAKYA IAS ACADEMY

UNESCO's Creative Cities Network

United Nations Educational, Scientific and Cultural Organization

Creative Cities Network

Recently, Lucknow has officially joined the UNESCO Creative Cities Network (UCCN) under the Gastronomy category during the 43rd Session of the UNESCO General Conference.

About UNESCO Creative Cities Network

- It was created in 2004 to promote cooperation among cities that have identified creativity as a strategic factor for sustainable urban development.
- It was launched to promote UNESCO's goals of cultural diversity and strengthen resilience to threats such as climate change, rising inequality, and rapid urbanisation.
- The network covers seven creative fields: crafts and folk arts, media arts, film, design, gastronomy, literature and music.
- Aim of UCCN: The network is aimed at leveraging the creative, social, and economic potential of cultural industries.
- Indian Cities in the UCCN: Kozhikode (Literature) and Gwalior (Music) Jaipur (Crafts and Folk Arts), Varanasi (Music), Chennai (Music), Mumbai (Film), Hyderabad (Gastronomy), Lucknow (Gastronomy), and Srinagar (Crafts and Folk Arts).

CHANAKYA IAS ACADEMY

Objectives of the UCCN

- It allows member cities to recognise creativity as an essential component of urban development, notably through partnerships involving the public and private sectors and civil society.
- It envisages developing hubs of creativity, innovation and broadening opportunities for creators and professionals in the cultural sector.
- These cities have to achieve the UN agenda of sustainable development.

Intergovernmental Committee for Safeguarding of the Intangible Cultural Heritage

India will host the 20th session of the UNESCO Intergovernmental Committee for Safeguarding of the Intangible Cultural Heritage from 8 to 13 December 2025 in New Delhi.

About Intergovernmental Committee for Safeguarding of the Intangible Cultural Heritage

- Intangible cultural heritage (ICH), as UNESCO defines it, includes the practices, knowledge, expressions, objects, and spaces that communities see as part of their cultural identity.
- For the Safeguarding of ICH, UNESCO adopted the 2003 Convention on 17th October 2003 during its 32nd General Conference in Paris.
- The Convention formally established mechanisms for international cooperation, support, and recognition, laying the foundation for UNESCO's ICH lists and the subsequent work of the Intergovernmental Committee.

The purposes of this Convention are

  - To safeguard the ICH;
  - To ensure respect for the ICH of the communities, groups, and individuals concerned;
  - To raise awareness at the local, national, and international levels of the importance of the ICH, and ensure mutual appreciation thereof;
  - To provide for global cooperation and assistance.
- The Intergovernmental Committee for Safeguarding of the ICH advances the objectives of the 2003 Convention and ensures their effective implementation across Member States.

In fulfilling this mandate, the committee:

- Promotes and monitors the objectives and implementation of the 2003 Convention.
- Provides guidance on best practices and recommends measures for safeguarding ICH.
- Prepares and submits to the General Assembly the draft plan for the use of the Intangible Cultural Heritage Fund.
- Mobilises additional resources for the Fund in accordance with the Convention's provisions.
- Drafts and proposes operational directives for the implementation of the Convention.
- Examines periodic reports submitted by States Parties and compiles summaries for the General Assembly.
- Evaluates requests from States Parties and makes decisions regarding:
- Inscription of elements on UNESCO's ICH Lists (as per Articles 16, 17, and 18).
- Granting of international assistance.

Membership:

- It has 24 members who are elected for a term of four years.
- The election of new members takes place every two years during the ordinary session of the General Assembly of States Parties.
- India is currently a member of the committee (2022-2026).

CHANAKYA IAS ACADEMY

Pax Silica Initiative



The Congress party recently targeted the Prime Minister over India's exclusion from the United States-led strategic initiative, Pax Silica, citing the 'sharp downturn' in his relations with US President Donald Trump.

About Pax Silica Initiative

- It is a U.S.-led strategic initiative to build a secure, prosperous, and innovation-driven silicon supply chain—from critical minerals and energy inputs to advanced manufacturing, semiconductors, artificial intelligence (AI) infrastructure, and logistics.
- The term 'Pax Silica' comes from the Latin term 'pax' which means peace, stability, and long-term prosperity.
- Silica refers to the compound that is refined into silicon, one of the chemical elements foundational to the computer chips that enable AI.
- It aims to reduce coercive dependencies, protect the materials and capabilities foundational to AI, and ensure aligned nations can develop and deploy transformative technologies at scale.

Which Countries Are Part of Pax Silica?

- Japan
- South Korea
- Singapore
- Netherlands
- United Kingdom
- Israel
- United Arab Emirates
- Australia

©CHANAKYA IAS ACADEMY

Countries Affirmed a Shared Commitment To:

- Pursue projects to jointly address AI supply chain opportunities and vulnerabilities in priority critical minerals, semiconductor design, fabrication, and packaging, logistics and transportation, compute, and energy grids and power generation.
- Pursue new joint ventures and strategic co-investment opportunities.
- Protect sensitive technologies and critical infrastructure from undue access or control by countries of concern.
- Build trusted technology ecosystems, including ICT systems, fiber-optic cables, data centers, foundational models and applications.

UN Environment Assembly

UNEA
United Nations Environment Assembly
of the United Nations Environment Programme

Recently, the seventh UN Environment Assembly (UNEA-7) is taking place in Nairobi, Kenya.

About UN Environment Assembly

- It is the world's highest-level decision-making body on the environment.
- Member Countries: It has the universal membership of all 193 UN Member States and the full involvement of major groups and stakeholders.
- It gathers ministers of environment in Nairobi, Kenya every 2 years.
- Background: UNEA was created in 2012, as an outcome of the UN Conference on Sustainable Development (Rio+20), held in Brazil.

Functions of UN Environment Assembly

- It sets the global environmental agenda, provides overarching policy guidance, and defines policy responses to address emerging environmental challenges.
- It undertakes policy review, dialogue and the exchange of experiences, sets the strategic guidance on the future direction of the UN Environment Programme (UNEP).
- It fosters partnerships for achieving environmental goals and resource mobilization.
- Organisational Structure: It consists of a President and 8 Vice Presidents (forming the UNEA Bureau)
- Seventh UNEA session (2025) Theme: "Advancing sustainable solutions for a resilient planet"

International Fund for Agricultural Development

CHANAKYA IAS ACADEMY

Recently, the Government of India highlighted the country's pioneering achievements in rural transformation and development leadership at the International Fund for Agricultural Development - India Day event held in Rome.

About International Fund for Agricultural Development

- It is an international financial institution and a specialized agency of the United Nations.
- It was established as an international financial institution in 1977 through United Nations General Assembly Resolution.
- Objective: It is dedicated to eradicating poverty and hunger in rural areas of developing countries.
- IFAD seeks to empower rural people to increase their food security, improve the nutrition of their families.
  - Its projects and programmes are carried out in remote and environmentally fragile locations, including least-developed countries and Small Island developing States.
- It is a member of the United Nations Development Group (UNDP).
- IFAD grants support research, innovation, institutional change, and pro-poor technologies.
  - IFAD extends two types of grants, depending on the nature of the innovation and the scope of intervention: global or regional grants and country-specific grants.
- Membership: Currently, IFAD has 180 Member States, including India. (India is a founding member of IFAD).
- Governance: Its Governing Council is the highest decision-making body which meets every three years.
- Headquarter: Rome, Italy.

Minamitori Island



Japan will conduct test mining of rare-earth-rich mud from the deep seabed off Minamitori Island

About Minamitori Island

- It is also known as Marcus Island, is an isolated Japanese coral atoll in the northwestern Pacific Ocean.
- It is at the easternmost edge of Japan, the island is the first in Japan to see the sun rise.
- It lies 1,950 km southeast of central Tokyo.

Topography and Formation of Minamitori Island

- It is the summit of a giant seamount rising from the seafloor located on the Marcus-Necker Ridge, and the only land of it in Japan on the Pacific Plate.
- Climate: It is in the transitional zone between tropical and subtropical climates, has an oceanic climate with an average annual temperature of around 25.6°C.
- Resources: Valuable marine mineral resources like rare-earth muds and cobalt-rich crust have been discovered in the waters surrounding the Minamitorishima Island.

CHANAKYA IAS ACADEMY

What is Rare-earth mud?

Rare-earth muds are pelagic muds made by accumulated remains of plankton in which a large amount of rare-earth is contained.

It contains significant amounts of minerals such as neodymium and dysprosium, which are used in high-performance magnets for motors and power generators.

It is distributed across the ocean floor as a thin layer and cannot be excavated deeply like coal.

India-Russia Summit 2025



Russian President Vladimir Putin's official state visit to India has resulted in major breakthroughs in areas like labour mobility, trade expansion, nuclear energy cooperation, defence manufacturing and tourism.

India–Russia Strategic Partnership

- India–Russia share a time-tested strategic partnership centred on defence, energy and technology.
- The 2025 Summit reaffirmed ties amid global geopolitical shifts and Western sanctions on Russia.
- Bilateral trade crossed USD 65 billion (2024), driven mainly by discounted Russian crude oil imports.
- Summit objective: rebalance trade, diversify cooperation and ensure long-term strategic stability.

Key Outcomes

- Labour Mobility Agreement: Regulated migration of Indian workers (construction, healthcare, services); safer pathways, jobs for Indian youth, addresses Russia's labour shortages.
- Nuclear Energy: Joint work on Small Modular Reactors (SMRs), additional units at Kudankulam, cooperation in fuel supply, safety and training; supports India's low-carbon goals.
- Defence Cooperation: Co-production in India, stable spare-parts supply chains, long-term defence industrial roadmap; aligns with Make in India and tech transfer.
- Trade & Connectivity: Push for Indian exports (pharma, textiles, engineering goods, food products), alternative payment mechanisms, and Chennai–Vladivostok maritime corridor.
- Tourism & People-to-People: Free 30-day double-entry e-tourist visa for Russians; boosts tourism, hospitality and cultural ties.
- Technology & Space: Cooperation in cybersecurity, digital public infrastructure, AI, satellite navigation and astronaut training.
- Energy Security: Long-term crude oil supplies, LNG options and Indian investments in Russian energy projects.

Geopolitical Significance

- Demonstrates India's strategic autonomy—engagement with Russia alongside stronger ties with the West and East Asia.
- Reflects shared interest in energy security, economic resilience and a multipolar world order.

CHANAKYA IAS ACADEMY

India–New Zealand FTA



India and New Zealand have concluded a Free Trade Agreement that will give India tariff-free access to New Zealand's market, attract USD 20 billion investment over 15 years, and double bilateral trade to USD 5 billion in five years. The FTA is set to be signed in the first half of 2026.

India–New Zealand Free Trade Agreement

- India and New Zealand concluded FTA negotiations in a record nine months (talks began March 2025), with formal signing due in the first half of 2026.
- The FTA targets doubling bilateral trade to US$ 5 billion within five years and facilitating US$ 20 billion of New Zealand investment in India over 15 years.
- Diplomatic relations between the two countries date back to 1952, grounded in Commonwealth ties, democratic values, and common law traditions, supported by strong sporting, tourism, and education links.
- New Zealand has prioritised India through policy frameworks such as Opening Doors to India, the NZ Inc. India Strategy, and India–NZ 2025: Investing in the Relationship, aiming for a long-term strategic partnership.
- Bilateral trade stood at US$ 1.75 billion in 2023–24, with cooperation in education, tourism, pharmaceuticals, renewable energy, food processing, and critical minerals.
- Indian exports include pharmaceuticals, textiles, automobiles, and gems, while imports from New Zealand comprise forestry products, wool, and edible fruits and nuts.
- Under the FTA, 95% of New Zealand's exports will face tariff elimination or reduction, with 57% becoming duty-free from day one, rising to 82% over the implementation period.
- India has protected sensitive sectors by offering no concessions on dairy, rice, wheat, sugar, spices, edible oils, soya, rubber, and onions, ensuring balanced trade liberalisation.
- The agreement includes a US$ 20 billion investment commitment and a dedicated health and traditional medicine annex, New Zealand's first such annex with any country.
- India gains market access in 118 services sectors and MFN status in 139 sectors, strengthening services trade under WTO principles.
- 5,000 temporary employment visas per year (valid up to three years) will be available for Indian professionals in IT, healthcare, engineering, education, construction, and niche services such as AYUSH and yoga.
- The FTA is expected to boost labour-intensive sectors like textiles, apparel, leather, footwear, and home décor, while supporting exports of automobiles, electronics, machinery, and pharmaceuticals.
- Defence and maritime cooperation will deepen through naval ship visits, leadership exchanges, and engagement under Combined Task Force-150, supporting Indo-Pacific security.
- People-to-people ties remain strong, with India as the second-largest source of international students in New Zealand (~8,000) and an Indian-origin population of about 292,000.
- Overall, the India–New Zealand FTA marks a new phase of comprehensive bilateral partnership, combining trade liberalisation with strategic, services, mobility, and people-centric cooperation.

CHANAKYA IAS ACADEMY

Key Facts about Thailand



Recently, Thailand has formally expressed its ambition to join BRICS and is seeking India's backing ahead of New Delhi's chairmanship of the grouping in 2026.

About Thailand

- Location: Thailand is located in the center of mainland Southeast Asia.
- Bordering Countries: It shares boundaries with Myanmar (North West), Laos (North Easst), Cambodia (East), and Malaysia (South).
- Maritime boundary: Bordered by Andaman Sea (SW) and Gulf of Thailand (S)
- Capital City: Bangkok

Geographical Features of Thailand

- Highest Peak: Doi Inthanon (Approx. 2,565 m)
- Plateau: Khorat Plateau in the northeast region which is a vast tableland bounded by the Mekong River on the north and east.
- Major Rivers: Chao Phraya River and Mekong River (Forms a natural border with Laos)
- Climate: It is influenced by Southwest and Northeast Monsoons
  - The Tropical Wet and Dry (Savanna) Climate (Köppen's classification) dominates most areas.
  - Tropical Monsoon Climate in the south and east; some areas also have a Tropical Rainforest Climate.
- Natural Resources: Rubber, Rice, Tin, Natural Gas, Timber, Tungsten, Tantalum
- Thailand is a leading global exporter of rubber, fruits, vegetables, and rice.

CHANAKYA IAS ACADEMY

Venezuela



Recently, US President Donald Trump said his administration would "close the airspace above and surrounding Venezuela in its entirety."

About Venezuela

- Location: It is located on the northern coast of South America.
- Bordering Countries: It is bounded by Guyana to the east, Brazil to the south, and Colombia to the southwest and west.
- Maritime boundaries: It shares a border with the Caribbean Sea and the Atlantic Ocean to the north.
- Capital: Caracas.

Geographical Features of Venezuela

- Terrain: Andes Mountains and Maracaibo Lowlands in northwest; central plains (llanos); Guiana Highlands in southeast
- Major Rivers: Rio Negro (shared with Colombia and Brazil) and Orinoco (shared with Colombia).
- Major Lakes: Lake Guri and Lake Maracaibo (the largest lake in South America).
- Highest Point: Pico Bolivar
- The world's highest waterfall – the Andes Mountains Angel Falls is located in the Guiana Highlands.
- Natural Resources: It is home to the world's largest oil reserves as well as huge quantities of coal, iron ore, bauxite, and gold.

Key Facts about Brunei



Recently, the inaugural meeting of the India-Brunei Joint Working Group (JWG) on Defence Cooperation was held in New Delhi.

About Brunei

- Location: It is located along the northern coast of Borneo Island in Southeast Asia.
- Bordered by: Brunei is bordered by the South China Sea in the north and on all other sides by Malaysia.
- Brunei is divided into two non-contiguous parts by a portion of the Malaysian State of Sarawak.
- Capital: Bander Seri Begawan – the capital and largest city of Brunei.
- It is a member country of the Commonwealth and ASEAN.

Geographical Features of Brunei

- Climate: The climate of Brunei (or Brunei Darussalam) is equatorial, i.e. hot, humid and rainy throughout the year.
- Terrain: It consists of flat coastal plain rises to mountains in east; hilly lowland in west
- Mountain: Bukit Pagon is the highest point in the country at 6,069 ft along the border with Malaysia in the eastern mountainous region.
- Rivers: Numerous rivers drain the land, including the Belait, Pandaruan, and Tutong.
- Natural Resources: It is also a major oil producer in Southeast Asia.

CHANAKYA IAS ACADEMY

Key Facts about Italy



The recently held Italy–India Business Forum 2025 will strengthen bilateral trade, innovation and strategic economic partnership.

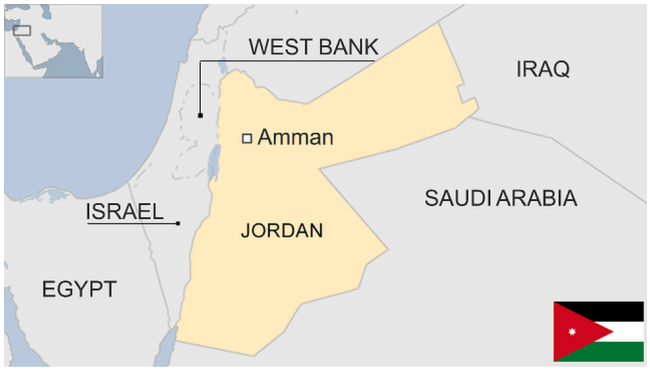
About Italy

- Location: It is located in South-central Europe on the Apennine Peninsula.
- Bordering Countries: It shares its border with Switzerland and Austria in the north, Slovenia in the northeast and France in the northwest.
- Vatican City and San Marino are the two enclaved sovereign states within Italy.
- Its southern boundary extends into the Mediterranean Sea.
- Maritime boundaries: Italian Peninsula is bordered by the Adriatic Sea in the east, the Sea of Sicily in the south, the Ionian Sea in the southeast, the Ligurian Sea, and the Tyrrhenian Sea in the southwest.
- Capital City: Rome

Geographical Features of Italy

- Terrain: It is mostly rugged and mountainous and has some plains, coastal lowlands.
- Major Rivers: Po (It is Italy's longest river) and Adige
- Highest Point: Mont Blanc
- Natural Resources: Coal, antimony, mercury, zinc, potash, barite, asbestos, pumice, fluorspar, feldspar, pyrite (sulfur), natural gas and crude oil reserves.
- Italy is volcanic in origin, and a few of its many volcanoes are active, including Sicily's Mt. Etna, Stromboli in the Aeolian Islands.

Key Facts About Jordan



Recently, the Prime Minister of India has embarked on a three-nation visit to Jordan, Ethiopia and Oman.

About Jordan

- Location: It is a landlocked country located in the rocky desert of the northern Arabian Peninsula.
- Bordering Countries: It is bordered by 5 Nations: Syria in the north, Iraq in the east, Saudi Arabia in the south and southeast and Israel and Palestine in the west.
- Water bodies: Dead Sea, the Gulf of Aqaba and the Sea of Galilee.
- The Dead Sea is located along the western borders of the country.
- Ports: Al-Aqabah, the only port of Jordan is located in the south-western part of the country along the coasts of the Gulf of Aqaba.
- Capital City: Amman

Geographical Features of Jordan

- Terrain: It has arid desert plateau; a great north-south geological rift along the west of the country is the dominant topographical feature.
- Highest Point: Jabal Umm ad Dami is the highest point of Jordan.
- Rivers: The Jordan River which drains into the Dead Sea.
- Natural Resources: It mainly consists of phosphates, potash and shale oil.

SHANKAR IAS ACADEMY

Key Facts About Japan



Recently, a major earthquake rocked Japan's northern coast and also the country's meteorological agency recorded several tsunami waves.

About Japan

- Location: It is an island nation in East Asia, situated in the Northwestern Pacific Ocean.
- Maritime borders: It is bordered by the Pacific Ocean (East), Sea of Okhotsk (North), Sea of Japan (West East) and East China Sea (Southwest).
- Political Structure: Parliamentary government under a constitutional monarchy.
- Capital City: Tokyo, located in east-central Honshu.

Geographical Features of Japan

- It comprises a chain of islands stretching ~1,500 miles in a northeast–southwest arc.
- Main Islands (north to south): Hokkaido, Honshu, Shikoku, and Kyushu.
- Terrain: Over 80% mountainous, with rugged terrain.
- Volcanic activity: It is located on the Pacific Ring of Fire – a major zone of earthquakes and active volcanoes.
- Highest peak: Mount Fuji (3,776 m), which is a stratovolcano.
- Major mountain ranges: Japanese Alps.
- Major rivers: Shinano River (longest), Tone River, Kiso River.
- It is often disturbed by earthquakes, tsunamis, and volcanic eruptions due to tectonic activity.

Gulf of Oman



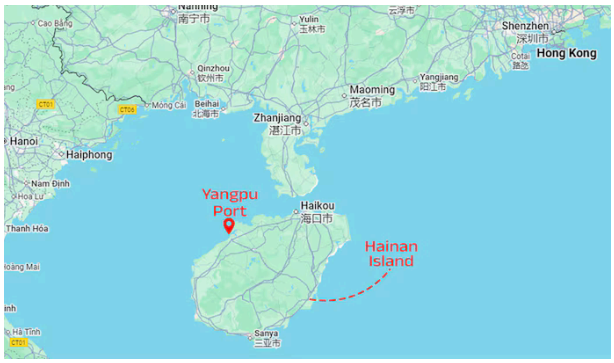
Iran recently seized an oil tanker in the Gulf of Oman, Iranian media said recently, adding that 18 crew members from India, Sri Lanka, and Bangladesh were on board.

About Gulf of Oman

- The Gulf of Oman, also known as the Gulf of Makran, is the northwest arm of the Arabian Sea.
- It forms the only entrance to the Persian Gulf from the Indian Ocean.
- It covers an area spanning 115,000 sq.km.
- It connects the Arabian Sea with the Strait of Hormuz, which then empties into the Persian Gulf.
- Bordering Countries: It is bordered by Pakistan and Iran in the north, by the United Arab Emirates in the west, and by Oman in the south.
- The gulf is about 320 km wide at its widest point between Cape al-Hadd in Oman and Gwadar Bay on the Iran-Pakistan border. It narrows to 35 miles (56 km) at the Strait of Hormuz.
- It is approximately 560 km long.
- The gulf is relatively shallow because of its origin as a fissure in the mountain spine now divided between Iran and Oman.
- Some of the significant islands that are located in the Gulf of Oman include Sheytan Island, Al Fahal Island, Dimaniyat Islands, and the Sawadi Islands.
- The major international shipping ports that are situated in the Gulf of Oman include Port Sultan Qaboos Muttrah in Muscat, Oman; Chabahar Port in Iran; the Port of Fujairah and Khor Fakkan Container Terminal in the United Arab Emirates.
- Roughly one-third of the world's oil is exported via the Strait of Hormuz and the Gulf of Oman.

CHANAKYA IAS ACADEMY

Hainan Island



China recently split off Hainan Island, with an economy comparable to a mid-ranked country, from the mainland for customs processing, part of a bid to join a major trans-Pacific trade deal and establish a new Hong Kong-style commercial hub.

About Hainan Island

- It is a tropical island at the southernmost of China.
- It is situated in the northeastern part of the Beibu Gulf, across the Qiongzhou Strait from mainland China.
- It's known as the "Hawaii of China,".
- It has a land area of 35,400 sq.km. It is the largest island administered by the People's Republic of China.
- It has a population of about 10 million.
- Its provincial capital is Haikou, known as the "Coconut City".
- It was geologically connected with the southern Chinese mainland until a rift through the Hainan Strait opened sometime during the Miocene and Pliocene epochs (about 23 to 2.6 million years ago).
- The island is approximately oval in shape and measures about 260 km from east to west and 210 km from north to south at its widest point.
- Hainan is a regional center connecting Northeast Asia and Southeast Asia and is a maritime gateway between the Indian Ocean and the Pacific Ocean.
- It's also China's largest free-trade port and host of the Boao Forum, an annual meeting of political and business leaders dubbed "Asia's Davos."

Key Facts about Netherlands



Recently, the Indian defence Minister and the Foreign Minister of the Netherlands reaffirmed the strong and steadily expanding defence partnership between the two nations.

About Netherlands

- Location: It is a country located in Northwestern Europe.
- Bordering Countries: It is bordered by Germany in the east; and Belgium in the south.
- Maritime Borders: It is bounded by the North Sea in the north and west.
- Capital City: Amsterdam

Geographical Features of Netherlands

- Three primary geographic regions form the Netherlands: the Lowlands, Veluwe and Utrecht Hill Ridge, and the Limburg Hills.
- Rivers: Rhine, Meuse and the Scheldt.
- Ports: Port of Rotterdam is the country's ports along the North Sea.
- Climate: It mostly has temperate; marine; cool summers and mild winters.
- Major lake: Ijsselmeer is the largest freshwater lake of Switzerlands.
- Highest Point: The highest point on continental Netherlands is Vaalserberg at 322 m
- Natural resources: It has natural gas, petroleum, peat, limestone, salt

CHANAKYA IAS ACADEMY

Key Facts about Mexico



Recently, the Mexico's Senate approved tariffs of up to 50% on imports from Asian countries, including India.

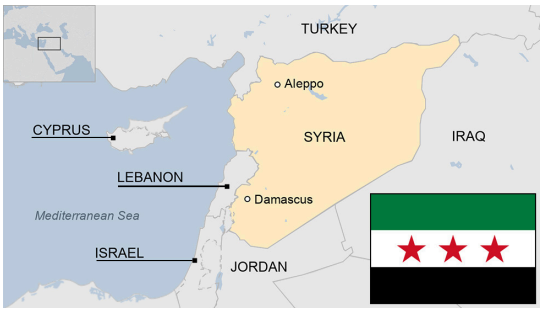
About Mexico

- Location: It is located in the southern part of North America.
- Bordering Countries: It shares its land border with the United States of America to the north and with Guatemala and Belize to the southeast.
- Maritime boundaries: It is surrounded by the Pacific Ocean to the south and west; by the Gulf of Mexico and the Caribbean Sea to the east.
- Capital City: Mexico City

Geographical Features of Mexico

- It is a part of the circum-Pacific "Ring of Fire"—a region of active volcanism and frequent seismic activity.
- Peninsulas: It consists of the Baja Peninsula and Yucatan Peninsula.
- Major Rivers: Rio Grande river and Colorado river (which is shared with US)
- Lakes: Lake Chapala and Lake Cuitzeo.
- Major mountain range: Sierra Madre.
- Natural Resources: Petroleum, silver, Antimony, Copper, Gold, Lead, zinc, natural gas.

Key Facts about Syria



Recently, the US military carried out a strike against the Islamic State group in Syria.

About Syria

- Location: It is located on the east coast of the Mediterranean Sea in southwestern Asia.
- Bordering Countries: It is bordered by Turkey in the north, Lebanon in the west, Iraq in the east, Jordan in the south and Israel in the southwest.
- Capital City: Damascus

Geographical Features of Syria

- Syria's geography offers two major regions, a western and an eastern part.
  - The western region features narrow, fertile coastal plains along the eastern Mediterranean Sea.
  - The eastern part of the country is the realm of the Syrian Desert which is a mixture of dry steppe and true desert landscape.
- Rivers: Euphrates River flows across Syria before entering Iraq.
- Lakes: Lake al-Assad (a man-made reservoir,) created by a dam on the Euphrates River.
- Desert: Southern and eastern Syria are part of the northern Syrian Desert.
- Highest Point: Mt Hermon (2,814 m)

CHANAKYA IAS ACADEMY

World Anti-Doping Agency

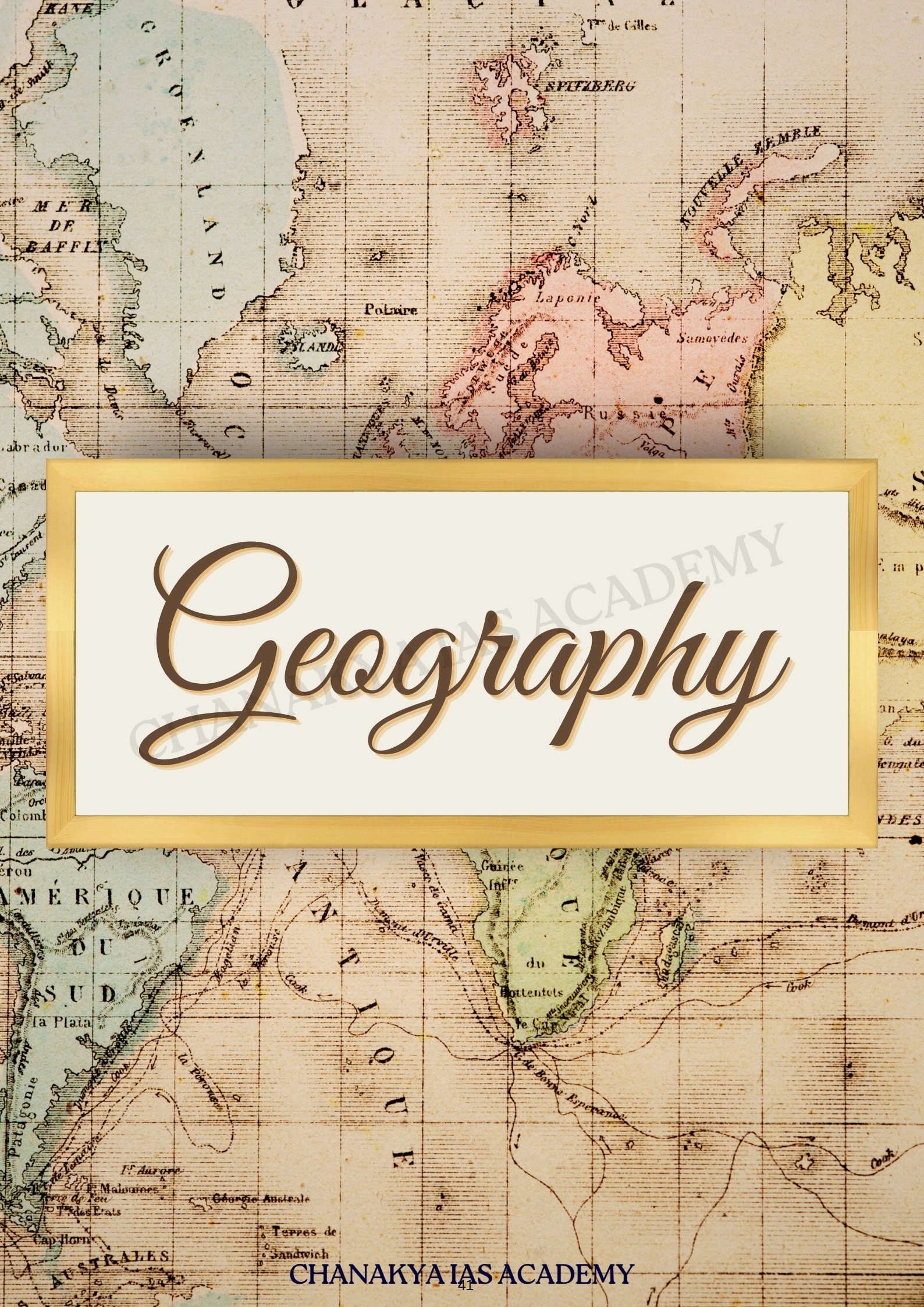
Recently, for the third consecutive year, India has topped the World Anti-Doping Agency's (WADA) global list of offenders.

About World Anti-Doping Agency

- It was established in 1999 as an international independent agency to lead a collaborative worldwide movement for doping-free sport.
- Role: To develop, harmonize and coordinate anti-doping rules and policies across all sports and countries.
- Its activities include scientific and social science research; education; intelligence & investigations; development of anti-doping capacity; and monitoring of compliance with the World Anti-Doping Program.
- Headquarter: Montreal, Canada.

Governance Structure of World Anti-Doping Agency

- Foundation Board (Board): It consists of 42-member and it is the agency's highest policy-making body, is jointly composed of representatives of the Olympic Movement (the IOC, National Olympic Committees, International Sports Federations, and athletes) and representatives of governments from all five continents.
- Executive Committee (ExCo): It consists of 16-member to which the Board delegates the management and running of the agency, including the performance of all its activities and the administration of its assets.



CHANAKYA IAS ACADEMY

Cold Wave



Higher than normal cold wave days are expected to impact parts of central India as well as some regions in northwest and northeast India, according to the India Meteorological Department (IMD).

About Cold Wave

- Cold waves are unusual weather occurrences caused by extremely low temperatures in the near-surface atmosphere.
- Their duration can range from several days to a few weeks, contingent upon the geography and climatic conditions of the region.
- The India Meteorological Department (IMD) defines a cold wave as a rapid fall in temperature within 24 hours.
- This is distinguished by a marked cooling of the air, or with the invasion of very cold air, over a large area.
- As per IMD, a cold wave is considered when the minimum temperature of a station is 10°C or less for plains and 0°C or less for hilly regions.
  - A cold wave and severe cold wave is considered a negative departure from normal i.e., 4.5°C to 6.4°C and more than 6.4°C in hill stations, respectively.
  - Similarly, the departure in minimum temperature of ≤ 04°C and ≤ 02°C for plains is considered a cold wave and severe cold wave, respectively.
- Cold waves are predominantly experienced during the period December-February, when minimum temperatures drop to very low levels, especially over the northern parts of India.
- Health Risks:
  - Exposure to extreme cold can lead to frostbite, hypothermia, and other cold-related illnesses.
  - Non-freezing cold injuries, such as Immersion Foot—caused by prolonged exposure to cold, wet conditions—are also a risk.
  - In extreme cases, cold exposure may result in fatalities if adequate precautions are not taken.

CHANAKYA IAS ACADEMY

Afar Region

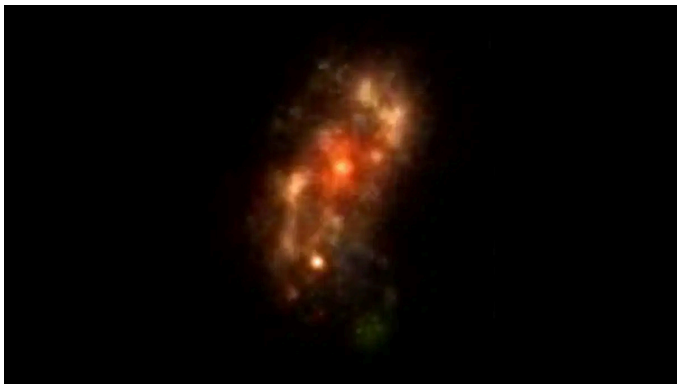


Scientists predict that Africa's Afar region could become Earth's next ocean basin.

About Afar region

- Location: It is the northeastern part of Ethiopia, where the Red Sea meets the Gulf of Aden.
- The Afar depression, also known as the Danakil depression, forms the northern part of the region and is largely desert scrubland with shallow salty lakes and long chains of volcanoes.
- The Awash River valley forms the southern part of the area.
- Tectonic Significance: It is situated at a unique triple junction where the Red Sea, Gulf of Aden, and East African Rift converge.
- Terrain: The region's landscape is marked by deep rift valleys, volcanic plateaus, and extensive fissures, reflecting the dynamic forces reshaping the Earth's crust.
- It offers scientists a rare opportunity to observe the processes of continental break-up and ocean genesis in action.
- The region is well known for its early hominid fossil finds including 'Lucy', an Australopithecus afarensis, discovered in 1974.

Alaknanda Galaxy



Recently, researchers at National Centre for Radio Astrophysics - Tata Institute of Fundamental Research (NCRA–TIFR), Pune, have discovered a spiral galaxy and named it as Alaknanda.

About Alaknanda Galaxy

- It is located about 12 billion light years away and has textbook spiral structure.
- It is named after a Himalayan river Alaknanda and the Hindi word for the Milky Way.
- The galaxy has two well-defined spiral arms wrapping around a bright central bulge, spanning approximately 30,000 light-years in diameter.
- It is a powerhouse of stellar birth, creating stars at a rate equivalent to about 60 solar masses annually.
- It looks remarkably similar to our own Milky Way and formed when the Milky way was only 10 per cent of its current age.
- It was discovered by using NASA's James Webb Space Telescope.

What is a Spiral Galaxy?

- Spiral galaxies are twisted collections of stars and gas that often have beautiful shapes and are made up of hot, young stars.
- In a spiral galaxy, the stars, gas, and dust are gathered in spiral arms that spread outward from the galaxy's center.

Structure

- Most spiral galaxies contain a central bulge surrounded by a flat, rotating disk of stars.
- The bulge in the center is made up of older, dimmer stars and is thought to contain a supermassive black hole.
- Approximately two-thirds of spiral galaxies also contain a bar structure through their center, as does the Milky Way.
- The disk of stars orbiting the bulge separates into arms that circle the galaxy.
- These spiral arms contain a wealth of gas and dust and younger stars that shine brightly before their quick demise.

CHANAKYA IAS ACADEMY

Kilauea Volcano



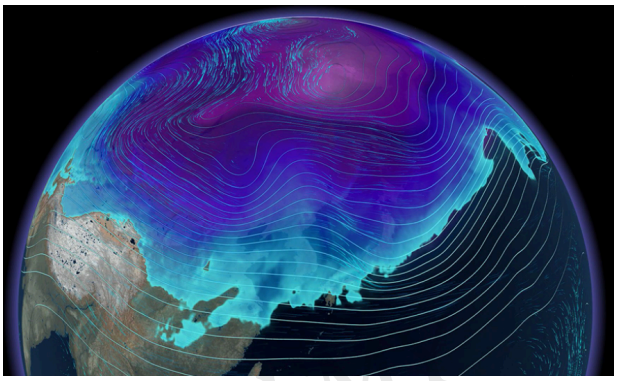
Fresh lava fountains recently erupted from Hawaii's Kilauea volcano nearly a year after one of the world's most active volcanoes began its current eruptive phase.

About Kīlauea Volcano

- It is one of the world's most active volcanoes.
- It is a shield-type volcano located in the southeastern part of the island of Hawaii, Hawaii State, United States.
    - Hawaii is the southernmost and largest of the island chain, which owes its existence to the very active Hawaiian hot spot.
- Kīlauea volcano's 1,250-metre summit has collapsed to form a caldera, a broad shallow depression nearly 5 km long and 3.2 km wide with an area of more than 10 sq.km.

- The summit caldera contains a lava lake known as Halema`uma`u that is said to be the home of the Hawaiian volcano goddess, Pele.
- Kilauea's slopes merge with those of the nearby volcano Mauna Loa on the west and north.
- Kilauea has been erupting on a continuous basis since 1983.
- Kilauea's frequent eruptions are usually nonexplosive and are contained within Halema'uma'u, which sometimes rises and overflows along the floor and flanks of the caldera proper.

Sudden Stratospheric Warming Event



Recently, a meteorologist warned of another Sudden Stratospheric Warming (SSW) event that could plunge temperatures below average across parts of the U.S. later this month.

CHANAKYA IAS ACADEMY

About Sudden Stratospheric Warming Event

- It refers to a rapid rise in stratospheric temperatures that weakens or distorts the polar vortex (a cold-air mass typically stabilized over the Arctic).

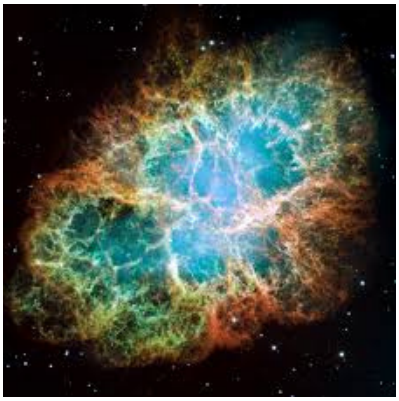
Occurrence of the Event

- It begins with large-scale atmosphere waves (called Rossby waves) getting pushed higher into the atmosphere.
- These waves can "break" (like waves in the ocean) on top of the polar vortex and weaken it. If waves are strong enough, the winds of the polar vortex can weaken so much that they can reverse from being westerly to easterly.
- This leads to cold air descending and warming rapidly.
- It can lead to a displacement or splitting of the polar vortex, so instead of cold air being locked above the polar region, it can push further south into the mid-latitudes.

What is the Polar Vortex?

- It is a large area of low pressure and cold air surrounding both of the Earth's poles.
- It extends from the tropopause (the dividing line between the stratosphere and troposphere) through the stratosphere and into the mesosphere (above 50 km).
- It always exists near the poles, but weakens in summer and strengthens in winter.
- Many times, during winter in the northern hemisphere, the polar vortex will expand, sending cold air southward with the jet stream.
- Jet streams are relatively narrow bands of strong wind in the upper levels of the atmosphere, typically occurring around 30,000 feet (9,100 meters) in elevation.
- This occurs fairly regularly during wintertime and is often associated with large outbreaks of Arctic air in the United States.
- This is not confined to the United States. Portions of Europe and Asia also experience cold surges connected to the polar vortex.

Supernova



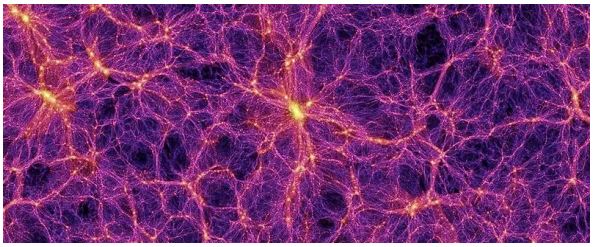
A distant gamma-ray burst has led astronomers to a rare supernova from the Universe's early years, revealed recently by the James Webb Space Telescope (JWST).

About Supernova

- A supernova is the name given to the cataclysmic explosion of a massive star.
- They are the largest explosions that take place in space.
- A star can go supernova in one of two ways:
  - Type I Supernova: A star accumulates matter from a nearby neighbor until a runaway nuclear reaction ignites.
  - Type II Supernova: A star runs out of nuclear fuel and collapses under its own gravity.
- It can emit more energy in a few seconds than our sun will radiate in its lifetime of billions of years.
- These spectacular events can be so bright that they outshine their entire galaxies for a few days or even months.
- They can be seen across the universe.
- They're also the primary source of heavy elements in the universe.
- How Common are Supernovas?
  - Astronomers believe that about two or three supernovas occur each century in galaxies like our own Milky Way.
  - Because the universe contains so many galaxies, astronomers observe a few hundred supernovas per year outside our galaxy.

CHANAKYA IAS ACADEMY

Cosmic Filament



Recently, the University of Oxford researchers reported a roughly 50-million-lightyear-long cosmic Filament traced by at least 14 galaxies.

About Cosmic Filament

- Cosmic or galaxy filaments are the largest 'threads' in the universe's cosmic web.
- Size: A single cosmic filament is a structure spanning hundreds of millions of lightyears.
- These filaments are the largest known structures in the Universe which are vast, thread-like formations of galaxies and dark matter that form a cosmic scaffolding.
- These cosmic web filaments serve as the nurseries where galaxies grow by accreting pristine gas that fuels their star formation.
- Formation
  - It is formed as a result of gravity pulling in gas, dark matter, and galaxies into long, thin strands that link giant clusters of galaxies.
  - These filaments also surround large, empty regions of space called voids.
  - A filament forms where sheets of matter intersect and collapse; they're also highways along which gas and smaller galaxies 'flow' towards big clusters.
- Significance: These filaments help decide where galaxies form, how fast they grow, and how much fresh gas they receive over billions of years.

Pyrite



Scientists recently discovered the oldest-known evidence of fire-making by prehistoric humans in England, which included a patch of heated clay, some heat-shattered flint handaxes, and two pieces of iron pyrite - a mineral that creates sparks when struck against flint to ignite tinder.

About Pyrite

- It is a brass-yellow mineral with a bright metallic luster.
- It has a chemical composition of iron sulfide (FeS_2), and is the most common sulfide mineral.
- The name comes from the Greek word pyr, “fire,” because pyrite emits sparks when struck by metal.
- Nodules of pyrite have been found in prehistoric burial mounds, which suggests their use as a means of producing fire.
- Pyrite is called “Fool’s Gold” because it resembles gold to the untrained eye.
    - However, pyrite is quite easy to distinguish from gold: pyrite is much lighter but harder than gold and cannot be scratched with a fingernail or pocket knife.
- It is found in a wide variety of geological formations worldwide, from sedimentary deposits to hydrothermal veins and as a constituent of metamorphic rocks.

CHANAKYA IAS ACADEMY

Pyrite Uses

It is a source of iron and sulfur and is used for the production of sulfuric acid.

Iron sulfate, which comes from pyrite, is used to treat iron-deficiency anemia.



It is used to create iron sulfate that is used to make nutritional supplements, ink, lawn conditioner, water treatment and flocculation, moss killer, and many other chemical processes.

Some types of pyrite contain enough microscopic gold to warrant mining them as a gold ore.

Southern Ocean



Recently, scientists have found the Southern Ocean mitigates global surface warming by taking up a large portion of the carbon released by human activities.

About Southern Ocean

- The Southern Ocean is also known as the Antarctic Ocean, is the fourth-largest ocean by surface area.
- The International Hydrographic Organization describes the Southern Ocean as the World Ocean's southernmost portion.
- It is located on the lower end of the Pacific, Atlantic, and Indian Ocean, and includes the tributary seas around the Antarctic region.
- It is known for its strong winds, intense storms, dramatic seasonal changes and cold temperatures.
- It is dominated by the Antarctic Circumpolar Current (ACC) which isthe longest, strongest, deepest-reaching current on earth.
- Formation: It was formed around 34 million years ago when Antarctica and South America drifted apart, creating the Drake Passage.
- Biodiversity: Powerful currents, cold temperatures and nutrient and oxygen-rich waters make the Southern Ocean one of the most productive marine ecosystems on Earth.

Role of Southern Ocean

- It plays an important role in the circulation of water around the globe.
- It also plays a key role in regulating the earth's climate through its currents, seasonal sea ice and by absorbing heat and carbon dioxide from the atmosphere.

CHANAKYA IAS ACADEMY

Q. Consider the following statements regarding the Southern Ocean:

1. *It is dominated by the Antarctic Circumpolar Current, which flows uninterrupted around Antarctica.*
2. *It was formed due to the opening of the Drake Passage following the separation of Antarctica and South America.*
3. *It plays a significant role in global climate regulation by absorbing heat and carbon dioxide from the atmosphere.*

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

Correct Answer: D

Explanation :

- *All three statements are correct. The Southern Ocean is shaped by the Antarctic Circumpolar Current, originated after the opening of the Drake Passage (~34 million years ago), and plays a crucial role in global ocean circulation and climate regulation through heat and CO_2 absorption.*

Micrometeoroids and Orbital Debris



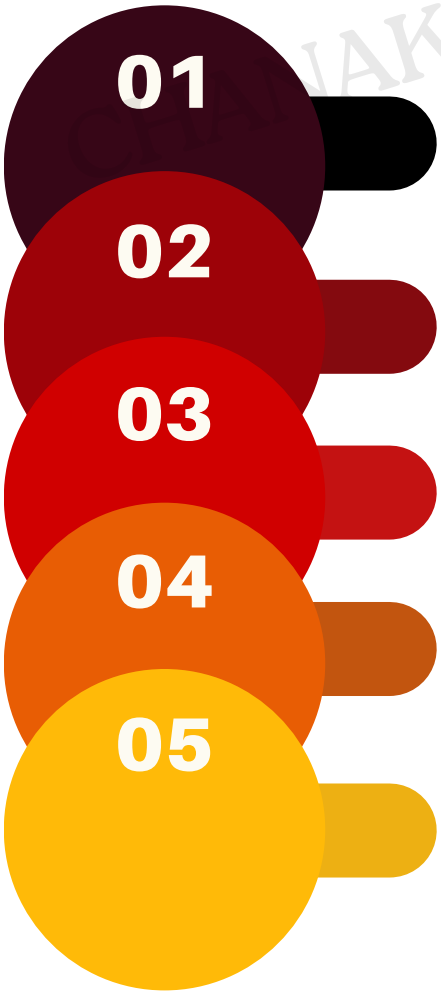
Recently, a piece of debris struck the Chinese crewed vehicle Shenzhou-20, causing a minor crack in the window of its return capsule which raised the concerns regarding protections of astronauts from Micrometeoroids and Orbital Debris (MMOD) that orbit the earth.

About Micrometeoroids

- Micrometeoroids are typically extremely small, with sizes ranging from a few micrometres (a millionth of a meter) to up to about two millimetres
- Origin: Most of them originate from collisions between asteroids in the Asteroid belt (between Mars and Jupiter) with a small portion coming from comets.
- Speed: They travel at extremely high velocities (about 11 to 72 km/s).
- Distribution: They exist everywhere in space, but due to the Earth's gravity pull their distribution is slightly higher near our planet.
- The micrometeoroids in Earth's orbital environment are effectively uncountable and they deliver billions of impacts to orbiting spacecraft annually.

CHANAKYA IAS ACADEMY

About Orbital Debris



They are also called space debris, space junk or space trash.

They consist of human-made objects in the Earth's orbit which no longer serves any useful purpose.

Origin: All orbital debris originated primarily from exploded rocket stages, satellites, accidental collisions and intentional anti-satellite weapon tests.

The typical average speed of orbital debris is about 10 km/s.

Orbital debris is mostly concentrated in a "shell" around the Earth in Low earth Orbit (LEO) ranging from about 200 km up to 2,000 km altitude.

Bezymianny Volcano



The Bezymianny volcano that once blew itself apart in a massive explosion is now rising from the ashes—faster than scientists expected.

About Bezymianny Volcano

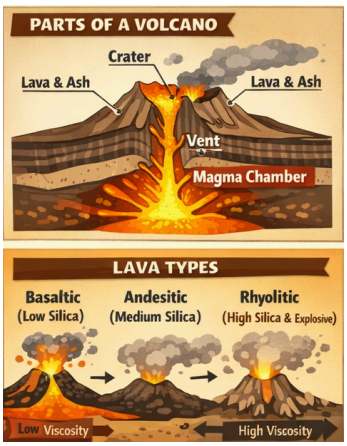
- It is a cone-shaped stratovolcano on the Kamchatka Peninsula in the Russian Far East.
- It is located on the southeast slope of the extinct volcano Kamen. These two volcanoes are separated by a high, narrow saddle.
- The east and west slopes of Bezymianny are cut by two wide and sloping valleys.
- Several lava flows can be found on the upper portions of its slopes.
- Lower in elevation, a row of domes exists along the southern and western sides of the volcano.
- It has had eruptions since 1955 characterized by dome growth, explosions, pyroclastic flows, ash plumes, and ashfall.
- Bezymianny's 1956 eruption was one of the most significant explosive events of the 20th century.
- But instead of going quiet, the volcano began to recover almost immediately. Since then, ongoing eruptions, mostly small to moderate in scale, have contributed to a near-continuous process of rebuilding.

Key Facts about Stratovolcano

- It is a tall, steep, and cone-shaped type of volcano.
- Unlike flat shield volcanoes, they have higher peaks.
- They are typically found above subduction zones, and they are often part of large volcanically active regions, such as the Ring of Fire that frames much of the Pacific Ocean.
- Stratovolcanoes comprise the largest percentage (~60%) of the Earth's individual volcanoes, and most are characterized by eruptions of andesite and dacite, lavas that are cooler and more viscous than basalt.
- These more viscous lavas allow gas pressures to build up to high levels. Therefore, these volcanoes often suffer explosive eruptions.
- They are usually about half-half lava and pyroclastic material, and the layering of these products gives them their other common name of composite volcanoes.
- At the peak, stratovolcanoes usually have a small crater.

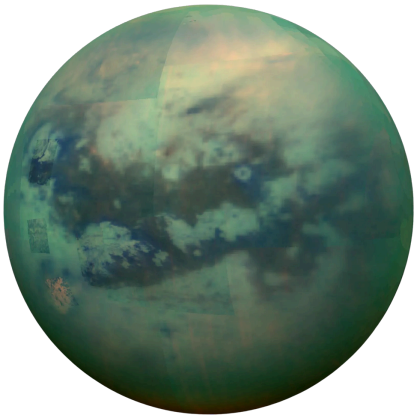






CHANAKYA IAS ACADEMY

Titan



Saturn's largest moon, Titan, may not have a subsurface ocean after all, according to a re-examination of data captured by NASA's Cassini spacecraft, which flew by Titan dozens of times starting in 2004.

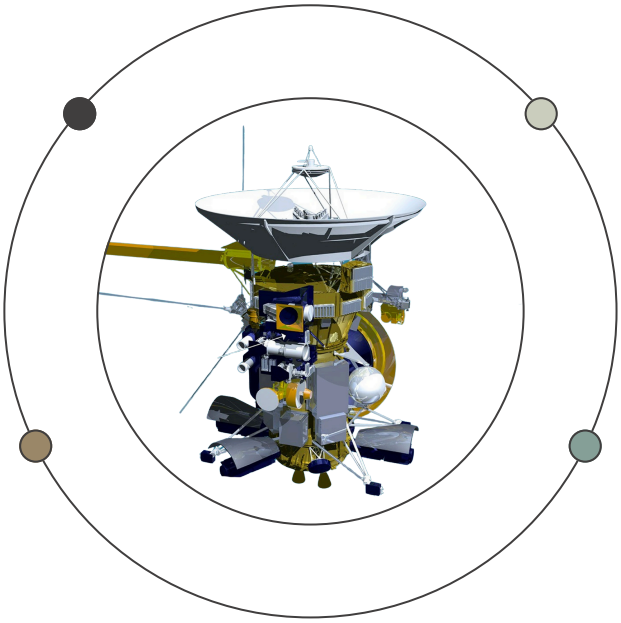
About Titan

- Titan is Saturn's largest moon.
- Dutch astronomer Christiaan Huygens discovered Titan on March 25, 1655.
- It is the second largest moon in our solar system. Only Jupiter's moon Ganymede is larger, by just 2 percent.
- It has a radius of about 2,575 kilometers, and is nearly 50 percent wider than Earth's moon.
- It is the only moon in the solar system with a dense atmosphere.
- It's the only world besides Earth that has standing bodies of liquid, including rivers, lakes, and seas, on its surface.
- Like Earth, Titan's atmosphere is primarily nitrogen, plus a small amount of methane.
- It is the sole other place in the solar system known to have an earth-like cycle of liquids raining from clouds, flowing across its surface, filling lakes and seas, and evaporating back into the sky (akin to Earth's water cycle).
- Titan takes 15 days and 22 hours to complete a full orbit of Saturn.
- Titan is also tidally locked in synchronous rotation with Saturn, meaning that, like Earth's Moon, Titan always shows the same face to the planet as it orbits.

CHANAKYA IAS ACADEMY

KEY FACTS ABOUT CASSINI SPACECRAFT

IT IS A JOINT PROJECT OF NASA, THE EUROPEAN SPACE AGENCY, AND THE ITALIAN SPACE AGENCY (ASI).



THE MISSION CONSISTED OF NASA'S CASSINI ORBITER, WHICH WAS THE FIRST SPACE PROBE TO ORBIT SATURN, AND THE ESA'S HUYGENS PROBE, WHICH LANDED ON TITAN, SATURN'S LARGEST MOON.

CASSINI WAS A SOPHISTICATED ROBOTIC SPACECRAFT SENT TO STUDY SATURN AND ITS COMPLEX SYSTEM OF RINGS AND MOONS IN UNPRECEDENTED DETAIL.

IT WAS LAUNCHED ON OCTOBER 15, 1997. IT WAS ONE OF THE LARGEST INTERPLANETARY SPACECRAFT.

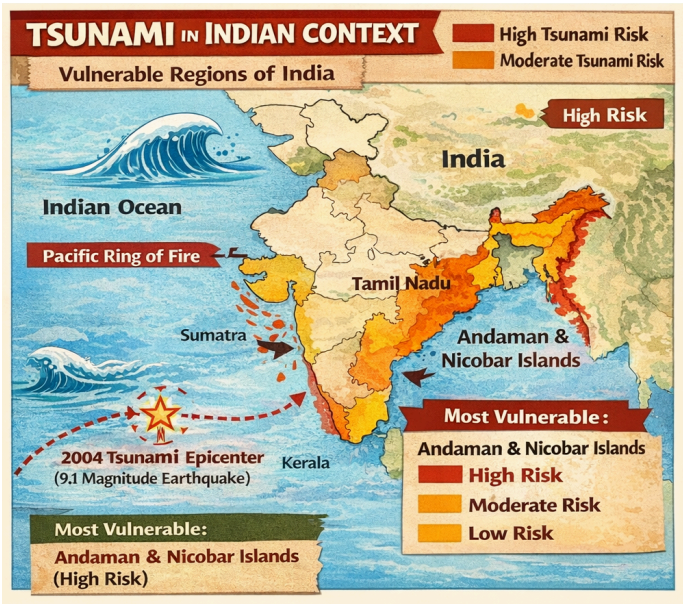
Tsunami Ready Recognition Programme

India would soon have over 100 tsunami-ready villages among the Indian Ocean region under the Tsunami Ready Recognition Programme.

About Tsunami Ready Recognition Programme

- It is an international community-based recognition programme developed by Intergovermental Oceanographic Commission (IOC) of UNESCO.
- Aim: It aims to build resilient communities through awareness and preparedness strategies that will protect life, livelihoods and property from tsunamis in different regions.
- The main goal of the Programme is to improve coastal community preparedness for tsunamis and to minimize the loss of life, livelihoods and property.
  - This is achieved through a collaborative effort to meet a standard level of tsunami preparedness through the fulfilment of a set of established indicators.
- Methodology used
  - To get this recognition, communities must meet all 12 indicators, which cover Assessment, Preparedness, and Response, will be recognized as 'Tsunami Ready' by the UNESCO/IOC.
  - Tsunami-ready village is certified to the ones that have high awareness about tsunami, hazard preparedness and mapping, public display of evacuation maps, 24-hour warning systems, participation in mock drills among others.
  - The recognition is renewable every four years.

CHANAKYA IAS ACADEMY





Aravalli Mountain Range



In 2025, the Supreme Court of India put its earlier ruling on the Aravalli Mountain Range on hold after concerns that a restrictive 100-metre criterion could weaken environmental protection, and ordered a fresh expert review to ensure science-based, holistic conservation.

Aravalli Mountain Range

- Aravalli Mountain Range is one of the oldest fold mountain systems in the world (≈1.5–2 billion years old).
- Extends ~650–690 km from Gujarat to Delhi, passing through Rajasthan and Haryana.
- Acts as a natural barrier against the eastward expansion of the Thar Desert.
- Plays a crucial role in climate regulation, groundwater recharge, biodiversity conservation, and acts as a green buffer for Delhi-NCR.
- Supports tropical dry deciduous forests, wildlife corridors, rural livelihoods, and river systems like Chambal, Sabarmati, and Luni.
- The region is mineral-rich (limestone, marble, sandstone, copper, zinc, tungsten), making it a major mining zone.
- Excessive and illegal mining over decades led to deforestation, declining groundwater levels, habitat loss, and air pollution.
- Environmental regulations since the 1990s failed to fully curb illegal mining due to enforcement gaps.
- In 2009, the Supreme Court of India imposed a mining ban in parts of Haryana, but ecological pressures continued.
- A major challenge has been the absence of a uniform legal definition of the Aravallis, causing regulatory loopholes.
- In November 2025, the Supreme Court accepted an expert committee's definition:
  - Hills with ≥100 metres local relief
  - Their slopes
  - Intervening land if such hills lie within 500 metres
- The Court also accepted Central Empowered Committee (CEC) recommendations such as scientific mapping, environmental impact assessment, no mining in sensitive zones, and a freeze on new mining leases.
- Widespread concerns emerged that the 100-metre rule could exclude ecologically significant low hill ranges, especially in Rajasthan, Haryana and Delhi.
- In December 2025, the Supreme Court:
  - Kept its November judgment in abeyance
  - Directed no irreversible actions based on the restrictive definition
  - Barred fresh or renewed mining leases without court approval
  - Proposed a high-powered expert committee for re-examination.
- The Court favoured regulated and sustainable mining over total bans to prevent illegal mining mafias.
- The Aravalli Green Wall Project (2025) aims to create a 5-km green buffer across multiple states and restore ~26 million hectares of degraded land by 2030.
- Overall, the Aravalli issue highlights the need for scientifically grounded, ecosystem-based protection, balancing development with long-term environmental and inter-generational equity.

CHANAKYA IAS ACADEMY



CHANAKYA IAS ACADEMY

Protosticta sooryaprakashi



A new species of damselfly named, Protosticta sooryaprakashi, sporting vibrant sky-blue markings, has been recently discovered in the biodiversity hotspots of India's Western Ghats.

About Protosticta sooryaprakashi

- It is a new species of damselfly.
- Named the Kodagu Shadowdamsel, it was discovered in Karnataka's Kodagu district.
- The species has been named in honour of the late Dr. Sooryaprakash Shenoy, a renowned botanist.
- Sporting striking sky-blue markings, the Kodagu Shadowdamsel thrives in low-light habitats and requires pristine environmental conditions to breed.
- Entomologists say its presence is a strong indicator of a healthy ecosystem with minimal pollution.
- Despite its resemblance to its close relatives, its slender build makes it the thinnest member of the damselfly family.
- Its distinguishing features include a unique blue spot on its neck and at the tip of its body.
- Unlike dragonflies, which inhabit bright, sunny spaces, damselflies like the Kodagu Shadowdamsel favour cool, shaded areas, making sightings rare and significant.

Dolomedes indicus



In the evergreen rainforests of the Western Ghats, researchers recently identified a new species of spider named Dolomedes indicus.

About Dolomedes indicus

- It is a new species of spider.
- It was discovered in the evergreen rainforests of the Western Ghats, in the Wayanad district of Kerala.
- It marks the first time a spider of the Dolomedes genus, commonly known as raft or fishing spiders, has been described in India.
- Unlike the common house spiders that wait passively in webs, Dolomedes indicus is an active, semi-aquatic predator that uses the water's surface tension to its advantage.
- These spiders rest their legs on the water to detect the tiny vibrations from struggling insects or small fish, then launch themselves across the surface to capture prey with lightning speed.
- They are also capable swimmers and divers.
- The new species is distinguished by specific physical traits, particularly in males, which sport a striking snow-white marking running from their faces down to the centre of their backs.
- Females are larger and greenish-brown, allowing them to blend perfectly with the mossy rocks and foliage along the stream banks.
- It appears to be highly sensitive to its environment, thriving only in pristine, cool waters under a forest canopy.
- It could serve as a vital indicator species, helping conservationists monitor the health of freshwater ecosystems.

CHANAKYA IAS ACADEMY

Bamboo Shrimp



A team of researchers rediscovered Indian populations of the bamboo shrimp in Karnataka and Odisha after 72 years.

About Bamboo Shrimp

- It is a medium-sized freshwater shrimp native to Southeast Asia.
- Common names: Wood Shrimp, Flower Shrimp, Singapore Wood, Marble Shrimp and Asian Fan Shrimp.
- Characteristics
  - The color of their body changes according to their mood. It becomes brighter when they are happy, while it fades when they are in a bad mood.
  - It is an amphidromous species i.e the larvae develop in brackish water before returning to freshwater.
  - They are primarily nocturnal, spending daylight hours sheltering under rocks or driftwood.
  - They are adapted to live in fast-moving streams and rivers, using their strong legs to cling to rocks and other surfaces.
- Distribution: These shrimps are found in various countries of Southeast Asia. Their distribution range includes Malaysia, Singapore and Thailand.
- Habitat: It is a social invertebrate commonly found in fast-flowing streams and rivers.
- Diet: This omnivorous filter feeder shrimp species feeds on water algae and microscopic organisms.
- Adaptation: It is distinctive within their genus due to their specialised feeding technique.
- These shrimp are filter feeders, using fan-like structures on their limbs to filter out particles of edible material from flowing water.

CHANAKYA IAS ACADEMY

Bar-Headed Goose

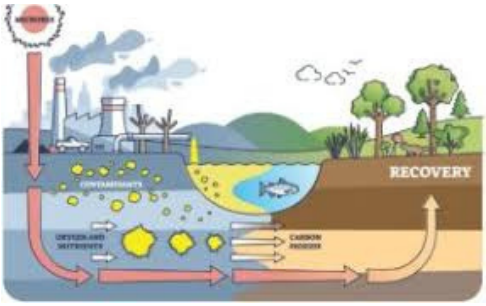


In a first-of-its kind study in eastern India, a bar-headed goose fitted with a GSM-GPS transmitter has revealed its migration route and flying pattern.

About Bar-Headed Goose

- It is a migratory bird species which is known to be one of the highest-flying birds in the world.
- It can fly at altitudes of 25,000 feet, while migrating over the Himalayas, where oxygen and temperature levels are extremely low.
- Distribution: It is native to central Asia, where the species breeds, Bar-headed Geese, are found in countries like India, Pakistan, Nepal, Kazakhstan, Bangladesh, Myanmar, Japan, and other nearby regions.
  - In India, their geographical range extends from the northeast to the southern parts of the country.
- Habitat: They reside near water bodies, preferring high-altitude lakes during the breeding season and freshwater lakes, rivers, and streams in their wintering habitats.
- Features of Bar-Headed Goose
  - This species is gray and white with two horseshoe-shaped, brownish-black bars on the back of its white head.
  - Although male and female birds appear similar, the male bird is slightly larger than the female.
  - They usually form monogamous pairs and are seasonal breeders.
- Conservation Status: It is classified as 'Least Concern' under the IUCN Red List.

Bioremediation



Bioremediation offers a cheaper, scalable, and sustainable alternative, especially in a country like India where vast stretches of land and water are affected but resources for remediation are limited.

About Bioremediation

- Bioremediation literally means "restoring life through biology."
- It is the use of living organisms, primarily microorganisms, to degrade environmental contaminants into less toxic forms.
- It is used to clean up contaminated soil, air, and water.
- It harnesses microorganisms such as bacteria, fungi, algae, and plants to sequester or transform toxic substances such as oil, pesticides, plastics, or heavy metals.
- These organisms metabolise these pollutants as food, breaking them down into harmless by-products such as water, carbon dioxide, or organic acids.
- In some cases, they can convert toxic metals into less dangerous forms that no longer leach into the soil or groundwater.
- Two Broad Types of Bioremediation:
- In situ bioremediation, where treatment happens directly at the contaminated site, such as when oil-eating bacteria is sprayed on an ocean spill;
- Ex situ bioremediation, where contaminated soil or water is removed, treated in a controlled facility, and returned once cleaned.
- For bioremediation to be effective, the right temperature, nutrients, and food also must be present.
- Proper conditions allow the right microbes to grow and multiply—and eat more contaminants.

CHENNAI IAS ACADEMY

Bioremediation Advantages

- It cleans up the environment naturally without the use of toxic chemicals. So, it is an environmentally friendly method.
- Contaminants are converted into water and harmless gases.
- It is cost-effective, as extensive equipment and labor are not needed.
- It is a permanent solution, as the degraded material cannot revert back to the previous one.
- It is a recommended method for removing oil stains.

Bioremediation Disadvantages

- It takes a large area and time from months to years.
- It is limited to the compounds which are degradable.
- It is not able to remove all kinds of impurities from the contaminated site. Like, some kind of inorganic contaminants cannot be treated with this bioremediation method.
- Some heavy metals cannot be completely broken down, resulting in toxic by-products.

Rock Eagle Owl



Recently, a Rock Eagle Owl nest prompted the Telangana forest department to halt quarrying operations for over a month.

About Rock Eagle Owl

- It is also called Indian eagle-owl (Bubo bengalensis) or Bengal eagle-owl.
- It is a large-horned owl species native to hilly scrub forests in India.
- Appearance
  - It is usually brown and grey in colour, with a white throat patch that has black stripes.
  - It was earlier treated as a subspecies of the Eurasian eagle-owl.
  - Its chicks are born with white fluff which is gradually replaced by speckled feathers during the pre-juvenile moult after about two weeks.
  - It is usually seen in pairs. It has a deep resonant booming call that may be heard at dawn and dusk.
- Habitat: They are especially seen near rocky places within the mainland of the Indian Subcontinent south of the Himalayas. They avoid humid evergreen forests and extremely arid areas.
- Distribution: It is mainly found in South Asian countries like India, Nepal, Pakistan

Conservation Status of Rock Eagle Owl

- IUCN: Least Concern
- CITES: Appendix II

CHANAKYA IAS ACADEMY

Western Tragopan



India's western tragopan population is steadied by captive breeding but human disturbance and habitat fragmentation continue to endanger its future.

About Western Tragopan

- It is also known as the western horned tragopan, is amongst the rarest of all living pheasants.
- Due to its beautiful plumage and large size, this bird is locally known as 'jujurana' or 'king of birds'
- It is one of the rarest and most stunning pheasant species in the world.
- These birds are shy and ground-dwelling.
- They are usually active during dawn and dusk, moving quietly through dense undergrowth.
- It is the state bird of Himachal Pradesh.
- Distribution: It is endemic to the northwest Himalaya, within a narrow range from Hazara in north Pakistan through Jammu and Kashmir and Himachal Pradesh, to the western part of Garhwal.
  - The upper part of Great Himalayan National Park's (GHNP) forest zone holds the world's largest known population of western tragopan.
- Habitat: It prefers a habitat of ringal (dwarf) bamboo beneath dense forest.
- Diet: It feeds mostly on leaves, shoots and seeds, but also consumes insects and other invertebrates.
- Breeding: It breeds during May to June, laying 3–5 eggs in concealed nests on the forest floor.
- Threats: Habitat loss, hunting pressure and anthropogenic disturbances which includes livestock grazing, minor forest produce collection like medicinal herbs etc.
- Conservation status: IUCN: Vulnerable.

Horn-Eyed Ghost Crab



Recently, researchers documented unique predatory behaviour of horn-eyed ghost crab at Rushikonda Beach.

About Horn-Eyed Ghost Crab

- It belongs to the genus Ocypode.
- Their pale bodies blend seamlessly with the sand, and combined with their swift movements during dawn and dusk, this has led to their common name, "ghost crabs".
- It is widely regarded as a keystone species and indicator of coastal health.
- Six species of ghost crabs have been reported along the Indian coastline.
- Habitat: It is usually found in the intertidal zones.
- Distribution: It lives in the Indo-Pacific region (except the Red Sea); from the coast of East Africa to the Philippines and from Japan to the Great Barrier Reef.
- Threats: Pollution, changes in sediment distribution, rising sea temperatures and altered tidal patterns may prompt species to explore new microhabitats in search of food.

Characteristics of Horn-Eyed Ghost Crab

- It has traditionally been described as a scavenger within the intertidal food web.
- Diet: They hunt clams, snails, worms, isopods, shrimps and a variety of insects. They also prey on other crabs, including smaller hermit crabs.

CHANAKYA IAS ACADEMY

Ecological Role of Horn-Eyed Ghost Crab

IT PLAYS A CRUCIAL ECOLOGICAL ROLE IN SANDY INTERTIDAL ENVIRONMENTS.

THEY INFLUENCE THE DISTRIBUTION AND ABUNDANCE OF SMALLER ORGANISMS THROUGH THEIR FEEDING HABITS AND THE DEEP BURROWS THEY BUILD.

Red-Breasted Parakeet



In a rare sighting, two pairs of red-breasted parakeets were recently spotted on the NIT-Patna campus by a group of environmentalists.

About Red-Breasted Parakeet

- The red-breasted parakeet, or moustached parakeet, is a colorful bird found across many parts of Asia.
- Scientific Name: Psittacula alexandri
- It's known for its bright feathers and a unique "moustache" marking.
- These parakeets are quite common and have several different looks depending on where they live.
- Distribution: Their home stretches from parts of India and Nepal, through Southeast Asia, including countries like Thailand, Vietnam, and Indonesia.
- Habitat: They prefer living in forests, woodlands, and even in areas near farms or towns.
- Features:
  - It is a medium-sized parrot.
  - It can grow to about 33 to 38 centimeters long, including its long tail.
  - The male has overall green plumage with a distinct pink breast and belly, a grey head, a blue upper tail, a green tail tip, and a red upper bill.
  - The female is similar to the male but has duller pink underparts and a black upper bill.
  - These birds are very social and often live in small groups or larger flocks.
  - They are quite noisy, especially when flying or feeding.
  - Their calls are usually loud squawks and screeches.
- Conservation Status:
  - IUCN Red List: Near Threatened

CHANAKYA IAS ACADEMY

Channa Bhoi



Scientists recently discovered a new species of snakehead fish named Channa bhoi from Meghalaya.

About Channa bhoi

- It is a new species of snakehead fish.
- It was discovered from a small mountain stream near Iewmawlong village in the Ri-Bhoi district of Meghalaya.
- It has been named Channa bhoi, after the indigenous Bhoi people of the Khasi tribe who inhabit the Ri-Bhoi region.
- It belongs to the “Gachua group” of snakehead fishes, a group known for its high diversity in the Eastern Himalayan region.
- It can be distinguished from its close relatives by a unique colour pattern.
- It is characterised by a bluish-grey body marked with minute black spots on each scale, forming eight to nine horizontal rows of broken lines along the sides.
- The fish also exhibits distinctive banding patterns on its pectoral fins.
- Phylogenetic analysis identified it as a sister species to Channa bipuli, another snakehead found in Northeast India.
- The discovery brings the total number of Channa species recorded from India to 26.

Hoolock Gibbon



Recently, a stranded family of Hoolock gibbons was rescued in Arunachal Pradesh's Lower Dibang Valley district by officials.

About Hoolock Gibbon

- Gibbons, the smallest and fastest of all apes, live in tropical and subtropical forests in the southeastern part of Asia.
- The hoolock gibbon is one of 20 species of gibbons on Earth.

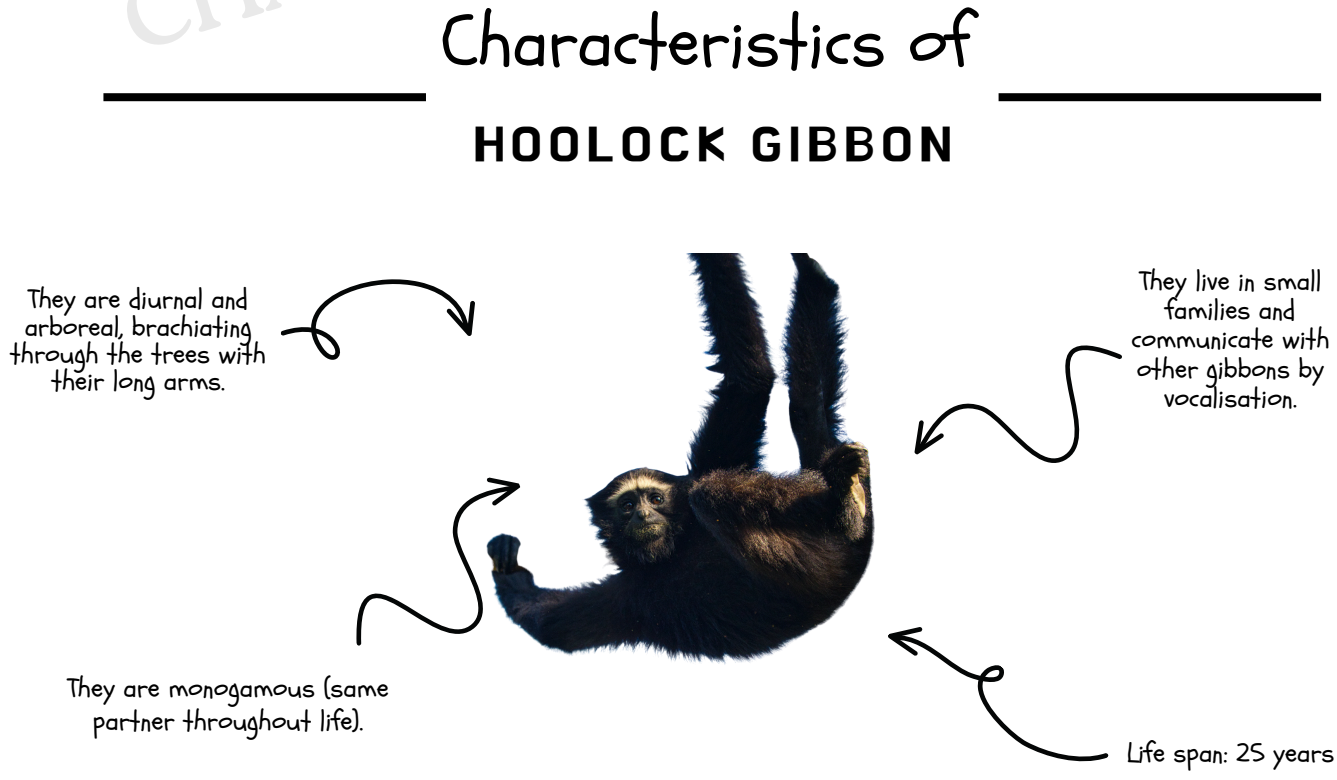
Distribution of Hoolock Gibbon

- Its distribution in Southeast Asia spans India, Myanmar, Bangladesh, and southern China.
- It is the only ape found in India.
- In India, it is found in Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, and Tripura, south of the Brahmaputra.
  - Hollongapar Gibbon Sanctuary in Assam has the largest concentration of the hoolock gibbon.
- It is categorised into Eastern Hoolock Gibbon (Hoolock leuconedys) found in a specific region of Arunachal Pradesh and Western Hoolock Gibbon (Hoolock hoolock) distributed elsewhere in the northeast.

CHANAKYA IAS ACADEMY

Conservation Status of Hoolock Gibbon

- IUCN Red List
  - Eastern Hoolock Gibbon: Vulnerable
  - Western Hoolock Gibbon: Endangered
- Both are on Schedule I of the Wildlife (Protection) Act of India, 1972.



Pallas's Gull



The rare migratory Pallas's Gull was recently spotted in Jharkhand's Udhwa Bird Sanctuary, marking its return after almost a decade.

About Pallas's Gull

- Pallas's Gull, also called the Great Black-headed Gull, is a large bird species.
- It is the world's largest black-headed gull and the third-largest species of gull in the world.
- It belongs to the family Laridae.
- Scientific Name: Ichthyaetus ichthyaetus

Pallas's Gull Distribution

- It breeds in colonies in marshes and islands from southern Russia to Mongolia.
- It is migratory, wintering in the Mediterranean Sea, the Arabian Peninsula, and India.
- Habitat: It prefers wetlands, salt lakes, lagoons, and slow-flowing rivers.

Pallas's Gull Features

- It measures 55–72 cm in length with a 142 to 170 cm wingspan.
- Summer adults are unmistakable, since no other gull of this size has a black hood.
- The adults have grey wings and back, with conspicuous white "mirrors" at the wing tips.
- The legs are yellow, and the bill is orangey-yellow with a red tip.
- In all other plumages, a dark mask through the eye indicates the vestiges of the hood.
- Pallas's Gulls feed on fish, including dead fish. They also prey upon insects, crustaceans, reptiles, other birds, and small mammals.

CHANAKYA IAS ACADEMY

Pallas's Gull Conservation Status

- It is classified as Least Concern under the IUCN Red List.

Key Facts about Udhwa Lake Bird Sanctuary

- It is located in the Sahebganj district of Jharkhand.
- It is the state's only bird sanctuary.
- It comprises two interconnected wetlands, Pataura Lake and Berhale Lake, which are part of the Ganga River floodplain and surrounded by the Rajmahal Hills.
- It was declared a Ramsar Site in 2025.
- It supports a diverse ecosystem with over 146 species of birds, including endangered ones like the band-tailed fish eagle, lesser adjutant stork, and common pochard.
- It also hosts a variety of aquatic plants, fish, reptiles, and mammals, such as fishing cats and otters.
- The sanctuary is an important habitat within the Central Asian flyway, attracting migratory birds during the winter.

Kuttanad Wetland Agricultural System



Recently, the soil tests in Kuttanad paddy fields which are part of Kuttanad Wetland Agricultural System in Kerala showed increased level of aluminium concentrations in paddy fields.

About Kuttanad Wetland Agricultural System

- It is unique and the only system in India that favours rice cultivation below sea level.
- The Kuttanad system is a complex mosaic of fragmented agricultural landscapes divided in three structures:
- Wetlands used for paddy activities and fish catching,
- Garden lands used for coconut, tubers and food crops plantation
- Water areas used as inland fishing and shells
- Recognition: The Kuttanad Below Sea-level Farming System recognised under Globally Important Agricultural Heritage Systems (GIAHS) of Food And Agriculture Organisation.

Impact of Aluminium on soil and Plants

- Aluminium becomes more soluble and toxic as soil pH drops below five.
- Excessive aluminium damages the plant root system and severely interferes with the absorption of essential nutrients such as phosphorus, calcium, potassium, and magnesium.

Key Facts about Globally Important Agricultural Heritage Systems

- The Globally Important Agricultural Heritage Systems (GIAHS) is a Food and Agriculture Organization's programme launched at the World Summit for Sustainable Development in 2002.
- It is aiming to strike a balance between conservation, sustainable adaptation and socioeconomic development.
- India's GIAHS Include
  - Koraput region (Odisha): It is renowned for its subsistence paddy cultivation, predominantly on highland slopes.
  - Kuttanad system (Kerala): It is a unique below-sea-level farming landscape.
  - Saffron Park of Kashmir: It represents a rich agro-pastoral system characterized by traditional saffron cultivation.

CHANAKYA IAS ACADEMY

Champions of the Earth Award

Recently, the Additional Chief Secretary of the Department of Environment, Climate Change and Forests of Tamil Nadu, Ms Supriya Sahu, has won the UN Environment Programme's 2025 Champions of the Earth Award.

CHAMPIONS OF THE EARTH

About Champions of the Earth Award

- It was established in 2005 and awarded by the United Nations Environment Programme (UNEP).
- It is the UN's highest environmental honour, recognises trailblazers at the forefront of efforts to protect people and the planet.
- Every year, UNEP honours individuals and organizations working on innovative and sustainable solutions to address the triple planetary crisis of climate change, nature and biodiversity loss, and pollution and waste

Champions of the Earth are Celebrated in Four Categories

- Policy leadership: Public sector officials leading global or national action for the environment. They shape dialogue, lead commitments and act for the good of the planet.
- Inspiration and action: Leaders taking bold steps to inspire positive change to protect our world. They lead by example, challenge behavior and inspire millions.
- Entrepreneurial vision: Visionaries challenging the status quo to build a cleaner future. They build systems, create new technology and spearhead a groundbreaking vision.
- Science and innovation: Trailblazers pushing the boundaries of technology for profound environmental benefit.

Charaichung Royal Bird Sanctuary



Recently, 'Charaichung Festival' was hosted in Assam's Majuli island to revive Asia's first protected royal bird sanctuary.

About Charaichung Royal Bird Sanctuary

- It is Asia's first protected bird sanctuary.
- It was established in 1633 AD by Ahom king Swargadeu Pratap Singha.
- Location: It is located at Majuli - the world's largest river island.
- Ecological Significance: Nearly 150 varieties of indigenous and migratory birds are found here, making their protection and conservation extremely essential.

Key Facts about Charaichung Festival

- It is the second edition of the festival held in Majuli, Assam.
- This festival, organised with the support of Majuli Sahitya and local residents
- It aims to urge the government to further promote Charaichung as a tourism destination.

Majuli Island

- It is the world's largest river island located in Assam.
- The island is formed by the Brahmaputra River and its tributaries the Kherkutia Xuti and Subansiri
- Rice cultivation is the primary livelihood for the residents of Majuli, with several unique varieties of rice, such as Komal Saul and Bao Dhan, grown in the region.
- Most of the islanders belong to three tribes-Mishing, Deori, and Sonowal Kachari.

CHANAKYA IAS

Goniopora Coral



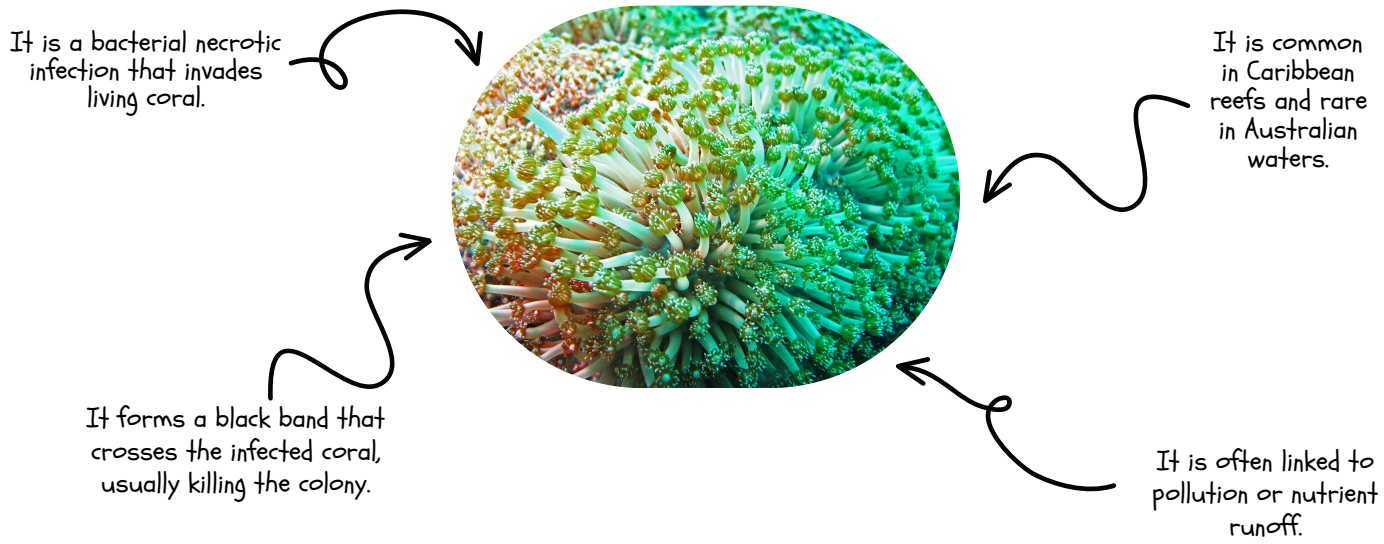
Recently, scientists have reported that a combination of extreme heat stress and a rare Black band disease has wiped out 75 per cent of Goniopora coral colonies at a site on the Great Barrier Reef.

About Goniopora Coral

- It is also known as flowerpot or daisy coral, is a type of hard, soft coral belonging to the Poritidae family.
- It is appreciated for its beautiful appearance as it possesses unique polyps that resemble flower petals.
- Appearance: Colonies consist of small branching columns, usually oval in transverse section.
- Size: Goniopora polyps can range from a few to several centimeters in diameter.
- Habitat: It typically inhabits lagoons and turbid reefs and are considered thermally tolerant.
- Goniopora are a photosynthetic coral and derive some of their nutritional requirements from light.
- Symbiotic Relationship: They have a symbiotic relationship with dinoflagellates called zooxanthellae that live in the flesh of the coral.
- Goniopora can thrive in a wide range of lighting.
- Feeding: It is a predatory coral, meaning it obtains some of its nutrients by capturing small organisms in the water.

CHANAKYA IAS ACADEMY

What is Black Band Disease?



Hard Corals



A major new assessment by the Global Coral Reef Monitoring Network (GCRMN) has reported a dramatic decline in hard coral populations across the Caribbean.

About Hard Corals

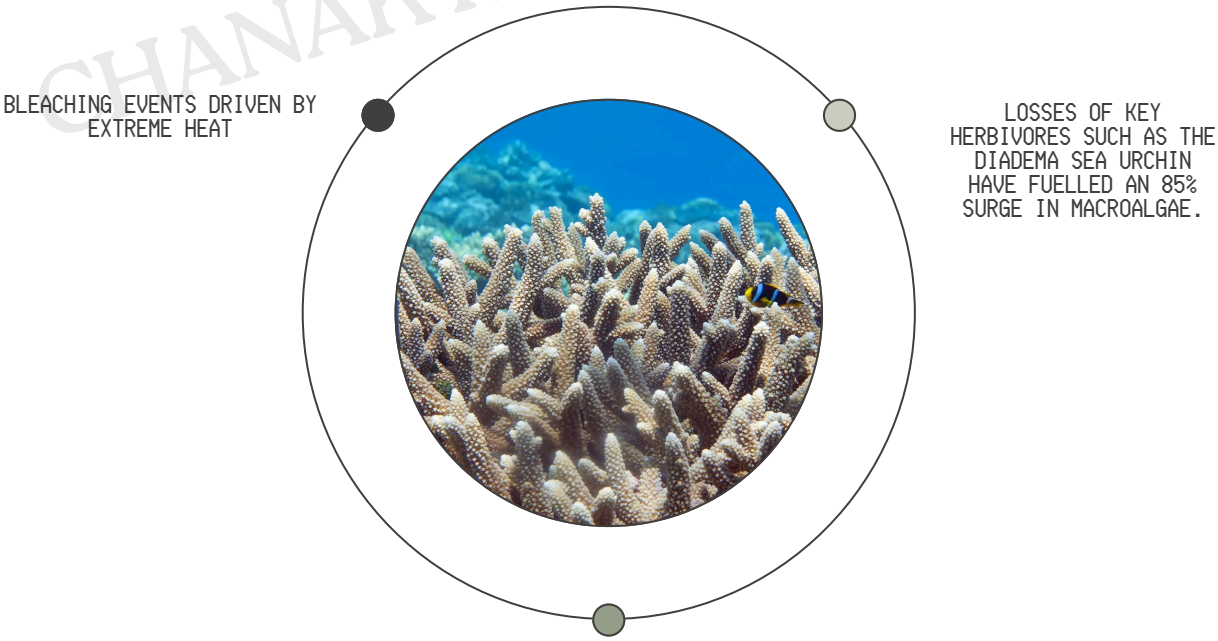
- Hard corals, also known as stony corals, are marine animals that build the limestone frameworks upon which reefs form.
- They grow in colonies and are often referred to as "reef-building corals."

Key Features of Hard Corals

- They are composed of thousands of tiny polyps that secrete calcium carbonate.
- Hard corals create skeletons out of calcium carbonate, a hard substance that eventually becomes rock.
- Over time, this rock builds up to form the foundation of a coral reef and provides a structure upon which baby corals can settle.
- These corals depend upon tiny algae called zooxanthellae that live inside them.
- They share a symbiotic relationship (the corals provide the zooxanthellae with shelter, and in return, the zooxanthellae provide the corals with food).

CHANAKYA IAS ACADEMY

THREATS TO HARD CORALS



New Ramsar Sites

Recently, Siliserh Lake, in Alwar, Rajasthan and Kopra Jalashay near Bilaspur, Chhattisgarh have been designated as Ramsar Sites.

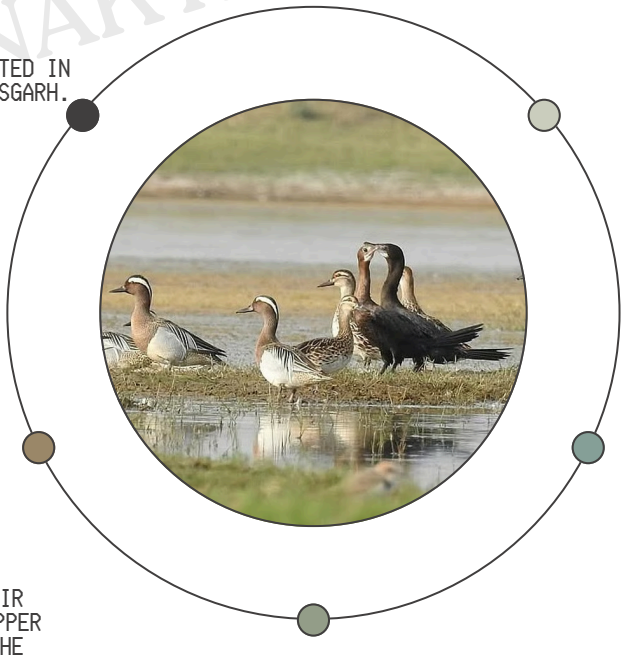
About New Ramsar Sites Latest News

Siliserh lake

- Location: It is located in the state of Rajasthan.
- It is a human-made lake within the buffer zone of Sariska Tiger Reserve.
- It was built in 1845 by Maharaja Vinay Singh to supply drinking water to Alwar city.
- It is in a semi-arid zone, and the Site serves as an important water source for diverse species of the region.
- Fauna
  - It supports 149 bird species and 17 mammal species including the vulnerable river tern and the endangered tiger
  - The site also supports more that 1% of the biogeographic population of black stork (Ciconia nigra).

CHANAKYA IAS ACADEMY

KOPRA JALASHAY



LOCATION: IT IS LOCATED IN THE STATE OF CHHATTISGARH.

FAUNA: NOTABLE SPECIES INCLUDE THE VULNERABLE GREATER SPOTTED EAGLE (AQUILA CLANGA) AND THE ENDANGERED EGYPTIAN VULTURE (NEOPHRON PERCNOPTERUS).

IT IS A RESERVOIR LOCATED IN THE UPPER CATCHMENTS OF THE RIVER MAHANADI.

IT SUPPORTS MORE THAN 60 MIGRATORY BIRD SPECIES WHICH RELY ON IT FOR NESTING, FEEDING AND AS A STOP-OVER SITE.

ITS STRONG HYDROLOGICAL AND ECOLOGICAL CONNECTIVITY CONTRIBUTES TO A WIDE VARIETY OF HABITATS ACROSS THE AREA.

Black-Capped Capuchin Monkey



Recently, the Bannerghatta Biological Park (BBP) has imported eight black-capped capuchin monkeys (Sapajus apella) from South Africa under an animal exchange programme.

About Black-Capped Capuchin Monkey

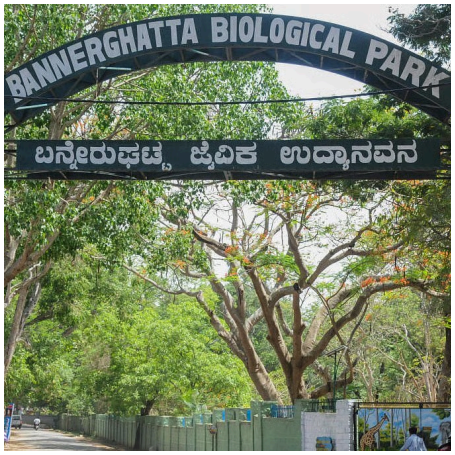
- Black-capped capuchin (Sapajus apella) is also known as tufted capuchins.
- Distribution: It is native to South America, where they are ubiquitous throughout the Amazon River Basin.
- Habitat: It is mainly found in tropical, subtropical, dry, submontane, savannah, mangrove forests.

Behavior and Lifestyle of Black-Capped Capuchin Monkey

- Black-capped capuchins are predominantly arboreal and diurnal species.
- Communication: Black-capped capuchin monkeys communicate with one another through vocalizations, body language, tactile methods, and olfactory cues.
- Diet: It is classified as omnivores, their diet consists of fruit, seeds, nuts, insects, lizards, eggs and crustaceans.
- Ecological Role: Feeding upon fruit, the capuchins become seed dispersers of certain forest plants.
- Conservation Status: IUCN: Least Concern

CHANAKYA IAS ACADEMY

Key Facts about
THE BANNERGHATTA BIOLOGICAL PARK



It has been an integral part of Bannerghatta National Park and emerged out as an independent establishment in 2002.

It is located about 22kms south of Bengaluru city, Karnataka.

It has different units such as Zoo, Safari, Butterfly Park, and Rescue Centre (Conservation of Captive animals).

It is the first biological park in India to have a fenced, forested elephant sanctuary.

Coringa Wildlife Sanctuary



The 40th Asian Waterbird Census and 60th International Waterbird Census will enumerate the bird species of Coringa Wildlife Sanctuary and its adjoining wetlands.

About Coringa Wildlife Sanctuary

- Location: It is located in the state of Andhra Pradesh.
- It is part of the Godavari estuary, where the Coringa river confluences into the Bay of Bengal.
- Vegetation: It has extensive mangrove and dry deciduous tropical forests. It is the second-largest stretch of mangrove forests in India.
- Flora: Mangrove plants like Rhizophora spp, Avicennia spp, Sonnertia spp, etc; grow here.
- Fauna: It is home to endangered mammals like Smooth Indian otter, Fishing cat, Jackal, etc. Mangroves offer excellent habitat for birds like Black capped kingfisher, Brahminy kite, Sea gulls, Reef heron, Sand piper, etc.
- The sea coast of the Coringa Wildlife Sanctuary is a breeding ground for Olive ridley turtles.

Key Facts about Asian Waterbird Census

- It is a citizen-science programme that supports the conservation and management of wetlands and waterbirds worldwide.
- It is conducted annually and is part of the global International Waterbird Census (IWC).
- It was initiated in 1987 in the Indian subcontinent and since has grown rapidly to cover major regions of Asia, from Afghanistan eastwards to Japan, Southeast Asia and Australasia.
- In India it is conducted under the aegis of the Bombay Natural History Society (BNHS) and the Wildlife Institute of India (WII) in early January.

CHANAKYA IAS ACADEMY

Deodar Tree

Deodar trees in Himachal Pradesh's Sangla Valley have revealed the process of climatic shifts from wetter spring conditions that prevailed during pre-historic times to drier conditions from the year 1757 onwards.



About Deodar Tree

- It is also known as the Himalayan Cedar, is one of the most revered and iconic tree species in the Western Himalayas.
- The name Deodar is derived from the Sanskrit word Devadāru, meaning "wood of the gods," highlighting the tree's cultural and spiritual importance.
- Distribution: It is mainly found in the western Himalayan region.
- Applications: Traditionally, its wood has been used in temple construction, religious ceremonies, and Ayurvedic medicine.
- Threats: It faced threats from logging, habitat loss, and climate change.

Characteristics of Deodar Tree

- It is native to high-altitude forests, this majestic conifer plays a critical ecological and cultural role.
- Soil and climate: It thrives in well-drained soils and moist temperate climates.
- It is a large evergreen tree found between 1800-3000m altitude. Branches are brown-reddish. Cones are solitary, erect, ovoid, dark brown.
- Male and female cones are on the same tree.
- Growth: It reaches heights of up to 50 meters and is characterized by its tall, pyramidal shape, drooping branches, and needle-like bluish-green leaves.
- Its bark is dark gray and becomes deeply fissured with age, adding to their stately presence in alpine and subalpine forest zones.

Long-Billed Vulture



Recently, the Bombay Natural History Society (BNHS), along with the Maharashtra Forest Department, successfully carried out the tagging of 15 long-billed vultures at Melghat Tiger Reserve.

CHANAKYA IAS ACADEMY

About Long-Billed Vulture

- It is an old World vulture native to the Asian region.
- They are also known as Indian long-billed vultures due to their comparatively longer beak.
- Appearance: It is a medium-sized and bulky scavenger feeding mostly on the carcasses of dead animals.
- Females of this species are smaller than males.
- Habitat: They are usually found in savannas and other open habitats around villages, cities, and near cultivated areas.
- Distribution: These are native to India, Pakistan, and Nepal.
- Conservation status: IUCN Red List: Critically Endangered

Key Facts about Melghat Tiger Reserve

- Location: It is located in the Amaravati district of Maharashtra, specifically on the Gavilgarh Hill, a southern offshoot of the Satpura Hill Range in Central India.
- Vegetation: The forest is tropical dry deciduous in nature, dominated by teak.
- Rivers: The reserve is a catchment area for five major rivers: the Khandu, Khapra, Sipna, Gadga, and Dolar, all of which are tributaries of the river Tapti.
- The Tapti River and the Gawilgadh ridge of the Satpura Range form the boundaries of the reserve.
- Tribes: The Korkus are the largest tribal community in Melghat. Other communities include the Gawli community and the Gond tribe etc.
- Flora: Some of the common species are teak, Lagerstroemia Parviflora, Terminalia Tomentosa, Ougeinia Oojeinensis, Emblica Officinalis, Bamboo, etc.
- Fauna: It includes Sloth Bear, Indian Gaur, Sambar deer, Leopard, Nilgais, dhole, hyena, jungle cat, langur, etc.

Camellia sinensis

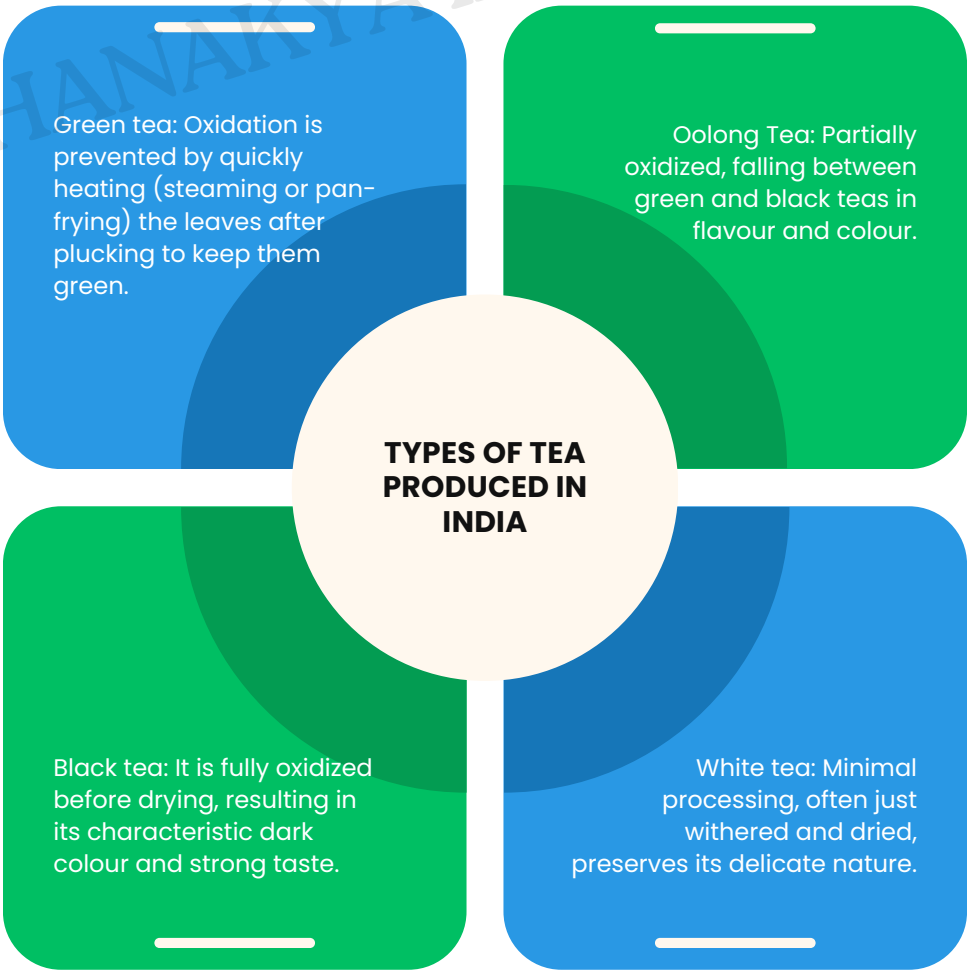


Recently, the Food Safety and Standards Authority of India (FSSAI) issued a clarification that a beverage qualifies to be called tea only if it is derived from the plant Camellia sinensis.

About Camellia sinensis

- It belongs to the family Theaceae, commonly known as the tea plant.
- It is the source of various types of tea including green tea, black tea, and oolong tea.
- It is a shrub or evergreen tree up to 16 m in height.
- It is widely cultivated in mountain slopes, altitude up to 2200 m.
- Required Climatic Conditions
  - Temperature: Range of 15°C–23°C (optimal growth)
  - Climate: Warm and humid climate with at least 5 hours of sunlight daily
  - Rainfall: Annual rainfall of 150–300 cm, evenly distributed
  - Soil: Slightly acidic, calcium-free soil with porous sub-soil
  - Terrain: Sloping terrain to ensure proper drainage
- Reproduction: Camellia species flowers are complete, bisexual, i.e., with functional male (androecium) and female (gynoecium), including stamens, carpels and ovary.
- Global Distribution: Cultivated in Subtropical and warm temperate zones of South-east Asia
- It is mainly grown in Bangladesh, Bhutan, China, India, Japan, Korea and Malaysia.

CHANAKYA IAS ACADEMY



Air Pollution

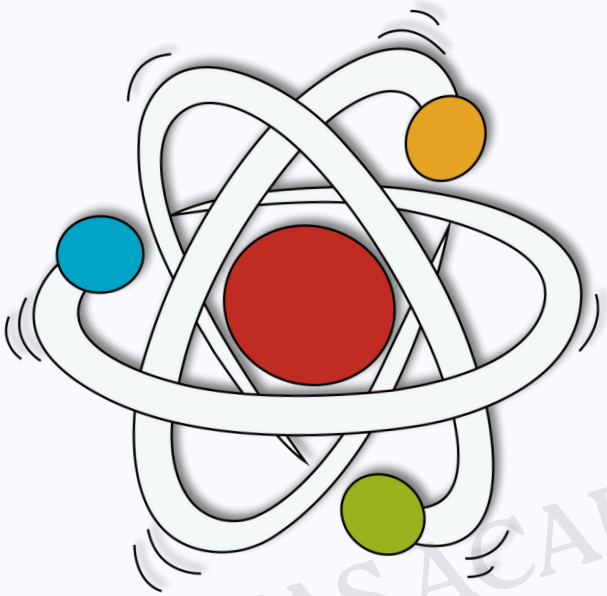


A recent Delhi-NCR air pollution report tabled in Parliament has highlighted the urgent need to curb vehicular emissions, recommending a comprehensive review of India's emission standards.

Delhi–NCR Air Pollution

- Delhi–NCR faces chronic air pollution due to vehicular emissions, industries, thermal power plants, stubble burning, and unfavourable weather conditions.
- The Parliamentary Standing Committee on Science and Technology, Environment, Forests and Climate Change has flagged the need for systemic reforms beyond ad-hoc measures.
- Vehicular emissions are a major contributor to PM and ozone pollution.
- Periodic review of emission standards is required to align with scientific evidence and global best practices.
- Ethanol blending may raise NOx emissions and evaporative losses, increasing ground-level ozone.
- Recommendation to adopt stricter evaporative emission norms and improved vehicle emission-control systems.
- Electric Vehicle (EV) adoption remains slow due to cost and infrastructure gaps.
- Suggested incentives and disincentives include:
  - Free or subsidised parking for EVs
  - Higher parking charges for petrol/diesel vehicles
  - Tax incentives on EV loans
  - Possible annual cap on registration of non-EVs in Delhi–NCR
- Vulnerable groups such as children and patients need immediate protection.
- Mandatory installation of air purifiers recommended in:
  - Public schools
  - Public hospitals (especially critical wards)
  - Government offices
- GST on air purifiers criticised as monetising a public health failure; reduction or removal of GST suggested.
- National Ambient Air Quality Standards (NAAQS), last revised in 2009, require urgent updating.
- Revised standards should reflect new health data and World Health Organization guidelines.
- Delhi must cut PM2.5 levels by ~62% to meet Indian norms and ~95% to meet WHO standards.
- All thermal power plants within 300 km of Delhi–NCR should install pollution-control technologies.
- Measures include SO_2 scrubbers, NOx control systems, and advanced particulate filters.
- Stubble burning enforcement remains weak due to evasion of satellite detection.
- Recommendations include:
  - Launch of a high-resolution, dedicated satellite by Indian Space Research Organisation
  - 24×7 monitoring of farm fires
  - Integration of satellite data with digital farm records
- The report stresses that no single policy can solve air pollution.
- A holistic approach combining emissions control, clean energy, technological investment, regulatory reform, and behavioural change is essential for long-term air-quality improvement.

CHANAKYA IAS ACADEMY



Science and Technology

CHANAKYA IAS ACADEMY

Heron Mk II

To enhance their unmanned capabilities in the wake of Operation Sindoor, the Indian armed forces have signed up for more satellite-linked Heron Mk II UAVs under emergency procurement, sources in the Israeli defence industry said recently.



About Heron Mk II

- It is a medium-altitude long-endurance (MALE) unmanned aerial vehicle (UAV).
- It was developed by Israel Aerospace Industries (IAI).

Heron Mk II Features

- It has a length of 8.5 m, a wingspan of 16.6 m, and a payload capacity of 490 kg.
- It has a maximum takeoff weight of 1,430 kg.
- It offers an endurance of 45 hours and a top speed of 150 knots.
- It can reach altitudes up to 35,000 ft and has an operating range of more than 1,000 km.
- It can carry long-range radars and observation sensors, such as electro-optical/infra-red (EO/IR) systems for detection and tracking of targets.
- The electronic intelligence (ELINT) and communications intelligence (COMINT) systems will be installed on board to detect, analyse, geolocate, and gather electronic and communication radio signals for actionable intelligence at long-range stand-off distances.
- It is able to gather intelligence from tens of kilometers away without crossing borders.

CHANAKYA IAS ACADEMY

K-4 Missile

India tested an intermediate-range ballistic missile called K-4, which is designed to hit targets 3,500-km away, from the nuclear-powered submarine INS Arighaat in the Bay of Bengal recently.



About K-4 Missile

- Kalam-4 or K-4 Missile, is a nuclear-capable intermediate-range submarine-launched ballistic missile (SLBM) designed mainly for deployment on Arihant-class submarines.
- Each Arihant-class submarine can carry four K-4 missiles.
- K-4 was indigenously developed by the Defence Research and Development Organisation (DRDO).

K-4 Missile Features

- The 12-metre-long missile weighing 17 tonnes has a two-stage solid-fuel system.
- It has a range of around 3,500 km. It is a major improvement over the older K-15 missile, which had a much shorter range of only 750 kilometers.
- Payload: Up to 2 tons, including a nuclear warhead.
- One of its key features is its ability to be cold-launched from underwater, which allows the missile to be ejected from the submarine before the engine ignites.
- It is guided by an advanced inertial navigation system supported by GPS and India's NavIC system.
- This combination ensures high accuracy, with a reported circular error probable of less than 10 metres.
- The missile is also equipped with manoeuvring features that help it evade missile defence systems.

Biological Weapons Convention



The External Affairs Minister recently called for urgent reforms to strengthen global biosecurity and modernise the Biological Weapons Convention (BWC), warning that biological threats are becoming harder to manage in a rapidly evolving scientific landscape.

About Biological Weapons Convention

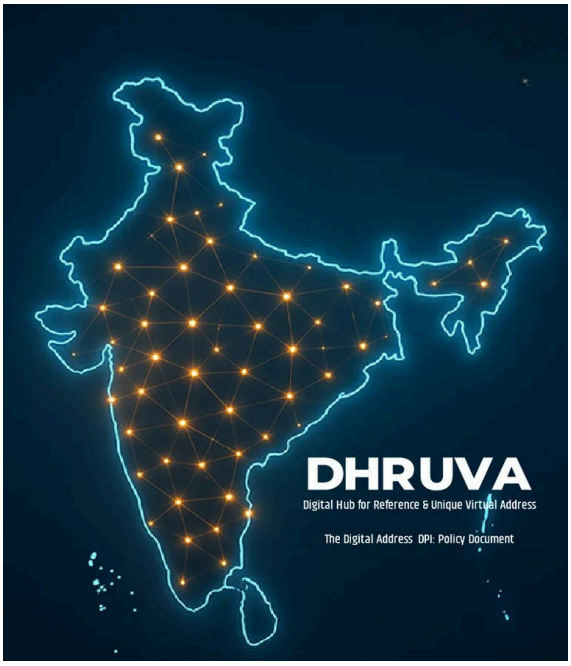
- It is a legally binding international treaty that bans the use of biological and toxin weapons and prohibits all development, production, acquisition, stockpiling, or transfer of such weapons.
- The treaty also bans any equipment or means of delivery that is designed to use biological agents or toxins for hostile purposes or armed conflict.
- It requires signatories to destroy biological weapons, agents, and production facilities within nine months of the treaty's entry into force.
- It opened for signature on 10 April 1972 and entered into force on 26 March 1975.
- It was the first multilateral treaty categorically banning a class of weapon.
- Membership:
  - It currently has 187 states-parties, including Palestine, and four signatories (Egypt, Haiti, Somalia, and Syria).
  - Ten states have neither signed nor ratified the BWC (Chad, Comoros, Djibouti, Eritrea, Israel, Kiribati, Micronesia, Namibia, South Sudan, and Tuvalu).
  - India signed and ratified the BWC in 1974.
- The convention stipulates that states shall cooperate bilaterally or multilaterally to solve compliance issues.
- States may also submit complaints to the United Nations Security Council (UNSC) should they believe another state is violating the treaty.
- However, there is no implementation body of the BWC, allowing for blatant violations.
- There is a review conference every five years to review the convention's implementation, and establish confidence-building measures.

What Are Biological Weapons?

- Biological weapons disseminate disease-causing organisms or toxins to harm or kill humans, animals, or plants.
- They generally consist of two parts – a weaponized agent and a delivery mechanism.
- Almost any disease-causing organism (such as bacteria, viruses, fungi, prions, or rickettsiae) or toxin (poisons derived from animals, plants, or microorganisms, or similar substances produced synthetically) can be used in biological weapons.

CHANAKYA IAS ACADEMY

Digital Hub for Reference and Unique Virtual Address



The Department of Posts recently released a draft amendment to the Post Office Act, 2023, aimed at introducing an interoperable, standardised, and user-centric addressing system called the Digital Hub for Reference and Unique Virtual Address, or DHRUVA.

About Digital Hub for Reference and Unique Virtual Address (DHRUVA)

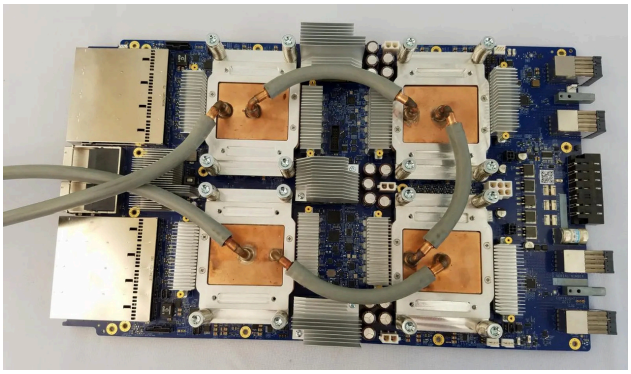
- Developed by the Department of Posts, DHRUVA sets the foundation for a nationwide Digital Address Digital Public Infrastructure (DPI).
- It envisions a standardized, interoperable, and geocoded digital addressing system that supports secure, consent-based, and seamless sharing of address information.
- At its core is the concept of Address-as-a-Service (AaaS) — the array of services associated with address data management to support secure and efficient interactions between users, government entities, and private sector organizations.
- The AaaS Framework Ensures:
  - Interoperability across different address systems used by various sectors.
  - Standardization of address formats and geolocation tagging.
  - Consent-based sharing to empower user control and privacy.
  - Public-private integration for seamless adoption and innovation.
- By recognizing digital addresses as core infrastructure, akin to Aadhaar and Unified Payments Interface (UPI), DHRUVA sets out to streamline everything from e-governance and online commerce to urban planning and emergency services.
- The policy also places emphasis on user-centric design, ensuring that citizens have meaningful control over how their address data is used and shared.
- Citizens will retain full control over their digital address identity, with options to manage access, update details, and share their verified address securely for various use cases.
- The DHRUVA platform will also feature multilingual support, mobile-first access, and integration with identity systems like Aadhaar, thereby improving usability and accessibility for all demographics.
- The DHRUVA policy builds upon the earlier launch of the Digital Postal Index Number (DIGIPIN)—the National Addressing Grid introduced by the Department of Posts.

Key Facts about DIGIPIN

- It is an open-source nationwide geo-coded addressing system developed by the Department of Posts in collaboration with IIT Hyderabad and NRSC, ISRO.
- It divides India into approx. 4m x 4m grids and assigns each grid a unique 10-character alphanumeric code based on latitude and longitude coordinates.
- The DIGIPIN system is publicly accessible and supports improvements in emergency response, logistics efficiency, and citizen service delivery.

CHANAKYA IAS ACADEMY

Tensor Processing Unit



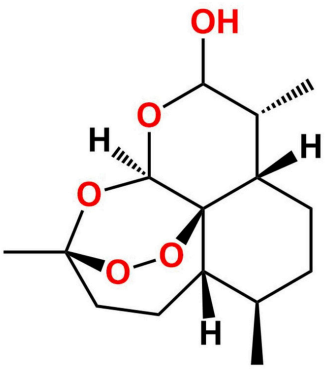
According to reports, Meta is in advanced talks with Google to use its Tensor Processing Units (TPUs).

About Tensor Processing Unit

- A TPU is a specialized chip designed to accelerate AI and machine learning (ML) tasks.
- Unlike traditional computer processors (CPUs) or graphics processing units (GPUs), TPUs are specifically built to handle the complex calculations required for deep learning models.
- TPUs were developed by Google in 2016 to improve the performance of their AI applications, such as Google Search, Google Translate, and Google Photos.
- Since then, TPUs have become a key component in AI infrastructure and are widely used in data centers and cloud computing.
- How Do TPUs Work?
  - AI models rely on a type of mathematical operation called tensor computation.
  - A tensor is a multi-dimensional array of numbers, similar to a table of data.
  - Deep learning models use these tensors to process large amounts of information and make predictions.
  - TPUs are optimized for tensor computations, allowing them to process large datasets much faster than CPUs or GPUs.
  - They achieve this through:
    - Massive parallelism: TPUs can perform many calculations at once, making them highly efficient.
    - Low power consumption: Compared to GPUs, TPUs use less energy while delivering high performance.
    - Specialized circuits: TPUs have circuits specifically designed for AI workloads, reducing the need for unnecessary computations.
- While CPUs are great for general tasks and GPUs are an excellent choice for gaming and AI, TPUs are specifically designed to make AI models work faster and more efficiently.

CHANAKYA IAS ACADEMY

Artemisinin



A new study has found that any place with heavy artemisinin use and favourable conditions could become a new hotspot for resistance, and that in some parts of Africa, the frequency of resistance markers is gradually increasing.

About Artemisinin

- It is an antimalarial drug derived from the sweet wormwood plant, Artemisia annua.
- The process involves drying the leaves and using a solvent to extract the active ingredient.
- Discovery of artemisinin's therapeutic benefits in the 1970s was a breakthrough in malaria treatment.
- It offered a new option when the malaria parasite was becoming resistant to older drugs like chloroquine and sulfadoxine-pyrimethamine.
- Artemisinin is effective against all the malaria-causing protozoal organisms in the genus Plasmodium.
- It mainly targets the malaria parasite during the blood stage, disrupting the parasite's ability to replicate within red blood cells.
- It helps significantly reduce the parasites but doesn't stay in the body for a long time, being eliminated within hours.
- It is usually partnered with another drug that eliminates the remaining parasites over a longer period of time.
- The World Health Organization (WHO) recommends artemisinin-based combination therapies (ACTs) as the go-to treatment for Plasmodium falciparum malaria.
- Today, there are several derivatives of artemisinin, including artesunate and artemether, that are used in the treatment of malaria.
- Artesunate is highly effective at treating severe malaria as it is the only artemisinin derivative that can be given via intravenous injection.

Centre for Chronic Disease Control

A new study by the Centre for Chronic Disease Control (CCDC) for the first time concurrently estimated the daily salt and iodine consumption levels of the adult population in India and examined the effect of the World Health Organization (WHO) recommended salt intake levels on iodine levels.

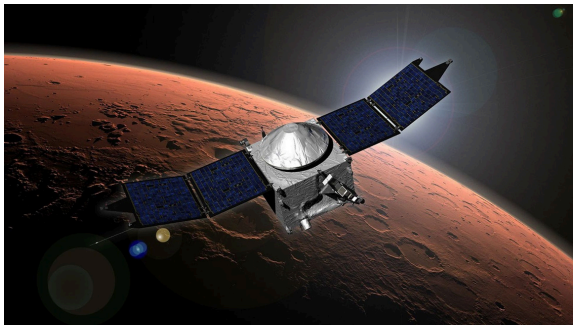
About Centre for Chronic Disease Control

- Established in 2000, CCDC is an independent, not-for-profit, biomedical research organization based in New Delhi.
- It aims to reduce the burden of chronic diseases in India and low- and middle-income countries through surveillance, capacity building, and translational research in cardio-metabolic diseases.
- It is a Scientific & Industrial Research Organization recognized by the Department of Scientific & Industrial Research, Ministry of Science and Technology, Government of India.
- It has been designated as a WHO Collaborating Centre for Surveillance, Capacity Building, and Translational Research in Cardio-Metabolic Diseases.
- Recently, CCDC received the recognition of a collaborating Centre of Excellence (CoE) by the Indian Council of Medical Research.
- It also holds registration under the Foreign Contribution (Regulation) Act, 1976.
- CCDC undertakes clinical research with special emphasis on chronic non-communicable diseases (NCD).
  - Within the spectrum of chronic diseases, CCDC's main focus areas are: cardiology, diabetes and metabolic disease, vascular diseases, cancers, and mental health.
- In addition, basic science research in diet/nutrition and cardiac biochemistry are also carried out.

CHANAKYA'S ACADEMY

MAVEN Mission

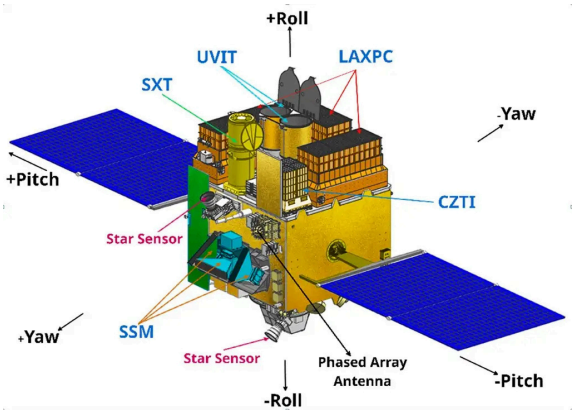
NASA has lost contact with its Mars Atmosphere and Volatile Evolution (MAVEN) spacecraft, the Mars orbiter that has worked for more than a decade to study how the planet's atmosphere is escaping into space.



About Mars Atmosphere and Volatile EvolutioN (MAVEN) Mission

- It is the first spacecraft mission dedicated to surveying the upper atmosphere of Mars.
- It is part of NASA's Mars Exploration Program, an unprecedented, multi-decade campaign to comprehensively understand Mars and its suitability to host past or present life.
- It aims to understand the role that loss of atmospheric gas to space played in changing the Martian climate over time.
- It was launched in November 2013 and arrived at Mars in September 2014.
- MAVEN orbits Mars every 3.5 hours and gets as close as 150 km to its surface.
- It carries three packages of instruments.
  - One package studies the solar wind and its impact on Mars's ionosphere. (Since Mars has no magnetic field, its atmosphere would be slowly removed by interaction with the solar wind.)
  - The second package is an ultraviolet spectrometer that studies the upper atmosphere.
  - The third package is a mass spectrometer that studies the composition of the upper atmosphere.
- MAVEN found that Mars lost about 2/3 of its early atmosphere to space.

AstroSat



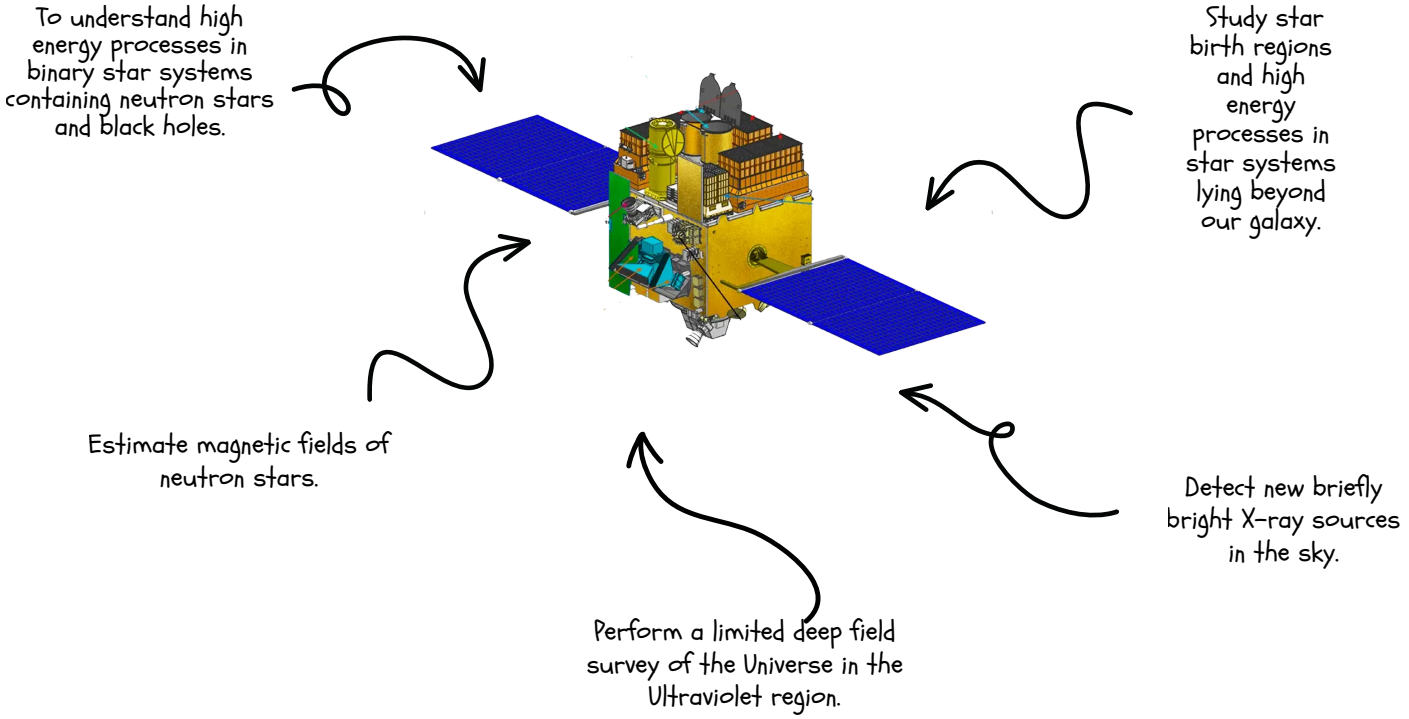
Recently, the Indian Institute of Astrophysics (IIA) celebrated a decade of successful operation of the UltraViolet Imaging Telescope (UVIT) on AstroSat.

About AstroSat

- It is the first dedicated Indian astronomy mission aimed at studying celestial sources in X-ray, optical and UV spectral bands simultaneously.
- The payloads cover the energy bands of Ultraviolet (Near and Far), limited optical and X-ray regime (0.3 keV to 100keV).
- It enables the simultaneous multi-wavelength observations of various astronomical objects with a single satellite.
- Payloads of Astrosat: Ultra Violet Imaging Telescope (UVIT), Large Area X-ray Proportional Counter (LAXPC), Cadmium–Zinc–Telluride Imager (CZTI), Soft X-ray Telescope (SXT) and Scanning Sky Monitor (SSM).
    - UVIT consists of two telescopes: one dedicated to near-ultraviolet and visible wavelengths, and the other to far-ultraviolet observations.
- The spacecraft control centre at Mission Operations Complex (MOX) of ISRO Telemetry, Tracking and Command Network (ISTRAC), Bengaluru manages the satellite during its entire mission life.

CHANAKYA IAS ACADEMY

Objectives of ASTROSAT



National Intelligence Grid

Recently, officials said that the National Intelligence Grid (NATGRID) is slowly gathering pace and receiving 45k requests a month.

About National Intelligence Grid

- It is a platform for the police and investigating agencies to securely access government and private databases in real time.
- It is conceptualised as a seamless and secure database for information on terrorists, economic crimes and similar incidents to help bolster India's capabilities.
- Background
  - The project was started in 2009 in the aftermath of the 26/11 Mumbai terror attacks.
  - NATGRID was set up as an attached Office of the Ministry of Home Affairs with effect from December 1, 2010.
  - It started its operations on December 31, 2020.
- NATGRID database is available to
  - Intelligence Bureau (IB), the Research and Analysis Wing (R&AW), the National Investigation Agency (NIA), the Enforcement Directorate (ED), the Financial Intelligence Unit (FIU), the Narcotics Control Bureau (NCB) and the Directorate of Revenue Intelligence (DRI).
  - Superintendent of Police (SP) rank officers.

CHANAKYA IAS ACADEMY



India International Science Festival

The 11th edition of India International Science Festival is being held in Panchkula, Haryana.

About India International Science Festival

- It was launched in 2015.
- IISF aims to bring together people and the scientific community both nationally and internationally to collaborate, interact, and experience the joy of doing science for the wellbeing of India and humanity, guided by the spirit of swadeshi.
- Mission of IISF: Bridging traditional knowledge systems with modern scientific research thereby strengthening the link between India's indigenous knowledge heritage and contemporary scientific inquiry.

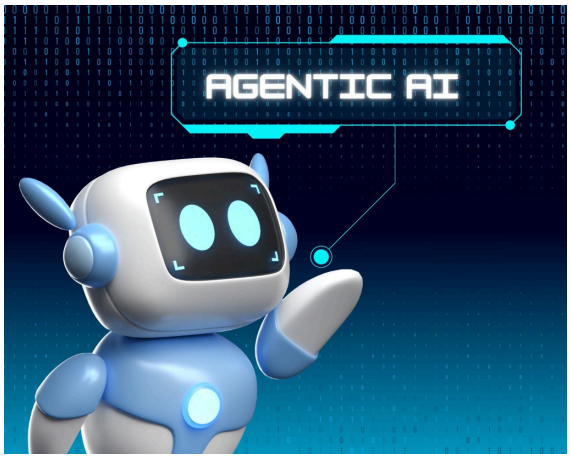
Key Facts about India International Science Festival 2025

- It is organised by the Ministry of Earth Sciences (MoES) and coordinated by Indian Institute of Tropical Meteorology (IITM) Pune.
- The theme of India International Science Festival (IISF) 2025: "Vigyan Se Samruddhi: for Aatmanirbhar Bharat".
- The event will feature more than 150 technical and thematic sessions across science, technology and innovation.

CHANAKYA IAS ACADEMY



Agentic AI



Satya Nadella, Chairman and CEO of Microsoft, recently observed that India is witnessing strong momentum in the deployment of AI and agentic AI applications.

About Agentic AI

- Agentic AI is an advanced form of artificial intelligence focused on autonomous decision-making and action.
- It consists of AI agents—machine learning models that mimic human decision-making to solve problems in real time.
- Unlike traditional AI, which primarily responds to commands or analyzes data, agentic AI can set goals, plan, and execute tasks with minimal human intervention.
- "Agentic" indicates agency — the ability of these systems to act independently, but in a goal-driven manner.
- At its core, this technology is built on several key components:
  - Perception: Agentic AI starts by gathering information from its surroundings and different sources, such as sensors, databases, and user interfaces.
  - Reasoning: Using a large language model (LLM), agentic AI analyzes the gathered data to understand the context, identify relevant information, and formulate potential solutions.
  - Planning: The AI then uses the information it gathered to develop a plan. This involves setting goals, breaking them down into smaller steps, and figuring out the best way to achieve them.
  - Action: Based on its plan, the AI takes action. This could involve performing tasks, making decisions, or interacting with other systems.
  - Reflection: After taking action, the AI learns from the results. It evaluates whether its actions were successful and uses this feedback to adjust its plans and actions in the future.
- Agentic AI builds on generative AI (GenAI) techniques by using large language models (LLMs) to function in dynamic environments.
- While generative models focus on creating content based on learned patterns, agentic AI extends this capability by applying generative outputs toward specific goals.
- For example, a generative AI model like OpenAI's ChatGPT might produce text, images, or code, but an agentic AI system can use that generated content to complete complex tasks autonomously by calling external tools.

CHANAKYA IAS ACADEMY

GhostPairing



Recently, the Indian Computer Emergency Response Team (CERT-In) has issued an advisory about an active threat campaign which targets WhatsApp users by using a new technique called GhostPairing.

About GhostPairing

- GhostPairing is a type of WhatsApp attack where hackers secretly link their own device to a victim's WhatsApp account.
- It gives hackers almost full access without the victim noticing.
- GhostPairing' allows cybercriminals to take complete control of WhatsApp accounts without requiring passwords or SIM swaps.
- The threat actors can take over WhatsApp accounts without authorisation by tricking potential victims into entering the pairing codes.

Modus Operandi of GhostPairing

- GhostPairing begins with victims receiving a message from a trusted contact that reads: "Hi, check this photo".
- The message contains a link with a Facebook-style preview.
- The link leads to a fake Facebook viewer that prompts users to "verify" to see the content.
- Then, the attackers attempt to trick potential victims into entering their phone number and code.
- By following a sequence of steps, victims unknowingly grant attackers full access to their WhatsApp accounts.

GLP-1 Drugs



Recently, the World Health Organization has finally issued global guidelines on the use of popular GLP-1 drugs for weight loss.

CHANAKYA IAS ACADEMY

About GLP-1 Drugs

- The Glucagon-like peptide-1 (GLP-1) or GLP-1 receptor agonists are synthetic drugs which are being used for the treatment of obesity in adults.
- These drugs are mainly injectables, though oral versions are under development.
- Examples: Two leading GLP-1 drugs are: Semaglutide and Tirzepatide (by Eli Lilly)
- Both have been introduced in India and are transforming obesity and diabetes treatment.

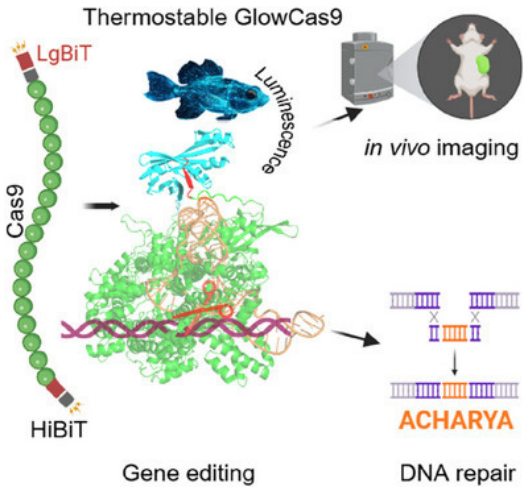
How Do GLP-1 Drugs Work?

- These drugs act by:
- Increasing insulin secretion when glucose is high.
- Inhibiting glucagon release, reducing liver glucose output.
- Slowing gastric emptying, preventing sudden spikes in blood sugar.
- Suppressing appetite, making the person feel full sooner.

Key Facts about Glucagon-like peptide-1

- GLP-1 is both an incretin hormone and a neurotransmitter.
- It is a naturally occurring gut hormone (incretin) released after food intake.
- It is secreted from the small intestine and from the hindbrain after we eat a meal.
- It travels to the pancreas, where it helps to regulate our blood sugar by increasing insulin and decreasing glucagon.
- It works for just a few minutes, so after you eat a meal and GLP-1 is secreted naturally, it gives an immediate effect that lasts maybe 30 minutes.
- GLP-1 also has beneficial effects in many organs, such as the kidney, liver, and cardiovascular system.

GlowCas9 Protein



Recently, scientists from Kolkata based Bose institute have created GlowCas9 protein which can track gene editing.

About GlowCas9 Protein

- It is a CRISPR protein that lights up while performing gene editing.
- It is a bioluminescent version of Cas9 that glows inside cells.
- Structure: GlowCas9 is created by fusing Cas9 with a split nano-luciferase enzyme derived from deep-sea shrimp proteins.

Properties of GlowCas9 Protein

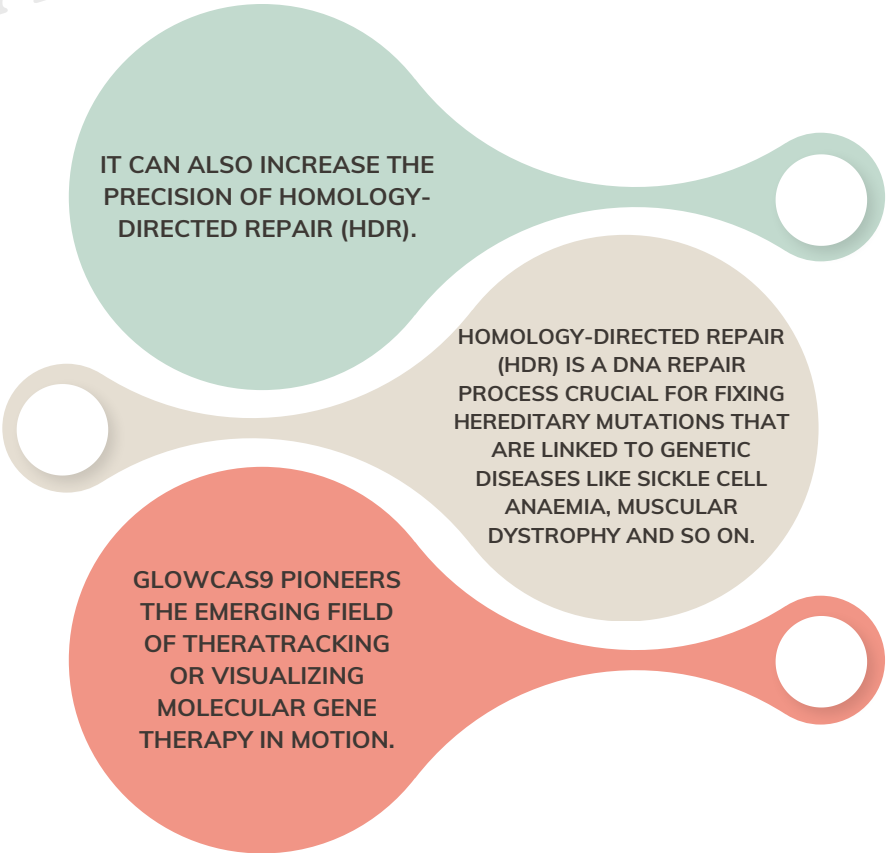
- The GlowCas9 is very stable and maintains its structure and activity at higher temperatures compared to the conventional enzyme.
- It glows inside cells, allowing for real-time monitoring of CRISPR operations

Working of GlowCas9 Protein

- The split nano-luciferase enzyme pieces reconnect when Cas9 folds correctly, producing light
- This glowing activity allows scientists to monitor CRISPR operations in living cells, tissues, and even plant leaves—without harming them.

CHANAKYA IAS ACADEMY

Benefits of GlowCas9 Protein



Gonorrhoea



The U.S. Food and Drug Administration (FDA) recently granted approval for two new oral medicines, Nuzolvence (zoliflodacin) and Blujepa (gepotidacin), to treat gonorrhoea, a common sexually transmitted infection, prone to resistance against drugs.

About Gonorrhoea

- It is a preventable and curable sexually transmitted infection (STI) caused by the bacteria Neisseria gonorrhea.
- It's also sometimes called "the clap" or "drip."
- Gonorrhea bacteria can infect the urethra, rectum, female reproductive tract, mouth, throat, or eyes.
- Transmission:
  - It is most commonly spread during vaginal, oral or anal sexual activity.
  - But babies can get the infection during childbirth.
- In babies, gonorrhea most commonly affects the eyes.
- Gonorrhea can affect people of any age, anatomy, or gender, but it's particularly common among teens and young adults between the ages of 15 and 24.
- Symptoms:
  - Many people with gonorrhoea won't notice any symptoms. If you do get symptoms, it's usually between 1 to 14 days after getting the infection.
  - Men are more likely to experience symptoms. Up to 50% of women won't experience symptoms.
  - Gonorrhoea can cause a sore throat, conjunctivitis, unusual vaginal or penile discharge, and pelvic and genital pain.
- Untreated gonorrhoea can cause:
  - infections affecting the skin, joints, heart (endocarditis), and brain (meningitis)
  - infertility in both females and males
  - pelvic inflammatory disease (PID)
  - epididymitis and prostatitis (inflammation of your prostate)
  - Some of these complications can cause permanent damage to your health.
- Prevention: It can be prevented by practicing safe sex.
- Treatment:
- Gonorrhoea is treatable and curable with antibiotics.
- Antimicrobial resistance to gonorrhoea is a serious and growing problem, rendering many classes of antibiotics ineffective with the risk of becoming untreatable.

CHANAKYA IAS ACADEMY

Bluebird 6 Satellite



The Indian Space Research Organisation (ISRO) is scheduled to launch the US-based commercial BlueBird-6 satellite developed by US-based AST Spacemobile on 21st December 2025 using ISRO's LVM-3 rocket.

About Bluebird 6 Satellite

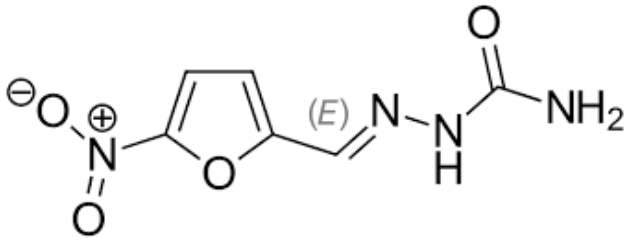
- Purpose: Designed to provide direct-to-device internet connectivity, enabling mobile phones to access broadband without relying on traditional cell towers.
- Origin: Developed by the US-based commercial company AST SpaceMobile for global mobile coverage.
- Weight and Size: Weighs around 6.5 tonnes, making it one of the heaviest satellites launched by ISRO.
- Orbit Type: Will operate in low-Earth orbit (LEO) to cover large regions of the Earth efficiently.
- Technology: Features one of the largest phased array antennas ever flown, which covers nearly 2,400 square feet, allowing it to communicate directly with standard mobile phones.
- Significance: It enhances global mobile broadband connectivity, especially in remote and rural areas.
- Collaboration: Represents a significant step in Indo-US space cooperation and commercial space ventures.
- Future Impact: Expected to help bridge the digital divide, providing internet access to regions without cellular infrastructure.

CHANAKYA IAS ACADEMY

About LVM-3

- LVM-3, also known as GSLV Mk III or "Bahubali", is a heavy-lift launch vehicle developed by ISRO.
- It is designed to carry large satellites into space and support human spaceflight missions.
- The rocket is approximately 43.43 meters tall and has a lift-off mass of around 640 tonnes, making it India's heaviest launch vehicle.
- It can carry up to 4 tonnes to Geostationary Transfer Orbit (GTO) and 10 tonnes to Low Earth Orbit (LEO).
- It is a three-stage rocket: two solid rocket boosters (S200), a liquid core stage (L110), and a cryogenic upper stage (C25).
- It has been used for heavier communication satellites, interplanetary missions, and India's Gaganyaan human spaceflight project.
- Its first successful experimental flight was in December 2014, and it is known for its reliability and heavy payload capability.

Nitrofurans



Recently, FSSAI launched an egg safety drive after 'nitrofurans presence' triggers uproar.

About Nitrofurans

- Nitrofurans are synthetic broad-spectrum antibiotics.
- There are four parent compounds that comprise the nitrofuran class: furazolidone, furaltadone, nitrofurazone, and nitrofurantoin.
- The defining structural component is a furan ring with a nitro group.
- These were once widely used in poultry, pigs, shrimp and other livestock because they are cheap and highly effective.

Key Features of Nitrofurans

- These are synthetic chemotherapeutic agents with a broad antimicrobial spectrum.
- They are active against both gram-positive and gram-negative bacteria, including Salmonella and Giardia spp, trichomonads, amebae, and some coccidial species.
- They are much more active in acidic environments (a pH of 5.5 is optimal for nitrofurantoin activity).
- They are primarily bacteriostatic, but at high doses they are also bactericidal.

Impacts on Human Health

- Carcinogenic potential: Some nitrofurans have shown carcinogenic effects in animal studies.
- Toxicity concerns: Potential toxicity and side effects in humans, particularly with prolonged use or high doses.

CHANAKYA IAS ACADEMY

Freshwater Sponge

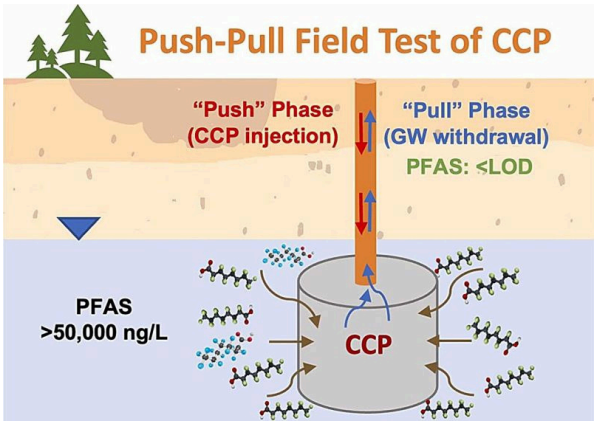


Recently, scientists from Bose Institute studied freshwater sponges from the Sundarban delta and identified their potential to act as bioindicators of toxic metal pollution.

About Freshwater Sponge

- Freshwater sponges are the earliest multicellular eukaryotes.
- They filter large volumes of water and are vital for ecosystem health.
- Habitat: They grow on sturdy submerged objects in clean streams, lakes, and rivers.
- Sponges are filter feeders. They obtain food from the flow of water through their bodies and from symbiotic algae.
- Appearance: Many freshwater sponges appear green because they contain algae, which live on sponges in a symbiotic relationship.
- Reproduction: They can reproduce sexually, or asexually.
  - When a small piece is broken off and grows into new sponges.
  - The sponge forms gemmules—tiny reproductive spheres that can overwinter and later hatch and form new sponges.
- Ecological Role: They act both as bioindicators and absorbents of toxic metals like arsenic, lead, and cadmium and can be a promising solution for bioremediation.
- They are effective bio indicators for monitoring water quality and pollution levels in estuarine and freshwater ecosystems.

Carbon-based Filter for PFAS Removal from Groundwater



A recent field-based study demonstrates that a specially engineered carbon material can be injected underground to trap and remove PFAS (Per- and Polyfluoroalkyl Substances) from contaminated groundwater, offering a cost-effective, long-term remediation solution for polluted sites.

What are Per- and Polyfluoroalkyl Substances (PFAS)?

- Per- and Polyfluoroalkyl Substances (PFAS) are a large family of over 4,700 synthetic chemicals, widely known as "Forever Chemicals" due to their extreme environmental persistence.
- PFAS have been mass-produced since the 1950s and are extensively used in non-stick cookware, water-resistant clothing, food packaging, cosmetics, firefighting foams, metal coatings, and industrial lubricants.
- The carbon–fluorine (C–F) bond, one of the strongest covalent bonds in chemistry, makes PFAS highly resistant to degradation, leading to widespread groundwater contamination, especially near military, industrial, and municipal sites.

What is Carbon-Based PFAS Remediation?

- Carbon-based PFAS remediation is a novel in-situ groundwater treatment approach demonstrated in a 2025 field study published in the Journal of Hazardous Materials.
- The study evaluated a specially engineered ultra-fine carbon material, known as Colloidal Carbon Product (CCP), designed to adsorb and immobilise PFAS in groundwater.
- The technology uses a "push–pull" testing method, where CCP is injected underground to form an in-situ permeable treatment zone, and groundwater is later extracted to measure PFAS reduction.
- Unlike surface treatment methods, this approach is non-invasive, subsurface-based, and suitable for long-term remediation.
- Field trials at a S. Navy training site showed PFAS levels dropped by up to four orders of magnitude, from over 50,000 ng/L to below detection limits within 10 months, including effective removal of both long-chain and short-chain PFAS.

CHANAKYA IAS ACADEMY

Doppler Weather Radar



Recently, the Minister of State for Earth Science informed that there are currently 47 Doppler weather radars (DWRs) across the country to survey weather patterns and forecast.

About Doppler Weather Radar

- A Doppler radar is a specialized radar that uses the Doppler effect to produce velocity data about objects at a distance.
- These radar systems can provide information regarding the movement of targets as well as their position.

Working of Doppler weather Radars

- In radars, a beam of energy, called radio waves, is emitted from an antenna.
- When this beam strikes an object in the atmosphere, the energy scatters in all directions, with some reflecting directly back to the radar.
- The larger the object deflecting the beam, the greater is the amount of energy that the radar receives in return.
- Observing the time required for the beam to be transmitted and returned to the radar allows weather forecasting departments to "see" raindrops in the atmosphere, and measure their distance from the radar.
- Types of weather Radar Bands: Varying frequencies like S-band, C-band and X-band — are commonly used by the IMD in India.

CHANAKYA IAS ACADEMY

APPLICATIONS OF DOPPLER WEATHER RADARS

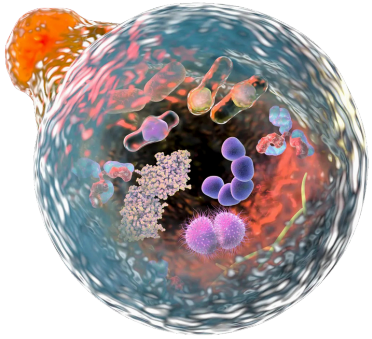
01

It is used to track the movement of weather systems and cloud bands, and gauge rainfall over its coverage area of about 500 km.

02

An X-band radar is used to detect thunderstorms and lightning, whereas a C-band radar helps in cyclone tracking.

Autophagy



Researchers have uncovered a surprising player in the autophagy process that can pave the way for developing therapies for diseases such as Alzheimer's, Parkinson's, and cancer.

About Autophagy

- It is a key biological process where cells clear out damaged and unwanted materials.
- The autophagy pathway, which removes damaged material and defends against infections, is disrupted in diseases like Alzheimer's and Huntington's.
- When a cell fails to clear waste, its health suffers, especially in long-lived neurons.
- Autophagy is the body's cellular recycling system.
- It allows a cell to disassemble its junk parts and repurpose the salvageable bits and pieces into new, usable cell parts.

Importance of Autophagy

- It recycles damaged cell parts into fully functioning cell parts.
- It gets rid of nonfunctional cell parts that take up space and slow performance.
- It destroys pathogens in a cell that can damage it, like viruses and bacteria.
- Autophagy plays an important role when it comes to aging and longevity, too.

CHANAKYA IAS ACADEMY

Autophagy and Disease Linkages

AUTOPHAGY INITIALLY PREVENTS CANCER BUT LATER SUPPORTS TUMOUR GROWTH AND ACTS AS A TUMOUR SUPPRESSOR BY MAINTAINING GENOME INTEGRITY AND CELLULAR HOMEOSTASIS.

IN CERTAIN TYPES OF CANCER, CELLS HIJACK AUTOPHAGY FOR THEIR OWN SURVIVAL AND PROPAGATION.

Global Capability Centres



Global Capability Centres (GCCs) are now the primary engine sustaining India's technology job market, contrasting sharply with the hiring slowdown witnessed by large IT firms in the country.

About Global Capability Centres

- Global Capability Centres (GCCs), or Captive Centres, are offshore offices or subsidiaries set up by multinational corporations (MNCs) to handle various business processes and services.
- GCCs connect organizations to a global pool of top-tier talent, equipped with the latest technology and training needed to stay ahead of industry trends, continually innovate, and create sustained growth.
- These centres are responsible for a wide range of tasks, including IT support, research and development (R&D), data analytics, finance, human resources, and other back-office functions.
- Over time, many GCCs have evolved from being simple support centres to becoming strategic hubs that drive innovation and high-value business functions.
- GCCs in India:
  - Earlier, GCCs were established in India primarily to reap cost benefits.
  - Customer support, data processing, and IT services that these centres mainly focused on.
  - Due to its abundant skilled labour force and lower operational cost, India proved to be an ideal location for setting up GCCs.
  - However, GCCs have evolved over time to expand massively and now include critical business functions such as R&D, analytics, digital transformation, and innovation.
  - India now hosts 1,850 GCCs employing almost two million professionals.
  - India is projected to have more than 2,400 GCCs by 2030 and employ more than three million workers to achieve a $125 billion market size, signalling a transition into strategic 'enterprise AI brains.'
  - Key GCC hubs are located in Bengaluru, Hyderabad, Pune, Chennai, Mumbai, and the National Capital Region (NCR).

CHANAKYA IAS ACADEMY

Q. With reference to Global Capability Centres (GCCs) in India, consider the following statements:

1. GCCs were initially set up in India mainly to leverage low-cost advantages in customer support, data processing, and IT services.
2. Over time, GCCs in India have increasingly taken up strategic functions such as R&D, advanced analytics, and digital transformation.
3. India currently hosts more than 2,400 GCCs employing over three million professionals.
4. The future trajectory of GCCs in India indicates a shift towards becoming strategic hubs, including roles in enterprise-level artificial intelligence.

Which of the statements given above are correct?

A. 1 and 2 only
B. 1, 2 and 4 only
C. 2 and 3 only
D. 1, 2, 3 and 4

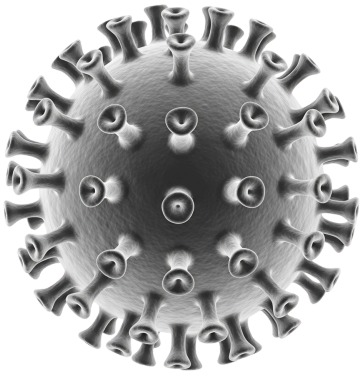
Correct Answer: B

Explanation:

- Statements 1 & 2: Correct — GCCs in India began as low-cost support centres and later evolved into hubs for R&D, analytics, and digital transformation.
- Statement 3: Incorrect — 2,400 GCCs and 3 million jobs are 2030 projections, not the current scenario (presently ~1,850 GCCs and ~2 million employees).
- Statement 4: Correct — GCCs are increasingly becoming strategic centres, including enterprise-level AI functions.

Rabies





According to a paper published in One Health, of the 59,000 rabies-mediated human deaths in the world every year, India represents a third, around 20,000, and more than any other country.

About Rabies

- Rabies is a vaccine-preventable, zoonotic, viral disease.
- It is caused by the Rabies virus (RABV) which affects the central nervous system.
- Rabies infects mammals, including dogs, cats, livestock and wildlife.
- It is one of the neglected tropical diseases (NTD) that predominantly affects already marginalized, poor, and vulnerable populations.
- Transmission: Rabies spreads to people and animals via saliva, usually through bites, scratches, or direct contact with mucosa (e.g. eyes, mouth, or open wounds).
- Clinically, it has two forms:
  - Furious rabies: It is characterized by hyperactivity and hallucinations.
  - Paralytic rabies: It is characterized by paralysis and coma.

CHANAKYA IAS ACADEMY

SYMPTOMS OF RABIES



THE INCUBATION PERIOD FOR RABIES IS TYPICALLY 2-3 MONTHS BUT MAY VARY FROM ONE WEEK TO ONE YEAR.

PREVENTION: VACCINATING DOGS, INCLUDING PUPPIES, IS THE MOST COST-EFFECTIVE STRATEGY FOR PREVENTING RABIES IN PEOPLE BECAUSE IT STOPS THE TRANSMISSION AT ITS SOURCE.

INITIAL SYMPTOMS INCLUDE GENERIC SIGNS LIKE FEVER, PAIN, AND UNUSUAL OR UNEXPLAINED TINGLING, PRICKING, OR BURNING SENSATIONS AT THE WOUND SITE.

ONCE THE VIRUS INFECTS THE CENTRAL NERVOUS SYSTEM AND CLINICAL SYMPTOMS APPEAR, RABIES IS FATAL IN 100% OF CASES.

AS THE VIRUS MOVES TO THE CENTRAL NERVOUS SYSTEM, PROGRESSIVE AND FATAL INFLAMMATION OF THE BRAIN AND SPINAL CORD DEVELOPS.

HISTORY



CHANAKYA IAS ACADEMY

Deepavali



Recently, Deepavali has been inscribed on UNESCO's List of the Intangible Cultural Heritage of Humanity.

About Deepavali

- Deepavali, also known as Diwali, is the festival of lights celebrated across India.
- 'Deepa' means lamp or light and'Vali' means string or row, and Deepavali means rows of lights.
- It is celebrated on Kartik Amaavasya, which typically falls in October or November.
- The fundamental philosophy of Deepavali encompasses the celebration of prosperity, renewal, and abundance for all individuals.
- It is added as the 16th Indian element on UNESCO's List of the Intangible Cultural Heritage of Humanity.

Celebration of Deepavali

- It begins with Dhanteras, a day of auspicious beginnings when families buy new metalware or essentials that symbolise prosperity.
- The second day marks Naraka Chaturdashi, observed with rituals and lighting lamps to dispel negativity and welcome positive energy.
- The third day is the highlight of Deepavali- the sacred Lakshmi-Ganesha Puja.
- On the fourth day, families and friends visit one another, exchange gifts, and reconnect, strengthening their bonds and shared happiness.
- The celebrations conclude with Bhai Dooj, a heartfelt tribute to the bond between brothers and sisters, observed with prayers, blessings, and meaningful rituals.

CHANAKYA IAS ACADEMY

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

1. Deepavali is celebrated on Kartik Amavasya, symbolising the triumph of light over darkness and renewal.
2. The word Deepavali literally means a single sacred lamp lit for prosperity.
3. The festival begins with Dhanteras and concludes with Bhai Dooj, marking familial and social bonds.
4. Deepavali has been inscribed as the 16th Indian element on the UNESCO List of Intangible Cultural Heritage of Humanity.

Which of the statements given above are correct?

A. 1 and 3 only
B. 1, 3 and 4 only
C. 2 and 4 only
D. 1, 2, 3 and 4

Correct Answer: B

Uchi Pillaiyar Temple

The Tamil Nadu government recently informed the Madurai Bench of the Madras High Court that the deepam (lamp) was lit at the Uchipillaiyar temple mandapam in Thirupparankundram hill during Karthigai Deepam this year too as it was done for over the last 150 years.



About Uchi Pillaiyar Temple

- The Uchi Pillaiyar Temple, also known as Rockfort Temple, is located at the top of Rockfort Hill, Trichy, in Tamil Nadu.
- It is a 7th-century-CE Hindu temple, dedicated to Lord Ganesha.
- The temple stands 83 metres (272 ft) tall, perched atop a rock.
  - Trichy Rockfort hill is made of granite that is estimated to be over 3.8 billion years old.
  - It is one of the oldest rock formations in the world.
  - In comparison, the Himalayas are much younger—they began forming only about 50 million years ago when the Indian tectonic plate collided with the Eurasian plate.
- The smooth rock was first cut by the Pallavas, but it was the Nayaks of Madurai who completed the temples under the Vijayanagara empire.
- There are three temples located closely on the rock fort:
  - Maanikka Vinayakar Temple situated at the foothill, dedicated to Lord Ganesha.
  - Uchchi Pillayar Temple at the top of the hill, dedicated to Lord Ganesha.
  - Thayumanaswamy Temple, dedicated to Lord Shiva, situated close to the base of the rockfort on the way to Uchchi
- This Rockfort Temple gives an aerial view of the entire Trichy City along with Srirangam Temple, River Kaveri, and River Kollidam.

CHANAKYA IAS ACADEMY

Hornbill Festival

Recently, the 26th edition of Nagaland's iconic Hornbill Festival kicked off with great enthusiasm.



About Hornbill Festival

- It was first organized in the year 2000.
- It aims to promote inter-tribal interaction and preserve Nagaland's heritage, blending the traditional with the contemporary in a harmonious display of unity.
- It is also called the festival of festivals and is held every year.
- Organised by: It is organized by the State Tourism and Art & Culture Departments of the Government of Nagaland.
- It is celebrated at Naga Heritage Village, Kisama which is about 12 km from Kohima in Nagaland.
- It has evolved into a celebration showcasing the diverse and vibrant cultural and traditional heritage of the tribes of Nagaland.
- It was named after the Hornbill bird given its association with the socio-cultural life of the Nagas.
- Theme of 2025 festival: Cultural Connect
- This year Nagaland has officially named Switzerland and Ireland as country partners for the Hornbill Festival 2025.

Chenchu Tribe



The National Sanskrit University (NSU) organised a symposium, panel discussion, and exhibition recently highlighting the unique privilege the Chenchu tribal community has with the Ahobilam shrine and the deity of Lord Narasimha.

About Chenchu Tribe

- The Chenchus are a food-gathering tribe primarily residing in the Nallamalai forests of Andhra Pradesh.
- They are one of the Particularly Vulnerable Tribal Groups (PVTGs) in Andhra Pradesh.
- They are also found in Telangana, Karnataka, and Odisha.
- Language: They speak variants of Telugu, the Dravidian language of the region.
- A Chenchu village is known as "Penta".
    - Each penta consists of a few huts that are spaced apart and are grouped together based on kinship patterns.
- Small conjugal families predominate, women taking equal rank with men and marrying only upon maturity.
- "Peddamanishi" or the village elder, is generally the authority to maintain social harmony in a family or a village.
- Their rituals are few and simple; religious and political specializations are slight.
- Livelihood:
    - The Chenchu live life with exemplary simplicity. Most of them still gather food from the forest and roam in it to find things to meet their needs.
    - The bow and arrow and a small knife are all the Chenchus possess to hunt and live.
    - The Chenchus collect forest products like roots, fruits, tubers, beedi leaf, mohua flower, honey, gum, tamarind, and green leaves and make a meagre income from it by selling these to traders and government cooperatives.
    - Though at times they work as forest labourers, they mostly prefer to fall back on their native skills to hunt and gather food.
    - The Chenchus do not care much for money or material wealth.
- Religion:
    - Chenchus worship a number of deities. Chenchus have also adopted certain religious practices from Hindus.
    - For ages, the Chenchus have been associated with the famous Srisailam temple (dedicated to Lord Shiva and Devi Brahmaramba) in Andhra Pradesh, situated at the heart of Chenchu land.
    - The Chenchus enjoy special privileges at Srisailam temple.

GHANAM IAS ACADEMY

Dandami Madia Tribe



Recently, members of the Dandami Madia tribe perform the traditional Bison Horn Maria dance during a village festival at Judiya Para in Jagdalpur.

About Dandami Madia Tribe

- Dandami Maria, also known by other names like Bison Horn Maria and Khalpati Maria.
- It is a tribal community which lives in Chhattisgarh.
- They have derived their name from their unique custom of wearing a distinctive head-gear, which resembles the horns of a wild bison.
- They generally wear that head-gear during ceremonies.
- They identify themselves as part of the larger Gond tradition.
- Language: The main distinct language spoken by this tribe is Dandami Maria. Some of them speak Gondi dialects, which is an oral language of Dravidian origins.

Society and Customs of Dandami Madia Tribe

- Economy: They live by agriculture, supplemented by hunting and fishing.
- Belief: Their belief is a combination of Hinduism with Animistic beliefs.
- Their ghotul (youth dormitory for unmarried boys and girls) is an important social institution.
- They permit divorce and widow remarriage.
- They perform the traditional Bison Horn Maria dance during a village festival. It is performed by both men and women.

CHANAKYA IAS ACADEMY

Santhali Language ᱚᱞᱪᱤᱠᱤ

President Droupadi Murmu recently released the Constitution of India in the Santhali language at a function held at the Rashtrapati Bhavan here.

About Santhali Language

- The Santhali language, which was included in the Eighth Schedule of the Constitution through the 92nd Amendment Act, 2003, is one of the most ancient living languages of India.
- It is spoken by a significant number of tribal people in Jharkhand, Odisha, West Bengal, and Bihar.
- It is primarily used by the Santhal tribal community.
- It is also spoken in Nepal and Bangladesh.
- In India, it is spoken by an estimated 7 million people, according to recent census data.
- It is a member of the Munda branch of the Austroasiatic language family, which is an ancient family of languages spoken across parts of South and Southeast Asia.
- It is quite distinct from the Indo-European language family of languages spoken in much of India.
- It is closely related to other Munda languages, such as Ho, Mundari, and Korku.
- These languages share common features such as their agglutinative nature (where words are formed by stringing together smaller units of meaning) and their use of tones.
- Santhali has a unique and rich tradition, with its own script and oral literature, reflecting the culture and beliefs of the Santhal tribe.
- Santhali uses the Ol Chiki script, a writing system that was developed in 1925 by Pandit Raghunath Murmu, a Santhal scholar and writer.

Perumbidugu Mutharaiyar



Recently, a commemorative postage stamp in honour of the king Perumbidugu Mutharaiyar II (Suvaran Maran) was released by the Vice President of India.

About Perumbidugu Mutharaiyar

- Perumbidugu Mutharaiyar (705 AD-745 AD), also known as Suvaran Maran, was a ruler of the Mutharaiyar lineage.
- Suvaran Maran was also known as Shatrubhayankar.
- Perumbidugu Mutharaiyar is believed to have fought bravely in several battles alongside the Pallava king Nandivarman, and is remembered as a great administrator.
- He seems to have patronised Shaivya and other scholars, as a Jain monk Vimalachandra is mentioned as visiting his court to debate them.

Who are Mutharaiyars?

- They were the feudatories of the Pallavas.
- As the Pallavas' rule weakened, many such chiefs earned more power and prominence and were treated as rulers in their own right.
- The Mutharaiyars held sway over areas including Thanjavur, Pudukkottai, Perambalur, Tiruchirappalli, and others near the Cauvery river.
- As the feudatories of the Pallavas, the Mutharaiyars were great temple builders.
- Muttarayars were engaged in cave temple enterprises up to the opening decades of the ninth century.

CHANAKYA IAS ACADEMY

Haka Dance



A Sikh Nagar Kirtan or religious procession in South Auckland, New Zealand, was protested in the form of a traditional tribal "haka" dance recently.

About Haka Dance

- It is a traditional dance of the indigenous Māori people of New Zealand.
- It is known for its powerful energy, fierce facial expressions (pukana), and physical movements like stamping, hand gestures, and chanting.
- Haka varies by tribal region, with many haka telling the story of significant events in a tribe's history.
- Traditionally, the haka was performed for war, to celebrate achievements, or to welcome guests.
- Today, it is performed at important occasions like sporting events, weddings, and funerals.
- It symbolizes tribal pride, strength, and unity.
- It became known to the world at large when, in the early 20th century, it was incorporated into the pregame ritual of New Zealand's national rugby union team, the All Blacks.
- It also made headlines globally in November 2024 when two lawmakers used Haka to protest against a bill in the New Zealand parliament.

OTHER NEWS

CHANAKYA IAS ACADEMY

Vande Mataram 150 Years Celebration



The Prime Minister of India will inaugurate the year-long commemoration of 150 years of the National Song "Vande Mataram" in New Delhi.

About Vande Mataram 150 Years Celebration

- "Vande Mataram," written by Bankim Chandra Chatterjee in a blend of Sanskrit and Bengali, is the National Song of India.
- It was first featured in his novel Anand Math in 1882, with its tune composed by Yadunath Bhattacharya.
- It became a symbol of patriotism during India's freedom struggle.

Historical Background of Vande Mataram

- It was initially composed independently and later included in Bankim Chandra Chatterjee's novel "Anandamath" (published in 1882).
- It was first sung by Rabindranath Tagore at the 1896 Congress Session in Calcutta.
- Vande Mataram, as a political slogan, was first used on 7 August 1905.
- In 1907, Madam Bhikaji Cama raised the tricolour flag for the first-time outside India in Stuttgart, Berlin. The words Vande Mataram were written on the flag.
- On 24 January 1950, the Constituent Assembly adopted Vande Mataram as the National Song of India.
- The National Song is held in equal reverence to the national anthem, but it is not mandatory to sing it at any given occasion.

CHANAKYA IAS ACADEMY

Sanchar Saathi

The Department of Telecommunications (DoT) has made it mandatory for all newly manufactured or imported mobile phones in India to come with the Sanchar Saathi app pre-installed.

About Sanchar Saathi

- It is a security and awareness platform developed by the Department of Telecommunications (DoT).
- It is available both as an app and a web portal.
- Purpose: To help mobile users manage their digital identity, report suspicious activity, and safeguard their devices.
- The platform also provides educational material on telecom safety and cyber risks, making it a combined service-and-awareness system.

Sanchar Saathi Features

- 'Chakshu' Feature: It lets users report suspicious calls, SMS, and WhatsApp messages, such as fake KYC alerts, impersonation scams, or phishing links. It helps authorities spot fraud patterns.
- Report Spam and Unwanted Commercial Calls: Users can report spam calls and messages that break TRAI rules. Complaints made within seven days can lead to action against the sender.
- Report Malicious Links and Apps: Allows reporting of phishing links, unsafe APKs, and fraudulent websites.
- Checking Mobile Connections Linked To Your Identity: Shows how many mobile numbers are registered using your identity. Helps identify SIM cards taken without your knowledge.
- Blocking Lost or Stolen Phones: Allows users to block the IMEI of a lost or stolen device so it can't be used. Phones can be unblocked if recovered.
- Verifying The Authenticity Of A Device: Allows users to check if a phone is genuine by validating its IMEI. It is useful when buying second-hand phones.
- Reporting International Calls That Appear As Indian Numbers: Some scammers use illegal telecom setups to make international calls appear as regular +91 calls. Sanchar Saathi enables users to report such cases.
- Finding Your Local Internet Service Provider: The app also includes a feature that lets users check which wired internet service providers are available in their area by entering a PIN code, address, or provider name.
- Verifying Trusted Contacts and Helpline Numbers: Provides a directory to confirm genuine customer-care numbers, emails, and websites of banks and other major institutions.

CHANAKYA IAS ACADEMY

National Centre for Polar and Ocean Research

Recently, the National Centre for Polar and Ocean Research (NCPOR) celebrated its Silver Jubilee and also released commemorative postage stamps.

About National Centre for Polar and Ocean Research

- It was established as an autonomous Research and Development Institution on the 25th May 1998.
- It was formerly known as the National Centre for Antarctic and Ocean Research (NCAOR).
- It has been at the forefront of leading India's scientific expeditions and research programmes in the Polar regions and the Southern Ocean.
- Nodal Ministry: Ministry of Earth Sciences Government of India
- Location: Vasco da Gama, Goa.

Mandate and Functions of National Centre for Polar and Ocean Research

- It is designated as the nodal organization for the co-ordination and implementation of the Indian Antarctic Programme, and executing polar expeditions in the Antarctic, Arctic, Southern Ocean, and Himalayas.
- It also works on strategically vital projects like: Mapping of Exclusive Economic Zone (EEZ), Continental shelf surveys, and the Deep Ocean Mission.
- It has established and operationalised permanent Indian research stations -- DakshinGangotri, Maitri, and Bharati in Antarctica, and Himadri in the Arctic, along with the Himalayan station Himansh.

Caller Name Presentation

CHANAKYA IAS ACADEMY



In the next few months, the Department of Telecommunications (DoT) will mandate telecom operators to show the KYC-registered name of all incoming callers using Indian phone numbers, a feature known as Caller Name Presentation (CNAP).

About Caller Name Presentation

- CNAP is a technology that enables mobile users to see an incoming caller's name, similar to Truecaller.
- The system retrieves the caller's name from a telecom operator's database and displays it on the recipient's phone.
- Unlike third-party apps, CNAP will rely on the official Customer Application Form (CAF) details provided during SIM registration.
- How Will CNAP Work?
  - Each telecom provider will maintain a database of subscriber names linked to mobile numbers.
  - When a call is made, the system will fetch the caller's registered name and display it on the recipient's screen.
  - Initially, CNAP will work only within the same network, meaning an Airtel-to-Airtel call will display the caller's name, but cross-operator name display, such as Jio-to-Vodafone, will require regulatory approval for data sharing between telecom providers.
- In February 2024, the Telecom Regulatory Authority of India (TRAI) recommended the adoption of CNAP for all smartphones, urging telecom operators to introduce the feature.
  - The aim is to reduce customer harassment from unknown or spam callers.

National Forensic Infrastructure Enhancement Scheme



Recently, the Minister of State in the Ministry of Home Affairs informed the Rajya Sabha about the National Forensic Infrastructure Enhancement Scheme.

About National Forensic Infrastructure Enhancement Scheme

- It is a Central Sector Scheme launched in 2024.
- Aim: The aim of the scheme is to help create a sound forensic laboratory infrastructure and prepare world class trained forensic professionals in the country.
- Nodal Ministry: Ministry of Home Affairs.
- Implementation Period: 2024–25 to 2028–29.

Components of National Forensic Infrastructure Enhancement Scheme

- Establishment of campuses of the National Forensic Sciences University (NFSU) in the country.
- Establishment of Central Forensic Science Laboratories (CFSLs) in the country.
- Enhancement of existing infrastructure of the Delhi Campus of the NFSU.

What is the NFIES?

- With the enactment of the New Criminal Laws, which mandates forensic investigation for offences involving punishment of 7 years or more, there is significant increase in workload.
- An increase in the workload of forensic science laboratories is expected.
- To address the significant shortage of trained forensic manpower in the Forensic Science Laboratories (FSL) in the country.
- To alleviate the case load / pendency of forensic laboratories, and align with the Government of India's goal of securing a high conviction rate of more than 90%.

CHANAKYA IAS ACADEMY

Director General of Civil Aviation

Recently, the Directorate General of Civil Aviation (DGCA) granted the Indigo airline a temporary one-time exemption from some Flight Duty Time Limitation (FDTL) norms for pilots.

About Director General of Civil Aviation (DGCA)

- It is the regulatory body in the field of civil aviation primarily dealing with safety issues.
- It is an attached office of the Ministry of Civil Aviation.
- It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety and airworthiness standards.
- It also coordinates all regulatory functions with the International Civil Aviation Organisation.
- Headquarters: New Delhi

Functions and Responsibilities of the Director General of Civil Aviation (DGCA)

- One of the main functions of the DGCA is to ensure the safety of passengers and crew members on all flights operating in India.
- It conducts regular safety inspections of all airlines and aircraft to meet the required safety standards.
- It also investigates any incidents or accidents that occur within the Indian airspace.
- It plays a crucial role in developing new airports and modernizing existing facilities to ensure that they can meet the growing demands of the aviation industry.
- It is responsible for the regulation of air traffic in India. It works closely with the Airports Authority of India (AAI) to ensure air traffic is managed safely and efficiently.
- The DGCA also plays a key role in developing new air traffic control systems and technologies to improve the overall efficiency of Indian airspace.
- It is also responsible for issuing licenses and certificates to pilots, aircraft maintenance engineers, and other aviation personnel.

GYANDHARA IAS ACADEMY

Bankim Chandra Chattopadhyay



The family of Bankim Chandra Chattopadhyay, the writer and composer of 'Vande Mataram', recently hailed the Prime Minister's gesture to mark the 150 years of the country's national song.

About Bankim Chandra Chattopadhyay

- Bankim Chandra Chattopadhyay, also known as Bankim Chandra Chatterjee, was one of the greatest novelists and poets of India.
- He is famous as the author of Vande Mataram, the national song of India.
- He was born on June 27, 1838, in the village of Kantalpara in the 24 Paraganas District of Bengal.
- Born into the family of a government official under the British rule of India, he was one of the first two graduates of the University of Calcutta and later obtained a degree in law.
- He began his literary career as a writer of verse. He then turned to fiction.
- Durgeshnandini, his first Bengali romance, was published in 1865.
- His famous novels include Kapalkundala (1866), Mrinalini (1869), Vishbriksha (1873), Chandrasekhar (1877), Rajani (1877), Rajsimha (1881), and Devi Chaudhurani (1884).
- Bankim Chandra Chatterjee's most famous novel was Anand Math (1882).
    - It was set in the background of the Sannyasi Rebellion in the late 18th century.
    - Anand Math contained the song "Vande Mataram", which was later adopted as the national song.
        - The patriotic song was written in Sanskrit.
        - In the year 1896, Gurudev Rabindranath Tagore sang this melodic poem for the first time at the Kolkata session of the Indian National Congress.
        - It was officially adopted as the national song by the Constituent Assembly of India on 24th January 1950.
- Bankim Chandra Chattopadhyay passed away on April 8, 1894.
- As a distinguished novelist, poet, and essayist, his contributions significantly influenced the development of modern Bengali prose and the articulation of an emerging Indian nationalism.
- He is often regarded as the "Sahitya Samrat" (Emperor of Literature) in Bengali literature.

CHANAKYA IAS ACADEMY

NewSpace India Limited

As on date, M/s. NewSpace India Limited (NSIL) has signed 70 Technology Transfer Agreements to transfer technologies developed at ISRO to Industry.

About NewSpace India Limited

- NSIL, incorporated on 6 March 2019 (under the Companies Act, 2013) is a wholly owned Government of India company, under the administrative control of Department of Space (DOS).
- It is the commercial arm of Indian Space Research Organisation (ISRO).
- Primary Responsibility:
  - Enabling Indian industries to take up high technology space related activities.
  - Promotion and commercial exploitation of the products and services emanating from the Indian space programme.
- The major business areas of NSIL include:
  - Production of Polar Satellite Launch Vehicle (PSLV) and Small Satellite Launch Vehicle (SSLV) through industry.
  - Production and marketing of space-based services, including launch services and space-based applications like transponder leasing, remote sensing and mission support services.
  - Building of Satellites (both Communication and Earth Observation) as per user requirements.
  - Transfer of technology developed by ISRO centres/units and constituent institutions of the Dept. of Space.
  - Marketing spinoff technologies and products/services emanating out of ISRO activities.
  - Consultancy services.

CHANAKYA IAS ACADEMY

NSSH Scheme

The Ministry of Micro, Small and Medium Enterprises (MSME) has intensified efforts to promote entrepreneurship among SC and ST communities through the National Scheduled Caste and Scheduled Tribe Hub (NSSH) Scheme.

About National Scheduled Caste and Scheduled Tribe Hub (NSSH) Scheme

- It is one of the flagship schemes of the Ministry of Micro, Small & Medium Enterprises.
- It is implemented by the National Small Industries Corporation Ltd. (NSIC).
- NSSH is aimed at capacity enhancement of SC/ST entrepreneurs and promoting "entrepreneurship culture" amongst the SC/ST population.
- The Scheme empowers the SC/ST population to participate in the public procurement process and fulfill the mandated target of 4% procurement from SC/ST enterprises under the Public Procurement Policy by the Ministries, Departments, and CPSEs (Central Public Sector Enterprises).
- The initiative provides financial assistance and facilitates access to credit for SC/ST entrepreneurs.
- It collaborates with financial institutions, banks, and non-banking financial companies (NBFCs) to ensure that entrepreneurs from these communities have access to affordable and timely financial resources for their business ventures.
- It also focuses on skill development and capacity building of SC/ST entrepreneurs.

‘Your Money, Your Right’ Movement



The Prime Minister recently called upon citizens to take part in the ‘Your Money, Your Right’ movement.

About ‘Your Money, Your Right’ Movement

- It was launched by the central government in October 2025.
- It is an initiative aimed at enabling people to reclaim their unclaimed deposits, insurance proceeds, dividends, and other financial assets.
- The effort brings together government agencies, regulators, banks, and financial institutions to identify and return long-forgotten funds.
    - Indian banks are holding Rs 78,000 crore of unclaimed money belonging to our own citizens.
    - Insurance companies have nearly Rs 14,000 crore lying unclaimed.
    - Mutual fund companies have around Rs 3,000 crore, and dividends worth Rs 9,000 crore are also unclaimed.
- The deposits in accounts which are not operated for a period of 10 years are classified as unclaimed deposits.
- Under the initiative, individuals need to verify if their close family members or relatives have unclaimed deposits, insurance proceeds, mutual-fund payouts, or dividends.
- To facilitate this, the government has created dedicated portals as follows:
    - Reserve Bank of India (RBI): UDGAM Portal for unclaimed bank deposits & balances.
    - Insurance Regulatory and Development Authority of India (IRDAI): Bima Bharosa Portal for unclaimed insurance policy proceeds.
    - Securities and Exchange Board of India (SEBI): MITRA Portal for unclaimed amounts in mutual funds.
    - Ministry of Corporate Affairs: IEPFA Portal for unpaid dividends and unclaimed shares.
- Facilitation camps are being organised in districts across both rural and urban regions of the country.
    - During the camps, the citizens will be provided on-the-spot guidance on how to search for their unclaimed assets, update records, and complete claim procedures.
    - Digital tools and step-by-step demonstrations will also be showcased.
- On the national level, the campaign is coordinated by the Department of Financial Services (DFS), Ministry of Finance.

CHANAKYA IAS ACADEMY

Param Vir Chakra



Portraits of all 21 Param Vir Chakra awardees are now on display at Rashtrapati Bhavan, replacing the previously displayed portraits of 96 British Aide-de-Camps (ADCs).

About Param Vir Chakra

- It is India's highest military decoration, awarded for displaying the most exceptional acts of valour, courage, and self-sacrifice during war.
- It was introduced on January 26, 1950, on the first Republic Day with retrospective effect from 15 August 1947.
- Literally, Param Vir Chakra means 'Wheel (or Cross) of the Ultimate Brave'.
- It can be awarded to officers, men, and women of all ranks of the Army, the Navy, and the Air Force; of any of the Reserve Forces, of the Territorial Army Militia; and of any other lawfully constituted Armed Forces.
- It can be, and often has been, awarded posthumously.
- It is similar to the British Victoria Cross, the US Medal of Honor, the French Legion of Honor, or the Russian Cross of St. George.
- Design:
  - The medal was designed by Mrs. Savitri Khanolkar.
  - The medal is cast in bronze and circular in shape.
  - In the centre, on a raised circle, is the state emblem, surrounded by four replicas of Indra's Vajra, flanked by the sword of Shivaji.
  - On its reverse, it shall have embossed Param Vir Chakra both in Hindi and English with two lotus flowers between Hindi and English. The fitting will be swivel mounting.
  - The decoration is suspended from a straight swiveling suspension bar and is held by a 32 mm purple ribbon.
- First winner: Major Somanth Sharma, from the Kumaon regiment.
- Till now, only 21 people had been given the Param Vir Chakra award, of which 14 are posthumous.

What are Gallantry Awards?

- They have been instituted by the Government of India to honour the acts of bravery and sacrifice of the officers/personnel of the Armed Forces, other lawfully constituted forces, and civilians.
- They are announced twice in a year – first on the occasion of the Republic Day and then on the occasion of the Independence Day.
- All the gallantry awards may be awarded posthumously.
- India's Gallantry Awards in the Order of Precedence:
  - Param Vir Chakra
  - Ashoka Chakra
  - Mahavir Chakra
  - Kirti Chakra
  - Vir Chakra
  - Shaurya Chakra.
- The President awards the gallantry awards to the awardees or their next of kin at the Defence Investiture Ceremony held every year at the Rashtrapati Bhawan.
- However, the Param Vir Chakra and the Ashoka Chakra are conferred by the President to the awardees on the occasion of the Republic Day Parade at the Rajpath.

CHANAKYA IAS ACADEMY

SabhaSaar Initiative



Recently, the Union Minister informed the Rajya Sabha about the SabhaSaar initiative.

About SabhaSaar Initiative

- It is an AI-enabled voice-to-text meeting summarisation tool.
- It is launched by the Ministry of Panchayati Raj.
- SabhaSaar has been made available to all States/UTs, and Gram Panchayats are progressively adopting it for routine Gram Sabha and Panchayat meetings.
- The AI model used in SabhaSaar operates on AI and cloud infrastructure provisioned through the India AI Compute Portal under the India AI Mission of MeitY.

Features of SabhaSaar Initiative

- It leverages the power of AI to generate structured minutes of meetings from gram sabha videos and audio recordings.
- It will bring uniformity in minutes of the gram sabha meetings across the country.
- Panchayat officials can use their e-GramSwaraj login credentials to upload video/audio recordings on 'SabhaSaar'.
- It is built on Bhashini, an AI-powered language translation platform launched by the government to bridge literacy, language, and digital divides.
- The tool generates transcription from a video or audio, translates it into a chosen output language and prepares a summary.
- It enables transcription in all major Indian languages like Hindi, Bengali, Tamil, Telugu, Marathi and Gujarati, in addition to English.
- Significance: It is ideal for panchayats, administrative bodies, and rural development projects as it streamlines documentation and empowers stakeholders with instant access to meeting insights.

CHANAKYA IAS ACADEMY

Pradhan Mantri Rashtriya Bal Pursk



President of India to confer the Pradhan Mantri Rashtriya Bal Puraskar (PMRBP) to children who have demonstrated outstanding achievements in diverse fields on 'Veer Bal Diwas'.

About Pradhan Mantri Rashtriya Bal Puraskar

- It is a prestigious national honour conferred annually by the Government of India.
- It is awarded to children for exceptional excellence in Bravery, Art & Culture, Environment, Social Service, Science & Technology, and Sports.
- The Pradhan Mantri Rashtriya Bal Puraskar organized by the Ministry of Women and Child Development Government of India.

Eligibility for Pradhan Mantri Rashtriya Bal Puraskar

- A child should be an Indian Citizen.
- Age: A child above the age of 5 years and not exceeding 18 years (as of 31st July of respective year).
- The act/incident/achievement should have been within 2 years of the last date of receipt of application/nomination for the year of consideration.
- The number of Awards will be 25, however, any relaxation to this maximum number may be permitted at the discretion of the National Selection Committee.
- Each awardee will receive a medal, certificate and citation booklet.

TIDE 2.0 Scheme



Recently, the Union Minister for Electronics and Information Technology informed the Rajya Sabha about the TIDE 2.0 Scheme.

CHANAKYA IAS ACADEMY

About TIDE 2.0 Scheme

- The "Technology Incubation and Development of Entrepreneurs 2.0 (TIDE 2.0)" Scheme was launched in the year 2019.
- It promotes technology-based entrepreneurship by providing financial & technical support to incubators engaged in supporting ICT startups primarily engaged in using emerging technologies such as IoT, AI, Block-chain, Robotics etc.

Features of TIDE 2.0 Scheme

- It is implemented through empowering 51 incubators in India and handholding close to 2000 tech start-ups over a period of 5 years.
- These selected incubators are located in the Institutes of Higher Learning and premier R&D organizations across the country.
- These incubators provide startups with requisite expertise, industry linkages and ecosystem partnerships etc.
- Under TIDE 2.0, Centres of Excellence in Intellectual Property Rights (CoE-IP) are also established to encourage or support Startups/SMEs/academia/inventors in the Electronics and IT domain.
- These CoE provide various IP related services, awareness creation and training.
- It complements other Government initiatives such as GENESIS, SAMRIDH, Startup India and sector-specific innovation programmes.

VB–G RAM G Bill

The VB-G Ram G Bill, 2025 seeks to replace MGNREGA with a new rural jobs and livelihoods framework. Critics caution that it may shift greater fiscal and administrative responsibility to states, weakening the job guarantee and straining federal balance.

VB–G RAM G Bill, 2025

- Proposes to replace MGNREGA, 2005 with a new rural employment and livelihood framework aimed at modernisation and infrastructure-led development.
- Guaranteed employment increased to 125 days per rural household per year, replacing the earlier "not less than 100 days" and making higher entitlement the statutory norm.
- Introduces a major shift in Centre–State funding:
  - Ends 100% central funding of unskilled wages.
  - New sharing ratios: 90:10 (Northeastern & Himalayan States), 60:40 (other States), 100% Centre (UTs without legislature).
  - Significantly increases states' fiscal and administrative responsibility.
- Replaces the demand-driven labour budget system with normative (budget-capped) allocations:
  - Centre fixes annual state-wise funding ceilings.
  - Any expenditure beyond the ceiling to be borne by states.
  - Converts a rights-based employment guarantee into a supply-driven programme.
- Provides for a statutory pause on public works during peak agricultural seasons:
  - States must notify up to 60 days annually for sowing and harvesting.
  - Intended to prevent farm labour shortages but reduces the effective employment window.
- Mandates Viksit Gram Panchayat Plans as the sole basis for work selection:
  - Plans aggregated from Gram Panchayat to State level.
  - Integrated into a National Rural Infrastructure Stack aligned with the PM Gati Shakti National Master Plan.
- Shifts focus towards durable, productivity-enhancing assets, particularly:
  - Water security and irrigation
  - Core rural infrastructure
  - Livelihood-supporting assets
  - Climate and extreme-weather resilience.
- Government justifies the overhaul citing fund misuse, weak monitoring, and low effectiveness under MGNREGA, including poor completion of full employment days by households.
- Strengthens accountability and monitoring mechanisms through:
  - AI-based fraud detection
  - GPS and mobile-based monitoring of works
  - Regular public disclosure of scheme data
  - Mandatory social audits at the Gram Panchayat level.
- Core exam takeaway: The Bill represents a paradigm shift from a legally enforceable employment guarantee to a budget-constrained, infrastructure-oriented rural support programme, raising concerns over federal balance, state finances, and rural livelihood security.

CHANAKYA IAS ACADEMY