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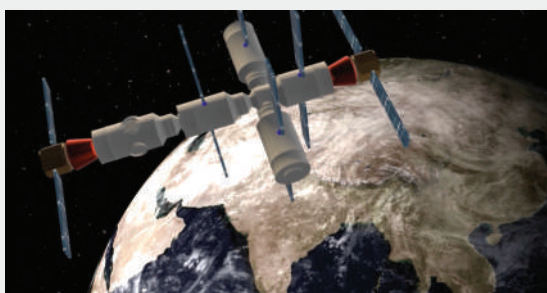
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PREFACE

Current Affairs UPSC CSE Prelims 2025

This high-quality monthly compilation of Current Affairs for Civil Services Exam Prelims 2025 is designed to help Civil Services Exam aspirants by:

1. **Saving preparation time:** Consolidates key current affairs from multiple sources for CSE Prelims.
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POLITY

1. Zero FIR

Context:

Recently, the Union Ministry of Home Affairs has directed Union Territories to ensure that 'zero FIRs' recorded in local languages carry a translated copy if forwarded to states where different languages are used.

About:

- An FIR that can be registered at any police station irrespective of jurisdiction or the area where the crime was committed, in case of cognisable offenses.
- The provision of Zero FIR was established based on the recommendation on the report of the Justice Verma Committee.
- The Justice Verma Committee was formed after the 2012 Nirbhaya gang rape case.
- **Purpose of Zero FIR:** To provide speedy redressal to the victim so that timely action can be taken after the filing of the FIR.

Under the Bharatiya Nagarik Suraksha Sanhita (BNSS), which replaced the CrPC, police are now bound to register a 'zero FIR'.

- The term FIR is not defined in the Indian Penal Code (IPC), Code of Criminal Procedure (CrPC), 1973, or in any other law, but in police regulations or rules, information recorded under Section 154 of CrPC is known as FIR.



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2. Law Commission of India

Context:

President Droupadi Murmu has sanctioned the constitution of the 23rd Law Commission of India, which will serve from September 1, 2024, to August 31, 2027.

Law Commission of India:

- Law Commission of India is a non-statutory body.
- It is constituted by a notification of the Government of India, Ministry of Law & Justice, Department of Legal Affairs.
- It is constituted with definite terms of reference to carry out research in the field of law.
- The Commission makes recommendations to the Government in the form of Reports as per its terms of reference.
- **However, these recommendations are not binding on the Government.**

Origin:

- **Pre- independence:** The first Law Commission was established during colonial rule in India by the East India Company under the Charter Act of 1833 and was presided over by Lord Macaulay.
- The First Law Commission drafted the Penal Code in 1837, the Limitation Law in 1842 and the Scheme of Pleading and Procedure in 1848.
- After that, three more commissions were established in pre-independent India. (Total 4 before independence)
- Post-independence: The first law commission in independent India was established in 1955, with its chairman M.C. Setalvad.

Constitution of the 23rd Law Commission

The Commission will consist of;

- A full-time Chairperson;
- four full-time Members (including Member-Secretary);
- Secretary, Department of Legal Affairs as ex officio Member;
- Secretary, Legislative Department as ex officio Member; and not more than five part-time Members.

3. Review Petition

Context:

A group of medical students recently filed a review petition challenging the Supreme Court's decision to dismiss their writ petition, which sought to cancel the NEET UG 2024 examination.

About Review Petition:

- When a judgment is passed by a court, the doctrine of *functus officio* applies to it.
- This Latin doctrine means that if the judgment in a case has been pronounced or an order has been made following due process of law, in such circumstances, the case cannot be reopened.
- The right to file a review petition is an exception to this doctrine.
- The word "review" means to examine again.
- **Article 137 of the Constitution gives the Supreme Court the power to review any of its judgments or orders.**
- The court has the power to review its rulings to correct a "patent error" and not "minor mistakes of inconsequential import".
- Similarly, High Courts have also been given the power to review its judgments under Article 226 of the Constitution. However, it can only be invoked when there is a breach of law or violation of the Constitution.

Grounds for review petition: In a 2013 ruling, the Supreme Court itself laid down three grounds for seeking a review of a verdict it has delivered.

- the discovery of new and important matter or evidence which was not within the knowledge of the petitioner or could not be produced by him;
- mistake or error apparent on the face of the record; or
- any other sufficient reason, which means a reason that is analogous to the other two grounds.

Procedure:

- **Who can file a review petition? It is not necessary that only parties to a case can seek a review of the judgment on it. Any person aggrieved by a ruling can seek a review.**
- **Time frame: As per 1996 rules framed by the Supreme Court, a review petition must be filed within 30 days of the date of judgment or order.**

While a judgment is the final decision in a case, an order is an interim ruling that is subject to its final verdict.

- The petition should clearly outline the grounds for review and include legal arguments and supporting precedents.
- **In general, review petitions in court are typically considered without oral arguments from lawyers. Instead, they are reviewed "through circulation" by the judges in their chambers. There are exceptional cases where an oral hearing may be permitted.**
- The review petition should be circulated to the same bench that delivered the judgment.
- However, if a Judge or bench is not available who delivered the original order/ judgment due to various reasons, any other competent Court is authorized and empowered to deal with the review application.
- The Supreme Court will assess the petition to determine if it qualifies for review. In cases where the arguments lack substantial merit, the petition may be rejected.
- **If the review petition has been dismissed by the Court, then the aggrieved person is provided with a relief of Curative Petition.**

4. Public Accounts Committee

Context:

The Public Accounts Committee (PAC) will hold a performance review of "regulatory bodies established by Act of Parliament", such as the Securities and Exchange Board of India (SEBI).

About:

- **The Committee on Public Accounts is constituted by Parliament each year for examination of accounts showing the appropriation of sums granted by Parliament for expenditure of Government of India,** the annual Finance Accounts of Government of India, and such other Accounts laid before Parliament as the Committee may deem fit, such as accounts of autonomous and semi-autonomous bodies.

- The Committee is one of the oldest Parliamentary Committees in India. It was first constituted in 1921.
- The Committee consists of not more than 22 Members; comprising 15 Members elected by Lok Sabha every year from amongst its members according to the principle of proportional representation by means of single transferable vote and not more than 7 Members of Rajya Sabha elected by that House in like manner are associated with the Committee.

5. Parliamentary committee

Context:

Context: Department-related Standing Committees of Parliament are likely to be finalised by September 20.

About Parliamentary committee:

- A Parliamentary committee is a committee of Members of Parliament (MPs) who are elected or appointed from amongst the members of the house or nominated by the Speaker or Chairman.
- Constitutional Provision: India's parliamentary committees derive their authority from the Indian Constitution under Article 105 (powers and privileges) and Article 118 (regulation of business).
- A Parliamentary Committee can either be a Standing Committees or an Ad hoc Committee.

Standing Committees are of permanent nature and are constituted for a fixed tenure.

- Public Accounts Committee, Estimates Committee, Committee on Public Undertakings, Business Advisory Committee, Rules Committee are the examples of standing committees.

Ad hoc Committees are of temporary nature and constituted for specific purposes and cease to exist after the completion of tasks assigned to them.

- Advisory Committees and Inquiry Committees are an example of these committees.

- Select Committees are a category of ad hoc or temporary committees established with the specific purpose of examining and scrutinizing particular Bills.

- Its membership is limited to MPs from one House.
- These committees are dissolved once their designated task has been fulfilled.

Some of the power and functions of the Parliamentary committees:

- Reviewing and scrutinising the work of the government.
- Power to summon ministers and officials.
- Examination of bills.
- To make recommendations.

6. Parliamentary Committee on Official Language

Context:

Recently, the union home minister chaired the 38th meeting of the Committee of Parliament on Official Language.

About Parliamentary Committee on Official Language:

The Parliamentary Committee on Official Language was constituted under the provisions of Section 4 of the Official Languages Act, 1963, in 1976.

- Section 4 of the Act says "there shall be constituted a Committee on Official language, on a resolution to that effect being moved in either House of Parliament with the previous sanction of the President and passed by both Houses".

The Committee is chaired by the union home minister, and has, in accordance with the provisions of the 1963 Act.

Under the provisions of the 1963 Act, the panel submits its report to the President, who "shall [then] cause the report to be laid before each House of Parliament, and sent to all the State Governments".

Purpose of the committee

- To review the progress made in the use of Hindi for official purposes, and to make recommendations to increase the use of Hindi in official communications.

Members: It comprises 30 members of Parliament, of which 20 are from the Lok Sabha and 10 from the Rajya Sabha.

7. Commission for Scientific and Technical Terminology

Context:

Recently, the Commission for Scientific and Technical Terminology (CSTT) has launched a unique website which provides technical terms in all 22 official Indian languages.

About Commission for Scientific and Technical Terminology:

- **It was set up in December 1960, with the objective to evolve and define scientific and technical terms in Hindi and all Indian languages.**
- **It was established under clause (4) of Article 344 of the Constitution of India.**
- It is functioning under the Department of Higher Education, Ministry of Education, Government of India with its headquarters at New Delhi.
- **Primary Function: Evolve standard terminology, propagate its use and distribute it widely.**

Other functions:

- Preparation and Publication of Bilingual and Trilingual Glossaries involving English/Hindi and other Indian Languages.
- Preparation and Publication of National terminology.
- Identification and Publication of School Level Terminology and Departmental Glossaries.
- Identification of Pan Indian Terms.
- Preparation of Definitional Dictionaries and Encyclopaedias.
- Preparation of University level textbooks, monographs and journals.
- Grant-in-Aid to Granth Academies, Textbook Boards and University Cells for University level books in regional languages.

- Propagation, expansion and critical review of terms coined and defined through training/orientation programmes, workshops, seminars etc.
- Providing necessary terminology to the National Translation Mission.

Recent initiative of Commission for Scientific and Technical Terminology:

- It has launched the web portal 'shabd.education.gov.in' aims to be a central repository for all the terminologies prepared for Indian languages.
- Besides all the glossaries of CSTT, other institutions or agencies having such dictionaries are also able to host their work in digital form on this platform.

8. Gram Nyayalayas

Context:

The Supreme Court recently said the establishment of Gram Nyayalayas across the country would help improve access to justice.

About Gram Nyayalayas:

- **Gram Nyayalayas, or village courts, are established under the Gram Nyayalayas Act, 2008, for speedy and easy access to the justice system in the rural areas of India.**
- **The Act extends to the whole of India, except to the States of Nagaland, Arunachal Pradesh, and Sikkim and to the tribal areas specified in the Sixth Schedule to the Constitution of India.**
- Gram Nyayalayas are aimed at providing inexpensive justice to people in rural areas at their doorsteps.



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Constitution:

- **The State governments have been vested with the authority of setting up one or more nyayalayas, after proper consultation with the respective High Court, in every Panchayat at the intermediate level or group of adjacent Panchayats at the intermediate level of a district.**
- **However, the Act does not make setting up of Gram Nyayalayas mandatory.**
- Section 4 of the Act provides for the headquarters of the gram nyayalaya to be situated in the respective Panchayat or some other place notified by the state government.
- **Presiding Officer:** The Gram Nyayalayas are presided over by a Nyayadhikari (appointed by the State Government in consultation with the respective High Court), who will have the same power, enjoy the same salary and benefits as a Judicial Magistrate of First Class.
- **Act as Mobile Court:** The Nyayadhikari shall periodically visit villages and may hear the parties and dispose of the cases at the place other than its headquarters.
- **Territorial Jurisdiction:** The State governments are also sanctioned to control and alter the territorial jurisdiction of the Gram Nyayalayas from time to time, depending upon the requirement or circumstance.
- **The Gram Nyayalayas will try criminal cases, civil suits, claims, or disputes which are specified in the First Schedule and the Second Schedule to the Act.**
- They are to follow summary procedure in a criminal trial.
- Disputes are to be settled as far as possible by bringing about conciliation between the parties, and for this purpose, the Gram Nyayalayas will make use of the conciliators to be appointed for this purpose.
- **The Gram Nyayalaya shall not be bound by the rules of evidence provided in the Bharatiya Sakshya Adhinyam, 2023, but shall be guided by the principles of natural justice, subject to any rule made by the High Court.**

Appeals:

- **Criminal matters:** An appeal against the decision of the Nyayalaya in a criminal matter can be filed in the Sessions Court of that jurisdiction.
- **Civil matters:** an appeal against any verdict of the gram Nyayalaya concerning a civil matter can be filed in a District Court of the concerned jurisdiction.

9. Inner Line Permit**Context:**

The Nagaland State Government has approved the implementation of the Inner Line Permit (ILP) in Chumoukedima, Niuland, and Dimapur districts

About Inner Line Permit (ILP)

- **The Inner Line Permit (ILP) is an official travel document required for Indian citizens from outside certain protected states to enter these areas for a limited period.**
- Established under the Bengal Eastern Frontier Regulations, 1873, initially to protect British commercial interests, the ILP now aims to safeguard tribal cultures in northeastern India.
- The system was updated post-independence to use "Citizen of India" instead of "British subjects."

There are various types of ILPs, including those for tourism and long-term stays.

- Tourist ILPs are typically issued routinely.

The states which require the permit are:

- **Arunachal Pradesh**
- **Mizoram**
- **Nagaland**
- **Manipur.**

10. Central Bureau of Investigation

Context:

The Central Bureau of Investigation (CBI) in its ongoing Operation CHAKRA-III has taken action to successfully dismantle a sophisticated cyber-enabled financial crime network.

About:

- This operation was executed with cooperation from other international law enforcement agencies including the FBI (USA) and INTERPOL.
- The network has been targeting victims in foreign countries since 2022, with their operations involving cryptocurrencies and bullion.

Central Bureau of Investigation (CBI)

- CBI, functioning under the Ministry of Personnel, Pension & Public Grievances, Government of India, is the premier investigating police agency in India.
- CBI derives power to investigate from the Delhi Special Police Establishment Act, 1946.
- History: It was established by a resolution of the Ministry of Home Affairs, Government of India, in 1963.
- The Santhanam Committee on Prevention of Corruption recommended the establishment of the CBI.
- **Functions:** CBI was established with a view to investigate serious crimes related to the defence of India, corruption in high places, serious fraud, cheating, and embezzlement and social crime, particularly hoarding, black marketing, and profiteering in essential commodities, having all-India and inter-state ramifications.
- It is also the nodal police agency in India that coordinates investigations on behalf of Interpol member countries.

11. Early Elections

Context:

- Delhi's Chief Minister has asked for Assembly elections to be held in Delhi along with Maharashtra, where a new House must be elected before November 26.

- However, the term of the Delhi Assembly ends only on February 23, 2025.

Early Elections

Under Article 324 of the Constitution, the powers of superintendence, direction, and control of elections are vested in the Election Commission of India (ECI).

- The ECI works backwards from the date on which the five-year term of the existing House ends, ensuring that the election process is completed before then.

Section 15(2) of The Representation of the People Act, 1951, says the election cannot be notified less than six months before the end of the term of the Assembly — unless the Assembly is dissolved before it completes its term.

Article 174(2)(b) of the Constitution says the Governor "may from time to time" dissolve the Legislative Assembly.

- *The Council of Ministers can recommend dissolution of the House to the Governor before the end of its term, forcing a decision.*
- Once the Assembly has been dissolved, the ECI has to conduct fresh elections within six months.

Delhi's Scenario:

- In Delhi, the Government of National Capital Territory of Delhi Act, 1991, applies.
- *Section 6(2)(b) of the Act says the Lieutenant Governor may from time to time dissolve the Assembly, even if a Chief Minister of Delhi recommends the dissolution of the Assembly, the final say is the Centre's (through the LG).*

12. ASOSAI

Context:

President Droupadi Murmu will inaugurate the 16th Assembly of ASOSAI in New Delhi on September 24, 2024.

About ASOSAI (Asian Organization of Supreme Audit Institutions):

- ASOSAI is one of the regional groups of the International Organization of Supreme Audit Institutions (INTOSAI).
- It focuses on fostering cooperation and improving public audit standards in Asia.
- **Founded: Established in 1979, with 11-member SAIs; membership has since grown to 48 SAIs.**
- **Proposal:** First proposed by Mr. Tantuico, Chairman of the SAI of the Philippines, during the 9th INTOSAI Congress (October 1977, Lima, Peru).
- **Charter Signing:** In September 1978, 9 Asian SAIs signed the ASOSAI Charter in Berlin, West Germany.
- **First Assembly: Held in May 1979 in New Delhi, India, where the rules and regulations were approved.**

Vision of ASOSAI:

- Promote understanding and cooperation among member institutions through exchange of ideas and experiences in public audit.
- Provide training and continuing education for government auditors to enhance quality and performance.
- Serve as a center of information and as a regional link with other global audit institutions.
- Foster closer collaboration and brotherhood among auditors in member institutions and regional groups.

ASOSAI's mission includes promoting research, education, and collaboration, but not providing financial aid to members.

13. Doctrine of 'Constructive Possession'**Context:**

Invoking the doctrine of "constructive possession", Supreme Court recently ruled that watching child pornography over the Internet without downloading would also amount to "possession", in terms of Section 15 of the POCSO Act, provided the person had a degree of control over such material.

About Doctrine of 'Constructive Possession':

- **It is a legal doctrine that attributes possession of an item or substance to an individual, even if they do not have physical control or immediate possession of it.**
- In criminal law, constructive possession arises when a person has the intention and ability to exercise control over the item or substance, either individually or jointly with others.
- Unlike actual possession, which involves physical custody or control, constructive possession is based on the concept that an individual can still be held responsible for items they have the power to control, even if those items are not physically on their person.
- The key element is the intent and capability to exercise dominion or control over the object or substance.
- Constructive possession allows a person who does not actually have personal possession of something, yet still controls it, to be charged with a crime for possessing it.
- Constructive possession often arises in cases involving illegal drugs, firearms, or stolen property, where the defendant may not have direct physical possession but has control or access to the item.

For a successful prosecution of constructive possession, certain criteria must be met. These include:

- **Knowledge of the Item's Presence:** The individual must be aware that the item exists. Mere proximity to an item without knowledge does not constitute constructive possession.
- **Ability to Exercise Control:** The person must have the capability to maintain dominion over the item. This means having the power and intention to control its use.
- **Intent to Possess:** There must be an intent to possess the item. This can often be inferred from circumstances, such as the location of the item and the individual's actions or statements.



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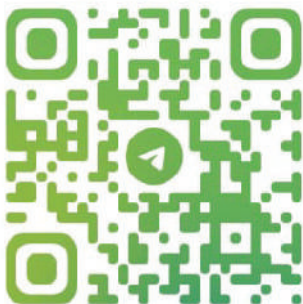
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ECONOMY

1. Anti-Dumping Duty

Context:

The Ministry of Commerce and Industry recently recommended imposing an anti-dumping duty on aluminium foil imported from China.

About Anti-Dumping Duty:

- *It is a protectionist tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.*
- Dumping is a process wherein a company exports a product at a price that is significantly lower than the price it normally charges in its home (or its domestic) market.
- The duty is priced in an amount that equals the difference between the normal costs of the products in the importing country and the market value of similar goods in the exporting country or other countries that produce similar products.
- It is imposed to protect local businesses and markets from unfair competition by foreign imports.
- Thus, the purpose of anti-dumping duty is to rectify the trade distortive effect of dumping and re-establish fair trade.

The use of anti-dumping measures as an instrument of fair competition is permitted by the World Trade Organization (WTO).

- The WTO allows the government of the affected country to take legal action against the dumping country as long as there is evidence of genuine material injury to industries in the domestic market.
- The government must show that dumping took place, the extent of the dumping in terms of costs, and the injury or threat to cause injury to the domestic market.

While the intention of anti-dumping duties is to protect local businesses and markets, these tariffs can also lead to higher prices for domestic consumers.

In India, the Ministry of Finance makes the final decision on whether to impose anti-dumping duties.

What is Countervailing duty (CVD)?

- *It is a specific form of duty that the government imposes to protect domestic producers by countering the negative impact of import subsidies.*
- CVD is thus an import tax by the importing country on imported products.

Why is CVD imposed?

- Foreign governments sometimes provide subsidies to their producers to make their products cheaper and boost their demand in other countries.
- To avoid flooding the market in the importing country with these goods, the government of the importing country imposes CVD, charging a specific amount on the import of such goods.

2. Unified Lending Interface

Context:

The Reserve Bank of India (RBI), as part of its strategy to create digital public infrastructure in the country, has announced a new technology platform called the Unified Lending Interface (ULI).

About:

- ULI is a platform that facilitates the seamless flow of a customer's digitised financial and non-financial data from multiple data service providers to lenders, making credit underwriting seamless and customer journeys frictionless for a diverse range of borrowers.
- *This platform facilitates seamless and consent-based flow of digital information, including even land records of various States.*
- *The ULI architecture has common and standardised Application Programming Interfaces (APIs) designed for a 'plug and play' approach to ensure digital access to information from diverse sources.*

- This will reduce the complexity of multiple technical integrations besides enabling borrowers to get the benefit of seamless delivery of credit and quicker turnaround time without requiring extensive and time-consuming documentation.
- This will also bring down the time taken for credit appraisal, especially for smaller and rural borrowers without any credit history.
- **It can facilitate customer's digitised financial and non-financial data from multiple data service providers to lenders.**
- **It will not eliminate the need for collateral for smaller and rural borrowers.**

3. AgriSURE Scheme

Context:

Recently, the union minister for Agriculture and Farmers' Welfare and Rural Development launched the AgriSURE Scheme in New Delhi.

About:

- The National Bank for Agriculture and Rural Development (NABARD) has introduced a new agri fund named Agri-SURE, targeting Start-Ups and Rural Enterprises.
- **This initiative is designed to bolster innovation and technological advancements in the agricultural sector, with an initial corpus of ₹750 crore.**
- Agri Fund for Start-ups & Rural Enterprises (AgriSURE) is an innovative fund which is a pioneering step toward revolutionizing the agricultural landscape in India.
- **Focus area:** It mainly focuses on technology-driven, high-risk, high-impact ventures.
- **Funding Pattern:** A Blended capital fund of ₹750 crore with SEBI Registered Category II, Alternative Investment Fund (AIF), contribution from the Government of India is ₹250 crore, NABARD is ₹250 crore, and ₹250 crore is being mobilized from banks, insurance companies, and private investors.

- The fund would encourage entrepreneurship through IT-based solutions and machinery rental services for farmers, driving sustainable growth and development in the agricultural sector.
- **NABVENTURES a fully owned subsidiary of NABARD will act as the fund manager.**

4. Poshan Tracker initiative

Context:

Recently, the Ministry of Women and Child Development has received the National Award for e-Governance 2024 (Gold) for the Poshan Tracker initiative.

About:

- **The Poshan Tracker program identifies and addresses growth issues among children aged 0-6 years, utilizing real-time monitoring and WHO growth charts to ensure optimal nutritional outcomes.**
- Anganwadi Workers (AWWs) play a crucial role in evaluating children's health status and implementing timely interventions when deviations from expected growth patterns are detected.
- **The Poshan Tracker employs advanced ICT tools and Growth Measuring Devices (GMD) at each Anganwadi Centre (AWC) to facilitate accurate data collection and regular monitoring.**
- The program's real-time growth monitoring has significantly improved child health outcomes in India, covering millions of children under Mission Poshan 2.0.



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4. Semiconductor

Context:

India and Singapore inked agreements on semiconductor and digital technology recently.

About:

- Semiconductors, sometimes referred to as integrated circuits (ICs) or microchips, are made from pure elements, typically silicon or germanium, or compounds such as gallium arsenide.
- In a process called doping, small amounts of impurities are added to these pure elements, causing large changes in the conductivity of the material.
- They are an essential component of electronic devices, enabling advances in communications, computing, healthcare, military systems, transportation, clean energy, and countless other applications.
- Due to their role in the fabrication of electronic devices, semiconductors are an important part of our lives.
- Properties – At zero Kelvin, a semiconductor serves as an insulator and it functions as a conductor as the temperature increases.
- They have higher resistivity than conductors but a lower resistivity than insulators.
- As the temperature increases, the resistance of semiconductor materials decreases, and vice versa.

5. VisioNxt Initiative

Context:

Recently, the union Minister of Textiles launched the 'VisioNxt Fashion Forecasting Initiative' of National Institute of Fashion Technology (NIFT).

About VisioNxt Initiative:

- It is India's first ever trend insights and forecasting Initiative.

- It was conceived and established at NIFT Delhi (Creative Lab) and NIFT Chennai (Insights Lab) with the support of the Ministry of Textiles, Government of India, in 2018.
- The initiative, now centralized in Chennai, focuses on delivering trend insights and forecasting for the Indian fashion and retail market.
- It also offers various trend related consultancy services, academic courses, workshops etc.
- Its mission is to identify, map, and analyse geo-specific trends, reflecting the positive plurality, cultural diversity, and socio-economic nuances of India while collating comprehensive trends and insights.
- It combines AI and EI to generate fashion trend insights and forecasts.

Significance:

- India's entry into the forecasting space offers multiple advantages: it reduces dependence on global forecasting agencies, provides unique insights into Indian fashion consumers, integrates India's strength in information technology with textiles, and combines artificial and human intelligence.

6. Financialisation

Context:

Chief Economic Adviser (CEA) recently cautioned that financialisation might distort India's macroeconomic outcomes.

About Financialisation:

- It refers to the increase in size and importance of a country's financial sector relative to its overall economy.
- It is a process whereby financial markets, financial institutions, and financial elites gain greater influence over economic policy and economic outcomes.

- It represents the shift from traditional industrial or productive activities (like manufacturing) to financial activities that involve the trading, management, and speculation of financial assets.
- The term also describes the increasing diversity of transactions and market players as well as their intersection with all parts of the economy and society.
- It has occurred as countries shifted away from industrial capitalism.
- It impacts both the macroeconomy and the microeconomy by changing how financial markets are structured and operated, and by influencing corporate behaviour and economic policy.
- **Financialisation has also caused incomes to increase more in the financial sector than in other sectors of the economy.**

7. Pradhan Mantri Kisan Maandhan Yojana

Context:

Pradhan Mantri Kisan Maandhan Yojana (PM-KMY) has completed 5 years of implementation.

About:

- **Launched in 2019, the PM-KMY has been providing social security to all land-holding Small and Marginal Farmers (SMFs) across the country.**

It is a voluntary and contributory pension scheme.

- **Eligible small and marginal farmers are given a fixed monthly pension of Rs. 3,000 after attaining the age of sixty.**
- **Farmers aged between 18 and 40 years need to contribute between Rs. 55 to Rs. 200 per month until they turn 60.**
- The Central Government, through the Department of Agriculture Cooperation and Farmers Welfare, also contributes an equal amount as contributed by the eligible subscriber, to the pension Fund.

The Life Insurance Corporation (LIC) manages the pension fund, and beneficiary registration is facilitated through Common Service Centres (CSCs) and State Governments.

8. International Cooperative Alliance

Context:

India will host the International Cooperative Alliance's general assembly and global conference for the first time in November this year, at Bharat Mandapam, New Delhi.

About:

- The theme for this year's conference is "Cooperatives Build Prosperity for All," which is in line with the Prime Minister Narendra Modi's vision of 'Sahkar se Samridhhi'.
- **The Conference will also mark the official launch of the UN International Year of Cooperatives – 2025.**
- A commemorative stamp celebrating the International Year of Cooperatives – 2025 will be launched during the event.
- The Conference will be used to showcase Indian Cooperatives' products and services in the 'Haat' setup with the theme of Indian Villages.
- **India is home to one-fourth of the world's cooperatives, both in terms of numbers and membership, and this move will further strengthen the cooperative movement in the country.**

International Cooperative Alliance (ICA):

- It is the premier body for the Global Cooperative movement.
- **It was established in 1895 as a non-profit international association to advance the cooperative social enterprise model.**
- The ICA's General Assembly meets every year whereas global conferences happen every two years.

9. Pradhan Mantri Awas Yojana-Gramin

Context:

The union government has announced a relaxation of the "automatic exclusion" criteria under the Pradhan Mantri Awas Yojana-Gramin (PMAY-G), expanding eligibility for the rural housing scheme.

About:

- As per this relaxation, families earning up to Rs 15,000 per month and owning two-wheelers, motorized fishing boats, refrigerators, landline can now avail the Centre's rural housing scheme.
- Previously, families meeting these parameters were ineligible to purchase a house under this scheme.

The parameters that will continue to result in automatic exclusion are;

- (Owning) motorized three/four-wheelers; mechanized three/ four-wheeler agricultural equipment,
- Kisan Credit Card with credit limit of Rs 50,000 or above,
- Household with any member as a government employee,
- Household with non-agricultural enterprises registered with Government,
- Any member of the family paying income tax, Paying professional tax, Land ownership ceiling of 2.5 acres or more of irrigated land.

The updated criteria align with the Centre's goal to construct two crore additional houses under the scheme by 2028-29.

10. Trade Connect e-platform**Context:**

The Union Minister for Commerce and Industry launched the Trade Connect e-platform.

About:

- Trade Connect e-Platform is a new digital initiative aimed at transforming the landscape of international trade for Indian exporters, especially MSMEs (Medium, Small and Medium Enterprises).
- It will connect Indian Exporters, MSMEs and Entrepreneurs with various stakeholders including Indian Missions Abroad, Export Promotion Councils, and other Partner Government Agencies.

- The platform, developed in collaboration with key partners including the Ministry of MSME, EXIM Bank, Department of Financial Services (DFS), and the Ministry of External Affairs (MEA).

11. Nano DAP**Context:**

The Government of India is pushing nano DAP as a cost-effective indigenous alternative to the imported granular form of the fertiliser.

About Nano DAP:

- In March 2023, IFFCO also made nano DAP (liquid) available to farmers to reduce the use of DAP fertilizer.
- It is a unique liquid fertiliser product that contains nanoparticles of Diammonium Phosphate (DAP).
- It is a source of nitrogen and phosphorus – 2 key primary nutrients essential for the growth of crops.
- It contains 8% Nitrogen and 16% Phosphorus by volume.
- Di-ammonium Phosphate popularly known as DAP (46% P, 18% Nitrogen)
- Unlike conventional DAP, which comes in granular form, IFFCO's Nano DAP is in liquid form.
- It has an advantage in terms of surface area to volume, as its particle size is less than 100 Nanometre (nm).

12. Gopalpur Port**Context:**

The Odisha government recently approved a proposal to transfer 95 percent of the equity shares of Gopalpur Port to Adani Ports and Special Economic Zone Limited (APSEZ).

Ports	Located in
1. Gopalpur Port	Odisha
2. Jafrabad Port	Gujarat
3. Kundapur Port	Karnataka
4. Dighi Port	Maharashtra

About Gopalpur Port:

- It is a deep-draft, multi-cargo port located on the east coast of India in the mineral-rich state of Odisha.
- It has the capacity to handle 20 million metric tonne per annum of cargo.
- It lies between Paradip Port in the north and Visakhapatnam Port in the south, at almost equal distance from each.
- The hinterland of the port are the states of Odisha, Jharkhand, and Chhattisgarh, thus providing access to a mix of minerals, steel, aluminium, cement, and power plants.
- The coal fields of IB and Talcher, which account for approximately 25% of India's coal reserves, form part of the hinterland of the port.

Connectivity:

- The broad-gauge Howrah-Visakhapatnam-Chennai east coast trunk route, which runs parallel to the east coastline, is just 6 km away from Gopalpur port site.
- Close proximity to NH5 (Kolkata-Chennai) provides excellent road connectivity to and from Gopalpur.

13. GST Council**Context:**

The GST Council constituted a 13-member Group of Ministers (GoM) to suggest a GST rate on premiums of various health and life insurance products and submit its report by October 30.

About GST Council

- It is a constitutional body formed under Article 279A (1), enacted by the 101st Constitutional Amendment Act.
- According to Article 279A (4), the GST Council recommends the GST rates for the Union and the States.

Composition of GST Council (Article 279A (2)): The GST Council brings together representatives from the Centre and the States to oversee the nationwide implementation of GST.

Its membership includes:

- Chairperson: Union Finance Minister
- Member: Union Minister of State in charge of Revenue or finance
- Members nominated by each State Government, typically in charge of finance or taxation
- Vice-Chairperson elected from among the Council members (Article 279A (3))

The GST rates are jointly determined by the states and the central government during GST Council meetings.

- The GST Council requires at least half of its total members to be present to conduct a meeting.
- Decisions are made based on a majority of no less than three-fourths of the weighted votes of members present and voting.
- The central government's vote carries a weight of one-third of the total votes cast, while all states collectively hold the remaining two-thirds weightage.

14. Nidhi Companies**Context:**

Recently, the Registrar of Companies (RoC) under the corporate affairs ministry has penalised over two dozen Nidhi companies in about a fortnight for alleged violations of Companies Act provisions.

About Nidhi Companies:

- A NIDHI Company is recognised under Section 406 of the Companies Act 2013 and typically operates in the Non-Banking Financing Sector of India.
- It is formed to borrow and lend money to its members. It inculcates the habit of saving among its members and works on the principle of mutual benefit.
- It isn't required to receive the license from Reserve Bank of India (RBI), as these are registered with the companies act.

- **Members:** Minimum of seven members is required to start a Nidhi Company out of which three members must be the directors of the company.

Activities Prohibited in a Nidhi Company:

- **It can't deal with chit funds,** hire-purchase finance, leasing finance, insurance or securities business.
- **It is strictly prohibited from accepting deposits from or lending funds to, any other person except members.**
- **Nidhi companies should not issue preference shares,** debentures or any other debt instrument in any manner, name or form.
- **Nidhi companies should not open current accounts with their members.**

15. Maritime State Development Council

Context:

The 20th Maritime State Development Council (MSDC), was concluded in Goa recently.

About

- It saw the resolution of over 80 critical issues between the Central Government, States, and Union Territories, focused on port infrastructure modernization, connectivity, statutory compliances, maritime tourism, navigation projects, sustainability, and port security.
- The MSDC has been instrumental in aligning policies and initiatives like the Indian Ports Bill and the Sagarmala program.

Maritime State Development Council:

- **MSDC is an apex advisory body for the development of the Maritime sector and aims to ensure integrated development of Major and non-Major Ports.**
- **It was constituted in 1997** to assess in consultation with State Governments, the future development of existing and new Minor Ports by the respective Maritime States either directly or through captive users and private participation.

- **MSDC also monitors the development of minor ports, captive ports and private ports in the Maritime States.**

- It also ensures their integrated development with Major Ports and to assess the requirements of other infrastructure requirements like roads/rail/IWT.

16. National Start-up Advisory Council

Context:

The Commerce and Industry Minister recently announced the Centre's Start-up India initiative will be moved out of the aegis of Invest India to a new non-profit company that could also house the National Start-up Advisory Council.

Key Facts about National Start-up Advisory Council:

- **It was constituted by the DPIIT under the Union Ministry of Commerce and Industry.**
- **Objective:** To advise the Government on measures needed to build a strong ecosystem for nurturing innovation and startups in the country to drive sustainable economic growth and generate large-scale employment opportunities.

Composition:

- **Chairman:** Minister for Commerce & Industry.
- **Ex-officio Members:** Nominees of the concerned Ministries/Departments/Organisations not below the rank of Joint Secretary.
- Besides the ex-officio members, the council has non-official members, representing various stakeholders such as founders of successful startups and veterans who have grown and scaled companies in India.

It is a one of its kind congregations wherein the policy making process is driven as part of collaboration between all the key stakeholders of the startup ecosystem.

NSAC is playing an important role in identifying areas of intervention for the expansion of the startup ecosystem and ideating and nurturing national programs under the Startup India initiative.

About Invest India:

- It is the **National Investment Promotion and Facilitation Agency of India** and acts as the first point of reference for investors in India.
- It was set up as a non-profit venture under the aegis of the **Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India.**
- It facilitates and empowers all investors under the 'Make in India' initiative to establish, operate, and expand their businesses in India.
- The agency aims at sector-specific investor targeting and development of partnerships, thereby channelising sustainable investments in the country.
- It is also engaged in developing partnerships with investment promotion agencies and multilateral organisations.
- Its domain and functional experts provide sector- and state-specific inputs and hand-holding support to investors through the entire investment cycle, from pre-investment and decision-making to after-care.
- It provides multiple forms of support, such as market entry strategies, deep dive industry analysis, partner search and location assessment, and policy advocacy with decision makers.
- **Headquarters: New Delhi.**

17. Real Estate Investment Trusts**Context:**

The Indian REITs Association (IRA) recently launched Data Benchmarking Institutions (DBIs) to provide investors with detailed information on real estate investment trusts (REITs).

About Real Estate Investment Trusts (REITs):

- REITs are companies that own or finance income-producing real estate across a range of property sectors.
- It allows investors to pool their funds and invest in various real estate projects.
- Essentially, it functions like a mutual fund for real estate investments.

- These trusts own and oversee a portfolio of income-generating properties, such as office buildings, hotels, shopping malls, etc.
- Unlike other real estate companies, a REIT does not develop real estate properties to resell them. Instead, a REIT buys and develops properties primarily to operate them as part of its own investment portfolio.
- When investors invest in a REIT, they become fractional owners of the property equivalent to the amount they've invested, giving them access to the benefits of owning real estate assets in small ticket sizes.
- Most REITs are publicly traded like stocks, which makes them highly liquid, unlike traditional real estate investments.

REITs in India:

- In India, REITs were introduced in 2014 and are regulated by the Securities and Exchange Board of India (SEBI).

For a company to qualify as a REIT, the following criteria must be satisfied:

- 90% of the income must be distributed to the investors in the form of dividends.
- 80% of the investment must be made in properties that are capable of generating revenues.
- Only 10% of the total investment must be made in real estate under-construction properties.
- The company must have an asset base of at least Rs 500 crores.
- REITs cannot invest in agriculture land, vacant land.



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18. NPS Vatsalya scheme**Context:**

The finance minister has launched the NPS Vatsalya scheme.

About:

- Introduced in the Union Budget 2024-25, NPS Vatsalya is a new initiative under the National Pension System designed for long-term investments by parents and guardians on behalf of their minor children.
- It is a centrally sponsored scheme launched by the Ministry of Women and Child Development.
- The Pension Fund Regulatory and Development Authority (PFRDA) manages the scheme.

Key attributes of the Vatsalya NPS account:

- **Eligibility criteria:** Any minor, having PAN card and Aadhar card, who is under the age of 18 is eligible.
- **Minimum contribution:** A minimum of Rs 1,000 per year can be contributed with no limit on maximum contribution.
- **Contributors to the scheme:** Parents/guardians can contribute on behalf of their children.
- **Transition after the age of 18:** The minor's NPS account will transition to a standard NPS account, post the submission of required KYC documents.
- Partial withdrawals allowed after 3 years for education, health, and disability up to 25% of corpus.

19. White Revolution 2.0**Context:**

In a major push to transform India's dairy cooperative sector, the Union Minister Amit Shah recently unveiled 'White Revolution 2.0', a comprehensive initiative aimed at empowering women farmers and creating job opportunities.

About 'White Revolution 2.0':

- The programme focuses on four key areas – empowering women farmers, enhancing local milk production, strengthening dairy infrastructure, and boosting dairy exports.

- Under White Revolution 2.0, the government aims to increase milk procurement by dairy cooperative societies by 50 per cent over the next five years.
- The plan involves setting up and strengthening 100,000 new and existing district cooperative societies, multi-purpose district cooperative societies, and multi-purpose PACS, which will be linked to milk routes with necessary infrastructure.
- Initially, the National Dairy Development Board (NDDB) will fund the initiative from its own resources, providing Rs 40,000 per M-PACS to 1,000 M-PACS.

20. United States Federal Reserve cut Federal Funds Rate by 50 basis points**Context:**

The United States Federal Reserve announced that it will cut the benchmark interest rate, the Federal Funds Rate, by 50 basis points, or half a percentage point.

About:

- A cut in interest rate typically incentivises economic activity, promotes growth, and increases job creation by making it cheaper for people to borrow money.
- Conversely, a hike in interest rates or persistently high interest rates tend to drag down economic growth and employment generation.

Impact on Indian economy:

- India is a capital-scarce economy, and lower interest rates in the US will likely incentivise global investors to borrow in the US and invest in India, in stocks, debt, or in the form of foreign direct investment (FDI).
- Repeated lowering of interest rates in the US will also lead to some weakening in the US dollar's exchange rate with other currencies such as the Indian rupee.
- This, in turn, will impact India's exporters (adversely) and importers (positively).

21. Credit Default Swaps

About Credit Default Swaps:

- It is a financial derivative that allows an investor to swap or offset their credit risk with that of another investor.
- In a credit default swap contract, the buyer pays an ongoing premium similar to the payments on an insurance policy. In exchange, the seller agrees to pay the security's value and interest payments if a default occurs.
- It can be used for speculation, hedging, or as a form of arbitrage.
- Credit default swaps played a role in both the 2008 Great Recession and the 2010 European Sovereign Debt Crisis.

What are Mutual Funds?

- A mutual fund is a pool of money managed by a professional Fund Manager.
- It is a trust that collects money from a number of investors who share a common investment objective and invests the same in equities, bonds, money market instruments and/or other securities.
- The income / gains generated from this collective investment is distributed proportionately amongst the investors after deducting applicable expenses and levies.

22. Haircut in banking

Context:

After taking a substantial haircut in a debt restructuring proposal of Supreme Infrastructure India Ltd (SIIL), State Bank of India (SBI) has proposed to invest in the preferential share issue of the defaulting company.

About:

- Haircut in banking refers to the lower-than-market value placed on an asset when it is being used as collateral for a loan.

- In the case of loan recovery, it is the difference between the actual dues from a borrower and the amount he settles with the bank.
- The size of the haircut is largely based on the risk of the underlying asset. Riskier assets receive larger haircuts.

23. Swachh Bharat Mission (SBM) Phases

Context:

According to the dashboard of the Swachh Bharat Mission's website, out of the 2,424 dumpsites having more than 1,000 tonnes of legacy waste identified across the country, remediation has been completed in only 470.

Swachh Bharat Mission (SBM) Phases:

SBM Phase I (2014-2019):

- **Goal:** Eliminate open defecation by constructing 100 million toilets.
- **Achieved ODF (Open Defecation Free) status by October 2, 2019.**

SBM-U 2.0 (Urban Phase II) (2021-2026):

- Aims to make all cities garbage-free by 2026.
- Continued focus on sustaining ODF status and solid waste management.

SBM (Urban) is being implemented by the Ministry of Housing and Urban Affairs (MHUA).

SBM-G Phase II (Grameen – Rural):

- Targets ODF Plus status by 2024-25.
- Focus on sustaining ODF and managing solid and liquid waste.
- Swachh Bharat Mission (Gramin) is implemented by the Ministry of Jal Shakti.

24. Final Estimates of production of Major Agricultural Crops

Context:

The Ministry of Agriculture and Farmers' Welfare has released Final Estimates of production of Major Agricultural Crops for the year 2023-24.

About Final Estimates of production of Major Agricultural Crops:

The Ministry of Agriculture and Farmers' Welfare has released Final Estimates of production of Major Agricultural Crops for the year 2023-24.

These estimates have been primarily prepared on the basis of information received from States/ UTs.

Total Foodgrain production: Increased by 26.11 LMT than 2022-23

Food grain production witnessed record increase: Due to good production of Rice, Wheat and Shree Anna.

- Rice production: Increased by 20.7 LT than the previous year
- Wheat production: Increased by 27.38 LT than the previous year's
- Millet's production: Increased by 2.51 LT than the previous year
- Maize: Decreased than the previous year
- Jowar: Increased than the previous year
- Bajra: Decreased than the previous year.
- Ragi: Decreased than the previous year

Total Production: Rice (1378.25 LT) > Wheat (1132.92) > Maize (376.65)

Millet's: Bajra (107.16) > Jowar (47.37) > Ragi (16.70)

25. Priority sector lending

Context:

A study by RBI economists reveals that priority sector lending (PSL) improves banks' asset quality.

What is Priority sector lending?

- Priority Sector Lending (PSL) is a Reserve Bank of India (RBI) initiative that requires banks to lend a certain percentage of their funds to sectors that may not otherwise receive enough credit.
- The goal of PSL is to support the all-round development of the economy by providing credit to sectors that are important for development or have difficulty getting loans

- The RBI periodically updates the sectors that are eligible for PSL, as well as the loan limits.
- The sectors that are eligible for PSL include: Agriculture, Micro, Small, and Medium Enterprises (MSMEs), Export Credit, Education, Housing, Social Infrastructure, Renewable Energy.
- In case, banks fail to meet their PSL targets, they have to deposit the allocated amount to the Rural Infrastructure Development Fund (RIDF) established with NABARD and to other funds as decided by the RBI.

26. Central Silk Board

Context:

Union Minister of Textiles, Shri Giriraj Singh, unveiled a commemorative coin celebrating the Platinum Jubilee of the Central Silk Board (CSB) at Mysuru.

About Central Silk Board:

- The Central Silk Board (CSB) is a statutory body established in 1948 under an Act of Parliament.
- It operates under the Ministry of Textiles and plays a crucial role in the development of India's silk industry.
- The CSB advises the Government of India on all matters concerning sericulture (silk farming) and the silk industry.
- Headquarters: Bengaluru, Karnataka.

Silk Production in India:

- India is the 2nd largest producer of Silk in the World.
- India is the only country in the world that produces all four major varieties of silk – Mulberry, Eri, Tassar, and Muga.
- South India is the leading silk producing area of the country and is also known for its famous silk weaving enclaves like Kancheepuram, Dharmavaram, Arni, etc.

27. Extended Fund Facility (EFF)

Context:

The International Monetary Fund's board (IMF) approved a \$7 billion Extended Fund Facility (EFF) for Pakistan, providing a critical boost to the country's struggling economy.

About:

- The International Monetary Fund (IMF) provides financial assistance to countries facing economic crises, primarily through different lending mechanisms.
- In return, the recipient countries have to implement specific economic reforms.

IMF Lending Mechanisms:

Stand-By Arrangements (SBA): This is intended to address short-term balance of payments problems.

- Typically lasts 12 to 24 months and involves conditions such as fiscal consolidation, monetary tightening, and structural reforms.

Extended Fund Facility (EFF): This is used for countries with prolonged structural imbalances or deeper economic problems, as in the case of Pakistan.

- It typically covers a longer time horizon (up to four years) and focuses on medium- to long-term reforms.
- The conditions focus on structural reforms, fiscal policies, and debt sustainability.

Rapid Financing Instrument (RFI): It is used for urgent balance of payments needs due to economic shocks, natural disasters, or conflict without the need for a fully-fledged economic program.

Poverty Reduction and Growth Trust (PRGT): Concessional lending aimed at low-income countries to support poverty reduction and growth programs.

Flexible Credit Line (FCL) and Precautionary Liquidity Line (PLL): These are aimed at countries with relatively strong economic fundamentals but in need of precautionary funding to guard against external shocks.

28. GST Compensation Cess

Context:

The Goods and Services Tax (GST) Council recently set up a 10-member GoM to decide on the taxation of luxury, sin, and demerit goods once the compensation cess ends in March 2026.

About GST Compensation Cess:

- It is levied under Section 8 of The Goods and Services Tax (Compensation to State) Act, 2017.

Why is GST Cess Levied?

- As GST is a consumption-based tax, the state in which the consumption of goods and supply happen would be eligible for the indirect tax revenue.
- Hence, after GST comes into effect, some states that are net exporters of goods and/or services are expected to experience a decrease in indirect tax revenue.
- To compensate the States for the loss in tax revenue, the GST Compensation Cess has been declared by the Central Government.

Usage of GST Cess:

- All the proceeds received from the GST compensation cess would be credited to a non-lapsable fund known as the GST Compensation Fund.
- The funds would then be used for compensating tax revenue loss to States on account of GST implementation.
- If any funds are unutilized, then at the end of the transition period, it would be shared in half by the Central Government and all State Governments.
- The State government's share would be distributed in the ratio of their total revenues from the State tax or the Union territory goods and services tax, in the last year of the transition period.

Applicability:

- GST Cess would be applicable to both the supply of goods or services that have been notified by the Central Government.

- Also, both intrastate supplies of goods or services and interstate supplies of goods or services would attract GST cess.
- All taxable persons under GST, except taxpayers registered under the GST composition scheme is expected to collect and remit GST cess.
- In the GST regime, compensation cess at varied rates is levied on luxury, sin, and demerit goods (cigarettes, pan masala, gutkha, and other tobacco products, soft drinks, cars, etc.).
- In 2022, the GST Council decided to extend the levy till March 2026 to repay the interest and the principal amount of the Rs 2.69 lakh crore worth loan taken in the 2021 and 2022 fiscal years to make good states' revenue loss during Covid years.

29. National Health Accounts estimates

Context:

India has recorded a decline in out-of-pocket expenditure (OOPE), or expenditures directly made by households at the point of receiving health care, according to National Health Accounts estimates released by the Ministry of Health and Family Welfare for 2021-22.

National Health Accounts estimates:

- Released by the Ministry of Health and Family Welfare for 2021-22.
- The per capita health expenditure has nearly doubled from Rs 1,753 to Rs 3,169 from 2017-18 to 2021-22.
- As a percentage of the gross domestic product (GDP), government health expenditure rose marginally from 1.35 per cent in 2017-18 to 1.84 per cent in 2021-22.
- The rise comes in line with the government's target of raising health expenditure to 2.5 percent of GDP by 2025.

Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (AB-PMJAY):

- Centrally Sponsored Scheme launched in 2018 under the Ministry of Health and Family Welfare (MoHFW).

National Health Protection Mission (AB-PMJAY):

- It provides a defined benefit cover of Rs. 5 lakh per family per year.
- This cover will take care of almost all secondary care and most of tertiary care procedures.
- To ensure that nobody is left out (especially women, children and elderly) there will be no cap on family size and age in the scheme.
- The benefit cover will include pre- and post-hospitalisation expenses.

30. Non-Basmati White Rice

Context:

- The Union Government has lifted the ban on export of Non-Basmati White Rice.
- The export ban had come amid a marginal dip in rice production and the looming threat of an erratic monsoon last year.

Key Facts

- China is the largest producer of rice in the world, followed by India, Bangladesh and Indonesia.
- India, along with China, accounts for over half of the world's rice production.
- China, however, is also the biggest consumer of rice, leaving little for exports.
- India is the world's largest exporter of rice, accounting for 33 percent of the world's total rice exports during 2023.
- Two east Asian countries—Thailand and Vietnam—are the two main competitors of India in the global rice market.
- In 2023, the combined rice export of these two countries was almost equal to Indian exports.



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13 Tests
(100 Qs Each), Total 1300 Qs
with Detailed Explanation PDFs

Covering Static Topics Based
on 13 months of CA :
(April 2024 to April 2025)

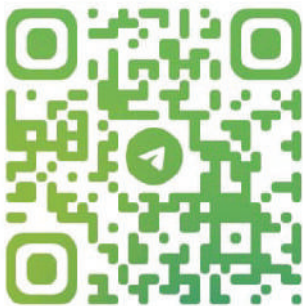
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CURRENT AFFAIRS TEST SERIES SCHEDULE PLAN - 2024-25

S.No.	Test Name	Date of Test
1	CA April 2024	18-08-2024
2	CA May 2024	01-09-2024
3	CA June 2024	15-09-2024
4	CA July 2024	29-09-2024
5	CA August 2024	13-10-2024
6	CA September 2024	27-10-2024
7	CA October 2024	17-11-2024
8	CA November 2024	15-12-2024
9	CA December 2024	12-01-2025
10	CA January 2025	16-02-2025
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- Important Current Affairs (25+ hrs).

Exam Orientation

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- PYQ Analysis of last 15 years.
- Learn to logically handle a difficult Prelims paper

Practice

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- 4 CSAT Sectional Tests
- 1 GS + 1 CSAT Grand Test
- 5 Sectional + 3 Grand Tests after HIR course

Orientation Date

10th November
2024 >>>
Time : 10 AM

Course Start Date
20th November
2024 >>>

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GEOGRAPHY

1. Laos

Context:

At least 47 Indians who were trapped in 'cyber scam centres', have been rescued from Bokeo province in Laos recently.

About Laos:

- It is located in the Indo-chinese Peninsula in Southeast Asia.
- It is the only landlocked country in Southeast Asia.
- Bordering Countries: It is bounded to the north by China, to the northeast and east by Vietnam, to the south by Cambodia, to the west by Thailand, and to the northwest by Myanmar (Burma).

Drainage:

All the major rivers—the Tha, Beng, Ou, Ngum, Kading, Bangfai, Banghiang, and Kong—are tributaries of the Mekong River, Southeast Asia's most significant river.

The Mekong flows generally southeast and south along and through western Laos and forms its boundary with Myanmar and most of the border with Thailand.

- Climate:** It has the typical tropical monsoon(wet-dry) climate of the region.
- Vegetation:** Laos has tropical rainforests of broad-leaved evergreens in the north and monsoon forests of mixed evergreens and deciduous trees in the south.
- Capital:** Vientiane

Form of Government:

- It is one of the world's few openly communist states.
- It is a one-party state, and the general secretary of the Lao People's Revolutionary Party holds ultimate power and authority over the state and government.



2. Uri-I Hydroelectric Project

Context:

The Expert Appraisal Committee (EAC) of the Union Ministry of Environment, Forest and Climate Change has deferred the proposal for grant of Environmental Clearance (EC) to the Stage-II of Uri-I Hydroelectric Project.

Hydroelectric Power Plant	Associated River
1. Uri Hydro Electric Power plant	Jhelum
2. Nathpa Jhakri Hydroelectric Power plant	Sutlej
3. Salal Hydro Electric Power plant	Chenab
4. Dehar Hydroelectric Power plant	Beas

About Uri-I Hydroelectric Project:

- It is an operating hydroelectric power plant located in the Jhelum River of Uri town in the Baramulla district of Jammu & Kashmir.
- It is located very near the Line of Control (LOC), the de facto border between India and Pakistan.

- The power project was commissioned in 1997 with a total installed capacity of 480 MW.
- It is owned by the Central Government, and the operating company of the plant is National Hydroelectric Power Corporation Limited (NHPC).
- The unit size of the power plant is 480 MW, having 4 units of 120 MW each.

Key Facts about Jhelum River:

- It is a river that flows in India and Pakistan.
- It is a tributary of the Indus River.
- It is the main waterway of the Kashmir valley.
- It is the largest and most western of the five rivers of Punjab and passes through the Jhelum District in the north of Punjab province, Pakistan.

Course:

- **Origin:** It originates at the Verinag Spring at Anantnag, at the foot of the Pir Panjal range in the Kashmir Valley.
- It then flows via Srinagar and Wular Lake prior to entering Pakistan.
- The river makes a deep, narrow gorge on its way to Pakistan.
- It joins the Chenab River near Trimmu, Pakistan.

Major Tributaries:

- The largest tributary of the Jhelum is the Kishenganga (Neelum) River, which joins near Muzaffarabad and enters the Punjab province, Pakistan.
- Kunhar River is the second largest tributary of the river, which connects Pakistan-occupied Kashmir (PoK) and Pakistan on the Kohala Bridge of Kangan valley.
- Other tributaries include the Sandran River, Bringi River, Arapath River, Watlala River, Lidder River, and Veshaw River.

3. Namibia

Context:

Namibia is experiencing its worst drought in a century, exacerbated by El Niño.



Status:

- Food availability is critically low; staple crops and livestock have perished.
- Approximately 1.2 million people face high levels of acute food insecurity.
- Therefore, the government plans to cull 723 wild animals (including elephants, hippos, buffaloes, impalas, blue wildebeests, zebras, and elands) to provide meat.

Namibia:

- The Republic of Namibia is situated on the southwestern coast of Africa and borders Angola and Zambia in the north, the Republic of South Africa in the south and Botswana in the east.
- The Namibian landscape consists generally of five geographical areas, each with characteristic abiotic conditions and vegetation with some variation within and overlap between them: the Central Plateau, the Namib Desert, the Escarpment, the Bushveld, and the Kalahari Desert.

- Mountains – Brandberg (with the height of 2,573 m), Spitzkoppe, Molteblick, Gamsberg.
- Rivers – Orange, Kunene, Okavango, Zambezi.

4. Cyclone Asna

Context:

Cyclone Asna recently moved past Gujarat without making any serious impact on the prone regions, said officials.

Reasons for more tropical cyclone originate in Bay of Bengal:

- Cyclones in the Bay of Bengal can be attributed to the vast low pressure created by the warm water of the ocean.
- The Bay of Bengal shaped like a trough that makes it more hospitable for storms to gain force.
- The high sea surface temperature makes matters worse in the Bay triggering the intensity of the storms.
- Bay of Bengal gets more rainfall with sluggish winds and warm air currents around it that keep temperatures relatively high all year.
- The constant inflow of fresh warm water from the perennial rivers like Brahmaputra, Ganga makes it further impossible to mix with the cooler water below.
- The absence of air movements from north-western India towards the Bay in the post-monsoon phase is also another reason for the chances of cyclones in the Bay of Bengal.

Reasons for high cyclonic activity in Arabian Sea in recent times:

- Surface temperatures in the Arabian Sea have increased rapidly during the past century due to global warming. Temp. Now is 1.2–1.4 °C higher than the temperature witnessed four decades ago. These warmer temperatures support active convection, heavy rainfall, and intense cyclones.
- The rising temperature is also enabling the Arabian Sea to supply ample energy for the intensification of cyclones.

- The Arabian Sea is also providing conducive wind shear for cyclones. For instance, a higher-level easterly wind drove the depression of Cyclone Ockhi from the Bay of Bengal to the Arabian Sea.

5. Cocoa Tree

Context:

Scientists and entrepreneurs are working on ways to make more cocoa that stretch well beyond the tropics.

About Cocoa Tree:

- It is an important plantation crop grown for chocolates around the world. It is known as a crop of humid tropics and is native to the Amazon basin of South America.
- Cocoa trees grow about 20-degree north and south of the equator in regions with warm weather and abundant rain, including West Africa and South America.

Required climatic conditions:

- It can be grown up to 300 m above mean sea level.
- Rainfall: It requires an annual rainfall of 1500-2000 mm.
- Temperature: The temperature range of 15°-39°C with optimum of 25°C is considered ideal.
- Soil: It requires deep and well drained soils. Majority of area under Cocoa cultivation is on clay loam and sandy loam soil.
- It grows well in the pH range of 6.5 to 7.0.

Shade requirement: It was evolved as an under-storey crop in the Amazonian forests. Thus, commercial cultivation of cocoa can be taken up in plantations where 50 per cent of light is ideally available.

Major producing regions in the world: About 70 percent of the world's cocoa beans come from four West African countries: Ivory Coast, Ghana, Nigeria and Cameroon.

In India, it is mainly cultivated in Karnataka, Kerala and Tamil Nadu mainly as intercrop with Arecanut and Coconut.

6. Krishna River

Context:

The recent surge in the Krishna River has resulted in boats being washed downstream, with some colliding with the gates of the Prakasam Barrage.

About Krishna River:

- It is a river in south-central India.
- In terms of water inflows and river basin, Krishna is the fourth biggest river after Ganga, Godavari, and Brahmaputra.

Course:

- **Origin:** It rises in western Maharashtra state in the Western Ghats rangenear the town of Mahabaleshwar, about 64 km from the Arabian Sea.
- It passes through Maharashtra, Karnataka, Telangana, and Andhra Pradesh and meets the Bay of Bengal at Hamasaladeevi in Andhra Pradesh, on the east coast.
- **Total Length: 1300 km**
- The Krishna River Basin extends over an area of about 258,948 sq. km, which is nearly 8 percent of the total geographical area of the country.
- It is bounded by the Balaghat range on the north, by the Eastern Ghats on the south and the east, and by the Western Ghats on the west.

Tributaries: *Its principal tributaries joining from right are the Ghatprabha, the Malprabha, and the Tungabhadra, whereas those joining from left are the Bhima, the Musi, and the Munneru.*

7. Madeira River

Context:

Residents near the Madeira River in the Amazon are facing unprecedented challenges as water levels drop to historic lows amid a severe drought.

River	Located in
1. Madeira River	South America
2. Vistula River	Europe
3. Murray River	Australia
4. Orange river	Africa

About Madeira River:

- ***It is a major tributary of the Amazon River.***
- It is formed by the junction of the Mamoré and Beni rivers at Villa Bella, Bolivia, and flows northward.
- It forms the border between Bolivia and Brazil for approximately 60 miles (100 km).
- The Madeira River is part of the larger Madeira Basin, which covers about 19% of the entire Amazon Basin.
- The basin extends across Bolivia, Brazil, and Peru, with roughly 50% of its area in Bolivia, 40% in Brazil, and 10% in Peru.

Significance of the river:

- **The Madeira River is a significant waterway in South America, playing a crucial role in the hydrology of the Amazon Basin.**
- **As the largest tributary of the Amazon River, it is a vital component of the region's ecosystem, spanning Bolivia and Brazil and supporting diverse flora and fauna.**

8. Galathea Bay

Context:

Recently, the central government of India has notified the international trans-shipment hub at Galathea Bay in the Andaman & Nicobar Islands as a 'Major Port'.

Bays	Geographic Location
1. False Bay	Atlantic Ocean
2. Bay of Campeche	Gulf of Mexico
3. Bothnian Bay	Baltic Sea
4. Bay of Biscay	North Atlantic Ocean

About Galathea Bay:

- **Location:** It is located in the Great Nicobar Island of Andaman and Nicobar Islands of India.
- It is being developed as an International Container Transshipment Port (ICTP).
- It is also eligible for central funding and will be developed under the public-private partnership model.
- The proposed facility is envisaged to be developed in four phases with Phase 1 is proposed to be commissioned in the year 2028 with handling capacity of ~ 4 million TEUs, increasing to 16 million TEUs in the ultimate stage of development by 2058.
- Once operational, the Galathea Bay project will help capture a large share of transhipped cargo which is handled at ports outside India.

9. Brunei**Context:**

Modi, 1st Indian Prime Minister to travel to Brunei on a bilateral visit recently said that he was looking forward to strong ties with Brunei.

About:

- **The country of Brunei is located along the northern coast of the Borneo Island in Southeast Asia.**
- Capital - Bandar Seri Begawan.
- **It is situated both in the Northern and Eastern hemispheres of the Earth.**
- Bordered by - The South China Sea in the north and on all other sides by Malaysia.
- Brunei is divided into 2 non-contiguous parts by a portion of the Malaysian State of Sarawak.
- **Brunei shares its maritime borders with China and Malaysia.**
- **Bukit Pagon is the highest point** in the country along the border with Malaysia in the eastern mountainous region.
- Rivers - Belait, Pandaruan, and Tutong.
- **It is a major oil producer in Southeast Asia.**

10. Bolivia**Context:**

- Bolivia declared a national emergency due to raging forest fires.
- Bolivia has seen the largest number of wildfires since 2010 with at least 3 million hectares (7.5 million acres) burned this year.

About Bolivia:

- **Bolivia is a landlocked country located in western-central South America.**
- It is named after independence fighter Simon Bolivar.
- Location: The country is located in the rugged Andes Mountain, with a highland plateau and lowland plains in the Amazon basin.
- **One-third of the country is within the Andean Mountain range.**
- **Bordering Countries: It borders the countries of Argentina, Brazil, Chile, Paraguay, and Peru.**
- **Capital:** The constitutional capital is Sucre, while the seat of government and executive capital is La Paz.
- Bolivia shares control of Lake Titicaca, the world's highest lake navigable to large vessels, at 12,500 feet above sea level.



11. Ukai Dam

Context:

Following rainfall in its upper catchment areas, the authorities recently discharged 1.19 lakh cusecs of water from the Ukai Dam, bringing the water level in the dam just five feet below the danger mark of 345 feet.

About Ukai Dam:

- The Ukai Dam, constructed across the Tapi River, is the second largest reservoir in Gujarat after the Sardar Sarovar.
- It is also known as Vallabh Sagar.
- Constructed in 1972, the dam is meant for irrigation, power generation, and flood control.
- The storage capacity of Ukai dam is almost 46% of the total capacity of all the other existing dams in Gujarat if put together.
- Having a catchment area of about 62,255 km² and a water spread of about 52,000 hectares, its capacity is almost the same as that of the Bhakra Nangal Dam.
- Ukai dam is an earth-cum-masonry dam, the embankment wall of which is almost 4,927 meters long.

Key Facts about Tapi River:

- It is one of the major rivers in peninsular India.
- It is one of the three major rivers (the other two being the Narmada River and Mahi River), which flows in east-to-west direction.

Course:

- Origin: It rises in the Gawilgarh Hills of the central Deccan plateau in south-central Madhya Pradesh state.
- It flows westward between two spurs of the Satpura Range, across the Jalgaon plateau region in Maharashtra state, and through the plain of Surat in Gujarat state to the Gulf of Khambhat (an inlet of the Arabian Sea).

Its total catchment area is around 65145 sq. km., out of which 80% lies in the Maharashtra region.

The basin of Tapi is surrounded by the Satpura mountain range in the north, the Ajanta and Satmala mountain ranges in the south, and the Mahadeva mountain range in the east.

The Tapi flows roughly parallel to the longer Narmada River to the north, from which it is separated by the main part of the Satpura Range.

The two river valleys and the intervening range from the natural barrier between northern and peninsular India.

Major Tributaries: The important tributaries of the river are Purna River, Girna River, Panzara River, Waghur River, Bori River, and Aner River.

12. Subarnarekha River

Context:

A large python was recently rescued from the Subarnarekha River at Jhargram in West Bengal, causing a stir in the area.

About Subarnarekha River:

- It is one of the longest east-flowing interstate rivers.
- 'Subarnarekha' means 'Streak of Gold.' The river is known as the storehouse of gold.
- It flows through the states of Jharkhand, West Bengal, and Odisha.

Course:

- Origin: It rises near Nagri village in the Ranchi District of Jharkhand at an elevation of 600 m.
- It flows east through a copper-mining region and leaves the Chota Nagpur plateau by the Hundrugbagh waterfall.
- Continuing eastward, it flows across West Bengal state.
- It runs through some major industrial towns and cities, i.e., Jamshedpur, Chaibasa, Ranchi, and Bhadrak, before joining the Bay of Bengal at Kirtania port in Odisha.

The basin is bounded on the north-west by the Chhotnagpur Plateau, in the south-west by the Brahmani basin, in the south by the Burhabalang basin and in the south-east by the Bay of Bengal.

The principal tributaries of the river are Kanchi, Kharkai, and Karkari.

13. Jute Crop

Context:

- Jute production to be 20% lower this year on floods as per the National Jute Board.
- The National Jute Board (NJB) was established under the National Jute Board Act, 2008. It functions under the Ministry of Textiles.

About Jute sector in India:

Jute Crop Conditions:

- **Temperature:** Ideal range between 25-35°C.
- **Rainfall:** Requires 150-250 cm of rainfall.
- **Soil Type:** Grows well in well-drained alluvial soil.

Global Production:

- India is the largest producer of jute, followed by Bangladesh and China.
- However, Bangladesh leads in acreage and trade, contributing to three-fourths of global jute exports.

Geographical Concentration:

- Jute cultivation is primarily concentrated in eastern India, particularly in the Ganga-Brahmaputra delta.
- **Major producing states:** West Bengal, Bihar, Odisha, Assam, Andhra Pradesh, Meghalaya, Tripura.
- West Bengal alone houses approximately 73% of India's jute industries.

Production and Employment:

- India produces 70% of the world's jute, and 90% of this production is consumed domestically.
- The sector employs over 3 lakh workers in jute manufacturing and related industries.

Uses:

- Known as the "golden fibre", jute is used to make gunny bags, mats, ropes, yarn, carpets, and various other artefacts.

14. Typhoon Yagi

Context:

India has launched Operation Sadbhav to provide humanitarian assistance and disaster relief (HADR) to Laos, Myanmar and Vietnam.

About:

- Laos, Myanmar and Vietnam have been hit by severe flooding caused by Typhoon Yagi.
- Operation Sadbhav is part of India's broader effort to contribute to HADR within the ASEAN (Association of Southeast Asian Nations) region, in line with its longstanding 'Act East Policy'.

Typhoon Yagi has been termed the strongest tropical cyclone that has hit Asia in 2024.

- It started as a tropical storm in the western Philippine Sea and turned into a Category 5 typhoon and made landfall in China's Hainan province with winds of 223 kmph.
- It has displaced millions across South East Asia and caused widespread devastation.

15. Polar Vortex

Context:

Antarctic ozone hole formation begins late due to the weak polar vortex.

About Polar Vortex:

- The polar vortex is a large area of low pressure and cold air surrounding both of the Earth's poles.



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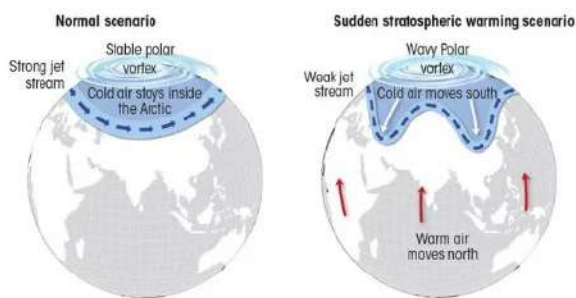
- It always exists near the poles, but weakens in summer and strengthens in winter.
- **The term “vortex” refers to the counter-clockwise flow of air that helps keep the colder air near the Poles.**
- Many times, during winter in the northern hemisphere, the polar vortex will expand, sending cold air southward with the jet stream.

Impact:

- **It develops in late summer as sunlight decreases at the North Pole, causing polar stratospheric air to become colder than tropical stratospheric air.**
- It persists through winter until mid to late spring when the North Pole begins to receive more sunlight, warming the polar stratosphere.
- **During winter, the vortex can expand, pushing Arctic air southward, which often leads to cold outbreaks in the Northern Hemisphere, including the U.S., Europe, and Asia.**

Oscillating Arctic

Air pressure and winds around Arctic switch between the two scenarios shown below; contribute to winter weather patterns



Source: US National Oceanic and Atmospheric Administration

17. Mali

Context:

An elaborate attack by an Al Qaeda affiliate in Mali's capital killed some 70 people recently.

About Mali:

- It is a landlocked country in West Africa.
- Capital: Bamako

- **Bordering Countries: Mali borders seven other nations: Burkina Faso, Niger, Senegal, Guinea, Cote d'Ivoire, Algeria, and Mauritania.**

Geography:

- Approximately 65% of the country is covered by desert or semi-desert.
- The Sahara Desert makes up a large portion of Mali's total land area.
- Mali has a monotonous landscape, with plains and plateaus dominating the country's topography.
- The landscape transitions from the Sahara Desert in the north through the Sahel to the zone of Sudanian savanna in the south.

It is one of the hottest nations on earth with an average temperature of 114.8 °F (46 °C) in the summer months.

The Niger River flows through its interior, serving as its main source of water.



18. MAPCIS Crater

Context:

Recently, Australian researchers have uncovered evidence of a massive impact crater which is named as MAPCIS, which could revolutionise our understanding of Earth's geological history.

About MAPCIS Crater:

- It is classified as a nonconcentric complex crater, and could provide invaluable insights into Earth's geological and biological evolution.
- *It spans an astonishing 600 kilometres across central Australia.*
- The newly discovered structure, named as **Massive Australian Precambrian-Cambrian Impact Structure (MAPCIS)**.
- The impact is believed to have occurred at the end of the Ediacaran period.
- It includes massive deposits of pseudotachylite breccia (melt rock) near the crater's centre, presence of shocked minerals, including lonsdaleite (shocked diamond), and impact-level concentrations of iridium.

Key facts about the Ediacaran Period

- It is an interval of geologic time ranging 635 to 541 million years ago.
- It is the uppermost division of the Proterozoic Eon of Precambrian time and latest of the three periods of the Neoproterozoic Era.
- This period produced some of the earliest known evidence of the evolution of multicellular animals.
- It was a time of immense geological and biological change, and records the transition from a planet largely dominated by microscopic organisms, to a Cambrian world swarming with animals.



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19. Hot/Cold Desert**Context:**

The largest known population of one of Australia's rarest birds, the night parrot, has been found living in Western Australia's Great Sandy desert.

Hot/Cold Desert	Located in
1. Great Sandy Desert	Australia
2. Great Basin Desert	USA
3. Taklamakan Desert	China
4. Sonoran Desert	USA, Mexico

About Great Sandy Desert:

- *It is an arid wasteland of northern Western Australia.*
- It is Australia's second largest desert, after the Great Victoria Desert, and encompasses an area of 284,993 sq.km.
- It extends from Eighty Mile Beach on the Indian Ocean eastward into the Northern Territory and from Kimberley Downs southward to the Tropic of Capricorn and the Gibson Desert.
- It is typified by longitudinal sand ridges, chains of large salt lakes, and occasional low rocky hills interlaced with Triodia (Spinifex) grass.
- **The Gibson Desert lies to the south, and the Tanami Desert lies to the east of the Great Sandy Desert.**
- **Climate:** It experiences exceptionally high daytime temperatures and overnight temperatures, along with far below average humidity levels.
- The region is not very populated. The main population is made up of Indigenous Australians. There are two main tribes; Martu in the west and Pintupi to the east.

20. Philadelphi corridor

Context:

Israel has been under intense pressure to give up control of the Philadelphi corridor.

About Philadelphi corridor:

- It is a ribbon of land about 14 kms in length and 100 metres wide along Gaza's border with Egypt.
- It was designated as a demilitarised border zone after the withdrawal of Israeli settlements and troops from Gaza in 2005 and runs from the Mediterranean to the Kerem Shalom crossing with Israel.
- The Corridor was originally established under the 1979 Israel-Egypt peace treaty as a 100-meter-wide buffer zone.
- The zone was later expanded beginning during the Second Intifada to be several hundred meters wide. It covers the entire 8.7-mile-long border.
- The Rafah crossing between Egypt and Gaza is within the Philadelphi Corridor.
- In 2005, as part of Israel's unilateral withdrawal from Gaza, Egypt and Israel signed an agreement by which Egypt would secure the border between Egypt and Gaza to prevent the smuggling of weapons into the Strip.
- Egypt maintains a one-kilometre-wide buffer zone on its side of the border, with plans to expand it.

21. Tunisia

Context:

Tunisia is in news because, the parliament votes on major amendment in country's electoral law in the backdrop of a looming protest.



22. Canary Islands

Context:

Rescue teams resumed searching for at least 48 migrants who went missing the day before when their boat overturned just as it was being rescued off Spain's Canary Islands.

About Canary Islands:

- It is an archipelago located in the Atlantic Ocean.
- It is about 1300 km South of mainland Spain and 115 km West of the African coast (Morocco).
- The Canaries comprise the Spanish provinces of Las Palmas and Santa Cruz de Tenerife.
- These Islands were formed by volcanic eruptions millions of years ago.

Climatic condition

- They have a subtropical climate. Temperatures are warm and show little seasonal variation.
- It has rich volcanic soils and mild temperatures that support a wide variety of vegetation that generally follows a zonal arrangement based on elevation.

Yemen - Socotra: Socotra has been highlighted for its unique flora and fauna, as well as its strategic location.

Seychelles - Aldabra: Aldabra Atoll in Seychelles has been in the news due to its status as a UNESCO World Heritage site and its unique biodiversity.

France - Mayotte: Mayotte has been in the spotlight due to immigration and security issues related to its proximity to Comoros.

23. Nepal

Context:

Recently, Residents of Nepal's flood-hit capital returned to their mud-caked homes to survey the wreckage of devastating floods that have killed at least 170 people across the Himalayan republic.

About Nepal:

- Nepal is located in Southern Asia in the Northern and eastern hemispheres of the Earth.
- Nepal shares its borders with the Uttarakhand, Uttar Pradesh, Bihar, West Bengal and Sikkim in the south, east and west; while it is bordered by China in the north.**
- Nepal is separated from Bhutan by Sikkim.



24. Jordan

Context:

Jordan becomes the first country in the world to eliminate leprosy, receiving official verification from the World Health Organisation (WHO).

About Jordan:

- It is an Arab country of Southwest Asia, in the rocky desert of the northern Arabian Peninsula.

- It is named for the Jordan River, which passes on its western border.
- Bordering Countries:** It is bounded to the north by Syria, to the east by Iraq, to the southeast and south by Saudi Arabia, and to the west by Israel and the West Bank.
- The capital and largest city in the country is Amman—named for the Ammonites, who made the city their capital in the 13th century BCE.**
- Jordan has 16 miles (26 km) of coastline on the Gulf of Aqaba (Red Sea) in the southwest, where Al-Aqabah, its only port, is located.

Jordan has three major physiographic regions (from east to west): the desert, the uplands east of the Jordan River, and the Jordan Valley (the northwest portion of the great East African Rift System).

- The desert region is mostly within the Syrian Desert—an extension of the Arabian Desert—and occupies the eastern and southern parts of the country, comprising more than four-fifths of its territory.
- The Jordan Valley region contains the Dead Sea.



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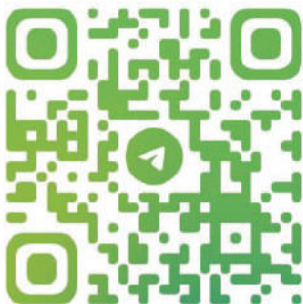
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PLAN - 2024-25**

S.No.	Test Name	Date of Test
1	CA April 2024	18-08-2024
2	CA May 2024	01-09-2024
3	CA June 2024	15-09-2024
4	CA July 2024	29-09-2024
5	CA August 2024	13-10-2024
6	CA September 2024	27-10-2024
7	CA October 2024	17-11-2024
8	CA November 2024	15-12-2024
9	CA December 2024	12-01-2025
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ENVIRONMENT

1. Poba Reserve Forest

Context:

The Poba Reserve Forest in Assam's Dhemaji district will soon be notified as a wildlife sanctuary.

Reserve Forest	Located in
1. Poba Reserve Forest	Assam
2. Kondapalli Reserve Forest	Andhra Pradesh
3. Begur Reserve Forest	Kerala
4. Hanumasagara Reserve Forest	Karnataka

About Poba Reserve Forest:

- **It is a rainforest located in the northeastern part of Assam.**
- The Reserved Forest (RF) was created in the year 1924 and covers an area of 10,221 hectares.
- **Boundaries:** Towards the north are the foothills of the Himalayan range in Arunachal Pradesh; towards the east and south are the Siang, Dibang, and Lohit River systems confluence into the mighty Brahmaputra and the Dibru-Saikhowa National Park; and towards the west are the revenue villages of the Jonai Sub-division of the Dhemaji district of Assam.
- The peripheral area of the RF is inhabited by a few ethnic groups, such as Mising, Bodo, Sonowal Kachari, and Hajong (Rabha).
- It is one of the richest rain forests of North-East India in terms of the flora and fauna found in it.
- It is home to various arboreal species, including the slow loris and capped langur. Among the most common mammal species is the wild boar.



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- The forest is also a habitat for about 45 species of birds and reptiles, and the confluence of the Siang and Lohit rivers supports a diverse range of fish species.
- The forest is renowned for its variety of orchids.
- It serves as an important migratory route for various animals, particularly elephants, as it connects the D' Ering Memorial Wildlife Sanctuary (Arunachal Pradesh), Kabu Chapri Proposed Reserve Forest, and Dibru-Saikhowa National Park (Assam).
- This corridor is the second significant elephant migration route from the north to the south bank of the Brahmaputra River, the other being the Panpur-Kaziranga route.

2. Indian Wolf

Context:

In Bahraich, Uttar Pradesh, a series of wolf attacks have led to the death of a three-year-old girl and injuries to two women, despite ongoing efforts under "Operation Bhediya."

About:

- **The Indian wolf (*Canis lupus pallipes*) is a subspecies of grey wolf.**
- **They are also relatively less vocal and have rarely been known to howl.**
- **Indian wolves are territorial and hunt during the night.**
- One wolf usually is acting as a decoy while the other attacks from behind.
- Range – Found in India, Pakistan, Afghanistan, Nepal, Bhutan, Israel, Turkey, Iran, and Syria.
- Population – There are approximately 400-1,100 wolves living in the Himalayan Region and 4,000-6,000 wolves in the Peninsular Region.

- Wolves in the Himalayan Region prefer colder, steeper habitats while those in the Peninsular Region are mostly found in agro-pastoral areas that have less forest density (approximately 280,400km²).
- Indian wolves are carnivores and prey mainly on antelopes, rodents, hares, and raccoons.
- **Indian wolves are monogamous and mate for life.**
- The gestation period usually lasts around 62-75 days.
- **Indian wolf is protected under Schedule I of the Wildlife Protection Act of 1972.**
- **It is listed as endangered under the International Union for Conservation of Nature (IUCN) Red List.**
- Main threats to Indian wolves include habitat loss, unregulated hunting, and loss of prey.

3. Loss and Damage Fund

Context:

A crucial conversation has recently emerged around whether subnational entities can seek compensation through the United Nations Framework Convention on Climate Change (UNFCCC)'s Loss and Damage Fund (LDF).

About Loss and Damage Fund (LDF):

- **LDF was established at the 2022 UNFCCC Conference (COP27) in Egypt.**
- **Purpose: To provide financial support to regions suffering both economic and non-economic losses caused by climate change.**
- **Economic loss and damage are negative impacts that one can assign a monetary value to.** These are things such as the costs of rebuilding infrastructure that has been damaged due to a flood, or the loss of revenue from agricultural crops that were destroyed due to drought.



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- **Non-economic loss and damage are negative impacts where it is difficult or infeasible to assign a monetary value. These are things such as trauma from experiencing a tropical cyclone, loss of community due to displacement of people, or loss of biodiversity,"**
- It was designed to provide crucial support to vulnerable nations facing the brunt of climate-related challenges.
- **The LDF is overseen by a Governing Board that determines how the fund's resources are disbursed, with the World Bank serving as the interim trustee tasked with hosting the fund for four years.**
- Financial support will be provided in the form of grants, concessional financing that can be utilized by any eligible country.
- The fund encourages voluntary contributions from developed countries but invites developing countries to contribute to it too.

4. Water Spinach

Context:

According to Taiwan-based research organisation World Vegetable Centre, folic acid is only one of the many nutrients present in the water spinach vegetable.

About Water Spinach:

- **It is native to tropics and subtropics; this semi-aquatic perennial plant is believed to have been the first domesticated in Southeast Asia.**
- **In Southeast Asian nations like Malaysia, China, Hong Kong, Singapore and Indonesia, the plant is mostly grown commercially, while in the United States and India, it grows in the wild as weed.**
- In India, it grows along the paddy fields, ponds and rivers, and is available around the monsoon season in July and August.
- Other names: It is known as kalmi saag in West Bengal, naari ka saag in Uttar Pradesh, nalichi-bhaji in Marathi and sarkaraivalli in Tamil.

- The plant is relatively easy to grow because it requires little care and flourishes naturally in waterways.
- It grows very quickly under optimal conditions, though it has to be ensured that the water used is not saline or stagnant.
- Researchers in India, Pakistan and the US, find water spinach effective against lead poisoning.

Health benefit:

- The plant also has medium levels of beta carotene, calcium, vitamin E and iron; and medium-to-high levels of ascorbic acid.
- The substantial quantities of Phyto-antioxidants in the leaves may mediate its beneficial function against doxorubicin.

5. National Tiger Conservation Authority

Context:

Conservationist organisations across India have demanded withdrawal of 'illegal' relocation of villagers from tiger reserves which is ordered by the National Tiger Conservation Authority (NTCA).

About National Tiger Conservation Authority (NTCA):

- It is a statutory body under the Ministry of Environment, Forest, and Climate Change (MoEFCC) constituted for strengthening tiger conservation.
- NCTA was created in 2005 following the recommendation of the tiger task force and was given the status of statutory authority under Section 38L of the Wild Life (Protection) Amendment Act, 2006.

Objectives:

- Providing statutory authority to Project Tiger so that compliance of its directives becomes legal.
- Fostering accountability of the Center-State in the management of Tiger Reserves by providing a basis for MoUs with States within the federal structure.
- Providing for an oversight by Parliament.

- Addressing livelihood interests of local people in areas surrounding Tiger Reserves.

NTCA Composition:

- Minister in charge of MoEFCC (as Chairperson),
- Minister of State in MoEFCC (as Vice-Chairperson),
- three members of Parliament, the Secretary (MoEFCC), and other members.

Powers and Functions:

- Approving the tiger conservation plan prepared by the State Government.
- Maintaining sustainable ecology and disallow any such use of land within the tiger reserves which is detrimental to the ecology.
- Making rules and guidelines for tourism activity for Project Tiger in the tiger reserves and also ensure their due compliances.
- Measures for addressing conflicts between men and animals and emphasize on co-existence between the two outside the national parks, tiger reserves, or sanctuaries.
- Providing information to the public on the conservation plans, estimation of population of tigers, the status of natural habitat, and reporting on any untoward incident. TCA releases the status of tigers in India.
- Approving coordinates research and monitoring of tigers.
- Facilitating and supporting tiger reserve management in the State.
- Ensuring critical support in scientific, IT, and legal support for better conservation of tigers.
- Facilitating capacity-building programmes for the officers and staff.

6. Teal Carbon

Context:

India's first study on 'teal carbon', undertaken at Keoladeo National Park (KNP) in Rajasthan's Bharatpur district, has highlighted the significance of wetland conservation to address the challenges of climate adaptation and resilience.

About Teal Carbon:

- It refers to carbon stored in non-tidal fresh water wetlands, encompassing carbon sequestered in vegetation, microbial biomass, and dissolved and particulate organic matter.
- These ecosystems are considered to be more effective at carbon capture and storage than terrestrial forest ecosystems, and can store and sequester more carbon than any other type of terrestrial ecosystem.
- The concept of teal carbon is a recent addition to the environmental science pertaining to organic carbon in inland fresh wetlands.
- **It is a colour-based terminology that reflects the classification of the organic carbon based on its functions and location rather than its physical properties.**
- At the global level, the storage of teal carbon across the ecosystems is estimated to be 500.21 petagrams of carbon (PgC), which is a unit to measure carbon.
- **Major sources of Teal carbon:** Peatlands, freshwater swamps, and natural freshwater marshes account for a significant amount of this storage.
- **Threats:** Though these wetlands play a crucial role in regulating greenhouse gases, they are vulnerable to degradation from pollution, land use changes, water extraction, and landscape modifications.

7. Elongated tortoise

Context:

In a first, critically endangered elongated tortoise spotted in Aravallis.

About the elongated tortoise:

- The elongated tortoise (*Indotestudo elongata*) is also known as Sal Forest Tortoise.
- **Habitat: It is widely distributed over eastern as well as northern India and Southeast Asia.**
- The tortoise, found in the Sal deciduous and hilly evergreen forests, is distributed across Southeast Asia from northern India, Nepal, Bhutan, and Bangladesh in the west, eastward through Myanmar, Thailand, and all of Indochina, north to Guangxi Province of China and south to Peninsular Malaysia.

Conservation Status:

- **IUCN Status: Critically Endangered.**
- CITES: Appendix II
- **Wildlife (Protection) Act of 1972: Schedule IV.**

Threat: Hunted for food, local use such as decorative masks and international wildlife trade.

8. Mikania micrantha

Context:

The weed, Mikania micrantha, is spreading quite fast in the Bhadra Tiger Reserve and threatening its biodiversity.

About Mikania micrantha:

- It is a perennial creeping climber known for its vigorous and rampant growth.
- It is a native of Central and South America.
- It is a major invasive species in several parts of southeast Asia, India, and the Pacific Islands.
- It was introduced in India in the 1940s as ground cover in tea plantations and is now a serious threat to several plantation crops as well as forest areas all over the country.
- It grows best where fertility, organic matter, soil moisture, and humidity are all high.
- **It damages or kills other plants by cutting out the light and smothering them.**

- It climbs up other plants to reach the canopy for better sunlight.
- **Mikania is known to have allelopathic potential by producing biochemicals that can inhibit seed germination and seedling growth of other plants.**
- It produces thousands of lightweight seeds that are wind-dispersed and also has the ability to reproduce vegetatively through its roots, resulting in rapid and widespread invasion by this weed in any disturbed area.

Key Facts about Bhadra Tiger Reserve (BTR):

- **It is situated in the midst of the Western Ghats region of Karnataka.**
- The reserve is unique as it is nestled within several hill ranges. The habitat has a good population of elephants and is also an Elephant Reserve.
- It boasts of a substantial tiger population, and as such, the sanctuary was declared the 25th Project Tiger Reserve of India in 1998.
- **Rivers: It is well drained by the river Bhadra and its tributaries.**
- **Vegetation:** It has dry deciduous, moist deciduous, shola, and semi-evergreen patches.
- **Flora:** Teak, Rosewood, Mathi, Honne, Nandi, and many medicinal plants.
- **Fauna:** Tiger, Leopard, Leopard cat, Dholes, Indian Civet, ungulates like Gaur, Sambar, and Barking Deer are common.

9. Air Quality Management Exchange Platform

Context:

Recently, the Climate and Clean Air Coalition (CCAC) has developed and launched an Air Quality Management Exchange Platform (AQMx).

About Air Quality Management Exchange Platform:

- It is a platform that provides the latest air quality management guidance and tools proposed to meet WHO Air Quality Guidelines interim targets.

- It was developed in response to a resolution passed at this year's United Nations Environment Assembly to increase regional cooperation and action on improving air quality globally.

Significance of the platform:

- It will help to address air quality management capacity gaps, notably with curated guidance across key themes, including on how to go about air quality monitoring, inventory development, and health impact assessments.
- It will allow decision makers to see a more complete picture of air pollution's impact and leading to policies that accurately reflect public health needs on a global scale.
- The platform will expand to allow regional and sub-regional communities to exchange knowledge about air quality management best practices.

Key facts about Climate and Clean Air Coalition:

- **It was founded in 2012, and convened within the UN Environment Programme (UNEP).**
- It is a voluntary partnership of more than 160 governments, intergovernmental organizations, and non-governmental organizations.
- **It works to reduce powerful but short-lived climate pollutants (SLCPs) – methane, black carbon, hydrofluorocarbons (HFCs), and tropospheric ozone – that drive both climate change and air pollution.**
- It aims to connect ambitious agenda setting with targeted mitigation action within countries and sectors.

10. PM Electric Drive Revolution in Innovative Vehicle Enhancement

Context:

The Union Cabinet approved a new scheme called PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) for the promotion of electric vehicles (EV) in India.

About:

- The PM E-DRIVE will replace Faster Adoption and Manufacturing of Electric Vehicles in India Phase II (FAME India Phase II).
- The Ministry of Heavy Industries (MHI) will implement the new scheme with a total outlay of Rs 10,900 crore over a period of two years.
- The scheme will focus on promoting electric buses, trucks, and ambulances. Electric cars for private or shared mobility will not be covered under this new scheme.
- The government has introduced e-vouchers for EV buyers to avail of demand incentives under the scheme.
- These vouchers will be generated at the time of purchase and authenticated via Aadhaar, ensuring transparency in the subsidy process.

Major components of the scheme:

- Subsidies/Demand incentives worth Rs.3,679 crore have been provided to incentivize electric two-wheelers, electric three-wheelers, e-ambulances, e-trucks and other emerging EVs.
- The scheme will support 24.79 lakh e-2Ws, 3.16 lakh e-3Ws, and 14,028 e-buses.
- The scheme allocates Rs.500 crore for the deployment of e-ambulances.
- A sum of Rs.4,391 crore has been provided for procurement of 14,028 e-buses by STUs/public transport agencies.
- Rs.500 crore has been allocated for incentivising e-trucks.
- Incentives will be given to those who have a scrapping certificate from MoRTH approved vehicles scrapping centers (RVSF).
- The scheme proposes the installation of 22,100 fast chargers for e-4 Ws, 1800 fast chargers for e-buses and 48,400 fast chargers for e-2W/3Ws.
- The outlay for electric vehicle public charging stations (EVPCS) will be Rs.2,000 crore.

11. Salt Pans**Context:**

- The Union Government approved the transfer of 256 acres of salt pan land in Mumbai to the Dharavi Redevelopment Project Pvt Ltd (DRPPL).
- This invited criticism from opposition leaders and environmentalists due to environmental concerns.

Salt Pans

- They comprise parcels of low-lying lands where seawater flows in at certain times, and leaves behind salt and other minerals.
- Along with mangroves, this ecosystem is instrumental in protecting the city from flooding.
- According to the Coastal Regulation Zone (CRZ), the ecologically sensitive salt pans fall under CRZ-1B category, where no economic activity is allowed with the exception of salt extraction and natural gas exploration.
- Nationally, some 60,000 acres have been demarcated as salt pan lands, spread across Maharashtra, Andhra Pradesh, Tamil Nadu, Odisha, Gujarat, and Karnataka.
- Andhra Pradesh boasts the largest expanse of such land, followed by Tamil Nadu and Maharashtra.

12. Onitis bordati**Context:**

Recently, researchers have identified a previously unknown dung beetle species, *Onitis bordati*, in the Nongkhyllam Wildlife Sanctuary in Meghalaya.

About *Onitis bordati*:

- It is a dung beetle species belonging to the genus *Onitis*.
- **Appearance:** Males of most species have distinctive forelegs that are long, slender, and curved, often with teeth or spines.
- Dung beetle species were previously only found in Vietnam and Thailand.

- **Ecological Significance:** *They are known for their ecological functions, such as seed dispersal, nutrient cycling, and pest control, and plant growth.*
- **Threats:** Habitat destruction and climate change posing significant threats.

Key facts about Nongkhylllem Wildlife Sanctuary:

- **Location:** The Sanctuary falls in the Eastern Himalayan Global biodiversity hot spot and is located in the state of Meghalaya.
- The area consists of undulating plains to low hills, which are part of the Archaean Meghalaya Plateau.
- The area has become broken and rugged, especially towards west and north, because of continuous erosion by the rivers Umtrew, Umran, Umling, Umtasor and other smaller streams.
- The Umtrew is the main river of the area and the rest named above are its tributaries. The Umtrew also marks the western boundary of the Reserve Forest and the Sanctuary.
- **Fauna:** It is home to Clouded Leopard, majestic Elephants, and the powerful Himalayan Black Bear.
- **Flora:** Shorea robusta, Tectona grandis, Terminalia myriocarpa, Gmelina arborea etc.

13. Enabling Infrastructure for Hydro Electric Projects

Context:

The Union Cabinet recently approved the proposal of the Ministry of Power for modification of the scheme of budgetary support for the cost of Enabling Infrastructure for Hydro Electric Projects (HEP) with a total outlay of Rs.12461 crore.

About Scheme of budgetary support for the cost of Enabling Infrastructure for Hydro Electric Projects (HEP):

- This scheme, set to run from FY 2024-25 to FY 2031-32, aims to enhance infrastructure and support the development of hydro power in India.

The scheme addresses major challenges such as remote locations and inadequate infrastructure by broadening its scope to cover additional costs.

- **This includes funding for the construction of transmission lines, upgrading pooling substations, and developing ropeways, railway sidings, and communication infrastructure.**
- **It also supports the strengthening of existing roads and bridges leading to project sites.**

The scheme is set to support hydro power projects with a cumulative generation capacity of approximately 31,350 MW.

It applies to all hydro projects over 25 MW, including private sector projects, and Pumped Storage Projects (PSPs).

Budgetary support limits have been revised to Rs. 1 crore per MW for projects up to 200 MW, and Rs. 200 crores plus Rs. 0.75 crore per MW for projects above 200 MW, with potential increases up to Rs. 1.5 crore per MW in exceptional cases.

The scheme also incorporates a rigorous approval process, where budgetary support will be granted following cost appraisals by the Department of Investment and Public Asset Management (DIB) and Public Investment Board (PIB), and subsequent approval by the Competent Authority.

The projects whose Letter of Award of the first major package is issued by June 30, 2028, will be eligible under the scheme.

14. Central Pollution Control Board

Context:

The National Green Tribunal has directed the Central Pollution Control Board to file a fresh status report on the generation and treatment of electronic waste by all the states.

About Central Pollution Control Board (CPCB):

- **It is a statutory body constituted in September, 1974, under the Water (Prevention and Control of Pollution) Act, 1974.**
- **Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.**

- It serves as a field formation and also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986.

Principal Functions of the CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981:

- to promote cleanliness of streams and wells in different areas of the States by prevention, control, and abatement of water pollution.
- to improve the quality of air and to prevent, control, or abate air pollution in the country

It advises the Central Government on matters related to control and abatement of air and water pollution.

Standard development activities of CPCB:

- CPCB takes up the development/revision of Environmental Standards, the upgradation of Comprehensive Industrial Document (COINDS), and guidelines for environmental management in various industrial sectors.
- In consultation with the state government concerned, CPCB laid down the standard for stream or well or quality of air and also prepared manuals, codes, and guidance relating to the treatment and disposal of sewage and trade effluents, as well as for stacks gas cleaning devices, stacks and ducts;

CPCB develops Standards for:

- National ambient air quality.
- Water Quality Criteria from different sources.
- Standards for Emission or Discharge of Environmental Pollutants from various Industries (Issued under Environment Protection Rules, 1986).



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- Standards for Treatment and Disposal of Bio-Medical Waste by Incineration.
- Emission standard, Noise limits for Diesel Engines.
- Emission and Noise Limit of LPG and CNG Generator Sets.

CPCB also formulates the Minimal National Standards (MINAS) specific for various categories of industries with regards to their effluent discharge (water pollutants), emissions (air pollutants), noise levels, and solid waste.

- These standards are required to be adopted by State Governments as minimal standards.

15. Bio-decomposer

Context:

Recently, the environment minister said that the Delhi government has started preparations to spray bio-decomposer over 5,000 acres of farmland in New Delhi.

Bio-decomposer:

- **It is a microbial liquid spray which, when sprayed onto paddy stubble, breaks it down in a way that can be easily absorbed into the soil, whereby farmers then have no need to burn the stubble.**
- It has been developed by the Indian Agricultural Research Institute (IARI).
- The government has been spraying the bio-decomposer solution free of cost since 2020 over farmlands in outer Delhi.
- It has been used by the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi.

Advantages:

- By spraying bio-decomposer, farmers won't need to burn their paddy stubble, which will not only help in reducing pollution but also increase soil fertility.

- *Its use enriches the soil with organic carbon (OC), nutrients and soil biological and physical properties.*

- It is an efficient and effective, cheaper, doable, and practical technique to stop stubble burning. It is an eco-friendly and environmentally useful technology.

16. Battery Waste Management (BWM) Rules, 2022

Context:

The Ministry of Environment, Forest, and Climate Change (MoEFCC) has introduced stringent environmental compensation (EC) guidelines to penalise violations of the Battery Waste Management (BWM) Rules, 2022.

Battery Waste Management (BWM) Rules, 2022:

- These rules have been notified by the Ministry of Environment, Forest and Climate Change.
- *They are applicable to all types of batteries regardless of chemistry, shape, volume, weight, material composition and use.*
- *Producer (manufacturers, importers) shall have the obligation of Extended Producer Responsibility for the battery they introduce in the market and the Producer shall meet the collection and recycling targets.*
- Producers, Recyclers, and Refurbishers of Battery shall register through the online centralized portal developed by the Central Pollution Control Board (CPCB).
- The portal will help in improving accountability, traceability and transparency of fulfilment of EPR Obligations.
- This portal would act as the single point data repository with respect to orders and guidelines related to implementation of BWM Rules, 2022.

These measures aim to promote proper waste management practices and enhance environmental sustainability across the country.

17. Rapa Nui

Context:

Rapa Nui, also known as Easter Island, never experienced a ruinous population collapse, according to an analysis of ancient DNA from 15 former inhabitants of the remote island in the Pacific Ocean.

About Rapa Nui:

- *Rapa Nui, also known as Easter Island, is a Chilean dependency in the southeastern Pacific Ocean.*
- It is the easternmost outpost of the Polynesian island world.
- It is situated about 3,540 km to the west of Chile and about 1,900 km to the east of Pitcairn Island.
- It is a small, triangular-shaped volcanic island. It is about 24 km in length and has a maximum width of about 12 km at its widest point.
- It faces a tropical rainforest climate.
- UNESCO named Easter Island a World Heritage Site on March 22, 1996, and major parts of the island have been protected under the Rapa Nui National Park.

What are Moai Statues?

- Rapa Nui is famous for its large statues called moai.
- They are shaped like large human heads and erected on stone pedestals.
- They are famous for their carved heads and "Pukao," a hat-like covering made from a soft red stone.
- Some moai stand 40 feet tall and weigh 75 tonnes.
- They were carved in volcanic stone at quarries and then moved to their current locations across the island.
- Scholars believe the Rapa Nui people built the moai between the 13th and the 16th centuries and represented their revered ancestors.
- Over 900 moai have been found on the island to date.

18. NBWL**Context:**

The standing committee of the NBWL (SC-NBWL) recently cleared projects such as a transmission line in Little Rann of Kutch, a controversial transmission line project in Goa's Mollem national park, among others.

About:

- **It is a statutory board constituted by the Central Government under the Wild Life (Protection) Act, 1972.**
- It is responsible for guiding the government's decisions on matters related to wildlife conservation and issuing approvals for projects in protected areas (PAs).
- The WLPA mandates that without the approval/recommendation of the NBWL, construction of tourist lodges, alteration of the boundaries of PAs, destruction or diversion of wildlife habitat, and de-notification of Tiger Reserves, cannot be done.
- **It is a 47-member committee, headed by the Prime Minister and the Minister of Environment, Forest, and Climate Change (environment minister) as vice chairperson.**
- In addition to offices and institutions directly involved in conservation and protection of wildlife, the NBWL also has the chief of army staff, defence secretary, and expenditure secretary to Government of India as members.
- Further, the central government nominates 10 members who are eminent conservationists, ecologists, and environmentalists.
- In practical terms, many of its tasks are delegated to a standing committee (SC-NBWL), which is empowered to carry out the same functions.
- **While the act envisaged the board and the committee as advisory bodies, their powers and responsibilities were increased in 2002, after the Supreme Court ruled that the SC-NBWL had to approve all proposals that sought permission for "any activity" within a wildlife sanctuary.**

- The SC-NBWL also makes recommendations on the setting up of and management of National Parks, Sanctuaries, and other PAs and on matters relating to restriction of activities in those areas.
- The SC-NBWL shall ordinarily meet once in three months.

19. Emu**Context:**

Researchers have uncovered a fascinating mechanism behind the reduction and asymmetry of emu wing bones.

About Emu:

- **It belongs to a group of flightless running birds known as ratites, the most primitive of the modern bird families.**
- **It is the second-largest living bird in the world (the ostrich is the largest).**

Distribution:

- **The Emu is found only in Australia.**
- It lives throughout most of the continent, ranging from coastal regions to high in the Snowy Mountains.

Features:

- Emu is more than 1.5 metres (5 feet) tall and may weigh more than 45 kg (100 pounds).
- Adult female emus are larger and heavier than males.
- Both sexes are brownish, with a dark grey head and neck.
- Their necks and legs are long, but their wings are tiny, reduced to less than 8 inches (20 centimetres).
- **Their feet have three toes and fewer bones and muscles than those of flying birds.**
- Emus can dash away at nearly 50 km (30 miles) per hour; if cornered, they kick with their big three-toed feet.

- Their strong legs also allow the bird to jump 7 feet (2.1 meters) straight up.
- They are omnivores.
- Lifespan: Five to ten years

Conservation Status:

- IUCN Red List: Least Concern.

20. International Big Cat Alliance

Context:

After an approval from the Union Cabinet, India has formally joined the International Big Cat Alliance (IBCA), by signing and ratification of the Framework Agreement of IBCA.

International Big Cat Alliance (IBCA):

- The alliance was conceived as a multi-country, multi-agency coalition of 96 big cat range countries and others to establish a common platform for conservation.
- Objective: Focus of the Alliance is to conserve seven big cats of the world which includes Tiger, Lion, Leopard, Snow Leopard, Puma, Jaguar and Cheetah.
- In India out of the seven big cats only five — tiger, lion, leopard, snow leopard and cheetah — are found.
- **Funding:** The government also approved a one-time budgetary support of ₹150 crore for a period of five years from 2023-24 to 2027-28.
- **Governance:** IBCA governance consists of an Assembly of Members, Standing Committee and a Secretariat with its Head Quarter in India.

All UN member countries are eligible for becoming a member of IBCA.

- So far 4 countries have become members of IBCA including India, Nicaragua, Eswatini and Somalia.

21. Sustainable Aviation Fuels

Context:

Recently, India and Brazil have decided to collaborate on production and use of Sustainable Aviation Fuels (SAF).

About Sustainable Aviation Fuels (SAF):

- It is also known as bio-jet fuel.
- It is made from renewable biomass and waste resources have the potential to deliver the performance of petroleum-based jet fuel.
- It is a liquid fuel currently used in commercial aviation which reduces CO2 emissions by up to 80%.
- **Production:** It can be produced from a number of sources (feedstock) including waste oil and fats, green and municipal waste and non-food crops.
- It can also be produced synthetically via a process that captures carbon directly from the air.

22. Commission for Air Quality Management

Context:

The Supreme Court recently sought a report from the Commission for Air Quality Management (CAQM) on incidents of stubble-burning and action taken against these occurrences.

About Commission for Air Quality Management (CAQM):

- The CAQM is a statutory body established under the Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas, Act 2021.
- **Mandate:** Better coordination, research, identification, and resolution of problems surrounding the air quality index and for matters connected therewith or incidental thereto.
- It undertakes action for the prevention and control of Air pollution in Delhi-NCR & Adjoining Areas which impacts the air quality of the National Capital Territory (NCT) of Delhi.

- The Commission is required to coordinate its actions on monitoring of air quality with the government of Delhi and the adjoining states, which includes Punjab, Haryana, Rajasthan, and Uttar Pradesh.

Powers:

- Restricting activities influencing air quality.
- Investigating and conducting research related to environmental pollution impacting air quality, preparing codes and guidelines to prevent and control air pollution,
- Issuing directions on matters including inspections, or regulations, which will be binding on the concerned person or authority.
- All the directions and orders by the Commission are of binding nature, and any person, officer, or authority shall be bound to comply with the same.**
- The commission is directly accountable to the parliament.**

Composition:

- Chairperson:** To be chaired by a government official of the rank of Secretary or Chief Secretary. He will hold the post for three years or until s/he attains the age of 70 years.
- It will also have five ex officio members who are either Chief Secretaries or Secretaries in charge of the department dealing with environment protection in the States of Delhi, Punjab, Haryana, Rajasthan, and Uttar Pradesh.
- Three full time technical members.
- Three members from non-government organisations.
- Technical members from Central Pollution Control Board (CPCB), Indian Space Research Organisation, and NITI Aayog.**

23. Biodiversity Beyond National Jurisdiction Agreement**Context:**

Recently, India Signs Biodiversity Beyond National Jurisdiction Agreement (BBNJ) at UNGA.

About Biodiversity Beyond National Jurisdiction Agreement (BBNJ):

- It is an international treaty under the United Nations Convention on the Law of the Sea (UNCLOS).**
- It follows an inclusive, integrated, ecosystem-centric approach based on the precautionary principle and promotes using traditional knowledge and the best available scientific knowledge.
- Parties cannot claim or exercise sovereign rights over marine resources derived from the high seas and ensure fair and equitable sharing of benefits.**
- The BBNJ Agreement was agreed upon in March 2023 and is open for signature for two years starting September 2023.
- It will be an international legally binding treaty after it enters force 120 days after the 60th ratification, acceptance, approval or accession.**

24. Peechi wildlife sanctuary**Context:**

A female elephant recently died due to apparent electrocution near a tribal colony close to the Peechi wildlife sanctuary in Kerala's Thrissur district.

Wildlife Sanctuary	Located in
1. Peechi -Vazhani Wildlife Sanctuary	Kerala
2. Eturnagaram Wildlife Sanctuary	Telangana
3. Churdhar Wildlife Sanctuary	Himachal Pradesh
4. Barak Bhuban Wildlife Sanctuary	Assam

About Peechi -Vazhani Wildlife Sanctuary:

- **Location:** *It is located in Thrissur District, Kerala.*
- Spread across 125 sq. km, the Peechi-Vazhani Wildlife Sanctuary was established in 1958.
- It is situated in the catchment area of the Peechi and Vazhani Dams.
- It is part of the Palapilli-Nelliampathy forests and forms the northern boundary of the Chimmini Wildlife Sanctuary.
- **Vegetation:** Forest Types include tropical evergreen forests, tropical semievergreen forests, moist deciduous forests, etc.
- The terrain is undulating, the altitude varies from 100 to 914 m, with the highest peak being Ponmudi.
- **Flora:** There are more than 50 different kinds of orchids, innumerable rare medicinal plants, and trees of high commercial value like teak, rosewood, and so on.
- **Fauna:** The wildlife population includes over 25 types of mammals, including carnivores like the leopard, the tiger, and the fox, and herbivores like the elk, deer, barking deer, spotted deer, the gaur, and the elephant.

25. Parivesh**Context:**

The Ministry of Environment, Forest and Climate Change (MoEFCC) received only 32 applications to register exotic species on the Parivesh 2.0 portal.

About Parivesh:

- **PARIVESH stands for (Pro-Active Responsive Facilitation by Interactive and Virtuous Environmental Singlewindow Hub).**
- **Parivesh was originally launched in 2018 to provide a single window for various environmental, forest, wildlife, and coastal regulation zone clearances.**
- Parivesh 2.0 is an enhanced version designed to improve efficiency, transparency, and accountability in the approval process.
- It provides a single platform for environmental clearances, forest clearances, wildlife clearances, and coastal regulation zone clearances.
- Parivesh 2.0 introduces a mobile app that allows project proponents to track their clearance applications and compliance submissions.

Significance of Parivesh 2.0:

- Improves Ease of Doing Business
- Ensures better environmental governance
- Reduces Delay in Clearances.



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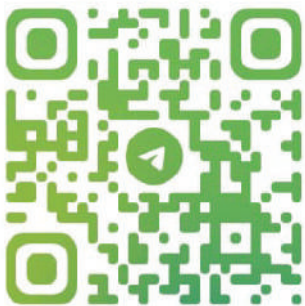
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3	CA June 2024	15-09-2024
4	CA July 2024	29-09-2024
5	CA August 2024	13-10-2024
6	CA September 2024	27-10-2024
7	CA October 2024	17-11-2024
8	CA November 2024	15-12-2024
9	CA December 2024	12-01-2025
10	CA January 2025	16-02-2025
11	CA February 2025	16-03-2025
12	CA March 2025	13-04-2025
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SCIENCE & TECHNOLOGY

1. Copyright Act, 1957

Context:

The Tamil Nadu government has recently decided to nationalise Karunanidhi's works under the Copyright Act, 1957.

About:

- Under the Copyright Act, 1957, an author has exclusive rights over their work, including the right to reproduce, distribute, perform, and adapt their work.
- These rights last for 60 years after the author's death.

Artistic work under the act include:

- a painting, a sculpture, a drawing (including a diagram, map, chart or plan), an engraving or a photograph, whether or not any such work possesses artistic quality;
- a 'work of architecture';
- any other work of artistic craftsmanship.

After the author's death, the copyright ownership transfers to their legal heirs.

- The heirs can then decide how the work is used, including assigning the copyright to others.
- The Tamil Nadu government has a scheme through the Tamil Virtual Academy to collaborate with legal heirs and have them assign the copyrights of specific works to the state government.
- This "nationalisation" of copyrights means the works will be released into the public domain under a Creative Commons license.

Nationalisation allows anyone to freely copy, modify, distribute and use the works, even for commercial purposes, without needing permission.

- The Tamil Nadu government has already nationalised the works of 179 Tamil scholars this way, paying royalties to the heirs.

- This is similar to how the Maharashtra government has made the works of Dr. B.R. Ambedkar freely available in the public domain.

The goal is to make these important literary and intellectual works freely accessible to the public, rather than restricted by private copyright ownership.

This expands public access and use of these culturally significant works.

2. Intranasal Vaccines

Context:

Recently Indian Immunological Ltd (IIL) in collaboration with Griffith University has developed a live-attenuated needle-free intranasal booster vaccine targeting SARS-CoV-2.

About:

- Intranasal Vaccines – These are vaccines that are administered through nasal pathways.

Features of Intranasal Vaccine- The nasal route has excellent potential for vaccination due to the organized immune systems of the nasal mucosa.

- Non-invasive, Needle-free.
- Ease of administration – does not require trained health care workers.
- Elimination of needle-associated risks (injuries and infections).
- High compliance.
- Scalable manufacturing – able to meet global demand.

IIL's Vaccine - It is a live-attenuated booster vaccine that utilises codon deoptimization technology.

- Codon deoptimization technology – This method involves modifying the virus in such a way that it mimics a natural infection without causing harm.

Features - It involves decreasing the frequency of underrepresented codon pairs (genetic determinants for amino acids) without changing the amino acid sequences.

- It is an efficient virus attenuation strategy, where the degree of attenuation can be regulated as required.
- It is extremely safe and takes less time than the conventional way of attenuating viruses which usually takes several years.

3. Polygraph Test

Context:

The Central Bureau of Investigation (CBI) recently conducted a second round of polygraph tests on seven people, in connection with the rape and murder of a resident doctor at the R.G. Kar Medical College and Hospital in Kolkata.

About Polygraph Test (Lie Detector Test):

- **Polygraph Test: A procedure that measures and records physiological indicators like blood pressure, pulse, respiration, and skin conductivity while a person answers questions.**
- **Assumption:** The test is based on the idea that physiological responses during lying differ from those during truthful responses.
- **Evaluation:** Responses are numerically scored to determine if the person is telling the truth, deceiving, or uncertain.

Different From Narco-Analysis Test:

- **A narco-analysis test involves injecting sodium pentothal into the accused, inducing a hypnotic or sedated state that supposedly neutralises their imagination.**
- In this state, the individual is considered incapable of lying and is expected to reveal truthful information.



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What is the Legal Admissibility of a Polygraph Test?

Violation of Article 20(3): Polygraph, narco-analysis, and brain mapping tests conducted without the accused's consent violate Article 20(3) of the Indian Constitution, which protects the right against self-incrimination.

- **This article ensures that no person accused of an offence is compelled to be a witness against themselves.**

Necessity of Consent: As these tests involve the accused providing potentially self-incriminating information, obtaining their consent is mandatory to avoid breaching constitutional rights.

Judicial and Human Rights Concerns: The use of narco-analysis and similar tests raises significant concerns about judicial integrity and human rights, particularly regarding individual rights and freedoms.

Criticism from Courts: Courts have often criticised these tests as they can constitute mental torture, violating the right to life and privacy guaranteed under Article 21 of the Constitution.

4. Drug repurposing

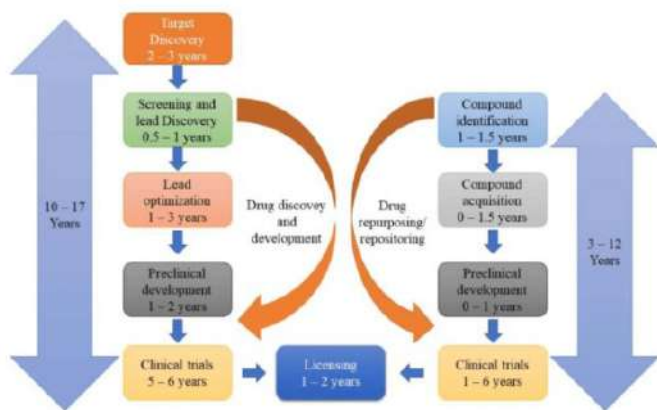
Context:

Researchers at the Institute of Advanced Study in Science and Technology (IASST) have found the repurpose potential of an antidepressant drug for cancer management.

About:

- **Drug Repurposing – It is the technique of using an existing drug or drug candidate for a new treatment or medical condition for which it was not indicated before.**
- It is also known as drug repositioning or drug reprofiling.
- Drug repurposing bypasses the pre-clinical work and facilitate targeted treatment.
- **Application** – Pharmaceutical companies are undertaking drug repurposing projects for rare diseases, oncology, infectious and autoimmune diseases and more.

- **Benefits - Fasten the drug discovery process and find quicker solutions.**
- Helps in quickly identify compounds with an established safety profile and known therapeutic advantages.
- It is particularly useful where traditional drug development is not cost-effective.



5. Advanced Chemistry Cell (ACC) Battery Storage

Context:

The Ministry of Heavy Industries (MHI) has selected Reliance Industries Ltd. as the successful bidder under the Production Linked Incentive (PLI) Scheme for Advanced Chemistry Cell (ACC) Battery Storage.

About:

- These are the new generation technologies that can store electric energy either as electrochemical or as chemical energy and convert it back to electric energy as and when required.
- **ACC battery storage technology is primarily used in applications like electric vehicles (EVs), grid energy storage systems, portable electronic devices, and for storing energy from renewable sources such as solar and wind.**
- **While industrial machinery can use batteries, ACC technology is generally not applied for continuous large-scale machinery operation.**

PLI scheme for Advanced Chemistry Cells:

- The scheme is called the National Programme on Advanced Chemistry Cell (ACC) Battery Storage.

- The Indian government aims to promote the manufacturing of technology-agnostic ACCs within the country, aligning with its commitment to fostering innovation and self-reliance in the renewable energy sector.
- The scheme envisages setting up of a cumulative ACC manufacturing capacity of fifty (50) GWh for ACCs and an additional cumulative capacity of (5) GWh for Niche ACC Technologies.
- The manufacturing facility as proposed by the beneficiary firm would have to be commissioned within a period of 2 years.
- The subsidy will be disbursed thereafter over a period of 5 years.
- The beneficiary has to ensure achieving a domestic value addition of at-least 25% and incur the mandatory investment (₹ 225 crore /GWh) within 2 Years (at the Mother Unit Level) and raise it to 60% domestic value addition within 5 Years, either at Mother Unit, in-case of an Integrated Unit, or at the Project Level, in-case of "Hub & Spoke" structure.

- **Nodal Ministry: Ministry of Heavy Industries.**

6. Gold nuggets

Context:

A study explored why gold nuggets accumulate in orogenic quartz veins found in mountainous areas.

Gold nuggets in orogenic quartz veins:

- **Gold Nugget Formation-** Most nuggets originate from the quartz veins formed in orogenic gold systems found around the world.
- Orogenic refers to mountain formation driven by tectonic plate convergence and deformation.

Quartz and Piezoelectric Effect- Quartz, a piezoelectric crystal, develops a voltage when squeezed or mechanically distorted.

- Piezo catalytic chemical reactions - Piezoelectric field distorts the electronic properties of the crystal.

- It makes the charged particles, like electrons, flow from the crystal to an aqueous solution on its surface or vice versa.
- This drives electrochemical reactions at the material-solution interface and causes gold to be deposited from the solution to the slabs' surface.
- **Earthquake - Seismic activity can repeatedly squeeze quartz crystals, leading to piezo catalytic reactions and the gradual accumulation of gold in quartz veins.**
- Over time, this process results in large gold nuggets.

7. Vishvasya-Blockchain Technology Stack.

Context:

The Ministry of Electronics and Information Technology (MeitY) launched a series of blockchain-based solutions including Vishvasya-Blockchain Technology Stack.

About:

- **Vishvasya-Blockchain Technology Stack is designed to offer Blockchain-as-a-Service (BaaS) with a geographically distributed setup to support a range of permissioned blockchain applications.**
- **The stack is hosted across NIC Data Centers in Bhubaneswar, Pune, and Hyderabad, ensuring robust and scalable service delivery.**
- The government also introduced the NBFLite-Lightweight Blockchain Platform and Praamaanik, a blockchain-enabled solution for verifying the origin of mobile apps.
- **The Government also unveiled a suite of applications of the Vishvasya BaaS.**
 - e-Stamps Solution, Judiciary Application, IPS officers service level training record management, Forensic Application
 - Praamaanik – verification of mobile app authenticity
 - **Consent Management Framework,**
 - **IoT Device Security Management,**
 - **Cotton bale identification and tracking,**
 - Domicile Certificate Chain and
 - document Chain (Caste Certificate chain etc)

What is the National Blockchain Framework?

- The National Blockchain Framework (NBF) has been initiated with the vision of creating reliable digital platforms.
- The NBF is built on a distributed infrastructure and includes key components such as Distributed Infrastructure, Core Framework Functionality, Smart Contracts & API Gateway, and Security, Privacy & Interoperability.
- The framework currently supports two permissioned blockchain platforms and is designed to be extensible.

8. BPALM regimen

Context:

The Union Health Ministry approved the introduction of a new treatment regimen (BPALM regimen) for multi-drug-resistant tuberculosis in India.

About:

Multi-Drug-Resistant Tuberculosis (MDR-TB) MDR-TB: It occurs when Mycobacterium tuberculosis, the bacteria that cause TB, become resistant to at least isoniazid and rifampicin, the two most potent TB drugs.

Genetic predisposition is a genetic trait that, in response to environmental factors, may influence the potential phenotypic development of an individual organism within a species or community.

- **Antibiotic resistance is unrelated to the genetic tendency of a small minority of persons in a society.**

The rise of bacterial strains that are resistant to antibiotics could be caused by the improper usage of antibiotic FDCs.

Use of ineffective formulations of drugs (such as use of single drugs, poor quality medicines or bad storage conditions).

Premature treatment interruption can cause drug resistance, which can then be transmitted, especially in crowded settings such as prisons and hospitals.

Using the antibiotics in livestock farming increases, the antibiotic multidrug resistance transfers in microbial pathogens.

9. Agni Missile

Context:

India successfully test-fired Agni-4, an Intermediate Range Ballistic Missile, from the Integrated Test Range in Chandipur off the Odisha coast.

About Agni Missile:

- The Agni missiles are a series of medium to intercontinental-range ballistic missiles developed by India under its Integrated Guided Missile Development Programme (IGMDP).
- After its success, the Agni missile program was separated from the IGMDP upon realising its strategic importance.
- Cruise missiles are jet-propelled at subsonic speeds throughout their flights, while ballistic missiles are rocket-powered only in the initial phase, after which they follow an arcing trajectory to the target.

Variants of Agni Missiles:

- Agni I: It is a Medium Range Ballistic Missile with a Range of 700-800 km.
- Agni II: It is also a Medium Range Ballistic Missile with a Range more than 2000 km.
- Agni III: It is also an Inter-Medium Range Ballistic Missile with Range of more than 2,500 Km

Agni IV: It is also an Inter-Medium Range Ballistic Missile with Range is more than 3,500 km and can fire from a road mobile launcher.

- It is a two-stage solid propellant missile.
- Agni-V: Currently it is the longest of the Agni series, an Inter-Continental Ballistic Missile (ICBM) with a range of over 5,000 km.



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10. Helium

About Helium:

- It is an inert gas and does not react with other substances or combust.
- Its atomic number is 2, making it the second lightest element after hydrogen.
- Helium also has a very low boiling point (-268.9° C), allowing it to remain a gas even in super-cold environments.
- The gas is non-toxic, but cannot be breathed on its own, because it displaces the oxygen humans need for respiration.

How is it used in Rockets?

- Helium is used to pressurize fuel tanks, ensuring fuel flows to the rocket's engines without interruption; and for cooling systems.
- As fuel and oxidiser are burned in the rocket's engines, helium fills the resulting empty space in the tanks, maintaining the overall pressure inside.
- Because it is non-reactive, it can safely mingle with the tanks' residual contents.

Is it prone to leaks?

- Helium's small atomic size and low molecular weight mean its atoms can escape through small gaps or seals in storage tanks and fuel systems.
- But because there is very little helium in the Earth's atmosphere, leaks can be easily detected - making the gas important for spotting potential faults in a rocket or spacecraft's fuel systems.

11. NIDHI Programme

Context:

Recently, the union Minister of Science and Technology virtually inaugurated 8 new NIDHI i-TBIs across India along with a new DST-NIDHI Website at IIT Delhi celebrating 8 years of Department of Science and Technology's initiative (DST-NIDHI).

About NIDHI Programme:

- The National Initiative for Developing and Harnessing innovations (NIDHI) program was launched in 2016.
- It is an umbrella programme conceived and developed by the Innovation & Entrepreneurship division, Department of Science & Technology.
- Aim: To nurture start-ups through scouting, supporting and scaling innovations.
- Key stakeholders: Various departments and ministries of the central government, state governments, academic and R & D institutions, mentors, financial institutions, angel investors, venture capitalists and private sectors.
- Funding: It is funded by the National Science & Technology Entrepreneurship Development Board (NSTEDB).

Key Components of the Program:

- The NIDHI- PRAYAS (Promoting and Accelerating Young and Aspiring Innovators and Startups) program at Proof-of-Concept level provides mentoring and financial support to innovator for converting their ideas into prototypes.
- NIDHI Entrepreneurs-In-Residence (EIR) Program provides fellowships to the students opting for entrepreneurship.
- The NIDHI Seed Support Program provisions availability of early-stage seed support funding to startups and the NIDHI Accelerator program speeds up the investment readiness of the startups.
- The NIDHI program has been helpful in creating state-of-the-art infrastructure for incubating startups in technology sectors through Technology Business Incubators (TBIs) and Centres of Excellence (CoE).
- **NIDHI Accelerator:** An accelerator is typically a 3-6 months fast track structured program helping ideas get accelerated to the next orbit.

12. Earth's third energy field - Polar Wind**Context:**

NASA scientists have detected and measured Earth's 3rd energy field using a suborbital rocket as part of the Endurance Mission.

Earth's third energy field - Polar Wind:

- Ambipolar Electric Field – It is a weak, planet-wide electric field, counteracts gravity and ejects particles into space as fundamental as Earth's gravity and magnetic fields.
- Although the field is weak, it is significant to Earth as it counters gravity and lifts the skies up.
- Any planet with an atmosphere should have an ambipolar field.
- Scientists theorized this electric field should begin at around 250 kilometres altitude, where atoms in our atmosphere break apart into negatively charged electrons and positively charged ions.
- This electric field is bidirectional, or "ambipolar," because it works in both directions.
- Ions pull the electrons down with them as they sink with gravity.
- At the same time, electrons lift ions to greater heights as they attempt to escape to space.
- The net effect of the ambipolar field is to extend the height of the atmosphere, lifting some ions high enough to escape with the polar wind.
- First hypothesized more than 60 years ago, the ambipolar electric field is a key driver of the "polar wind," a steady outflow of charged particles into space that occurs above Earth's poles.
- Polar wind – It was strangely made up of particles moving at supersonic speeds even though they remained cold, contrary to expectations.

- Hydrogen ions, which are in abundance in the polar wind, are pushed into space by an electric field that is 10.06 times stronger than gravity.
- It was found to push hydrogen ions into space and increase the ionosphere's density by 271%, which helps maintain its density at higher altitudes.
- The field acts like a conveyor belt which lifts the atmospheric particles into space.

13. Yellow Food Dye

Context:

Recently, a recent study has demonstrated that tartrazine, a common food dye, can make the skin of living mice temporarily transparent.

About Yellow Food Dye:

- It is also known as tartrazine and is a synthetic food colorant classified as an azo dye.
- It is lemon yellow in colour and water soluble.
- It is used in many dairy products, beverages, desserts and confectioneries etc.

Highlight of the study:

- This dye absorbs blue light strongly, which yields its characteristic orange-to-red colour when dissolved in water.
- This happens because the blue part of the light is absorbed, leaving only the orange-to-red part visible.
- Normally, biological tissues scatter light due to their diverse composition of proteins, fats, and liquids.
- Researchers found that a concentrated tartrazine solution can match the refractive indices of these components, reducing light scattering and allowing light to pass through. This makes the skin appear transparent.
- When applied, tartrazine absorbs certain wavelengths of light, especially red light, changing how light interacts with the tissue.

- This effect enabled the researchers to see blood vessels, internal organs, and muscle contractions in real-time.

Potential Applications:

- This technique could simplify blood draws, improve laser tattoo removal, and aid in early cancer detection.

14. Nebula

Context:

NASA recently captivated space enthusiasts with a breathtaking image of the Red Spider Nebula.

About Nebula:

- A nebula is a giant cloud of dust and gas in space.
- Some nebulae (more than one nebula) come from the gas and dust thrown out by the explosion of a dying star, such as a supernova.
- Other nebulae are regions where new stars are beginning to form. For this reason, some nebulae are called "star nurseries."

How do stars form in a nebula?

- Nebulae are made of dust and gases—mostly hydrogen and helium.
- The dust and gases in a nebula are very spread out, but gravity can slowly begin to pull together clumps of dust and gas.
- As these clumps get bigger and bigger, their gravity gets stronger and stronger.
- Eventually, the clump of dust and gas gets so big that it collapses from its own gravity.
- The collapse causes the material at the centre of the cloud to heat up-and this hot core is the beginning of a star.

Nebulae exist in the space between the stars—also known as interstellar space.

The closest known nebula to Earth is called the Helix Nebula. It is approximately 700 light-years away from Earth.

Nebulas come in many shapes and sizes and can be further divided into several subcategories, including planetary nebulas, supernova remnants, dark nebulas, and emission nebulas.

Red Spider Nebula:

- It is a planetary nebula located 3,000 light-years from Earth and can be found in the constellation of Sagittarius.
- It harbours one of the hottest stars known, which heats the gas around it to form shockwaves 62 billion miles (100 billion km) high.

15. Polaris Dawn

Context:

A SpaceX Falcon 9 rocket lifted off from Florida, carrying American billionaire Jared Isaacman and three others into orbit to attempt the world's first private spacewalk.

About:

- Polaris Dawn is set to be the first privately-funded mission to conduct a spacewalk, aiming to reach an altitude of about 700 kilometres above Earth, the highest altitude for a human space mission to date.
- This 700km altitude will surpass the current record held by NASA's Gemini 11 mission in 1966.
- The Polaris Dawn Mission will involve orbiting through the Van Allen Belts.

Van Allen Belts:

- The Van Allen Belts are two zones of charged particles that surround Earth, held in the magnetosphere.
- The Van Allen Belts are zones of charged particles, primarily electrons and protons, that are trapped by Earth's magnetic field. They are critical in protecting the planet from solar and cosmic radiation, influencing space weather and satellite operations.
- These Van Allen Belts are dangerous for humans because they contain high levels of radiation that can pose significant health risks to astronauts.

16. Neuromorphic Computing Technology

Context:

Scientists at the IISc, Bengaluru, are reporting a momentous breakthrough in neuromorphic, or brain-inspired, computing technology that could potentially allow India to play in the global AI race.

About Neuromorphic Computing Technology:

- It is also known as neuromorphic engineering, is an approach to computing that mimics the way the human brain works.
- It entails designing hardware and software that simulate the neural and synaptic structures and functions of the brain to process information.

How does it Work?

- It is modelled in neuromorphic computing systems through spiking neural networks (SNNs).
- A spiking neural network is a type of artificial neural network composed of spiking neurons and synapses.
- These spiking neurons store and process data similar to biological neurons, with each neuron having its own charge, delay and threshold values.
- Synapses create pathways between neurons and also have delay and weight values associated with them.

Benefits

- **Adaptability:** Neuromorphic devices are designed for real-time learning, continuously adapting to evolving stimuli in the form of inputs and parameters.
- **Parallel processing:** As SNN's asynchronous nature, individual neurons can perform different operations concurrently. So neuromorphic devices can execute as many tasks as there are neurons at a given time.

17. Chamran-1 Research Satellite**Context:**

Iran has successfully launched its research satellite, Chamran-1, into space recently.

About Chamran-1 Research Satellite:

It is an Iranian research satellite designed and manufactured by Iranian engineers at Iran Electronics Industries (SAIran), a defence ministry subsidiary, in collaboration with the Aerospace Research Institute and several private firms.

It was put into orbit at an altitude of 550 kilometres (341 miles) above the Earth's surface onboard a homegrown Ghaem-100 space launch vehicle (SLV).

- The Ghaem-100 rocket, which carried the latest satellite, is manufactured by the Aerospace Force of the Islamic Revolutionary Guard Corps (IRGC).
- It is Iran's first three-stage solid-fuel satellite launcher.

Weighing approximately 60 kilograms, the primary mission of the Chamran-1 is to test hardware and software systems for orbital manoeuvre technology validation.

The satellite also has secondary tasks, including assessing the performance of cold gas propulsion subsystems in space systems, and performance evaluation of navigation and attitude control subsystems.

18. Vertical Launch Short Range Surface to Air Missile**Context:**

India successfully test-fired the Vertical Launch Short Range Surface to Air Missile (VLSRSAM) from the Integrated Test Range (ITR) at Chandipur on the Odisha coast.

About:

- It is a ship-borne weapon system designed to neutralize various aerial threats at close ranges, including sea-skimming targets.
- It is equipped with advanced guidance systems and cutting-edge technologies that provide enhanced agility and precision in targeting.

- It weighs around 170 kg and uses solid propellant. With a maximum speed of Mach 4.5, the weapon system can reach an altitude of 16 km.
- During the mid-course flight, the missile uses a fibre-optic gyroscope-based inertial guidance mechanism while the terminal phase uses active radar homing.
- It is designed for neutralising various airborne threats at close ranges, including aircraft, helicopters, drones, and incoming missiles.

19. Integrated Ocean Energy Atlas**Context:**

Recently, the Indian National Centre for Ocean Information Services (INCOIS) has announced the development of an 'Integrated Ocean Energy Atlas' of the Indian EEZ (Exclusive Economic Zone).

About Integrated Ocean Energy Atlas:

- It showcases the vast potential of ocean energy resources encompassing marine meteorological (solar and wind) and hydrological (wave, tide, currents, ocean thermal, and salinity gradients) energy forms.
- It identifies areas with high potential for energy generation and will serve as a reference for policymakers, industry and researchers for harnessing the rich energy resources available in the Indian EEZ.
- INCOIS prepared the annual, monthly, and daily energy estimates of ocean energy components following standard methods that can be visualised through a WebGIS interface at 5 km grid resolution.

Key facts about the INCOIS

- It was established as an autonomous body in 1999 under the Ministry of Earth Sciences (MoES) and is a unit of the Earth System Science Organization (ESSO).

- **Mandate:** To provide the best possible ocean information and advisory services to society, industry, government agencies, and the scientific community through sustained ocean observations and constant improvements through systematic and focussed research.

Activities:

- It provides round-the-clock monitoring and warning services for the coastal population on tsunamis, storm surges, high waves, etc. through the in-house Indian Tsunami Early Warning Centre (ITEWC).
- It provides daily advisories to fisher folk to help them easily locate areas of abundant fish in the ocean.
- Short-term (3-7 days) Ocean State Forecasts (waves, currents, sea surface temperature, etc.) are issued daily to fisher folk, the shipping industry, the oil and natural gas industry, the Navy, the Coast Guard, etc.

20. Bhartiya Antriksh Station**Context:**

The union cabinet chaired by the Prime Minister Shri Narendra Modi has approved the building of the first unit of the Bhartiya Antriksh Station by extending the scope of Gaganyaan program.

About Bhartiya Antriksh Station (BAS):

- Under Revised Gaganyaan Programme, ISRO will undertake four missions under ongoing Gaganyaan Programme by 2026 and development of BAS-1 & four missions for demonstration & validation of various technologies for BAS by December, 2028.
- **The BAS will orbit the Earth in low earth orbit at a height of about 400 kilometres and astronauts will be able to stay there for 3–6 months.**
- The BAS is being constructed in phases by the Indian Space Research Organisation (ISRO).
- **The first module is expected to launch in 2028, and the creation of an operational Bharatiya Antariksh Station by 2035.**

21. Circumnutation**Context:**

The study reveals the role circumnutations could play in plant growth patterns.

- In this study, researchers found that sunflowers grown in a dense row naturally formed a near-perfect zigzag pattern, with each plant leaning away from the row in alternating directions.

About Circumnutation:

- **It refers to the slow, repetitive, and often spiral movement observed in the growing tips of plants, such as shoots, tendrils, and roots.**
- **This movement is caused by differential growth rates in different parts of the plant, particularly in the apical meristem, leading to a helical or circular motion.**

Examples:

- Tendrils of climbing plants exhibit circumnutation to locate and coil around supports.
- Roots may use circumnutation to navigate through soil, finding the best path for growth.

22. TRISHNA Mission**Context:**

Recently, the President of the French Space Agency, Centre National d'Etudes Spatiales (CNES), in an event spoke on a wide range of topics from celebrating 60 years of French-India space cooperation to the Gaganyaan and the TRISHNA missions.

About TRISHNA Mission:

- **The Thermal Infrared Imaging Satellite for High-resolution Natural Resource Assessment (TRISHNA) mission is a collaborative endeavor between the Indian Space Research Organisation (Isro) and the French Space Agency CNES.**

Objectives:

- It is engineered to deliver high spatial and temporal resolution observations of Earth's surface temperature, vegetation health, and water cycle dynamics.
- It will also help in a comprehensive assessment of urban heat islands, detection of thermal anomalies linked to volcanic activity and geothermal resources, and precise monitoring of snow-melt runoff and glacier dynamics.
- The mission will also provide valuable data on aerosol optical depth, atmospheric water vapor, and cloud cover.

Payloads: TRISHNA satellite is equipped with two primary payloads.

- The Thermal Infra-Red (TIR) Payload: It is provided by CNES, features a four-channel long-wave infrared imaging sensor capable of high-resolution surface temperature and emissivity mapping.
- The Visible - Near Infra-Red – Short Wave Infra-Red (VNIR-SWIR) payload: It is developed by ISRO, includes seven spectral bands designed for detailed mapping of surface reflectance of VSWIR bands for generating important biophysical and radiation budget variables.
- The variables retrieved from the combination of payload data would help in solving surface energy balance to estimate surface heat fluxes.

The satellite will operate in a sun-synchronous orbit at an altitude of 761 km, with a local time of 12:30 PM at the equator.

This orbit will provide a spatial resolution of 57 meters for land and coastal areas and 1 km for oceanic and polar regions. The mission is designed for a 5-year operational life.



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23. Kleptoparasitism**Context:**

Researchers suggest that kleptoparasitism, or food theft, among seabirds could be a transmission pathway for the H5N1 avian influenza virus, potentially explaining its rapid global spread.

About Kleptoparasitism:

- The term kleptoparasitism was introduced to describe the theft of food previously collected or processed by some other individual.
- It is a form of feeding where one animal takes prey from another that has caught, killed, or otherwise prepared, including stored food (as in the case of cuckoo bees, which lay their eggs on the pollen masses made by other bees).
- Kleptoparasitism is also the 'stealing' nest material or other inanimate objects from one animal by another.
- Kleptoparasitism occurs in several groups of animals, such as birds, insects, and mammals, and is considered a form of social parasitism.
- The kleptoparasite benefits from the efforts of other animals to obtain food, without expending energy in searching for and capturing these resources for itself.
- Kleptoparasitism may be intraspecific, where the parasite is the same species as the victim, or interspecific, where the parasite is a different species.
- In the latter case, the parasites are commonly close relatives of the organisms they parasitize ("Emery's Rule").

24. Europa Clipper Mission**Context:**

NASA is set to launch the Europa Clipper mission, aiming to explore Jupiter's icy moon, Europa.

About Europa Clipper Mission:

- It is a NASA mission to study Jupiter's icy moon Europa.

- **The mission will place a spacecraft in orbit around Jupiter in order to perform a detailed investigation of Europa.**
- **The first NASA spacecraft dedicated to studying an ocean world beyond Earth, Europa Clipper aims to find out if the ice-encased moon Europa could be habitable.**
- Europa shows strong evidence for an ocean of liquid water beneath its icy crust.
- The spacecraft extends 100 feet (30.5 meters) from one end to the other and about 58 feet (17.6 meters) across.
- **It is the largest spacecraft NASA has ever developed for a planetary mission.**
- Europa Clipper will orbit Jupiter and conduct 49 close flybys of the moon to gather data needed to determine whether there are places below its thick frozen crust that could support life.
- The spacecraft carries nine science instruments and a gravity experiment that uses the telecommunications system.
- In order to obtain the best science during each flyby, all the science instruments will operate simultaneously on every pass. Scientists will then layer the data together to paint a full picture of the moon.
- The spacecraft has large solar arrays to collect enough light for its power needs as it operates in the Jupiter system.

25. Criticality in a Nuclear Reactor

Context:

India's third home-built 700 MWe nuclear power reactor has achieved criticality and is expected to start commercial electricity generation soon.

About Criticality in a Nuclear Reactor:

- Nuclear reactors use uranium fuel rods—long, slender, zirconium metal tubes containing pellets of fissionable material to create energy through fission.

Fission is the process of splitting the nuclei of uranium atoms to release neutrons that in turn split more atoms, releasing more neutrons.

- Fission produces a great deal of energy in the form of very high heat and radiation.
- That's why reactors are housed in structures sealed under thick metal-reinforced concrete domes.
- Power plants harness this energy and heat to produce steam to drive generators that produce electricity.

Criticality means that a reactor is controlling a sustained fission chain reaction, where each fission event releases a sufficient number of neutrons to maintain an ongoing series of reactions.

- **This is the normal state of nuclear power generation.**
- Fuel rods inside a nuclear reactor are producing and losing a constant number of neutrons, and the nuclear energy system is stable.
- Nuclear power technicians have procedures in place, some of them automated, in case a situation arises in which more or fewer neutrons are produced and lost.

Controlling Criticality:

- When a reactor is starting up, the number of neutrons is increased slowly in a controlled manner.
- **Neutron-absorbing control rods in the reactor core are used to calibrate neutron production.**
- **The control rods are made from neutron-absorbing elements such as cadmium, boron, or hafnium.**
- **The deeper the rods are lowered into the reactor core, the more neutrons the rods absorb and the less fission occurs.**
- Technicians pull up or lower down the control rods into the reactor core depending on whether more or less fission, neutron production, and power are desired.

- Should a malfunction occur, technicians can remotely plunge control rods into the reactor core to quickly soak up neutrons and shut down the nuclear reaction.

What Is Supercriticality?

- At start-up, the nuclear reactor is briefly put into a state that produces more neutrons than are lost.
- This condition is called the supercritical state, which allows the neutron population to increase and more power to be produced.
- When the desired power production is reached, adjustments are made to place the reactor into the critical state that sustains neutron balance and power production.

26. Mini Moons

Context:

According to a new study, the Earth's gravitational field will temporarily capture a small asteroid named 2024 PT5 which will behave as a 'mini moon'.

About:

- Mini-moons are asteroids that fail to escape Earth's gravity and end up orbiting the planet for some time.
- They are usually very small and hard to detect — only four mini-moons of Earth have ever been discovered, and none are still orbiting Earth.
- These events are relatively frequent, with similar occurrences happening every few decades.

How does Earth capture Mini Moons?

- Mini moons are captured from the Near-Earth Object (NEO) population, which consists of asteroids and other celestial bodies that pass close to Earth.
- NASA classifies any space object that comes within 120 million miles (190 million kilometres) of our planet as a near-Earth object, while objects within 4.7 million miles (7.5 million kilometres) are considered potentially hazardous.

Key facts about 2024 PT5

- It is an Apollo-class NEO, which follows an orbit similar to that of previous mini moons like 2022 NX1.
- The asteroid was discovered with the help of the NASA-funded Asteroid Terrestrial-impact Last Alert System (ATLAS).
- It is estimated to be just 33 feet long and is too small to be visible to the naked eye or through typical amateur telescopes.
- It is within the brightness range of telescopes used by professional astronomers.

27. Pheromones

About Pheromone:

- Pheromones are chemical substances which are secreted on the outside by an individual, and received by another individual of the same species.
- These are present in all bodily secretions, and especially in the axillary sweat — can be detected by the olfactory system.
- Pheromones are ecto-hormones, meaning they are secreted outside the body.

Types of Pheromones

- **Releaser pheromones:** They work right away and elicit a specific response from the other person.
- **Signaller pheromones:** They give information about the person who releases them. For example, they help a mother tell her own baby apart from other babies.
- **Modulator pheromones:** They affect mood and emotions.
- **Primer pheromones** affect hormones, for example during pregnancy or menstrual cycles.

Animals, with their heightened senses and vomeronasal organ are known to secrete pheromones to trigger many kinds of behaviours like raising an alarm, signalling a food trail, warning another animal to back off, and bonding with an offspring.

Pheromones are also used by some fungi, slime Molds, and algae as attractants in reproduction; organisms of complementary reproductive cell types grow or move toward each other.

28. Radio Noise

Context:

As per a study in the journal *Astronomy & Astrophysics* Elon Musk's Starlink satellites are creating radio noise.

About:

Radio noise from satellites refers to unwanted radio frequency signals and interference generated by satellites in orbit.

- This noise can affect various communication and observational systems, especially in the field of radio astronomy.
- Radio astronomy uses supersensitive antennas to detect faint radio signals emitted by stars, black holes and other objects in the universe.

SpaceX's new Starlink satellites produce 32 times more radio noise than their predecessors, causing concerns among astronomers about their interference with radio astronomy observations.

- Starlink "constellation" comprises more than 6,300 working satellites orbiting Earth at an altitude of around 550 km.
- These satellites deliver high-speed internet to places which otherwise would not have access to it.

29. Project 200

Context:

Bengaluru-based space startup Bellatrix Aerospace recently unveiled Project 200 on the inaugural day of the Bengaluru Space Expo 2024.

About Project 200:

- It is an innovative satellite designed to operate at an Ultra-Low Earth Orbit (180 km-250 km).

- It was developed by Bellatrix Aerospace, a Bengaluru-based space startup.
- Traditionally, satellites have been deployed in orbits at altitudes well above 450 km.
- This altitude choice has been influenced by various considerations, such as the desire to minimise the impact of atmospheric interference on satellite operations.
- Though it is known that a satellite's capabilities improve significantly at 200 km, **limitations on propulsion technology have prevented satellites from operating at this orbit.**

Project 200 is a technology demonstration mission to qualify a new unconventional satellite powered by an innovative propulsion system (developed in-house) at around 200 km.

- Bellatrix Aerospace stated that their cutting-edge propulsion technology enables satellites to maintain 200 km orbits for years, rather than deorbiting in a few days.

According to Bellatrix, at 200 km, a satellite's capability would improve significantly since the communication latency is reduced by half and image resolution is improved by three times.

- The cost of the satellite is also less when compared to spacecraft placed in 450 km orbits.

30. Quad Cancer Moonshot Initiative

Context:

Recently, the Quad grouping took a ground breaking cancer initiative called the Quad Cancer Moonshot Initiative.



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Quad Cancer Moonshot Initiative:

- **It was launched by the QUAD countries (India, United States, Australia and Japan).**
- **It is aimed at implementing innovative strategies to prevent, detect, treat and alleviate the impact of cancer on patients and their families.**
- **It will focus on expanding cervical cancer screening; increasing vaccinations against the human papillomavirus, or HPV, a common sexually transmitted infection that is the primary cause of cervical cancer; and treating patients.**

India's contribution:

- **India will, additionally, offer technical assistance to interested countries in the Indo-Pacific region on DPI for cancer screening, care and continuum through its US \$10 million contribution to WHO's-Global Initiative on Digital Health.**
- **India commits to providing HPV sampling kits, detection tools and cervical cancer vaccines worth \$7.5 million to the Indo-Pacific region.**
- **India is working on an AI based treatment protocol for the disease.**
- **India will provide support for radiotherapy treatment and capacity building for cancer prevention in the Indo-Pacific.**

32. Epigenetics**Context:**

Epigenetics plays a critical role in human health by regulating gene expression without the direct modification of DNA sequence.

About Epigenetics:

- **Epigenetics is the study of how cells control gene activity without changing the DNA sequence.**
- **"Epi-" means on or above in Greek, and "epigenetic" describes factors beyond the genetic code.**
- **Epigenetic changes are modifications to DNA that regulate whether genes are turned on or off.**
- **These Epigenetic modifications are attached to DNA and do not change the sequence of DNA building blocks.**

- **Within the complete set of DNA in a cell (the genome), all of the modifications that regulate the activity (expression) of the genes is known as the epigenome.**
- **Because epigenetic changes help determine whether genes are turned on or off, they influence the production of proteins in cells.**
- **This regulation helps ensure that each cell produces only proteins that are necessary for its function. For example, proteins that promote bone growth are not produced in muscle cells.**
- **Patterns of epigenetic modification vary among individuals, in different tissues within an individual, and even in different cells within a tissue.**
- **Environmental influences, such as a person's diet and exposure to pollutants, can impact the epigenome.**
- **Epigenetic modifications can be maintained from cell to cell as cells divide and, in some cases, can be inherited through the generations.**
- **Errors in the epigenetic process, such as modification of the wrong gene or failure to add a chemical group to a particular gene or histone, can lead to abnormal gene activity or inactivity.**
- **Altered gene activity, including that caused by epigenetic errors, is a common cause of genetic disorders.**
- **Conditions such as cancers, metabolic disorders, and degenerative disorders have been found to be related to epigenetic errors.**



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33. Infrasound

Context:

The Comprehensive Test Ban Treaty Organization (CTBTO) is hosting a workshop for scientists focused on infrasound research and its operational capabilities in global and regional networks.

What is Infrasound?

- Infrasound refers to low-frequency sound waves, which are the opposite of ultrasound (high-frequency sound waves).
- These waves can be generated by natural phenomena like meteors, storms, auroras, volcanoes, earthquakes, and nuclear explosions.
- **Historical Observation:** The first recorded infrasound observation occurred after the 1883 Krakatoa volcano eruption, where the waves circled the globe and caused widespread damage.

Applications: Infrasound can be used to check the structural health of buildings, dams, bridges, and aerospace applications like rocket stress detection and aircraft instability.

- It is also used in mining to check mine shaft integrity and for wildlife tracking, such as monitoring whale movements.
- Infrasonic waves cause minute changes in atmospheric pressure, which can be measured by micro barometers.
- These waves travel long distances without losing energy, making them useful for detecting distant nuclear explosions.

Health Concerns: There are concerns about unknown effects of infrasound on human health, though this remains a topic of ongoing debate.

About CTBTO's Mandate:

- The CTBTO's main goal is to get more countries, including India, to sign the Comprehensive Nuclear-Test-Ban Treaty (CTBT).
- The organization shares its monitoring technologies, including infrasound, with industries.

- The CTBTO's International Monitoring System (IMS) is building the only global infrasound network, with 60 array stations planned across 35 countries.
- Each array consists of several elements, a meteorological station, a processing facility, and a communication system for data transmission.
- The CTBTO workshop aims to enhance understanding of infrasound, with the goal of making it as common in usage as ultrasound.

34. FLOPs in computing

Context:

Prime Minister virtually launched three Param Rudra Super Computing Systems and a High-Performance Computing (HPC) system (Named 'Arka' and 'Arunika,') for weather and climate research.

FLOPs in computing:

- FLOPs, or Floating-Point Operations per Second, is a commonly used metric to measure the computational performance – processing power and efficiency – especially in the field of high-performance computing (HPC) and artificial intelligence (AI).
- Floating-point operations are a certain kind of mathematical calculation using real numbers with fractional parts.

Unit of Computing Speed:

- Teraflops → It is a unit of computing speed equal to 1 trillion (10^{12}) FLOPS.
- Petaflops → It is a unit of computing speed equal to 1000 TFLOPS (10^{15}).
- Exaflops → It is a unit of computing speed equal to one billion (10^{18}) FLOPS.

35. Spiral Galaxy

Context:

NASA Hubble Space Telescope recently shared a stunning video of a spiral galaxy known as Caldwell 45, or NGC 5248.

About 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 centre.
- Most of the galaxies that scientists have discovered so far are spiral galaxies, as opposed to the other two main categories of galaxy shapes—elliptical and irregular.
- Approximately 60% of all galaxies are thought to be spiral galaxies.
- The Milky Way, the galaxy that includes Earth and our solar system, is an example of a spiral galaxy.

Structure:

- Most spiral galaxies contain a central bulge surrounded by a flat, rotating disk of stars.
- The bulge in the centre 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 centre, 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.

The majority of spiral galaxies rotate in the sense that the arms trail the direction of the spin.

The visible portion of spiral galaxies contains only a small fraction of the total mass of the galaxy, and that spiral galaxies are surrounded by an extensive halo consisting mostly of dark matter.

Spiral galaxies are thought to evolve into elliptical galaxies as the spirals get older.

36. LUX-ZEPLIN (LZ)**Context:**

Experiments similar to LZ — such as XENON-nT in Italy, PandaX-4T in China, and dozens of others around the world — have been turning up empty-handed for decades now despite heroic efforts.

- LUX-ZEPLIN (LZ) is a highly sensitive experiment to detect dark matter in the universe.
- Dark matter is made up of particles that do not have a charge — which means they do not interact through electromagnetic interactions.
- Characteristics: These are particles that are “dark”, namely because they do not emit light, which is an electromagnetic phenomenon, and “matter” because they possess mass like normal matter and hence interact through gravity.

37. Thermobaric Weapons**Context:**

Russia's use of ODAB-1500 thermobaric weapons in Ukraine has drawn significant attention due to their devastating effects.

What Are Thermobaric Weapons?

- Thermobaric weapons, also known as “vacuum bombs” or “enhanced blast weapons,” rely on the atmosphere's oxygen to fuel their explosive power.
- Unlike conventional explosives that contain both fuel and oxidizer, thermobaric bombs release a fuel cloud, which, when ignited, causes a high-temperature explosion.
- This explosion generates a blast wave of immense pressure, followed by a rapid vacuum effect as the oxygen in the vicinity is consumed.
- In 2001, the United States deployed these weapons to target al-Qaeda forces hiding in the caves of the Tora Bora mountains.

Impact:

- The combination of overpressure and vacuum makes these weapons destructive in enclosed spaces such as bunkers, buildings, and tunnels.
- The shockwave produced by thermobaric bombs can destroy structures, while the blast's pressure differential causes catastrophic damage to the human body, including rupturing organs and lungs.
- ***There are no international laws specifically banning their use, but if a country uses them to target civilian populations in built-up areas, schools or hospitals, then it could be convicted of a war crime under the Hague Conventions of 1899 and 1907.***

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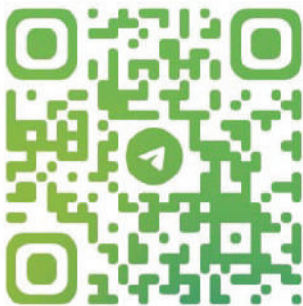
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INTERNATIONAL RELATIONS

1. Colombo Security Conclave

Context:

Member states of the Colombo Security Conclave (CSC) recently signed the Charter and the MoU for the establishment of the CSC Secretariat in Colombo.

About Colombo Security Conclave (CSC):

- *It is a regional security grouping comprising India, Bangladesh, Sri Lanka, Maldives, and Mauritius.*
- The CSC's core objective is to promote regional security by addressing transnational threats and challenges of common concern to the Member States.

Origin:

- The CSC, initially known as the Trilateral for Maritime Security Cooperation, evolved out of trilateral meetings between National Security Advisors (NSAs) and Deputy NSAs from India, Maldives, and Sri Lanka, starting in 2011.
- It came to a standstill after 2014 due to rising tensions between India and the Maldives.
- Since its revival and re-branding as the CSC in 2020, Mauritius and more recently, Bangladesh were added as members of the grouping.
- *Current members of CSC include India, Bangladesh, Maldives, Mauritius, and Sri Lanka, while the Seychelles is an observer nation.*
- CSC brings together NSAs and Deputy NSAs of the member countries.

Cooperation under the conclave focuses on five pillars:

- maritime safety and security
- countering terrorism and radicalisation
- combating trafficking and transnational organised crime
- cyber-security and protection of critical infrastructure
- humanitarian assistance and disaster relief.

Permanent secretariat: Colombo

2. Munich Agreement

Context:

On September 1st, 1939 German troops marched into Poland, triggering the beginning of World War II, that exposed to the world the folly of the Munich Agreement that was signed less than a year previously.

Regions	Located in
1. Sudetenland	Czech Republic
2. Yamal Region	Russia
3. Kursk	Russia
4. Cabo Delgado	Mozambique

About the Munich Agreement

- On September 29-30, 1938, in Munich, an agreement was reached—one that would have far-reaching consequences for Europe and the world.
- It emerged against the backdrop of rising tensions in Europe.
- Adolf Hitler, the leader of Nazi Germany, had set his sights on the Sudetenland—a region in Czechoslovakia with a significant German-speaking population.
- The Sudeten Germans, who found themselves part of Czechoslovakia after the collapse of the Austro-Hungarian Empire at the end of World War I, yearned to be part of a 'Greater Germany'.
- The Munich Agreement allowed for the German annexation of the Sudetenland, where over three million ethnic Germans lived.



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3. India & UAE

Context:

During the recent Indian visit of Sheikh Khalid bin Mohamed bin Zayed Al Nahyan, the Crown Prince of Abu Dhabi In a first, India and the United Arab Emirates (UAE) signed a Memorandum of Understanding (MoU) for civil nuclear cooperation.

More about the news:

- The deal between the Nuclear Power Corporation of India Limited (NPCIL) and the ENEC (Emirates Nuclear Energy Company)-led Barakah Nuclear Power Plant Operations and Maintenance took place.
- During the August 2015 visit of Prime Minister Narendra Modi to the UAE, both countries had agreed to cooperate in “peaceful use of nuclear energy”, including in areas of “safety, health, agriculture, and science and technology.”

Alongside the nuclear cooperation MoU, several other key agreements were signed between India and the UAE. These include:

- **Long-Term LNG Supply:** An MoU between Abu Dhabi National Oil Company (ADNOC) and Indian Oil Corporation Limited for long-term LNG supply.
- **Strategic Petroleum Reserve:** An agreement between ADNOC and India Strategic Petroleum Reserve Limited (ISPRL).
- **Production Concession Agreement:** Urja Bharat and ADNOC signed an agreement for Abu Dhabi Onshore Block 1.
- **Food Parks Development:** An MoU between the Government of Gujarat and Abu Dhabi Developmental Holding Company PJSC (ADQ) for the development of food parks in India, seen as an extension of the I2U2 grouping that includes Israel and the United States.



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4. Africa Group

Context:

The African Group considers public stock holding as a crucial food security tool for sustaining production and consumption support to meet critical food security objectives and is seeking a permanent solution for the problem at the WTO separate from the agriculture negotiations.

About Africa Group:

- The Member States in the United Nations General Assembly are divided into various geographical groupings. These are the groupings through which elections are conducted into various UN bodies and agencies.
- **The Africa Group at the United Nations is made up of the 54 African Union Member States at the United Nations.**
- The bloc coordinates its efforts on various topics, ranging from health and migration to issues of peace and security.
- **Africa is allocated 3 non-permanent members of the Security Council, 14 members on ECOSOC, 13 Members on the Human Rights Council and the President of the General Assembly in years ending 4 and 9.**
- The group holds regular meetings to receive briefings from guests and UN officials and discuss UN resolutions and topics so a common African position can be reached.
- The group is chaired by an Ambassador from a Member State, with the position rotating monthly.
- The African Union Observer Mission serves as a coordinating secretariat for the group by arranging meetings, supporting the Chair, and generally providing logistical and administrative assistance where necessary.

5. BRICS

Context:

Turkey has formally applied to join BRICS.

About:

BRICS: The BRIC (Brazil, Russia, India, China) leaders first met in St. Petersburg, Russia, in July 2006 during the G8 Outreach Summit.

- The group was formalized as BRIC during the 1st BRIC Foreign Ministers' Meeting in September 2006, held alongside the UN General Assembly in New York City.
- The inaugural BRIC summit was held in Yekaterinburg, Russia, on June 16, 2009.

Reason for Turkey's Joining: Frustrated by its stalled European Union (EU) accession process, Turkey sees BRICS as an opportunity to form stronger ties with emerging global powers like Russia, China, and India. This could help Turkey reduce its dependency on Western alliances and diversify its international partnerships.

- By joining the group, Turkey hopes to access new markets, boost trade relations, and attract investments from BRICS members, which could help strengthen its economy.

Expansion to BRICS: The group was renamed BRICS after South Africa joined as a full member in September 2010.

- South Africa attended the 3rd BRICS Summit in Sanya, China, on April 14, 2011.
- In January 2024, five new countries—Iran, Saudi Arabia, Egypt, UAE, and Ethiopia—were added to the bloc.



6. Quad summit

Context:

The Quad summit in Wilmington also serves as a prelude to the inaugural Summit of the Future, which aims to reshape global governance by addressing critical issues such as sustainable development, international peace and security, technological innovation, and the welfare of future generations.

About:

- The United Nations Summit of the Future, scheduled for 2024, aims to address pressing global challenges and reshape international governance frameworks to better meet future needs.
- Central to the Summit is the development of the Pact for the Future, a new global framework designed to foster sustainable development, address climate change, and enhance global cooperation.
- The 'New Global Deal' under discussion at the Summit of the Future seeks to Address inequalities and overhaul global governance.
- Sustainable Development Goals (SDGs) is closely aligned with the goals of the United Nations Summit of the Future.

7. United Nations Security Council

Context:

The United Nations General Assembly (UNGA) adopted a "Pact for the Future". One of the most notable aspects of the pact is that it calls for the expansion of the UNSC, to make the body more representative of the 21st century.

About United Nations Security Council:

The United Nations Security Council, established under the UN Charter in 1945, constitutes one of the UN's six principal organs.

- First Session: It held its first session on 17th January 1946 in Westminster, London.
- Headquarters: New York City

- **Mandate: It has primary responsibility, under the UN Charter, for the maintenance of international peace and security.**
- **Members: Comprising 15 members, it includes 5 permanent members (P5) and 10 non-permanent members elected for two-year terms.**
- Permanent members: They are the United States, Russian Federation, France, China, and the United Kingdom.

10 non-permanent Members: Seats are distributed on a regional basis:

- Five for African and Asian States
- One for Eastern European States
- Two for the Latin American and Caribbean States
- Two for Western European and other States

Election of Non-Permanent Members:

- **Each year the Members of UNGA elects five non-permanent members for a two-year term at the UNSC, with five replaced each year.**
- To be approved, a candidate must receive at least two-thirds of all votes cast for that seat, which can result in deadlock if there are two roughly evenly matched candidates.
- **A retiring member is not eligible for immediate re-election.**

8. Minerals Security Finance Network

Context:

India has officially joined the US-led Minerals Security Finance Network, an initiative aimed at strengthening global cooperation in securing critical mineral supply chains.

About Minerals Security Finance Network:

- India has officially joined the US-led Minerals Security Finance Network, an initiative aimed at strengthening global cooperation in securing critical mineral supply chains.
- The Minerals Security Finance Network aims to bring together institutions from the Indo-Pacific region and Europe, promoting cooperation, information exchange, and co-financing.

The partnership includes 13 countries which are:

- **United States of America, Australia, Canada, Estonia, Finland, France, Germany, India, Italy, Japan, the Republic of Korea, Norway, Sweden, the United Kingdom, and the European Union (represented by the European Commission).**



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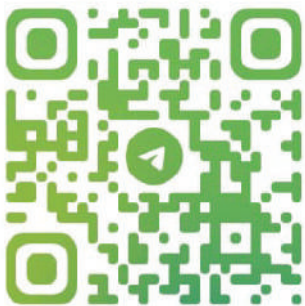
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- Important Current Affairs (25+ hrs).

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- Learn to logically handle a difficult Prelims paper

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- 5 Sectional + 3 Grand Tests after HIR course

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Optional : Mathematics



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ART AND CULTURE

1. Thanjavur Veena

Context:

Thanjavur Veena is the first musical instrument in the country to get the Geographical Indication (GI) tag.

About Thanjavur Veena:

- The Thanjavur veena is an Indian instrument and has an interesting construction.
- They are of two types viz. the "Ekantha Veena" and "Sada Veena".
- Ekantha Veena" is carved from a single block of wood, while Sada Veena, ' has joints and is carved in three sections namely resonator, neck and head.
- The veena has 24 fixed frets (Mettu), so that all ragas can be played.
- It is made of fresh bark from a Jack Fruit Tree. The tree bark is forced to undergo several rounds of testing before being finalized for usage.
- The work involves making the resonator (kudam), the neck (dandi) and a tuning box — the three integral parts of a veena.
- It takes up to 15-20 days to get the finished product. The wood gets cut, intricately carved, shaped, and assembled.

Types

- There are four types of veena. While Rudra veena and Vichitra veena are popular in Hindustani classical music, Saraswati veena and Chitra veena are used in Carnatic classical music.

Thanjavur is the only place where Saraswati veena is made. Saraswathi, the goddess of learning and arts, is portrayed with a veena.



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2. The Great Stupa of Sanchi

Context:

Recently, External Affairs Minister S Jaishankar stopped by the replica of the East Gate of Sanchi's Great Stupa standing in front of Humboldt Forum Museum in Berlin.

About The Great Stupa of Sanchi:

Historical Importance:

- The Great Stupa of Sanchi is one of the oldest stone monuments in India.
- It was built by Emperor Ashoka in the 3rd century BCE.
- It contains sacred relics of the Buddha and is part of a group of Buddhist temples and stupas.

The Sanchi complex was "discovered" by British officer Henry Taylor in 1818.

Alexander Cunningham, who later founded the ASI, led the first formal survey and excavations at Sanchi in 1851.

The site was restored to its present condition by ASI director-general John Marshall in the 1910s with funding from the Sultan Jahan Begum of Bhopal.

3. Sri Vijaya Puram

Context:

The Indian government has decided to rename Port Blair in the Andaman and Nicobar Islands as Sri Vijaya Puram to remove colonial imprints and honour the islands' role in India's freedom struggle.

About:

- Port Blair is the capital of Andaman and Nicobar Islands.
- It was originally named after Archibald Blair, a British naval surveyor who explored the area in the late 18th century.

Historical linkages: Blair initially named the natural harbour Port Cornwallis before it was renamed Port Blair.

- The East India Company (EIC) used the islands as a penal colony and strategic base.
- Port Blair was established as a penal colony after the Revolt of 1857, with a significant cellular jail (Kaala Paani) built in 1906 housing freedom fighters like Veer Damodar Savarkar.

Chola Expeditions: The Cholas were one of the longest ruling Tamil dynasties of southern India.

- They reigned approximately from the 9th to the 13th century.
- A prominent king of the dynasty, Rajendra Chola, maintained the Nicobar Islands as a naval base to launch attacks on the Srivijaya kingdom based on the Sumatra islands of present-day Indonesia.
- This naval expedition was a unique event in Indian history and its legacy of peaceful relations with Southeast Asia.
- In 1014 AD and 1042 AD, the southern islands of this archipelago were used as a strategic naval base by the Chola Dynasty

Importance: The islands, once a Chola naval base and the site of key events like the first Tiranga unfurling by Netaji Subhash Chandra Bose and the imprisonment of freedom fighters in the cellular jail, are now seen as crucial for India's strategic and developmental goals.



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Literary works:

- **The Life Divine**, which deals with the philosophical aspect of Integral Yoga.
- **Synthesis of Yoga**, which deals with the principles and methods of Integral Yoga.
- **Savitri**: A Legend and a Symbol, an epic poem.

4. Oeko-Tex Certification

Context:

The North Eastern Handicrafts and Handlooms Development Corporation (NEHHDC) has recently received the Oeko-Tex Certification for its Eri Silk.

About:

- The Oeko-Tex certification is a rigorous standard that ensures textiles are tested for harmful substances and produced in environment friendly conditions.
- Oeko-Tex Certification is provided by the OEKO-TEX organisation.
- OEKO-TEX consists of independent textile and leather testing institutes located in Europe and Japan.
- The institutes work together to develop test methods and define limit values that form the basis of OEKO-TEX standards.
- The testing institutes carry out accredited testing processes.
- These institutes are active in research and development and are committed to innovation in the textile and leather industries.
- They conduct both laboratory tests and company audits in accordance with global OEKO-TEX guidelines.

The North Eastern Handicrafts and Handlooms Development Corporation (NEHHDC) has successfully obtained the prestigious Oeko-Tex certification for its Eri Silk.

- NEHHDC works under the aegis of the Ministry of Development of North Eastern Region (DoNER).

Significance of Oeko-Tex Certification:

- This achievement further cements the silk's status as a Geographical Indication (GI) product of Assam, highlighting its authenticity and regional importance.
- This certification marks a pivotal step in bringing Eri Silk closer to penetrating the global export market, expanding its reach, and establishing a strong international presence.

Eri silk – Is one of the most durable and strong fibres. It is cooling in the summer and warming in the winter.

- Eri Silk, celebrated as the world's only vegan silk, distinguishes itself through an ethical production process where the silk moth is allowed to naturally emerge from its cocoon, leaving the silk intact.
- This compassionate method sets Eri Silk apart from other silks, aligning with growing global demands for sustainable and eco-friendly textiles.
- **It is mostly found in tribal areas of Assam.**

5. Irula Tribe

Context:

The Irula Snake Catchers' Industrial Cooperative Society, a cooperative society of Irula tribals located on Chennai's outskirts, is facing an uncertain future.

Tribes	Associated State
1. Sahariya Tribe	Madhya Pradesh
2. Konyak Tribe	Nagaland
3. Saora Tribe	Odisha
4. Irula Tribe	Tamil Nadu

About Irula Tribe:

- Irulas are one of India's oldest indigenous communities.
- They are a particularly vulnerable tribal group (PVTG).
- They live primarily in the northern districts of Tamil Nadu, as well as in parts of Kerala and Karnataka.

- **Language:** Their language, Irula, is related to Tamil and Kannada, which are southern Dravidian languages.

Religious Beliefs:

- The Irula people don't have a definite god for them. They are pantheists who make provision for the presence of spirits in humans and objects.
- Their main deity is a virgin goddess called Kanniamma, who is deeply associated with the cobra.

Irula houses are built together in small settlements or villages called mottas. The mottas are usually situated on the edges of steep hills and are surrounded by a few dry fields, gardens, and forests or plantations.

Traditionally, they have been skilled hunters, gatherers, and honey collectors, relying on the forest for their sustenance and livelihood.

They are specialists in traditional herbal medicine and healing practices.

Irulas' knowledge of snakes and snake venom is legendary. Their expertise is often sought after in snake rescue and rehabilitation projects.

The Irula Snake Catchers' Industrial Cooperative Society is a major producer of anti-snake venom (ASV) in the country. It supplies almost 80 percent of the venom that goes into making anti-venom in India.

They use traditional knowledge and skills to catch snakes, extract venom, and release the snakes back into the wild without harming them.

6. Adi Shankara

- **Recently, Madhya Pradesh Chief Minister Shivraj Singh Chauhan unveiled the 108-foot-tall 'Statue of Oneness' of Adi Shankaracharya at Omkareshwar, Madhya Pradesh.**
- **Adi Shankara, who is believed to have lived between 788 and 820 A.D. was born in Kerala's Kaladi, situated on the bank of the Periyar River.**

- **He studied under his guru Govinda Bhagavatpada and soon became a proponent of Advaita Vedanta, challenging prevailing philosophical traditions – including Buddhism and Jainism.**

7. Koodiyattom

Context:

Cholliyattom is an informal platform for the younger generation of Koodiyattom artists in Kerala following different styles to collaborate and to keep alive various Koodiyattom traditions and styles.

About Koodiyattom:

- **It is one of the oldest traditional theatre forms of Kerala and is based on Sanskrit theatre traditions.**
- The prefix “kuti” in Malayalam language primarily means “combined” or “together”, and “attam” means “acting”: therefore, the word “kutyattam or Koodiyattam” means “combined acting.”
- The characters of this theatre form are: Chakyaar or actor, Naambiyaar, the instrumentalists and Naangyaar, those taking on women's roles.
- In its stylized and codified theatrical language, neta abhinaya (eye expression) and hasta abhinaya (the language of gestures) are prominent.
- Pakarnattam is an aspect of Kutiyattam that involves embodying and emoting male and female roles. Switching between the masculine and feminine and interpreting multiple roles at the same time is considered a challenging skill within the repertoire.
- Temple theatres called Kuttambalams are permanent theatre structures attached to some of the major temples of Kerala.
- A striking feature of Kutiyattam is that it treats single Acts from Sanskrit plays as full-fledged plays. It bases its performance not on the full text of a Sanskrit play, but on the individual acts from Sanskrit plays.
- **It was recognized as a UNESCO Masterpiece of the Oral and Intangible Heritage of Humanity in 2001.**



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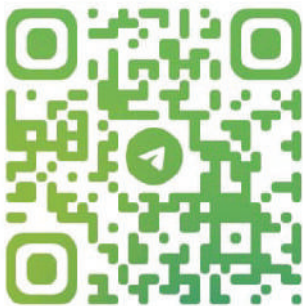
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MISCELLANEOUS

1. Exercise Varuna

Context:

Recently, a P8I aircraft of the Indian Navy has reached France to participate in 'Exercise Varuna' with the French Navy.

Exercise	Associated Country	Type of Exercise
1. Varuna Ex	France	Naval
2. AUSINDEX	Australia	Naval
3. Cope India	US	Air
4. Eastern Bridge	Oman	Air

About Exercise Varuna:

- It is the bilateral Naval Exercise between India and France.
- This bilateral exercise between the two navies was initiated in 1993.
- It was named 'VARUNA' in 2001 and has become a hallmark of India France strategic bilateral relationship.
- The 2024 edition of Indo-French bilateral naval 'Exercise Varuna' scheduled in the Mediterranean Sea.
- It includes advanced tactical exercises underscoring the deepening synergy and interoperability between the two navies.
- The Indian Navy's P-8I aircraft, renowned for its maritime surveillance and anti-submarine warfare capabilities, will play a pivotal role in these exercises and it joins the INS Tabar.
- The P-8I's participation in Exercise Varuna reflects the growing sophistication and complexity of the joint operations between the Indian and French navies.

Key facts about P-8I aircraft:

- P-8I is a long-range, multi-mission maritime patrol aircraft being manufactured by Boeing for the Indian Navy.
- It replaced the aging fleet of the Indian Navy's Tupolev Tu-142 aircraft.

2. Silicon Carbide

Context:

Recently, the Odisha Chief Minister graced the ground-breaking ceremony of India's first silicon carbide manufacturing facility to be set up in Odisha at an investment of Rs 620 crore.

About Silicon Carbide:

- It was discovered by the American inventor Edward G. Acheson in 1891.
- Its chemical formula is SiC and it is the most widely used non-oxide ceramic.

Properties

- It is an exceedingly hard, synthetically produced crystalline compound of silicon and carbon.
- In addition to hardness, silicon carbide crystals have fracture characteristics that make them extremely useful in grinding wheels and in abrasive paper and cloth products.
- It has high thermal conductivity and high-temperature strength, low thermal expansion, and resistance to chemical reaction which makes it valuable in the manufacture of high-temperature bricks and other refractories.
- It is also classed as a semiconductor, having an electrical conductivity between that of metals and insulating materials.

- *This property, in combination with its thermal properties, makes SiC a promising substitute for traditional semiconductors such as silicon in high-temperature applications.*

Applications

- It is used in refractory linings and heating elements for industrial furnaces, in wear-resistant parts for pumps and rocket engines.
- *In semiconducting substrates for light-emitting diodes.*
- Its primary application is as an abrasive because of its high hardness, which is surpassed only by diamond, cubic boron nitride, and boron carbide.

3. Exercise AL NAJAH

About Exercise AL NAJAH:

- *It is a joint military exercise between India-Oman.*
- The exercise is scheduled to be conducted from 13th to 26th September 2024 at Rabkoot Training Area in Salalah, Oman.
- Exercise AL NAJAH has been held biennially since 2015, alternating between India and Oman. Last edition of the same exercise was conducted at Mahajan in Rajasthan.
- The Indian Army contingent comprising 60 personnel is being represented by a Battalion of the Mechanised Infantry Regiment.
- Aim of the Joint Exercise is to enhance joint military capability of both sides to undertake counter terrorism operations under Chapter VII of the United Nations Charter. The exercise will focus on operations in the Desert environment.
- Tactical drills to be rehearsed during the exercise include Joint Planning, Cordon and Search Operation, Fighting in Built Up Area, establishment of Mobile Vehicle Check Post, Counter Drone and Room Intervention, among others. Combined field training exercises that simulate real-world counter-terrorism missions have also been planned.

4. Anusandhan National Research Foundation

Context:

Prime Minister Narendra Modi convened the first meeting of the Governing Board of the Anusandhan National Research Foundation (ANRF).

About:

- *The ANRF has been established with the Anusandhan National Research Foundation (ANRF) Act 2023 and as per recommendations of the National Education Policy (NEP) 2020.*
- It will act as an apex body to provide high-level strategic direction of scientific research in the country.
- *With the establishment of ANRF, the Science and Engineering Research Board (SERB) established by an act of Parliament in 2008 has been subsumed into ANRF.*

The Governing Board of the ANRF:

- *It is headed by the Prime Minister of India to provide strategic direction to the Foundation and monitor the implementation.*

Other members of the Board are:

- The Union Ministers of Science and Technology, Education as Vice Presidents,
- The Principal Scientific Advisor as Member Secretary, and
- Secretaries to the Departments of Science and Technology, Biotechnology, and Scientific and Industrial Research.



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5. Mokshagundam Visvesvaraya

Context:

Engineers' Day is observed on September 15 each year to celebrate the birth anniversary of Mokshagundam Visvesvaraya.

About Mokshagundam Visvesvaraya (1861–1962):

- He was a renowned Indian engineer, statesman, and scholar. He played a pivotal role in modernizing India's infrastructure and is considered one of the nation's foremost engineers.
- He developed a flood protection system for Hyderabad and designed automatic water floodgates at the Khadakwasla reservoir near Pune.
- Established Bangalore Agricultural University, University Visvesvaraya College of Engineering, etc.
- He served as the Diwan (Prime Minister) of the princely state of Mysore from 1912 to 1918.
- He was conferred 'Knight Commander of the Order of the Indian Empire' by the British in 1915 and conferred the Bharat Ratna, India's highest civilian award, in 1955.

6. Global Cybersecurity Index

Context:

India has marked a significant milestone in its cybersecurity efforts by achieving top Tier i.e. Tier 1 status in the Global Cybersecurity Index (GCI) 2024.

About Global Cybersecurity Index:

- It is a trusted reference that measures the commitment of countries to cybersecurity at a global level.
- It is to raise awareness of the importance and different dimensions of the issue.
- Each country's level of development or engagement is assessed along five pillars namely, Legal Measures, Technical Measures, Organizational Measures, Capacity Development, and Cooperation – and then aggregated into an overall score.
- It is published by the International Telecommunication Union (ITU).

7. Chess Olympiad

Context:

India has bagged its first ever gold medal in both the men's and the women's team categories at the 45th Chess Olympiad in Budapest.

Chess Olympiad:

- It is the world's most prestigious team event for chess and India has been participating in the biennial event since 1956 and has played in every Olympiad since 1980.
- Now with this win, India also became the third country to win gold in both men's and women's categories in the same edition of Chess Olympiad after Soviet Union and China.

Origin of Chess:

- The history of chess in India can be traced back to 1600 years ago during the Gupta dynasty.
- It was called 'chaturanga' in earlier times.
- Chess, via India, reached many countries of the world and became very popular.
- Today, chess is being used in schools as an education tool for children.

8. Global Innovation Index

Context:

India has moved up to 39th place among 133 global economies in the Global Innovation Index (GII) 2024.

About Global Innovation Index:

- It is published by the World Intellectual Property Organization.
- It is a reliable tool for governments across the world to assess the innovation-led social and economic changes in their respective countries

Key Highlights of the Global Innovation Index 2024:

- India has been ranked first among 10 economies in Central and Southern Asia, further emphasizing its regional dominance in innovation.

- India has also secured the 4th position in the World Intellectual Property Organization (WIPO) Science and Technology (S&T) Cluster Ranking.
- Major cities like Mumbai, Delhi, Bengaluru, and Chennai are listed among the world's top 100 S&T clusters, which are hubs for research, development, and technological advancements.
- India has achieved the 7th rank globally in intangible asset intensity, which measures the strength of non-physical assets like patents and trademarks, essential for driving innovation.

Key points about the World Intellectual Property Organisation:

- It works with the vision of encouraging creative activity and promoting the protection of Intellectual Property throughout the world.
- WIPO is one of the 15 specialised agencies of the United Nations.
- Currently, there are 193 members of the World Intellectual Property Organisation.
- Headquarter: Geneva.

9. NAMASTE SCHEME

Context:

Recently, the government has presented data on sewer and septic tank workers (SSWs) in Parliament under the NAMASTE programme by the Ministry of Social Justice and Empowerment.

NAMASTE SCHEME (National Action for Mechanised Sanitation Ecosystem):

- **Objective: To stop deaths of Sewers and Septic Tank Workers (SSWs) and to promote mechanization of cleaning operations with a vision to reduce hazardous cleaning and ensure the safety of sanitation workers.**
- NAMASTE Scheme was launched in 2022 as a Central Sector Scheme.

- Replaced by: The scheme has replaced the Self-Employment Scheme for the Rehabilitation of Manual Scavengers (SRMS), which was started in 2007.
- The scheme is to be implemented in all 4800+ Urban Local Bodies (ULBs) of the country, during the three years up to 2025-26.
- It is a joint initiative of the Ministry of Housing and Urban Affairs and the Ministry of Social Justice & Empowerment.



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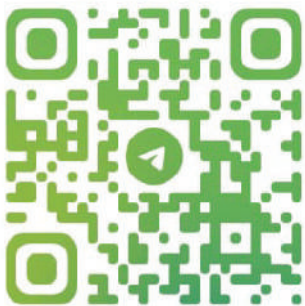
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2	CA May 2024	01-09-2024
3	CA June 2024	15-09-2024
4	CA July 2024	29-09-2024
5	CA August 2024	13-10-2024
6	CA September 2024	27-10-2024
7	CA October 2024	17-11-2024
8	CA November 2024	15-12-2024
9	CA December 2024	12-01-2025
10	CA January 2025	16-02-2025
11	CA February 2025	16-03-2025
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2024 >>>
Time : 10 AM

Course Start Date
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