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March 2023

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POLITY

2.25 lakh people renounced Indian citizenship in 2022: Govt. data

- The **Citizenship Act 1955** lays down the **three modes** by which an Indian citizen, whether a citizen at the commencement of the Constitution or subsequent to it, may lose their citizenship. These are,

By Renunciation:

- An **Indian Citizen of full age and capacity can renounce** his Indian citizenship by **making a declaration** to that effect and **having it registered**.
- But if such a declaration is made **during any war in which India is engaged**, the **registration shall be withheld** until the Central Government otherwise directs.
- When a **male person renounces** his citizenship, **every minor child of him ceases to be an Indian citizen**.
- **Such a child may**, however, **resume Indian citizenship** if he makes a declaration to that effect within a year of his **attaining full age, i.e. 18 years**.

By Termination:

- If a citizen of India **voluntarily acquires citizenship of another country**, then the **citizenship of India gets terminated**.
- This provision **does not apply during times of war**.
- **If any question arises** as to whether, when, or how any person has acquired the citizenship of another country, it is to be **determined by such authority and in such manner as may be prescribed by the rules**.
- **By Deprivation:**
- It is a **compulsory termination of citizenship of India**.
- A citizen of India by naturalization, registration, domicile and residence may be **deprived of his citizenship by order of the Central Government** if it is **satisfied that:**
- The citizen has **obtained the citizenship by means of fraud**, false representation, or concealment of any material fact;
- The citizen has **shown disloyalty to the Constitution** of India;
- The citizen has **unlawfully traded or communicated with the enemy during a war**;
- The citizen has, **within five years after registration or naturalization, been imprisoned in any country** for two years;
- The **citizen has been ordinarily resident out of India for seven years**

"5 States To Restart Old Pension Scheme": Minister Informs Lok Sabha

- Under the OPS, **employees get a defined pension**.
- **Only government employees were eligible** to receive a pension under the OPS **after retirement**.
- Under this, an employee is **entitled to a 50% amount of the last drawn salary** as pension.
- The **pension amount is not deducted from the salary** of the employee **during the**

period of employment.

- The **entire pension amount** to a government employee **is paid by the government.**
- Under the OPS, a retired government employee used to **get the benefit of the revision of Dearness Relief (DR) twice a year.**
- There was the **provision of the General Provident Fund (GPF) under OPS.**
- The scheme was **discontinued in 2004.**

General Provident Fund (GPF)

- GPF is **available only for government employees** in India.
- It allows all government employees to **contribute a certain percentage of their salary to the GPF.**
- The **total amount accumulated** throughout the employment term **is paid** to the employee **at the time of retirement.**
- **Interest rates on GPF are revised periodically** according to the government's issued notifications.

Article 105 of Constitution: The limits to free speech in Parliament, and what Supreme Court has ruled

- Article 105 deals with “**powers, privileges, etc of the Houses of Parliament and of the members and committees thereof**”, and has four clauses. These are
- **Freedom of speech** is guaranteed in Parliament, subject to the provisions of this constitution and the rules and standing orders governing its conduct.
- **No member of Parliament shall be subject to proceedings in any court** with respect to anything said or any vote cast by him in the House of Commons or any of its committees, and no person shall be subject to such liability with respect to the publication of any report, paper, votes, or proceedings by or under the authority of either House of Parliament.
- In all other respects, **each House of Parliament's members, committees, and powers, privileges, and immunities shall have such powers, privileges, and immunities** as may from time to time be determined.
- The provisions of sections (1), (2), and (3) shall **apply to individuals who, pursuant to this constitution, have the right to speak in and otherwise participate in proceedings of a House of Parliament** or any committee thereof, in the same manner as they do for members of Parliament.
- Article 105 envisages Parliamentary Privileges of a House in **two different aspects—**
- **Collective Privileges:** Various privileges such as **internal autonomy, power to punish for contempt in case of breach of privileges and also external interferences by strangers, freedom of speech in the debates, and the passing of resolutions** expressing the collective opinion of the members for the public interest, rule-making powers, etc. can be enjoyed collectively by the House itself.
- **Individual Privileges:** Privileges such as **conferring protection from arrests of the members of both Houses in civil proceedings, freedom of speech and expressions** in a much broader manner than that is guaranteed as a fundamental right to every citizen by the Constitution, etc. can be enjoyed by the individual members of the both Houses.

Minister for Communications recently inaugurated AMRITPEX 2023 in New Delhi.

- It is a **National Philatelic Exhibition** organised by the **Department of Posts under the Ministry of Communications**.
- **Stakeholders of AMRITPEX 2023:** Ministry of Culture, Government of India and Philatelic Congress of India.
- **Objective:** National Philately Exhibition aims to introduce the new generation of Philately. This exhibition will include India's History, Culture, Art and Heritage through stamps.
- This exhibition will also include digital exhibits.
- Some of the attractions are the Wall of Philately, Mascot - VR Rooms, and Digital Charkha. Digital Kiosks – digital postcard, quiz and design are also a highlight.
- **Themes of AMRITPEX 2023:** Azadi ka Amrit Mahotsav, Women Power, Youth Power, Nature and Wildlife and Culture and History.

ICHR not rewriting Indian history, only filling gaps: Govt

- ICHR is an **autonomous organization under the Ministry of Education**, Government of India.
- It was **established in 1972 by an Administrative Order**.
- ICHR was **registered under the Societies Registration Act (Act XXI of 1860) as a literary and charitable society**.
- The ICHR is **based in Delhi**, with **regional centers in Pune (Maharashtra), Bengaluru (Karnataka), and Guwahati (Assam)**.
- The ICHR **receives grants-in-aid** from the **Department of Higher Education**, grants-in-aid from various **Indian states**, **private donations**, and the **proceeds of revenues** from the **sale of publications of the ICHR**.
- ICHR **disburses funds for carrying out research to Indian as well as foreign scholars** on their applications for fellowships, grants, and symposia, made to the ICHR or through the Ministry of Human Resource Development.
- **Objectives:**
- **Bring historians together** and provide a **forum for the exchange of views** between them;
- Give a national direction to **an objective and scientific writing of history** and to have rational presentation and interpretation of history;
- To Promote, accelerate and **coordinate research in history** with special emphasis on areas that have not received adequate attention so far;
- To coordinate a **balanced distribution of research efforts over different areas**;
- To **elicit support and recognition for historical research** from all concerned and ensure the necessary dissemination and use of results.

Union Home Minister Amit Shah to present President's Colour Award to Haryana Police

- The President's Colour is one of the **highest honour** that can be **awarded to any military unit, military training establishments, and state/UT Police Forces** of

India.

- It is bestowed upon in **recognition of exceptional service rendered to the Nation**, both in peace and in war.
- It is also known as **"Rashtrapati ka Nishaan"** in Hindi.
- **Indian Navy was the first Indian Armed Force to be awarded the President's Colour by Dr. Rajendra Prasad on 27 May 1951.**
- **Award:**
- A **special flag, also known as 'Nishaan,'** is given to a unit as part of the award.
- The **flag consists of a golden border in the middle**; it has **insignia of a respective military unit**, training establishments, and police forces **in the center**.
- The flag **may also contain the motto**, important **achievements**, and battle participation of those military units to which the award is bestowed.
- During any ceremonial parade, the **President's Colour is kept at a special position**, and **soldiers often march with the President's Colour on important dates** like on their establishment anniversary

PM to inaugurate TRIFED's Aadi Mahotsav in Delhi on Feb. 16

- It is an annual Tribal Festival that was started in the year 2017.
- It is a joint initiative of the **Ministry of Tribal Affairs & Tribal Cooperative Marketing Development Federation of India (TRIFED)**.
- **Aim:** It aimed to familiarise the people with the rich and diverse craft, and the culture of the tribal communities, in one place.
- **Theme:** "A Celebration of the Spirit of Tribal Crafts, Culture and Commerce"

Key facts About TRIFED

- TRIFED came into existence in 1987 under the **Multi-State Cooperative Societies Act**, of 1984.
- It is a national-level apex organization functioning under the administrative control of the **Ministry of Tribal Affairs**.
- **Objectives of the Organisation:** Socio-economic development of tribal people in the country by way of marketing development of tribal products.
- The organisation assists tribal people in exploring and creating opportunities to market the developed products in national and international markets on a sustainable basis.
- Under the **TRIBES India** brand, the sourced handcrafted products from the tribal people are sold.

India Domestic Workers Survey undertaken by Labour Bureau

- This is the **first-ever such survey** in independent India which was initiated in 2021.
- The survey would cover all States and Union Territories, covering 1.5 lakh households in 742 districts.
- **The main objectives of the survey are:**
 - Estimate the number/proportion of domestic workers at the National and State level.
 - Household Estimates of Live-in/Live-out DWs.

- The average number of DWs engaged by different types of households.

Labour bureau

- Labour Bureau is an attached office under the **Ministry of Labour and Employment**, which was set up on 1st October 1946.
- It is entrusted with the work of **compilation, collection, analysis and dissemination** of statistics on different aspects of labour.
- It releases **Consumer Price Index Numbers for Industrial Workers**, Agricultural/Rural Labourers, Retail Price Index of Selected Essential Commodities in Urban Areas etc.
- **Quick Employment Survey** and Employment-Unemployment survey are also being conducted by Labour Bureau.

Can OCI Holders Be Exempted from FEMA Norms?

- FEMA is an enactment that **deals primarily with the provisions relating to cross-border trade and payments**
- It defines the **procedures, formalities, and dealings of all foreign exchange transactions** in India.
- It was **introduced in 1999** as a replacement for the earlier Foreign Exchange Regulation Act (FERA).
- FEMA's **head office is known as Enforcement Directorate** and is situated in **Delhi**.
- **Primary objective:** To help **facilitate external trade and payments in India**.
- **Other objectives:**
- To help **orderly development and maintenance of the foreign exchange market** in India.
- To **facilitate transactions involving a foreign exchange or foreign security** and payments from outside the country to India **only through an authorized person**.
- To **encourage dealings in foreign exchange under the current account** through an authorized person.
- To **authorize the Reserve Bank of India to subject capital account transactions to a number of restrictions**.
- **Applicability:**
- It is **applicable to all parts of India**.
- It is also equally applicable to the **offices and agencies located outside India but managed or owned by an Indian Citizen**.
- FEMA is applicable to the following entities and transactions
- Any citizen of India residing in the country or outside (NRI);
- **Any overseas company that is owned 60% or more by an NRI** (Non-Resident Indian);
- **Any Associate Branches or subsidiaries, outside India**, of companies or bodies corporate, **registered or incorporated in India**;
- **Exports of any goods and services from India**;
- **Imports of goods and services to India**;
- **Banking, financial, and insurance services provided outside India**;
- **Cross-border sale, purchase, and exchange** of any kind (i.e. Transfer).

Overseas Citizens of India (OCI)

- OCI Scheme was **introduced by amending the Citizenship Act 1955** in August 2005.
- The Scheme **provides for registration as OCI of all Persons of Indian Origin (PIOs)** who were citizens of India on 26th January 1950 or thereafter or were eligible to become citizens of India on 26th January 1950, except those who were or had been a citizen of Pakistan, Bangladesh or such other country as the Central Government may, by notification in the Official Gazette, specify.
- **OCI is entitled to:**
- **Multiple entry, multipurpose, life-long** visa for visiting India;
- **exempted from registration with Foreign Regional Registration Officer or Foreign Registration Officer for any length of stay in India;**
- **general parity with Non-Resident Indians** in respect of all facilities available to them in economic, financial, and educational fields **except in matters relating to the acquisition of agricultural or plantation properties;**

Government Eases Rules For Organ Donation, Relaxes Cap On Age

- The **primary legislation** governing organ transplantation in India is the **Transplantation of Human Organs Act, passed in 1994.**
- It **provides a system to regulate the removal, storage, and transplantation of human organs for therapeutic purposes** and for the **prevention of commercial dealings** in human organs.
- **National Organ transplant programme:**
- It is **implemented by the Directorate General of Health Services**, Government of India.
- **Objectives:**
 - To **organize a system of organ and Tissue procurement & distribution** for transplantation.
 - To **promote deceased organ and Tissue donation.**
 - To **train the required manpower.**
 - To **protect vulnerable poor from organ trafficking.**
 - To **monitor organ and tissue transplant services** and bring about policy and programme corrections/ changes whenever needed.
- **National Organ and Tissue Transplant Organization (NOTTO):**
 - It is a **National level organization** set up **under the Directorate General of Health Services**, Ministry of Health and Family Welfare, Government of India.
 - It functions as the **apex center for coordinating all activities** and networking for the **procurement and distribution of organs and tissues** and **maintaining the registry of organs and tissue donation and transplantation** in the country.

Organ donation in India:

- Organ donation **means giving part of the body (organ) to a person with end-stage organ disease** who needs a transplant.
- In India, **organ donations are legal under the Transplantation of Human Organs**

- Act (THOA), 1994**, which also **legalizes the concept of 'brain death'**, the permanent cessation of all brain functions.
- Organ donation is a **voluntary process** wherein you can **fill up a consent form to donate your organs** in the event of your demise.
 - **Types of organ donation:**
 - **Living Donor Organ Donation:**
 - A person during his life **can donate one kidney, a portion of the pancreas, and a part of the liver.**
 - **Living Donor is any person not less than 18 years of age** who **voluntarily authorizes the removal of any of his organ** and/or tissue, during their lifetime, as per prevalent medical practices **for therapeutic purposes.**
 - **The donor can be a family member, relative, friend, neighbour, or in-law.**
 - **Deceased Donor Organ Donation:**
 - A person can donate **multiple organs and tissues after (brain-stem/cardiac) death.** Their organ continues to live in another person's body.
 - **Deceased Donor is anyone, regardless of age**, who can become an organ and tissue donor **after their death (Brainstem/Cardiac).** **Consent of a near relative** or a person in lawful possession of the dead body is required.
 - **Eligibility criteria:**
 - There is **no age limit for organ donation.** It can be **started at as young as six weeks.** The only essential thing is the health and condition of your organs.

Union Cabinet approves establishment of new Primary Agricultural Credit Society in 2 lakh panchayats

- PACS are **village-level cooperative credit societies** that serve as the **last link in a three-tier cooperative credit structure headed by the State Cooperative Banks (SCB)** at the state level.
- **Credit from the SCBs is transferred** to the **district central cooperative banks (DCCBs)** that operate at the district level. The **DCCBs work with PACS, which deals directly with farmers.**
- **Individual farmers are members of the PACS**, and office-bearers are elected from within them.
- There are **02 lakh PACS in India** (As per the RBI report of December 2022).
- **Functions:**
 - To **provide short and medium-term purpose loans to farmers** for various agricultural purposes.
 - **Borrowing adequate funds from central financial agencies** to help its members on time.
 - **Maintaining the supply of the hired light machinery** for agricultural purposes.
 - To **promote savings habits** among its members.
 - To **arrange for supplying agricultural inputs.**
 - **Provide marketing facilities** to members that could enhance the sale of their

agricultural products in the market at reasonable prices.

- **Organizational Structure:**
 - **General Body:** Exercise **control overboard and management**.
 - **Management Committee:** The **general body elects them** to perform the work prescribed by society's rules, acts, and by-laws.
 - **Chairman, Vice-Chairman, and Secretary:** Appointed from amongst its members. They work for the benefit of the members by performing their roles and duties as assigned to them.
 - **Office Staff:** Performs **day-to-day work**.³

Digital competition law panel to hold first meeting on February 22

- The Government of India has constituted a committee to study the requirement of the digital competition law and give suggestions regarding competition norms.
- The panel will be **headed by the secretary of the Ministry of Corporate Affairs (MCA)**.
- **Committee Members:** It is a 16-member committee of union secretaries, law experts, and industry stakeholders.
- The Competition Commission of India (CCI) will provide secretarial and research assistance and logistic support to the panel.
- **Functions of the Panel:** Review whether **the Competition Act, 2002**, and the rules framed under it are sufficient to deal with challenges posed by the digital economy.

Competition Commission of India:

- The Competition Commission of India has been established to enforce the competition law under the Competition Act of 2002.
- The Commission consists of a Chairperson and not more than 6 Members **appointed by the Central Government**.
- It works as a quasi-judicial body.
- **Nodal Ministry:** The Ministry of Corporate Affairs

Breach of privilege: Dhankhar seeks report on 12 Opposition MPs

- This committee **consists of 15 members in Lok Sabha (10 in case of Rajya Sabha) nominated by the Speaker (Chairman in case of Rajya Sabha)**.
- In the **Rajya Sabha**, the deputy chairperson heads the committee of privileges.
- **Powers and Functions:**
 - The committee **examines every question involving a breach of privilege** of the House or of the members or of any Committee thereof referred to it by the House or by the Speaker/Chairman.
 - It also **determines with reference to the facts of each case whether a breach of privilege is involved** and **makes suitable recommendations** in its report.
 - It also **states the procedure to be followed by the House in giving effect to its recommendations**.
 - When a question of privilege is referred to the Committee by the House, **the report of the Committee is presented to the House by the Chairman or**, in his absence, by

- any member of the Committee.
- Where a **question of privilege is referred to the Committee by the Speaker**, the **report of the Committee is presented to the Speaker who may pass final orders thereon or direct that it be laid on the Table of the House.**
 - The **Speaker/Chairman may refer to the Committee** any petition regarding the **disqualification of a member on the ground of defection for making a preliminary inquiry** and submitting a report to him.
 - The **procedure to be followed by the Committee in these cases** is so far as may be the **same as in applicable to questions of breach of privilege.**

Parliamentary privileges	
Collective for Parliament	Individual to Members
<ul style="list-style-type: none"> • 44th Amend. 1978 restored freedom of press to publish reports of parliament without prior. But not of secret sitting • Exclude strangers from secret • Make rules to regulate its own procedure • Punish members/outside for breach of privileges / contempt (suspension or expulsion). • Right to receive info. of the arrest, detention etc. of a member. • Institute inquiries + order attendance of witnesses etc. • Courts can not inquire into proceedings • No member from proceedings can be arrested, without the permission of the presiding officer. 	<ul style="list-style-type: none"> • Can't be arrested during session of Parliament & 40 days before/after. (privilege NOT available in CRIMINAL cases) • Freedom of speech in Parliament. (Not liable to anything said or vote given in Parliament + committees. • Exempted from jury service. CAN refuse to give evidence and appear as a witness in pending case (if session going on)

PM congratulates MP colleagues who will be conferred the Sansad Ratna Awards 2023

- The Sansad Ratna Awards were instituted in 2010, inspired by **the teachings of former President APJ Abdul Kalam**, who launched the first edition of the Award function in Chennai.
- The Jury Committee has chosen a total of 13 MPs and two parliamentary committees for the award, with a lifetime award being presented for the first 2023 awards.
- The jury committee comprises "**eminent Parliamentarians and (members of) civil society**".
- The nominations were based on an MP's cumulative performance in Parliament, from the beginning of the 17th Lok Sabha until the end of Winter Session 2022
- Factors that the decision is based on include **questions asked, private members' Bills introduced, debates initiated, attendance, funds utilised**, etc.
- The performance data of the members have been sourced from information provided by PRS Legislative Research.

Term of 22nd Law Commission extended till August, 2024

- The Law Commission of India is a **non-statutory body constituted by the Government of India from time to time.**
- It functions to the **Ministry of Law and Justice as an advisory body.**
- **History:**
- The **first Law Commission** was established during the **British Raj era in 1834** by the **Charter Act of 1833** and was chaired by **Lord Macaulay.**
- **In 1955, the first independent Law Commission** was created.
- **Objective:** To carry out research in the field of law and makes recommendations to the Government (in the form of Reports) as per its terms of reference.
- The commission's **recommendations are not binding** on the Government.
- The Law Commission has **so far submitted 277 Reports.**
- The commission **consists of legal experts and is headed by a retired judge.**
- The Commission is **constituted for a fixed tenure.**

IRCTC to operate Baba Saheb Ambedkar Yatra tour package under “Dekho Apna Desh” initiative

- The Baba Saheb Ambedkar Yatra, designed by IRCTC, aims to highlight the places and destinations associated with Ambedkar's life.
- The First Journey of the Baba Saheb Ambedkar Yatra will be from New Delhi in April 2023.
- As part of the "Dekho Apna Desh" initiative, the Ministry of Railways, in collaboration with the Indian Railways Catering and Tourism Corporation (IRCTC), operates Bharat Gaurav Tourist Trains on various theme-based circuits throughout India.

Dekho Apna Desh initiative

- **Nodal Ministry:** The Ministry of Tourism
- The scheme aims to **promote tourism** and encourage people to explore the rich cultural heritage and diversity of India.
- The scheme is intended to offer financial help to tourists travelling to different parts of India.
- The government has set aside a substantial budget for the implementation of this scheme, which will be used to promote travel and build out tourist infrastructure around the nation.
- **Objectives:** The scheme aims to increase domestic tourism in India and under this plan, around 50 destinations in the country will be developed and promoted to attract tourists.

ECONOMY

FM tables Economic Survey 2022-23 in Lok Sabha

- It is the **flagship annual document of the finance ministry** that contains a detailed analysis of the **economic development of the country**.
- It **reviews the economic development** in India over the **past financial year** by giving **detailed statistical data of all the sectors** industrial, agricultural, manufacturing among others.
- It **analyses the whole macroeconomics of the country** in the past year and provides an outline for the next financial year.
- The Survey **has two parts--one, one consists of the economic challenges** that the country is facing and the **second is the review of the year gone by**.
- **When was the first Economic Survey of India presented?**
 - The first Economic Survey in India was presented in the **year 1950-51**.
 - Up to 1964, it was presented along with the Union Budget. **From 1964 onwards, it has been delinked from the Budget**.
- **When and who present it?** It is **presented normally a day before the presentation of the Union Budget** in the Parliament **by the Finance Minister**.
- **Who prepares it?** It is prepared by the **Economics Division of the Department of Economic Affairs** in the Finance Ministry under the **overall guidance of the Chief Economic Adviser** and is released after it is **approved by the finance minister**.

Current GST buoyancy seen better than pre-GST levels

- Tax buoyancy **explains the relationship between the changes in government's tax revenue growth and the changes in GDP**.
- It refers to the **responsiveness of tax revenue growth to changes in GDP**.
- When a **tax is buoyant, its revenue increases without increasing the tax rate**.
- **It depends upon:**
 - the size of the tax base;
 - the friendliness of the tax administration;
 - the rationality and simplicity of tax rates;

Tax Elasticity

- It refers to **changes in tax revenue in response to changes in tax rate**.
- For example, how tax revenue changes if the government reduces corporate income tax from 30 per cent to 25 per cent indicate tax elasticity.

Elasticity vs buoyancy:

- **Tax elasticity considers the automatic response of revenues** to the change in income given that tax structure is unchanged.
- On the other hand, **tax buoyancy reflects both the impacts of income and discretionary changes** on revenue earnings.

Laffer Curve

- It is an **economic theory** pioneered by economist **Arthur Laffer** suggesting that **tax rates above a certain threshold reduce tax revenue** since they incentivize people not to work. As such, it suggests that **lowering tax rates** motivates people to earn more money, **resulting in greater tax revenue**.

PM CARES Fund is a public charitable trust, not controlled by government of India: Centre to Delhi HC

- The Prime Ministers Citizen Assistance and Relief in Emergency Situations Fund (PM CARES Fund) **was created on 28 March 2020**, following the COVID-19 pandemic in India.
- It was created for **combating, and containment and relief efforts** against the coronavirus outbreak and similar **pandemic like situations** in the future.
- It has been **registered as a Public Charitable Trust**.
- **Objectives:**
- To **provide assistance and relief** to all the affected persons in the event of any calamity, disaster, public health emergency or any other emergency of any kind that may be either natural or man-made.
- **Creation as well as upgradation of any pharmaceutical facilities**, funding a research, creation or **upgradation of any necessary infrastructure**, healthcare support or any other kind of support.
- **Composition of the Trust:**
- **Prime Minister is the ex-officio Chairman** of the PM CARES Fund.
- **Minister of Defence, Minister of Home Affairs and Minister of Finance**, Government of India **are ex-officio Trustees** of the Fund.
- The Trust Deed of the Fund gives the Chairman of the Board of Trustees, i.e. the Prime Minister, the power to nominate three Trustees to the Board of Trustees.
- **Contributions:**
 - The fund consists **entirely of voluntary contributions** from individuals/organizations and does not get any budgetary support.
 - The contributions to the Fund can be from any individuals or any organizations including companies, other charitable institutions, associations, etc.
- Donations to PM CARES Fund **would qualify for 80G benefits for 100% exemption under the Income Tax Act**,
- Donations to PM CARES Fund **will also qualify to be counted as Corporate Social Responsibility (CSR)** expenditure under the Companies Act, 2013.
- It has also got **exemption under the FCRA**. This enables PM CARES Fund to **accept donations and contributions** from individuals and organizations based in **foreign countries**.

Budget 2023: Govt removes 5% duty on Lab-grown Diamond; know what it is, how it is made and its cost

- Lab-grown diamonds are diamonds that are produced **using specific technology** which mimics the geological processes that grow natural diamonds.

- The diamond simulants such as Moissanite, Cubic Zirconia (CZ), White Sapphire, YAG, and others are used to make them look like natural diamonds.

LGDs

- There are multiple ways in which LGDs can be produced.
- **High pressure, high temperature” (HPHT) method**
 - It is the most common and cheapest method.
 - In this method, extremely **heavy presses** that can produce up to 730,000 psi of pressure under **extremely high temperatures** of at least 1500 celsius are applied.
 - Usually, **graphite** is used as the “**diamond seed**” and when subjected to these extreme conditions, the relatively inexpensive form of carbon turns into one of the most expensive carbon forms.
- **Chemical Vapor Deposition (CVD)** and explosive formation create what is known as detonation nanodiamonds.

Applications

- Used for **industrial purposes**, in machines and tools and their hardness and extra strength make them ideal for use as cutters.
- Pure synthetic diamonds are used in **electronics** as a heat spreader for high-power laser diodes, laser arrays and high-power transistors.

Budget 2023 | FM Sitharaman announces ₹5300 crore grant for Upper Bhadra Irrigation Project in poll-bound Karnataka

- It is a major **lift irrigation Scheme** under implementation in the **central region of Karnataka State**.
- Objectives:
 - To provide sustainable **irrigation facility in khariff season**.
 - It also proposes to **recharge ground water tables** and **provide drinking water** by filling 367 tanks with six tmcft water in **drought-prone taluks**.
- It is planned to **irrigate an extent of 2,25,515 hectares by micro irrigation** in **drought-prone districts** of Chikkamagalur, Chitradurga, Tumkur and Davangere.
- It envisages **lifting upto 17.40 TMC of water** in first stage **from Tunga river to existing Bhadra reservoir** and lifting 29.90 TMC of water in second stage **from Bhadra reservoir** to Tunnel near Ajjampura, in Tungabhadra sub-basin of Krishna basin.
- In 2022, Central government gave **national project status** to “Upper Bhadra Project”.

Tungabhadra River:

- It is a sacred river in southern India that **flows through** the states of **Karnataka, Andhra Pradesh and Telengana**.
- The **ancient name** of the river was **Pampa**.
- It is formed by the **confluence of two rivers, the Tunga River and the Bhadra**
- **Origin:** Both Tunga & Bhadra Rivers are originated on the **eastern slops of the**

Western Ghats.

- Tungabhadra River **flows in east, joins Krishna River** and then **drains into Bay of Bengal.**
- **Sangameshwaram Temple** is located at the **confluence of the Tungabhadra and Krishna**
- The Historic city '**Hampi**' is located **on the banks** of the Tungabhadra River.
- **Major Tributaries: Tunga, Kumudvati, Varada, Bhadra, Vedavathi, and Handri.**

Budget 2023-24: FM Announces New Mahila Samman Savings Certificate, To Offer 7.5% On Deposit Of Rs 2 Lakh

- The scheme **offers deposit facility up to Rs 2 lakh in the name of women or girls for a tenor of 2 years.**
- It **offers fixed interest rate of 7.5 per cent.**
- There are **no tax benefits**, but **partial withdrawal is allowed** in this scheme.
- This is a **one-time scheme** announced in Budget 2023 and will **remain available** for a two-year period i.e. **up to March 2025.**
- **Benefit:** It will encourage more women to **adopt formal financial saving instruments.**

Budget: BBMP official hails municipal bonds, expert has doubts

- **What is it?** A municipal bond or muni bond is a **debt instrument issued by municipal corporations** or associated bodies in India.
- **Purpose:** The funds raised are used to **finance socio-economic development projects.**
- **History:** It was **first issued in the 1997 by Bangalore local body** for infrastructure development projects 4 years after decentralization of powers and authorities to the Municipal bodies by the 74th constitutional amendment.
- **Tax Exemption:** Municipal bonds are **exempted from tax** provided the buyer adheres to the rules laid by the municipal corporations. **The interest is also exempted from taxes.**
- **Securities and Exchange Board of India (SEBI) Guidelines :**
 - The municipal body should not have a history of defaulting at repayments of loans or debt instruments acquired from financial institutions in the past year.
 - It should possess a positive net worth in all the three years preceding the issuance of municipal bonds.
 - Such municipal entity, its Group Company or directors, and promoters shall not be mentioned in the willful defaulters' list published by the Reserve Bank of India.

Bonds

- It is a **debt security.**
- Borrowers issue bonds to **raise money from investors** willing to lend them money for a certain amount of time.

- **When you buy a bond, you are lending to the issuer**, which may be a government, municipality, or corporation.
- In return, the **issuer promises to pay you a specified rate of interest** during the life of the bond **and to repay the principal**.

Various schemes towards Agriculture and Farmers' Welfare in budget

- PM PRANAM (Prime Minister Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth)
 - This programme will seek to **incentivise states and union territories** to promote alternative fertilisers and the **balanced use of chemical fertilisers**.
- Bhartiya Prakritik Kheti Bio-Input Resource Centres
 - Under this 10,000 Bio-Input Resource Centres will be set up, creating a national-level distributed **micro-fertiliser and pesticide** manufacturing network.
 - This will impact over 1 crore farmers over the **next three years**.
- Agriculture Accelerator Fund
 - The Fund will aim at bringing **innovative and affordable solutions** for challenges faced by farmers.
 - It will also bring in modern technologies to transform agricultural practices, and increase productivity and profitability."
- Cotton crop productivity enhancement
 - Union government will adopt a **cluster-based approach** to enhance the cotton crop.
 - To enhance the productivity of extra-long staple cotton, the government will adopt a cluster-based and value chain approach through Public Private Partnerships (PPP).
- Centre of excellence for millets
 - **Indian Institute of Millet Research, Hyderabad** will be made into a Centre for Excellence and it will be supported for sharing best practices, research and technologies at the international level.
- Agriculture credit to be increased
 - The agriculture credit target will **be increased to Rs 20 lakh crore** with a focus on animal husbandry, dairy, and fisheries.
- GOBARdhan scheme
 - Five-hundred new 'waste to wealth' plants under GOBARdhan (Galvanizing Organic Bio-Agro Resources Dhan) scheme will be established for promoting a circular economy.

Data embassies, EXIM Bank subsidiary to propel business

- It is the **premier export finance institution** of the country.
- It was **established by the Government of India**, under the **Export-Import Bank of India Act, 1981**
- EXIM Bank **wholly owned by the Government of India**.
- Services:
 - EXIM Bank **provides financial assistance to exporters and importers**.

- **It extends Lines of Credit (LOCs)** to overseas financial institutions, regional development banks, sovereign governments and other entities overseas, to enable buyers in those countries to import developmental and infrastructure projects, equipment, goods and services from India, on deferred credit terms.
- It functions as the **principal financial institution for coordinating the work of institutions engaged in financing export and import** of goods and services with a view to promoting the country's international trade.
- Structure:
 - The operations of the Bank are governed by a **Board of Directors**.
 - The Board of Directors consists of a **chairman, a managing director, two deputy managing directors**; one director each nominated by the Reserve Bank of India; IDBI Bank Ltd. and ECGC Ltd.; and not more than **12 directors nominated by the Central Government**.

Gujarat International Finance Tec-City (GIFT City):

- **Location:** It is located in the state of **Gujarat**, between Ahmedabad and Gandhinagar, on the **bank of river Sabarmati**.
- The GIFT city is built on 886 acres and **has a multi-service Special Economic Zone (SEZ)**.
- It is **home to India's first International Financial Services Centre (IFSC)** and also has **Domestic Tariff Area (DTA)**
- It aims to be a 'smart city' for India's growing finance and technology sectors.
- It is being developed as a **well-planned and technology-enabled smart city** having world-class commercial, residential and social facilities of global standards.

Senior Citizen Savings Scheme's investment limit increased to Rs 30 lakh: Budget 2023

- SCSS was launched with the main **aim of providing senior citizens in India a regular income after they attain the age of 60 years old**.
- **Who is eligible?**
 - **Indian citizens above the age of 60 years.**
 - **Retirees** in the age bracket of **55-60 years** who have **opted for Voluntary Retirement Scheme (VRS)** or Superannuation.
 - **Retired defence personnel above 50 years and below 60 years** of age.
- **Maturity:** It has a maturity period of **five years**. But, a depositor can extend one's maturity period for another three years.
- **Number of accounts:** Individuals are allowed to operate **more than one account by themselves or open a joint account with their spouse**.
- **Deposit Limits:** Eligible investors can make a **lump sum deposit**
- **Minimum Deposit– Rs. 1,000** (and in multiples thereof)
- **Maximum Deposit– Rs. 15 Lakh** or the amount received on retirement, whichever is lower (**Increased to Rs 30 lakh in Budget 2023**).
- **Interest Payment:** Under SCSS, the interest amount is paid to the account holders **quarterly**.
- **Premature withdrawal:** **After one year** of opening the account, premature withdrawal is allowed.

- Deposits in SCSS qualify for deduction u/s 80-C of Income Tax Act.

10000 cr allocated for urban infrastructure development fund

- UIDF will be established **through the use of priority sector lending shortfall.**
- **Purpose:** The fund will be **used by public agencies** to create **urban infrastructure in tier-2 and tier-3 cities.**
- It will be **managed by the National Housing Bank.**
- It will be established on **the lines of the Rural Infrastructure Development Fund (RIDF).**
- **States will be encouraged to leverage** resources from the **grants of the 15th Finance Commission**, as well as existing schemes, to **adopt appropriate user charges** while accessing the UIDF.

Tier-2 and tier-3 cities

- Cities with a population in the range of 50,000 to 100,000 are classified as tier 2 cities, while those with a population of 20,000 to 50,000 are classified as tier 3 cities.

Rural Infrastructure Development Fund (RIDF)

- The RIDF was **set up by the Government in 1995-96** for **financing ongoing rural Infrastructure projects.**
- The Fund is **maintained by** the National Bank for Agriculture and Rural Development (**NABARD**).
- **Contribution:** Domestic commercial **banks contribute to the Fund** to the extent of their **shortfall in stipulated priority sector lending to agriculture.**
- **Main Objective:** To provide **loans to State Governments and State-owned corporations** to enable them to complete **ongoing rural infrastructure projects.**
- **Repayment period:** Loan to be repaid in **equal annual instalments within seven years** from the date of withdrawal, including a **grace period of two years.**

Post Office Monthly Income Scheme (POMIS) Calculator 2023

- The **deposit limit** for the Post Office Monthly Scheme (POMIS) has been **revised for a single account to Rs.4.5 lakh to Rs. 9 lakh and 15 lakh from Rs. 9 lakh for joint account holders.**

Post Office Monthly Income Scheme (POMIS):

- It is a **Government of India backed small savings scheme** that allows the investor to invest a specific amount every month.
- **Eligibility:**
 - **A resident of India.** NRIs are not eligible to invest in this scheme
 - Individual **above the age of 10 years.**
- **Number of holders: At least 1 and at most 3** individuals can hold post office MIS.
- **Maturity Period: 5 years**

- **Maximum limit:**
 - If you open an MIS scheme **individually**, then the maximum amount you can invest is **4.5 lakh**. (**Increased to Rs.9 lakh** in Budget 2023-24)
 - If the account is opened **jointly**, the investment limit will be **9 lakh**. (**Increased to Rs.15 lakh** in Budget 2023-24)
- ****Lock-in period:****On opening a Post Office Monthly Income Scheme, there will be a lock-in period of 5 years during which you cannot withdraw any money.
- **Transferable:** POMIS account is transferable from one post office to another.
- **Premature withdrawal:** Premature withdrawal **is allowed after one year** of opening the account with a penalty.
- **Taxability:** **Any income** from this scheme **does not come under TDS or tax deduction**.

Budget announces 'voluntary settlement scheme'

- The budget 2023-24 has proposed a scheme for settling contractual dispute named Vivad se Vishwas II (Settling Contractual Disputes).

Voluntary settlement scheme:

- It is introduced **to settle contractual disputes of government and government undertakings; wherein arbitral award is under challenge in a court.**
- This will be **done by offering graded settlement terms** depending on pendency level of the dispute.
- Under the scheme, **voluntary option is given to the private sector** to come into the scheme or not.

Vivad Se Vishwas Scheme:

- It is a **direct tax scheme** introduced by the Government of India in 2020 **for settling disputes between taxpayers and the income tax department.**
- It **aims to minimize tax-related litigation.**
- Under this scheme**, an individual taxpayer can claim full waiver on interest and penalty on the full** and final **settlement of the disputed tax amount.**
- There was a **time limit** set for the payment of taxes under the scheme.

Centre likely to hike dearness allowance by 4% to 42%

- **What is it?** DA is a **cost of living adjustment** that the **Government pays to public sector employees and pensioners.**
- **Why is DA paid?** To **curb the effect of inflation.**
- **How is DA calculated?**
- It is calculated as a **percentage of the basic salary.**
 - DA for **Central Government employees** is calculated **differently** than that of **public sector employees.**
 - The **formula** to calculate the **DA** was **changed in 2006** by the Government.
 - **DA % for Central Govt Employees** = {(All-India Consumer Price Index

- average (Base year 2001 =100) for the last 12 months -115.76/115.76} x 100
- **DA % for Public Sector Employees** = {(All-India Consumer Price Index Average (Base year 2001 =100) for the last 3 months - 126.33)/126.33} x 100
- Since DA is based on the cost of living, **this salary component is not fixed.** DA varies from employee to employee based on their presence in the urban, semi-urban, or rural sectors.
- Taxability:
 - DA is **fully taxable** for individuals who are salaried employees.
 - It is **compulsory to declare the tax liability concerning DA** when filing an ITR.
- Types of DA:
 - **Variable Dearness Allowance (VDA):**
 - VDA **applies to Central government employees.**
 - It undergoes **revision every six months** based on the changes in the Consumer Price Index (CPI).
 - **Industrial Dearness Allowance (IDA):**
 - IDA **applies to the Public sector employees** of the Central Government.
 - IDA is **revised every quarter** based on the changes in CPI.

Adani Enterprises calls off FPO, money to be returned to investors

- **What is it?** FPO is a process wherein a **company already listed on a stock exchange issues new shares to existing investors or shareholders.**
- It is also known as a **secondary offering.**
- **Purpose:**
 - FPO allows a company to **raise additional funds** through the issuance of new shares.
 - Companies use FPOs to **diversify their equity base and raise capital** for business.
 - This capital can be **used for multiple purposes**, such as to meet the **company's expenses, business expansion, debt reduction**, etc.
- **Types of FPO:**
 - **Dilutive FPO:**
 - It is when a **company issues additional shares and offers them to the public.**
 - It **increases the number of outstanding shares** of the company.
 - As the number of shares increase, the **earnings per share (EPS) decrease.**
 - Funds raised from such an FPO are allocated for **expansion activities or to pay debts.**
 - **Non-dilutive FPO:**
 - It is when **shares that are already in existence are issued to the public.**
 - It is when existing **shareholders**, like directors or founders, **sell their shares and offer them to the public.**
 - Non-dilutive FPOs are **used to change the shareholding ownership.**
 - **At-the-market offering:**

- It is a type of FPO in which a **company offers secondary public shares on any given day** to raise capital, mostly **depending on the prevailing market price**.
- An at-the-market (ATM) offering gives the issuing company the **ability to raise capital as needed**.

Initial Public Offer (IPO)

- When a **private company first sells shares of stock to the public**, this process is known as an initial public offering (IPO).
- An IPO means that a **company's ownership is transitioning from private ownership to public ownership**.

APEDA targets 1,000 FPOs to turn direct exporters of farm produce

- APEDA was **established** by the **Government of India** under the **Agricultural and Processed Food Products Export Development Authority Act of 1985**.
- **Objective: To develop and promote the export of scheduled products.**
- The **products specified** under the APEDA ACT are **called scheduled products**, and **exporters of such scheduled products are required to register under APEDA**.
- It provides financial assistance, information, and guidelines for the **development of scheduled products**.
- **Headquarters: New Delhi**
- **Functions:**
 - **Setting the standards** and specifications for the scheduled products.
 - **Registration of exporters** of the scheduled products on payment of required fees
 - **Improving packaging and marketing** of the Scheduled products
 - Carrying out an **inspection** of products to ensure the quality of such products
 - **Training** in various aspects of the industries connected with the scheduled products
 - Development of industries relating to the scheduled products and undertaking **surveys, feasibility studies**, etc
 - **Collection of statistics** from the owners of factories or establishments and publication of such statistics
- **Examples of scheduled products: Fruits, Vegetable, Meat, Poultry Dairy Products, Confectionery, Biscuits, Bakery Products, Honey, Jaggery, etc.**

Farmer Producer Organisations (FPOs)

- A **Producer Organisation (PO)** is a **legal entity formed by primary producers**, viz. farmers, milk producers, fishermen, weavers, rural artisans, and craftsmen.
- A **PO provides for sharing of profits/benefits among the members**.
- Farmers Producer Organisation (**FPO**) is **one type of PO where the members are farmers**.
- **Goal: To increase farmers' advantage in emerging market opportunities** and their competitiveness.
- **Primary operations: Supply of seed, market linkages and fertilizer, machinery,**

- training**, financial, networking, and technical advice.
- The FPOs are **open to persons who are willing to accept the responsibilities** of membership without social, gender, political, racial, or religious discrimination.
 - **Small Farmers' Agribusiness Consortium (SFAC)** is providing support for promotion of FPOs.

Andhra Pradesh is best performing State under PAT scheme

- PAT Scheme is a **flagship program** under the **National Mission for Enhanced Energy Efficiency (NMEEE)**.
- **Implementing Agency:** It is implemented by the **Bureau of Energy Efficiency (BEE)** under the **aegis of the Ministry of Power**.
- **Objective:** PAT scheme aims at **reducing Specific Energy Consumption (SEC)**, **energy use per unit of production for Designated Consumers (DCs) in energy-intensive sectors**, with an **associated market mechanism** to enhance the cost-effectiveness through **certification of excess energy saving, which can be traded**.
- **Energy Saving Certificates (ESCerts):**
- The **excess energy savings are converted into tradable instruments** called **Energy Saving Certificates (ESCerts) that are traded** at the Power Exchanges.
- **Trading Platform:** The two Power Exchanges, **India Energy Exchange (IEX) and Power Exchange India Limited (PXIL)** provide the trading platform for ESCerts.
- **Central Electricity Regulatory Commission (CERC)** is the **market regulator** for the trading of ESCerts.
- PAT Scheme is **implemented in cycles of 3 years** each, where the Designated Consumers (**DCs**) are assigned **SEC reduction targets**.
- Designated Consumers (DCs) who fall **short of their targets bid for the purchase of ESCerts**.

Bureau of Energy Efficiency (BEE)

- BEE is a **statutory body under the Union Ministry of Power**.
- The Government of India set up BEE on 1st March 2002 under the provisions of the **Energy Conservation Act, 2001**.
- **Mission:** Develop **policy and strategies** with a thrust on self-regulation and market principles within the **overall framework of the Energy Conservation Act (EC Act), 2001**.
- **Primary Objective:** To **reduce energy intensity in the Indian economy**.

National Mission for Enhanced Energy Efficiency (NMEEE)

- It is **one of the eight national missions** under the **National Action Plan on Climate Change (NAPCC)**.
- **Objective:** NMEEE aims to **strengthen the market for energy efficiency** by creating a conducive regulatory and policy regime.
- BEE fosters innovative and sustainable business models in the energy efficiency sector.
- The mission is **implemented since 2011**.
- **Implementing Agencies:** Bureau of Energy Efficiency (**BEE**), Energy Efficiency

Services Limited (**EESL**).

Museum Grant Scheme : Financial Assistance For Digitization

- This scheme was **launched in 2013**.
- The Ministry of Culture provides financial assistance under the Scheme to the State Governments and Societies, Autonomous bodies, Local Bodies and Trusts registered under the Societies Act 1860, for setting up new Museums.
- **Aim:** To **strengthen and modernize the existing museums** at the Regional, State and District levels.
- The scheme also aims to develop at least 1 Central / State Government Museum located in the State Capital each year.

Components

- **Establishment and Development of District and Regional Museums:**
- Under this component museums have been classified into **two categories**:
 - **Category-I:** Government-owned State-level Museums and renowned Museums with an exquisite collection.
 - **Category II:** all other Museums.
- **Development of Museums in State Capitals:**
 - Financial assistance under this component is provided to existing renowned museums of the Central or State Government located in the Capital cities.
 - The maximum financial assistance under this component is limited to Rs. 15 Crore per museum.
- **Establishment and Development of Large-Scale Museums in Public-Private Partnership Mode:**
- Under this component, it is proposed to establish large-scale museums as joint ventures with State Governments and civil society in Public Private Partnership Mode.
- The maximum financial assistance provided under this component is 40% of the project cost subject to a maximum of Rs. 20 Crore per museum.

India rated among top five accreditation systems in the world

- The GQII ranks the 184 economies in the world based on quality infrastructure (QI).
- India's overall QI system ranking continues to be in the Top 10 at the 10th position, with the standardization system (under BIS) at 9th and the metrology system (under NPL-CSIR) at the 21st position in the world.

GQII

- The GQII is an initiative of the independent consulting firms Mesopartner and Analytical to research and disseminate data on Quality Infrastructure.
- It measures the relative development of countries' quality infrastructure.
- A formula calculates a score for each country based on its position in the sub-rankings for **metrology, standards and accreditation**.

Quality Council of India

- It was established in 1997 jointly by **the Department for Promotion of Industry & Internal Trade (DPIIT), the Ministry of Commerce & Industry**, and the Indian industry.
- It is registered as a **non-profit organization** under the Societies Registration Act XXI of 1860.
- It is operated through the constituent Boards of QCI, primarily the National Accreditation Board for Certification Bodies (**NABCB**), and the National Accreditation Board for Testing & Calibration Laboratories (**NABL**),
- **Composition**
- It is governed by a Council of 38 members with equal representations of government, industry and consumers.
- **The Chairman of QCI is appointed by the Prime Minister** on the recommendation of the industry to the government.

PM Modi Opens Mega Expressway In Rajasthan Ahead Of Elections

- It will be **India's longest expressway** with a length of **1,386 km**.
- This expressway will **reduce the travel distance** between Delhi and Mumbai by 12 percent **from 1,424 km to 1,242 km**.
- **Travel time** between Delhi Mumbai will be **reduced from 24 hours to 12 hours**.
- It is being **built at** an estimated cost of **Rs 98,000 crore** by **National Highways Authority of India (NHAI)**.
- The expressway will **pass through six states of Delhi, Haryana, Rajasthan, Madhya Pradesh, Gujarat and Maharashtra** and connect major cities like Kota, Indore, Jaipur, Bhopal, Vadodara and Surat.
- **Features:**
- It is an **8-lane access-controlled Greenfield Expressway** with scope for **future expansion upto 12-lane**
- It is the **first expressway in Asia** and only the second in the **world to feature animal overpasses** to facilitate unrestricted movement of wildlife.
- It is the **first expressway that is developed with a 21-meter median** on principles of forgiving highways allowing inward expansion.
- The expressway **facilitates Rain Water Harvesting** in 500m interval at over 2,000 plus water recharge points.
- It will also have an **automated traffic management system**

SEBI proposes to enhance role, accountability of mutual fund trustees

- The trustees serve as **an independent body to protect the interests of the investors** and **ensure compliance with the SEBI Mutual Fund regulations**.
- **Powers and Functions:**
 - The Board of trustees or trustee company **holds the property of the mutual fund in trust** for the benefit of the unit holders.
 - They **appoint an Asset Management Company (AMC)** to float schemes for the mutual fund and **manage the funds** mobilized under various schemes.

- The trustee will **set the responsibilities of the AMC** and **monitor any new scheme** that is introduced.
- The trust also **ensures that all the key personnel** of a mutual fund is **appointed with adequate qualifications** and skills.
- It has the **authority to request any information from the AMC** pertaining to the operations of the fund.
- The trustee is also **authorized to initiate action against the AMC** or even **penalize the AMC** if SEBI regulations are not complied with or if the interests of the unit holders are not protected.
- **Structure:**
 - Every **mutual fund must have a minimum of 4 trustees**, or they can appoint a **trustee company** with a minimum of 4 directors.
 - **Two-thirds of the trustees will have to be independent.**
 - Trustees **cannot be appointed from within the same group** to which the AMC belongs.

Asset Management Company (AMC)

- The AMC is the **investment manager of the trust.**
- It takes care of the **day-to-day operation of the mutual fund** and **manages the investors' money** as well.
- The AMC **consists of the Chief Investment Officer, the fund managers and analysts**, who are together responsible for managing the various schemes launched.

Budget 2023: From green growth to youth power, know all about PM Modi govt's 'Saptarishi' for India's Amrit Kaal

- It **aims to improve the performance of blocks** lagging on various development parameters.
- This will enable **holistic development** in those areas that require added assistance.
- The programme will **cover 500 districts across 31 states and Union Territories initially.**
- **Over half of these blocks are in 6 states**—Uttar Pradesh (68 blocks), Bihar (61), Madhya Pradesh (42), Jharkhand (34), Odisha (29), and West Bengal (29).
- It is **on the lines of the Aspirational District Programme** that was launched in 2018 and covers 112 districts across the country.

Pradhan Mantri PVTG Development Mission:

- The mission will **saturate the particularly vulnerable tribal groups with safe housing, clean drinking water, education, nutrition, road, and telecom connection, and livelihood.**
- A **budget of Rs 15,000 crore** will be dedicated to this mission **in the next three years.**
- The scheme will **benefit 3.5 lakh tribals.**

Eklavya Model Residential Schools:

- **EMRS started in the year 1997-98 to impart quality education to ST children in remote areas.**
- **Implementing ministry: Ministry of Tribal Affairs.**
- **EMRSs will be set up in every block with more than 50% ST population and at least 20,000 tribal persons.**
- **Budget 2023:** In the next three years, the center will recruit 38,800 teachers and support staff for the 740 Eklavya Model Residential Schools.

Water for Drought Prone Region:

- Central assistance of **5,300 crores will be given to Upper Bhadra Project.**
- **Upper Bhadra Project:**
- It is a major **lift irrigation Scheme under implementation in the central region of Karnataka State.**
- It is **planned to irrigate 2,25,515 hectares by micro irrigation** in drought-prone districts of Chikkamagalur, Chitradurga, Tumkur and Davangere.
- It also proposes to **recharge groundwater tables** and provide drinking water by filling 367 tanks with six tmcft water in drought-prone taluks.

Bharat Shared Repository of Inscriptions (Bharat SHRI):

- **It will be set up in a digital epigraphy museum, with the digitization of one lakh ancient inscriptions in the first stage.**

Budget 2023 Highlights: FM lists 'Saptarishi', 7 priorities including infra, green growth, inclusive development

Digital Public Infrastructure for Agriculture:

- It will be built as an **open source, open standard, and inter-operable public good.**
- **Aim:** To **enable inclusive farmer-centric solutions** through relevant information services for **crop planning** and help improve **access to farm input, credit, and insurance**, help for **crop estimation, market intelligence**, and support for the **growth of the agritech industry and startups.**

Agriculture Accelerator Fund:

- It will be set up to **encourage agri-startups by young entrepreneurs in rural areas.**
- The Fund will aim at **bringing innovative and affordable solutions** for challenges faced by farmers.
- It will also **bring in modern technologies** to transform agricultural practices and **increase productivity and profitability.**

Atmanirbhar Horticulture Clean Plant Program:

- It will be launched to **improve the availability of disease-free quality planting material** for high-value **horticultural crops.**
- The **total outlay** on the project is estimated at **₹2,200 crore.**

Agriculture Credit:

- The **agriculture credit target will be increased to 20 lakh crore** with a **focus on animal husbandry, dairy, and fisheries**.
- It helps to provide higher farm loans at subsidized rates to the farming community.

Global Hub for Millets: 'Shree Anna':

- **India is the world's largest producer and second-largest exporter** of 'Shree Anna (Millets)'.
- The **Indian Institute of Millet Research, Hyderabad will be supported as the Centre of Excellence** for sharing best practices, research, and technologies at the international level.

New sub-scheme of PM Matsya Sampada Yojana:

- This sub-scheme would **enable activities for fishermen, fish vendors, and micro & small enterprises while also helping them expand markets**.
- It will have a **targeted investment of 6,000 crores**.

Health, Education, and Skilling

Sickle Cell Anaemia Elimination Mission:

- **Target: To eliminate sickle cell anaemia by 2047.**
- The mission will **entail awareness creation**, universal screening of **seven crore people in the 0-40 years age group in affected tribal areas**, and **counseling** through collaborative efforts of central ministries and state governments.

National Digital Library for Children and Adolescents:

- It will be **set up to facilitate the availability of quality books** across geographies, languages, genres, and levels and device agnostic accessibility.
- **States would also be encouraged to set up physical libraries at panchayat and ward levels and provide infrastructure for accessing the National Digital Library resources.**
- The National Book Trust, Children's Book Trust, and other sources will be encouraged to provide and replenish non-curricular titles in regional languages and English to these physical libraries.
- **Users can access educational materials ranging from elementary to post-graduate levels.**

India probing alleged export subsidisation of a chemical by three countries

- 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.
 - **The duty nullifies and eliminates the price advantage enjoyed by an imported product.**
 - **The duty raises the price of the imported product**, bringing it closer to its true market price
 - The World Trade Organization (**WTO**) **permits the imposition of CVD** by its member countries.
 - **Who administers CVD in India?**
 - The countervailing measures in India are administered by the **Directorate General of Anti-dumping and Allied Duties (DGAD), in the commerce and industry ministry's** department of commerce.
 - While the **department of commerce recommends the CVD**, the **department of revenue in the finance ministry acts upon the recommendation** within three months and imposes such duties.

Anti-dumping duty (AD)

- 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.

Countervailing duty v/s Anti-dumping duty;

- **AD is imposed to prevent low-priced foreign goods from damaging the local market.** On the other hand, **CVD will apply to foreign products that have enjoyed government subsidies**, which eventually leads to very low prices.
- While the **AD duty amount depends on the margin of dumping**, the **CVD** amount will **completely depend upon the subsidy value** of the foreign goods.

Key Initiatives under Infrastructure and Investment in Budget 2023

Support to State Governments for Capital Investment:

- **Last year, the Government of India launched a Scheme Special Assistance to States for Capital Investment** for 2022-23.
- Under this Scheme, **financial assistance is provided to the State Governments in the form of a 50-year interest-free loan for capital investment projects.**
- The loan provided under the scheme **will be over and above the normal borrowing ceiling** allowed to the States.
- **Budget 2023: The scheme will be continued for one more year** with a significantly **enhanced outlay of ₹ 1.3 lakh crore.**

Infrastructure Finance Secretariat:

- The newly established Infrastructure Finance Secretariat **will assist all stakeholders for more private investment in infrastructure**, including railways, roads, urban infrastructure, and power, which are predominantly dependent on public resources.

Harmonized Master List of Infrastructure:

- **What is it?** It acts as a guide to all agencies involved in the field of **infrastructural development** and financing in the country.
- The list is updated by a committee, chaired by **Secretary, Department of Economic Affairs**, consisting of chief economic adviser, representative from Niti Aayog, Department of Revenue, and other key government agencies.
- **Budget 2023:** It will be reviewed by an expert committee for recommending the **classification and financing framework**.

Making Cities ready for Municipal Bonds:

- **What is a Municipal Bond?** It is a **debt instrument issued by municipal corporations** or associated bodies in India.
- The funds raised are used to **finance socio-economic development projects**.
- It was **first issued in 1997 by Bangalore local body** for infrastructure development projects.
- Municipal bonds are **exempted from tax** provided the buyer adheres to the rules laid by the municipal corporations. The **interest is also exempted from taxes**.
- **Budget 2023:** Cities will be incentivized to improve their credit worthiness for municipal bonds.

Urban Infrastructure Development Fund(UIDF):

- A UIDF will be **established through the use of priority sector lending shortfall**.
- **Purpose:** The fund will be **used by public agencies to create urban infrastructure in tier-2 and tier-3 cities**.
- It will be **managed by the National Housing Bank**.
- It will be **established on the lines of the Rural Infrastructure Development Fund (RIDF)**.
- **States will be encouraged to leverage resources from the grants of the 15th Finance Commission**, as well as existing schemes, to adopt appropriate user charges while accessing the UIDF.

Urban Sanitation:

- All **cities and towns will be enabled for 100 percent mechanical desludging** of septic tanks and sewers **to transition from manhole to machine-hole mode**.
- Enhanced focus will be provided **for the scientific management of dry and wet waste**.

Bank of Baroda, Indian Overseas Bank hike lending rates

- It is the minimum interest rate below which no bank is permitted to lend money.
- It is **determined by banks internally**, depending upon the loan repayment time.

- The Reserve Bank of India introduced the MCLR methodology for fixing interest rates on 1 April 2016.
- It replaced the **base rate structure**, which had been in place since July 2010.
- The rate is determined internally by the bank depending on the period left for the repayment of a loan.
- MCLR is calculated based on four components **Marginal cost of fund, Negative carry on account of cash reserve ratio, Operating costs, Tenor premium**

MCLR and base rate

Marginal Cost of Lending Rate	Repo-Linked Loan
Linked to banks' cost of funds	Linked to RBI's lending rate
Takes 4-6 months to move after RBI rate cut	Responds immediately to RBI rate cut
RBI rate cuts not fully passed on to borrowers	Rate cuts are automatically passed on
Resets annually for most banks	Reset every three months
Changes by 5-10 bps	Usually changes 25bps or more
Revised every month	Reviewed bi-monthly
Low volatility	Higher volatility
100bps=1% Repo - RBI's lending rate to banks	

- MCLR is an advanced version of the base rate.
- The base rate is based on the average cost of funds, but MCLR is based on the marginal or incremental cost of money.
- MCLR depends on the repo rates changed by RBI while Base Rate does not depend on the repo rates changed by RBI.

Conference on Financial Literacy in Amrit Kaal

- It was established in 2016 under **the Companies Act, of 2013**.
- The Authority is entrusted with;
 - The responsibility of administration of the Investor Education Protection Fund (IEPF).
 - Make refunds of shares, unclaimed dividends, matured deposits/debentures

etc. to investors and promote awareness among investors.

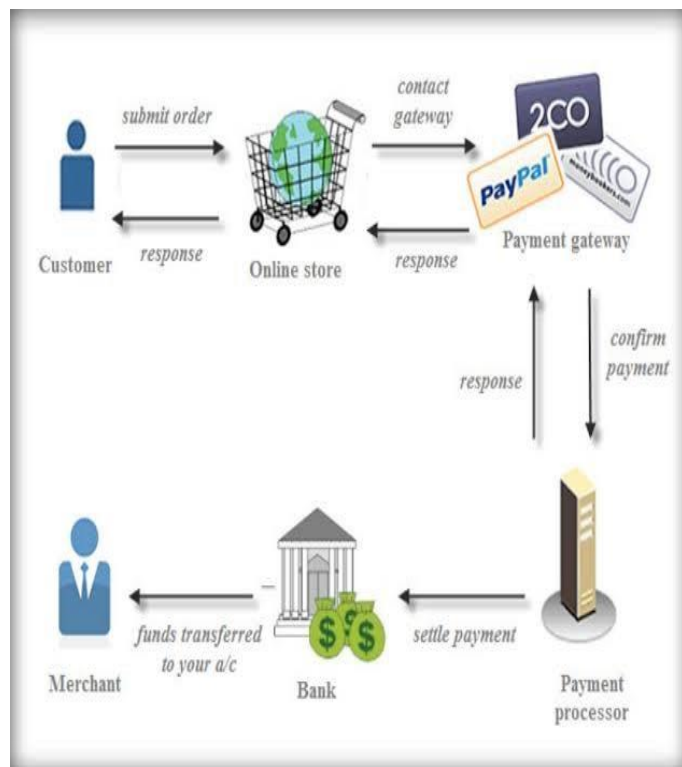
- **Nodal Ministry:** Ministry of Corporate Affairs

Investor Education Protection Fund (IEPF).

- It has been established under Section 205C of the Companies Act, 1956 by way of the Companies (Amendment) Act, 1999.
- The following amounts that remained **unpaid and unclaimed for a period of seven years** from the date they became due for payment are credited to the Fund:
 - Amounts in the **unpaid dividend accounts** of the companies
 - The application money received by companies for allotment of any securities and due for refund
 - Matured deposits with companies
 - Matured debentures with companies
 - Grants and donations are given to the fund by the Central Government, State Governments, companies or any other institutions for the purposes of the Fund
 - The interest or other income received out of the investments made from the fund

RBI grants in-principle approval to 32 entities for payment aggregator licence

- A PA (also known as a **merchant aggregator**) is a **third-party service provider** that **allows merchants to accept payment from customers by integrating it into their websites or apps.**
- It **facilitates different types of payment transactions**, including cash/cheque, online payments through multiple payment sources, or offline touchpoints.
- It **allows merchants to accept bank transfers without setting up a bank-based merchant account.** It means a merchant need not have a merchant account directly with the bank.
- A **PA in India is incorporated under the Companies Act 2013.**
- A **PA can be a bank or a non-bank entity.**
- Since a PA handles funds, it **requires a license from the RBI.**
- **Only non-bank payment aggregators require unique authorization from RBI** as 'handling funds' is considered a part of the normal banking relationships for bank PAs.



- **Examples: Amazon (Pay) India, Google India, Razorpay, Pine Labs, etc.**

Payment Gateway

- It is a **software service that connects your bank account to the platform where you need to transfer your money.**
- It **authorizes you to conduct an online transaction through different payment modes** like net banking, credit card, debit card, UPI, or other online wallets.
- A **Payment gateway plays the role of a third party that securely transfers your money** from the bank account **to the merchant's payment portal.**

Payment Aggregator v/s Payment gateway:

- A payment gateway **is a software that allows online transactions to take place, while a payment aggregator is the inclusion of all these payment gateways.**
- While a **payment gateway is an intermediary, the payment aggregator is the interface** where the payment gateway processes the transactions.
- **Most payment aggregators own payment gateways** to offer various exclusive services to their merchant customers.

Scrap steel industry seeks 'reverse charge mechanism' in GST

- It is a mechanism where the **recipient of the goods or services is liable to pay GST instead of the supplier.**
- **Typically, the supplier of goods or services pays the tax on supply. Under the RCM, the recipient of goods or services becomes liable to pay the tax, i.e., the liability of tax payment gets reversed.**
- **Objectives:**
 - to widen the scope of levy of tax on various unorganized sectors;
 - to exempt specific classes of suppliers of goods/services;
 - to tax the import of services (since the supplier is based outside India);
- **Under the RCM, **the recipient of goods cannot claim an Input tax credit (ITC)** as the supplier has not paid any tax for their sales.**

Input tax credit (ITC) under GST

- ITC means **GST paid by a taxable person on any purchase of goods and/or services that are used or will be used for business.**
- **ITC value can be reduced from the GST payable on the sales** by the taxable person after fulfilling some conditions.

NHPC raises Rs 996 crore through issuance of non-convertible bonds

- A private placement is a **sale of bonds to select investors and institutions instead of the open market.**
- Typically, a private placement is defined as **an issuance of securities to less than 50 persons.**

- **Investors** in privately placed bonds **usually include wealthy individuals** and entities, **mutual fund providers, insurance companies**, and banking and **financial institutions**.
- Unlike a public offering, **private placements are exempt from having to file an offer document with the Securities and Exchange Board of India (SEBI)** for comments.
- A private placement may **not involve any form of general announcement, solicitation, advertising, seminar, or meeting to publicize such an offering**.
- **Advantages:**
 - It is a **cost and time-effective** method of raising funds.
 - It can be **structured to meet the needs of entrepreneurs and investors**.
 - It has **easier compliance formalities**.
 - In India, the **majority of corporate fund raises have been through private placement**.
- Issue of securities through **private placement** route is **governed by SEBI (Issue and Listing of Debt Securities) Regulations, 2008**.

non-convertible bonds

- It is a **financial instrument issued by Corporates** for specified tenure to **raise resources/funds** through public issue or private placement.
- They **cannot be converted into equity shares or stocks, hence called non-convertible**.
- It is a **fixed-income instrument** same as a bank fixed deposit, and can be **traded on stock exchanges**.
- **Interest** can be **earned monthly/quarterly / annually / cumulative**, and **on maturity principal amount is paid to the bondholder**.
- They are a **popular form of investment tool** among investors because of their **higher returns, liquidity, low risks, and higher interest rates** than convertible debentures.

Union Agriculture Minister chairs the National Conference on Agriculture for Zaid Campaign-2023

- The objective of the Zaid conference is to review and assess the crop performance during the preceding crop seasons and fix crop-wise targets for the summer season in consultation with State Governments.

Zaid crops

- Zaid or summer crops are grown in the short season between Kharif and Rabi crops, between March and July.
- These crops are mostly **grown on irrigated lands** and therefore, the farmers do not wait for the monsoon.
- Zaid crops require warm soil and high temperatures (cooling at night) to grow.
- They require warm, dry weather as a vital growth period and longer day length for flowering.
- Most of the vegetables and hybrid cereals are grown in the zaid season.
- **Major crops:** Paddy, corn; pumpkin, cucumber, tomato; almonds, peanuts, cashews;

- Gram, lentils, etc.
- **Cultivation areas in India:** Uttar Pradesh, Punjab, Haryana, Gujarat, and Tamil Nadu.
- Zaid crop is significant for farmers as it gives fast cash to the farmers and is also known as a gap-filler between two chief crops, Kharif and Rabi.

'Angel Tax' provisions in Finance Bill will not impact startups

- The **Finance Bill 2023** has **proposed some changes** that will **remove the exemption for foreign funds and non-resident investors, who will now have to pay Angel Tax** on the difference between capital raised and the fair value of securities sold.

Angel Tax:

- **What is it?** It is levied on the capital raised via the issue of shares by unlisted companies from an Indian investor if the share price of issued shares is seen in excess of the fair market value of the company.
- The **excess funds** raised at prices above fair value is **treated as income, on which tax is levied.**
- It derives its genesis from **section 56(2)(viib) of the Income Tax Act, 1961.**
- It was **introduced in 2012** to prevent black money laundering through share sales.
- The Angel Tax is **levied at a rate of 30.9% on net investments in excess of the fair market value.**
- In **2019**, the **Government announced an exemption** from the Angel Tax for startups on fulfillment of **certain conditions.** These are,
 - The **startup** should be **recognized by the Department for Promotion of Industry and Internal Trade (DPIIT)** as an eligible startup.
 - The **aggregate amount of paid-up share capital and share premium** of the Startup **cannot be more than ₹25 crores.** This amount **does not include the money raised from Non-Resident Indians (NRIs), Venture Capital Firms, and specified companies.**
 - For **angel investors**, the **amount of investment** that exceeds the fair market value **can be claimed for a 100% tax exemption.** However, **the investor must have a net worth of ₹2 crores** or an **income of more than ₹25 Lakh** in the past 3 fiscal years.
- **Eligibility Criteria for Startup Recognition:**
 - The Start-up should be **incorporated as a private limited company** or **registered as a partnership firm** or a **limited liability partnership.**
 - **Turnover should be less than INR 100 Crores** in any of the previous fiscal years.
 - An entity shall be **considered a Start-up up to 10 years from the date of its**



incorporation.

- The **Start-up should be working towards innovation/ improvement of existing products, services**, and processes and should have the potential to generate employment/ create wealth.
- An entity formed by **splitting up or reconstruction of an existing business shall not be considered a "Startup"**.

Reservation norms for Jute Packaging Materials for Jute Year 2022-23 under JPM Act, 1987

- The reservation norms under JPM Act provide for direct employment to 3.70 lakh workers and protect the interest of approximately 40 lakh farm families in the jute sector.
- It **protects the interest of Jute farmers, workers and persons** engaged in jute goods' production
- The Mandatory norms for full reservation for packaging of food grains and 20% reservation for packaging of sugar in jute bags will be a big boost for West Bengal.

Jute

- Jute is one of the most important natural fibres after cotton in terms of cultivation and usage
- **Climatic conditions required for its growth**
 - **Temperature:** Between 25-35°C
 - **Rainfall:** Around 150-250 cm
 - **Soil Type:** Well-drained alluvial soil.
- India is the largest producer of jute followed by Bangladesh and China.
- It is mainly grown in eastern India because of the rich alluvial soil of the Ganga-Brahmaputra delta.
- In India, major jute-producing states include **West Bengal, Bihar, Odisha, Assam, Andhra Pradesh, Meghalaya and Tripura.**

NSE gets Sebi approval to launch Social Stock Exchange as separate segment

- SSE is a novel idea in India, and a stock exchange of this kind is intended to benefit **the private and non-profit sectors** by directing more capital to them.
- The SSE will function as a distinct division of the current stock exchanges under the new regulations.

list on SSE

- **Not-for-profit organisations (NPOs)** and for-profit social enterprises with social intent and impact as their primary goal will be eligible to participate in the SSE.
- The social enterprises will have to engage in a social activity out of 16 broad activities listed by the regulator. The eligible activities include-
- Eradicating hunger poverty, malnutrition and inequality
- Promoting healthcare, supporting education, employability and livelihoods

- Gender equality empowerment of women LGBTQIA communities.
- Supporting incubators of social enterprise.
- **Corporate foundations**, political or **religious organisations or activities**, professional or trade associations, infrastructure companies, and housing companies, except affordable housing, will not be eligible to be identified as social enterprises.
- According to Sebi's framework, a **minimum issue size of ₹1 crore** and a minimum application size for the subscription of ₹2 lakh are currently required for SSE.

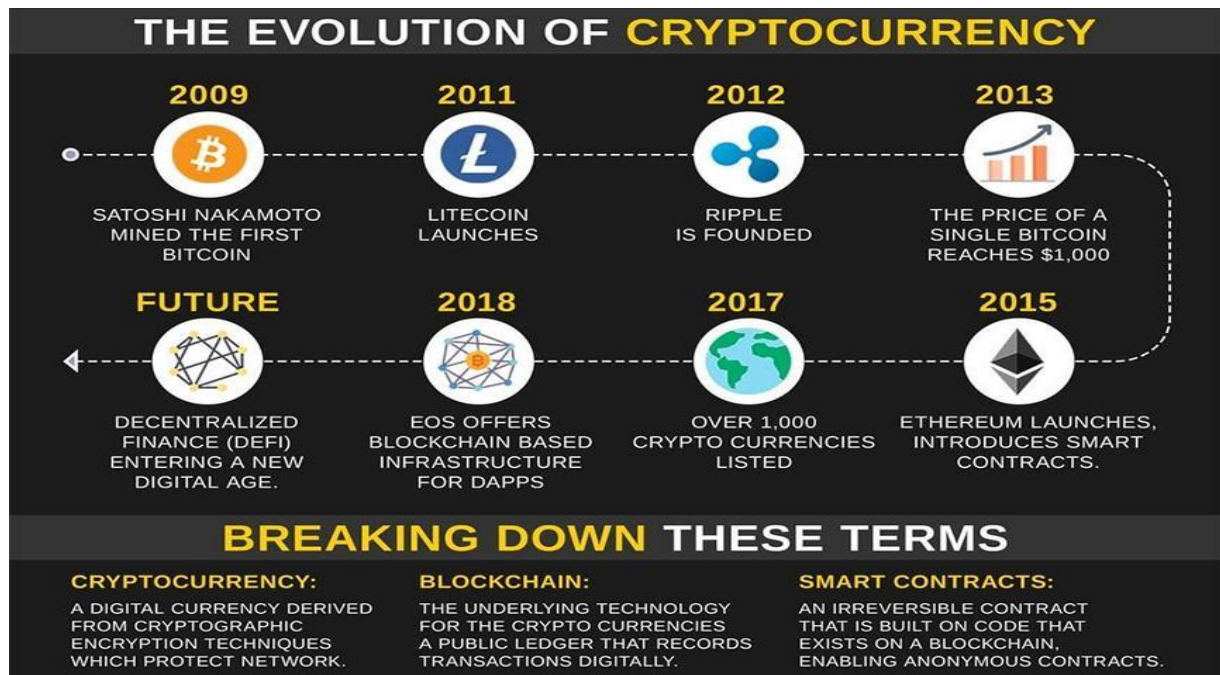
India asks IMF, FSB to prepare technical paper on crypto assets

- FSB is an **international body** that **monitors and makes recommendations** about the **global financial system**.
- It was **established in April 2009 after the G20 Summit** in London as the **successor to the Financial Stability Forum**.
- **Mandate:**
- To **coordinate** at the international level the **work of national financial authorities** and **international standard-setting bodies** and to develop and promote the **implementation** of effective regulatory, supervisory, and other **financial sector policies**.
- The FSB, working through its members, **seeks to strengthen financial systems** and increase the **stability of international financial markets**.
- **Headquarters: Basel, Switzerland.**
- The **board includes all G20 major economies**.
- The FSB consists of **68 member institutions**. It comprises **several central banks, ministries of finance, and supervisory and regulatory authorities** from 25 jurisdictions, as well as **10 international organizations** and six Regional Consultative Groups (RCGs).
- **Framework:**
- **The Plenary**, which serves as the **sole decision-making body**.
- **The Steering Committee**, which takes forward operational work in between Plenary meetings.
- **Three Standing Committees**, each with **specific** but complementary **responsibilities**.
- The **FSB's decisions are not legally binding on its members**.
- **India and FSB:** India is an **active Member of the FSB, having three seats in its Plenary** represented by **Secretary (Dept of Economic Affairs), Deputy Governor-RBI, and Chairman-SEBI**.

International Monetary Fund (IMF):

- It is a **United Nations (UN) specialized agency** founded at the **Bretton Woods Conference in 1944**.
- **Objective:** To **secure international monetary cooperation**, to **stabilize currency exchange rates**, and to **expand international liquidity** (access to hard currencies).
- **Headquarters: Washington D.C, USA.**
- Currently, it has **190 member countries**.
- The IMF's **resources mainly come from the money that countries pay as their capital subscription (quotas)** when they become members.

- Each member of the IMF is assigned a quota based broadly on its relative position in the world economy.
- **Functions:**
- The IMF provides loans—including emergency loans—to member countries experiencing actual or potential balance of payments problems.
- It provides technical assistance and training to governments, including central banks, finance ministries, revenue administrations, and financial sector supervisory agencies.



ENVIRONMENT

Newly-discovered ancient 'marine crocodile' fossil could be the oldest of its kind ever found

- The fossils uncovered on the **Jurassic Coast in the United Kingdom** include part of the head, backbone, and limbs of *Turnersuchus hingleyae*.
- Its age dates back to the early Jurassic, **Pliensbachian period**, which was about 185 million years ago.
- Due to their relatively long, slender snouts, they would likely have looked similar to the currently living **Gharial crocodiles**.

Pliensbachian period

- It occurred between 190.8 million and 182.7 million years ago during the Early Jurassic Period.
- The stage's name is derived from the village of Pliensbach, Germany.

Red-headed vulture seen at Delhi's Bhatti mines, first since 2017

- This is one of the 9 species of Vulture which are found in India
- It is also called the Asian King vulture or Pondicherry Vulture was extensively found in India but its numbers drastically reduced after diclofenac poisoning.
- **Conservation status**
 - IUCN Red List: **Critically Endangered**
 - Wildlife Protection Act, 1972: Schedule 1

Asola Bhatti Wildlife Sanctuary

- It is located on the **Southern Delhi Ridge of the Aravalli hill range** on the Delhi-Haryana border and in Southern Delhi as well as northern parts of the Faridabad and Gurugram districts of Haryana.
- It is at the end of an important wildlife corridor that starts from **Sariska National Park** in Alwar, Rajasthan.
- **Flora:** Wide variety of trees, shrubs, herbs and grasses.
- **Fauna:** A large number of mammals, reptiles, amphibians, butterflies and dragonflies

Yaya Tso to become Ladakh's first biodiversity heritage site

- The Biodiversity Management Committee, the panchayat of Chumathang village, along with the SECURE Himalaya Project recently resolved the issue and declared Yaya Tso Lake a biodiversity heritage site.

Yaya Tso Lake

- Lake Yaya Tso is known as a **bird's paradise** for its beautiful lake located at an altitude of 4,820 metres in Ladakh.

- It is a nesting habitat for a large number of birds and animals, such as the bar-headed goose, black-necked crane and brahminy duck
- It is also one of the highest breeding sites of the **black-necked crane** in India.

Secure Himalaya project

- It is funded by the **Global Environment Facility**.
- It supports the government's efforts for the **conservation of snow leopard** and its habitat by developing and implementing a landscape-based approach for Himalayan ecosystems, and addresses key issues of habitat degradation, threatened livelihoods and illegal trade in wildlife.
- It was launched in 2017.

Project Landscapes:

- Changthang, Ladakh Landscape, Jammu & Kashmir
- Lahaul-Pangi and Kinnaur Landscapes,
- Gangotri-Govind and Darma-Byans Landscapes,
- Khangchendzonga-upper Teesta Valley.

This 'fairy' robot flies with the power of light and wind and could pollinate plants

- The FAIRY robot, which is based on the **Light Responsive Materials** Assembly, is a tiny lightweight robot that floats in the wind.
- Surprisingly, the robot can be **controlled by a light source** like a laser beam or an LED.
- Researchers could use light to change the shape of the robot, allowing it to adapt to the direction of the wind.
- A soft actuator made of light-responsive liquid **crystalline elastomer** powers the polymer assembly robot inspired by dandelion seeds.

As a result, the researchers were able to stimulate the actuator's bristles to open or close by using visible light.

Budget 2023-24: 'Amrit Dharohar' to encourage conservation of vital wetlands in India

- MISHTI (Mangrove Initiative for Shoreline Habitats & Tangible Incomes)
 - It is a new programme that will facilitate **mangrove plantations** along India's coastline and on saltpan lands.
 - The programme will operate through "convergence between MGNREGS, Campa Fund and other sources."
 - This new programme will aim at the intensive afforestation of coastal mangrove forests.
- Amrit Dharohar
 - This is a scheme that will be implemented over the **next three years** to encourage the **optimal use of wetlands** and enhance bio-diversity, carbon stock, eco-tourism opportunities and income generation for local communities.

- Amrit Dharohar will emphasise the importance of wetlands and their preservation, with an outlook that is inclusive of local communities as caretakers of the ecosystem.

Bar-headed goose tagged in Mongolia spotted at Koonthankulam Bird Sanctuary

- They are **large pale grey birds** which are considered **one the world's highest flying birds**.
- They are **known for their migration** spanning distances of **over 1,600 km in a day**. They are also known for **reaching extreme altitudes of 29,500 feet** during their twice-yearly migrations across the Himalayas.
- **Scientific name:** Anser indicus
- **Distribution:** **Native to central Asia**, where the species breeds, they are found in **India, Pakistan, Nepal, Kazakhstan**, Bangladesh, Myanmar, Japan and other nearby regions.
- **Habitat:** They breed around **lakes and marshes on highland plateaus**; winters in lowland **wetlands and fields**.
- **Features:**
 - This species is **gray and white with two horseshoe-shaped, brownish-black bars** on the **back of its white head**.
 - The **bill and legs are pink, orange, or yellow**.
- **IUCN Status:** 'Least Concern'

UNEP-managed CITES database reveals red sanders smuggling

- It is a flora species that are **endemic** to a distinct tract of forests in the **Eastern Ghats** region of Andhra Pradesh.
- **Geographical conditions required:** It usually grows in rocky, degraded and fallow lands with Red Soil and a **hot and dry climate**.
- **Protection Status:**
 - **IUCN Red List: Endangered**
 - CITES: Appendix II
 - Wildlife (Protection) Act 1972: Schedule IV

CITES

- It is an **international agreement** to which States and regional economic integration organizations adhere voluntarily.
- It was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (The World Conservation Union). It entered into force in July 1975.
- It aims to ensure that **international trade in specimens** of wild animals and plants does not threaten the survival of the species.
- Although CITES is legally binding on the Parties – in other words they have to implement the Convention – it does **not take the place of national laws**.
- The **CITES Secretariat is administered by UNEP** and is located in Geneva, Switzerland. The Conference of the Parties to CITES is the supreme decision-making

body of the Convention and comprises all its parties.

S&P Dow Jones Indices will remove Adani Enterprises from its sustainability indices. What does this mean?

- The index comprises global sustainability leaders as identified by S&P Global through its Corporate Sustainability Assessment (CSA).
- It represents the top 10% of the largest 2,500 companies in the S&P Global Broad Market Index (BMI) based on long-term economic, environmental and social criteria.

Corporate Sustainability Assessment

- It was founded in 1999 and serves as the foundation for the S&P Dow Jones Sustainability Index.
- It is now also the basis for many other **Environment, Social responsibility, and (Corporate) Governance**
- According to S&P Global, S&P acquired the CSA in 2019, which included the transition of the related ESG ratings and ESG benchmarking teams that now operate out of S&P Global Switzerland.
- It compares companies across 61 industries via questionnaires assessing a mix of 80-100 cross-industry and industry-specific questions.
- Based on their performance, companies receive **scores ranging from 0 to 100**.
- The percentile rankings for approximately 20 financially relevant sustainability criteria across **economic, environmental and social dimensions**.
- A growing number of companies participate in the assessment and use their results to benchmark their

Environment, Social responsibility, and (Corporate) Governance (ESG)?

- ESG is a framework that helps stakeholders understand how an organization is **managing risks and opportunities** related to environmental, social and governance criteria
- Over the last few years emerged as key themes for investors everywhere, including in India.
- The asset size of ESG funds — which incorporate environmental, social responsibility and corporate governance in their investing process — has ballooned in India,
- In 2021, the NSE **launched NSE Prime**, a framework that allows companies to submit to standards of corporate governance that are higher than those required by existing regulations.

World Wetlands Day celebrated at all 75 Ramsar sites in India

- World Wetlands Day is observed on 2nd February every year all over the world to **commemorate the signing of the Ramsar Convention** on Wetlands of International Importance in 1971.
- India is a **party to the Convention since 1982** and has so far declared 75 wetlands as Ramsar sites covering 23 states and Union Territories.

- At present, the state of **Tamil Nadu** has a maximum number of Ramsar sites (14), followed by UP which has 10 numbers of Ramsar sites.
- **The 2023 theme** for World Wetlands Day is **Wetland Restoration**.
- The theme of 2023 highlights the urgent need to prioritize wetland restoration. It is a call on an entire generation to take proactive action for wetlands, by investing financial, human and political capital to save the wetlands from disappearing and to revive and restore those that have been degraded.
- India has the **largest network of Ramsar Sites** in Asia, making these sites a critical ecological network for the conservation of global biological diversity and supporting human well-being.

Rajasthan plans zoo for dolphins, rhinos inside Bharatpur sanctuary

- The Keoladeo National Park formerly known as the Bharatpur Bird Sanctuary hosts thousands of birds, especially during the winter season.
- It is located in the **eastern part of Rajasthan**.
- It attracts several migratory birds that make the region their breeding and wintering grounds.
- It is strategically located in the middle of the **Central Asian migratory flyway**.
- The **Siberian crane** is one of the rare species that was spotted here till about the turn of the century.
- **Fauna:** Sambar, Nilgai, wild cats, hyenas, wild boar, birds, including raptors and waterfowl, and Jackals.
- It is a **Ramsar site** and also a **UNESCO World Heritage Site**.

No construction in core areas of tiger reserves, national parks: Supreme Court

- A Supreme court-appointed panel noticed that illegal constructions for the establishment of a tiger safari were being done within the buffer area of Corbett Tiger Reserve in Uttarakhand.

Corbet Tiger Reserve

- It is located in the Nainital district of Uttarakhand. This reserve encompasses the Patli Dun valley.
- The **Ramganga, Sonanadi, Palain and Mandal, and Kosi** rivers form the prominent hydrological resource for the Corbett.
- The core area of the reserve contains **the Corbett National Park** and **the Sonanadi Wildlife Sanctuary** is part of its buffer area.
- **Flora:** The trees which contribute to the Flora of Corbett consist of evergreen Sal and its combined trees, the Sheesham, and the Kanju found extensively on the ridges.
- **Fauna:** Tiger, Leopard, Elephant, Hog deer, spotted deer, Sambar etc.

Tree rings unlock mystery of Hittite Empire's fall in 12th century BCE

- Hittites, were **members of an ancient Indo-European people** who **appeared in Anatolia (also known as Asia Minor, modern-day Turkey)** at the beginning of the **2nd millennium BCE**.
- The **Hittite language** was a member of the Anatolian branch of the **Indo-European language family**.
- The Hittite **economy was based on agriculture**, with the main crops being **emmer wheat and barley**.
- Although their civilization thrived during the Bronze Age, the **Hittites were the forerunners of the Iron Age** and were **manufacturing iron artifacts** from as early as the **14th century BCE**.
- The Hittites were **famous for their skill in building and using chariots**.

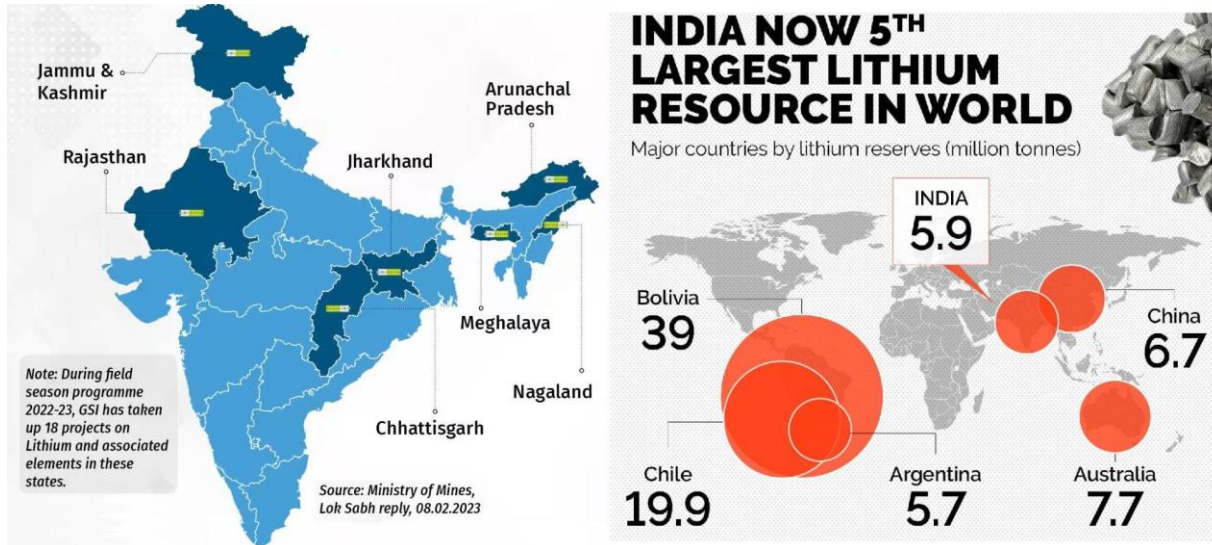
Hittite empire:

- **Between 1400 and 1200 B.C.E.** the Hittites established **one of the great empires of the ancient Middle East**.
- The Hittite empire, with its **capital at Bogazköy (also called as Hattusas)**, was the **chief power and cultural force in Western Asia from 1400 to 1200 BC**.
- The **head of the Hittite state was the king**, but other **officials exercised independent authority** over various branches of the government.
- **After c. 1180 BCE**, the empire came to an end during the **Bronze Age collapse** and **splintered into several independent "Neo-Hittite" city-states**, some of which survived until the 8th century BCE.

India strikes 'White Gold', 5.9 mn tonnes lithium deposits found in Jammu and Kashmir

- It is a **soft, silvery-white metal** that heads **group 1, the alkali metals group**, of the **periodic table** of the elements.
- **Features:**
 - It has the **lowest density of all metals**.
 - It is the **lightest of the solid elements**.
 - It **reacts vigorously with water**.
 - It has a **body-centered cubic crystal structure**.
- **Occurrence:**
 - Lithium **does not occur as a metal in nature** but is found combined in small amounts in igneous rocks.
 - Lithium is found in **brine deposits and as salts in mineral springs**. Its **concentration in seawater is 0.1 part per million (ppm)**.
 - **Major Reserves:** Lithium reserves are **concentrated in the lithium triangle** in South America – **Argentina, Bolivia & Chile**, with **50% of the deposits** concentrated in these regions.
- **Uses:**
 - Lithium is important in **rechargeable batteries for mobile phones, laptops, digital cameras, and electric vehicles**.
 - It is also used in some **non-rechargeable batteries** for things like heart pacemakers, toys, and clocks.

- Lithium metal is made into **alloys with aluminium and magnesium**, improving their **strength** and making them lighter.
- **Lithium oxide** is used in **special glasses and glass ceramics**.
- **Lithium stearate** is used as an all-purpose and **high-temperature lubricant**.
- **Lithium carbonate** is used in **drugs** to treat manic depression



Athagarh poaching rerun, elephant head sawed off in Similipal tiger reserve

- **Location:** STR is located within the **Mayurbhanj District**, in the Northern-most part of **Odisha**.
- It is **surrounded by high plateaus and hills**, the **highest peak** being the twin peaks of **Khairiburu and Meghashini** (1515m above mean sea level).
- The terrain is mostly **undulating and hilly, interspersed with open grasslands and wooded areas**.
- It was **declared a 'Tiger Reserve' in the year 1956** and included under the national conservation programme **'Project Tiger' in 1973**.
- The STR along with a 'transitional area' of 2250 sq. km has been included as a part of the **World Network of Biosphere Reserves by UNESCO in the year 2009**.
- It is the **only landscape in the world that is home to melanistic tigers**.
- The region around STR is home to a variety of **tribes including Kolha, Santhala, Bhumija, Bhatudi, Gondas, Khadia, Mankadia and Sahara**.
- **Flora:**
- An astounding **1078 species of plants including 94 species of orchids** are found here.
- **Eucalyptus**, are also the major floral attraction in the area.
- **Fauna: Leopard, Gaur, Elephant, Langur, Barking and Spotted Deer**, Sloth Bear, Mongoose, Flying Squirrel, Porcupine, Turtle, Monitor Lizard, Python, Sambar, Pangolin etc

Study finds alarming levels of 'forever chemicals' in Norwegian Arctic ice, may affect wildlife

- **PFAS (Per- and polyfluorinated alkyl substances)**, also known as **the Forever Chemicals**, are a large chemical family of **over 4,700 highly persistent man-made chemicals**.
- They are the **most persistent synthetic chemicals to date**.
- These were **first developed in the 1940s** and are **now found in a variety of products**, including nonstick pans, water-resistant textiles and fire suppression foams.
- PFAS **don't easily degrade in the environment** and are **very mobile in water**.
- PFAS' indestructability comes from their **carbon-flouride bonds, one of the strongest types of bonds** in organic chemistry.
- Over time, **these pollutants have accumulated in the environment**, entering the air, soil, groundwater and lakes and rivers as a result of industrial processes and from leaching through landfills.
- PFAS have been **found in the environment all around the world**, even in the most **remote areas such as the Arctic**. They have also been **detected in the blood and breastmilk** of people and wildlife globally.
- **Chronic exposure** to even low levels of PFAS has been **linked to liver damage, high cholesterol**, reduced immune responses, low birth weights and **several kinds of cancer**.



Warm water melts weak spots on Antarctica's 'Doomsday Glacier,' say scientists

- Thwaites glacier, nicknamed the “Doomsday glacier,” is a **fast-moving glacier in West Antarctica**.
- It **covers an area** roughly the **size of Great Britain**.
- It is **120 km wide at its broadest**.
- The glacier is **rapidly losing ice to the ocean** in response to climate change and changes in ocean circulation.
- It loses more than 50 billion tons of ice to the ocean yearly, **contributing to about 4%**

of the annual sea level rise.

- The glacier **holds enough water to raise global sea levels by 65 centimeters.**
- **It has retreated by about 14 kilometers** since the **late 1990s.**
- **It also acts as a buffer**, holding back neighboring glaciers that contain around three meters of potential sea level rise.

Meet 'Omorgus Khandesh', a newly discovered Indian beetle

- It is a necrophagous and also called a keratin beetle.
- This species belongs to the **Trogidae family**. With the addition of this new species, now there are a total of 14 extant species of this family in India.
- The beetles of this group are sometimes called **hide beetles** as they tend to cover their body under the soil and hide.
- It is mainly associated with bird and mammal nests or burrows.

Necrophagous

- The arthropods which feed directly on dead remains and constitute are called necrophagous.

Researchers discover new cuckoo bee in Kerala

- The new species belongs to the family **Apidae of the order Hymenoptera.**
- The genus *Thyreus* consists of cuckoo bees or cleptoparasitic bees.
- Cuckoo bees parasitise the **nest of other bees** by breaking and entering and laying their eggs.
- Unlike other female bees, cuckoo bees **lack pollen-collecting structures.**
- Once the cuckoo bee's larva hatches out in the nest of the host bee, it consumes the food stored by the host for its own growing larva.

Kole wetland

- It is the largest brackish, humid tropical wetland ecosystem **located in the state of Kerala.**
- Extending from the northern bank of **Chalakydy River** in the south to the southern bank of **Bharathapuzha River** in the north
- It is situated in the **central Asian Flyway of migratory birds.**

Geomagnetic storm hits Earth! Solar wind sparks red auroras in US

- A geomagnetic storm is a **major disturbance of Earth's magnetosphere.**
- These storms **result from variations in the solar wind** that produces **significant changes in the currents, plasmas, and fields in Earth's magnetosphere.**
- The solar wind **conditions** that are effective for creating geomagnetic storms **are sustained** (for several hours) **periods of the high-speed solar wind** and a

southward-directed solar wind magnetic field (opposite the direction of Earth's field) **at the dayside of the magnetosphere.**

- The **largest such storms are associated with solar coronal mass ejections (CMEs)**, where a billion tons or so of plasma from the sun, with its embedded magnetic field, arrives at Earth.
- **Effects:**
 - These storms can **heat the ionosphere, causing beautiful auroras** on Earth.
 - Because the ionosphere is heated and distorted during storms, **long-range radio communication** that relies on sub-ionospheric reflection **gets affected.**
 - Ionospheric expansion due to these storms can **increase satellite drag and make their orbits difficult to control.**
 - **Satellite electronics can be damaged** through the build-up and discharge of static-electric charges.
 - It can **disrupt global navigation systems.**
 - It can **create harmful geomagnetic-induced currents (GICs) in the power grid** and pipelines.

Solar wind

- It is a **stream of energized, charged particles**, primarily electrons and protons**, flowing outward from the Sun** through the solar system **at speeds as high as 900 km/s** and a **temperature of 1 million degrees (Celsius).**
- It is **made of plasma.**
- When the solar wind reaches Earth, **it sends a flurry of charged particles toward the magnetosphere**, along Earth's magnetic field lines, **towards the poles.**

Coronal Mass Ejections (CMEs)

- CMEs are **large expulsions of plasma and magnetic field from the Sun's corona** that **propagates outward into interplanetary space.**
- The blast of a CME **carries about a billion tons of material out from the Sun** at very high speeds of hundreds of kilometers per second.

Over 1,000 pangolins poached and trafficked in India between 2018 and 2022

- The Indian pangolin, also called **thick-tailed pangolin** and **scaly anteater** is native to the Indian subcontinent.
- It is **one of the eight species of pangolins found.**
- They are **one of the most trafficked mammals** in the world, despite an **international ban on their trade.**
- **Scientific name: Manis crassicaudata**
- **Distribution:** It lives in **India (south of the Himalayas), Bangladesh, Southern Nepal, Sri Lanka, and small parts of Pakistan.**
- **Habitat:** It occurs in **tropical forests, open land, grasslands, and degraded habitat, including in close proximity to villages.**
- **Features:**
 - Like other pangolins, **it has large, overlapping scales** on its body, which **act as armor.**

- The Indian pangolin's armor is amongst the most effective in the **mammalian world**. It has about **13 rows of moveable sharp scales** covering its body, which **are shed periodically**.
- The **colour of its scales varies** depending on the **colour of the earth** in its surroundings.
- It can also **curl itself into a ball** as **self-defense** against predators.
- It is an **insectivore** feeding on ants and termites.
- It is **nocturnal** and rests in deep burrows during the day.
- **Conservation status:**
 - **IUCN Red List: Endangered**
 - **Wildlife (Protection) Act, 1972: Schedule I**
 - **CITES: Appendix I**

Rhododendrons carpet Darjeeling, Sikkim Himalayas

- **What is it?** They are a **diverse genus of about 1,000 species of woody flowering plants** in the heath family (**Ericaceae**), notable for their **attractive flowers and handsome foliage**.
- **Distribution:** They are **native to the temperate regions of Asia, North America, and Europe**, as well as to the **tropical regions of southeast Asia and northern Australia**.
- **Habitat:** They occur in a variety of **habitats, including alpine regions, coniferous and broadleaved woodlands, temperate rain forests, and even tropical jungle**
- They also **require a slightly acid soil** to grow well.
- They exhibit an **enormous diversity of size and shape**, from prostrate ground covers growing **no more than a few inches high to trees more than 100 feet tall**.
- **There are 132 taxa** (80 species, 25 subspecies and 27 varieties) of rhododendrons **found in India**.
- Rhododendron, also known as "**Lali Guras**" in local language, is the **national flower of Nepal and the state tree of the state of Uttarakhand in India**.

Researchers discover a treasure trove of biodiversity in the foothills of Rajgad Fort

- Rajgad Fort, also known as the **Ruling Fort**, was the **capital of the Maratha Empire** under the rule of **Chhatrapati Shivaji Maharaj** for almost **26 years**, after which the **capital was moved to the Raigad Fort**.
- **Location:**
 - It is a **hill fort** situated in the **Pune district of Maharashtra**.
 - It is located in the **Sahyadri mountain ranges** at an elevation of **1**,395 meters above sea level.****
- **Features:**
 - It comprises **three terraces (machis) and a citadel (Balekilla)**.
 - There are **four gates** called Gunjavane, Pali, Alu, and Kaleshwari or Dindi gate.
 - The **diameter of the base of the fort was about 40 km (25 mi)** which **made it difficult to lay siege on it**, which added to its **strategic value**.
 - The **fort's ruins consist of palaces, water cisterns, and caves**.

- Rajgad **boasts the highest number of days stayed by Chhatrapati Shivaji Maharaj** on any fort.
- The Rajgad Fort was also **one of the 17 forts Chhatrapati Shivaji Maharaj kept when he signed the Treaty of Purandar in 1665** with the Mughal general Jai Singh I, leader of the Mughal forces.
- Apart from the Maratha empire, Rajgad Fort has **been a part of the Adilshahi dynasty, Nizamshahi dynasty, Mughal empire,** and others. After everyone else, the **British empire owned the fort.**

Locals in Dharchula town of Uttarakhand protest against power project, fear Joshimath-like crisis

- It is a **proposed hydroelectric project on river Dhauliganga** in the **Pithoragarh district in Uttarakhand.**
- It has a proposed **installed capacity of 165 MW.**
- The project involves the **construction of a concrete gravity dam of 65 m** from river bed level and **an underground Power House.**
- The project is being **implemented by THDC India Limited.**

Dhauliganga river:

- **Origin:** It **rises** in the vicinity of the **Niti Pass** in the **border regions** between Garhwal region of **Uttarakhand and southwestern Tibet.**
- It is one of the **important tributaries of Alaknanda**, the other being the Nandakini, Pindar, Mandakini, and Bhagirathi.
- It **meets the Alaknanda River** (the major source stream of the Ganges river) **at Vishnuprayag** in Uttarakhand.
- **Length:** The length of this river is about **94 km.**
- **Tapovan**, which is **famous for its hot springs**, is **located on the banks of Dhauliganga.**

THDC India Limited:

- THDC India Limited (Formerly Tehri Hydro Development Corporation Limited) is a company **jointly owned by the Government of India and the Government of Uttar Pradesh.**
- It was **registered as a Public Limited Company** in 1988 under the **Companies Act 1956 to operate** and maintain the **Tehri Hydro Power Complex** and other Hydro Projects.
- It is a **Mini Ratna Category-I Enterprise.**

Oder river ecological disaster that killed hundreds of tonnes of fish in 2022 was human-made

Prymnesium parvum:

- It is a microscopic, **single-celled alga** with four morphologically distinct forms.

- Three of the forms are scaled, bi-flagellated, and have a flexible, non-coiling, needle-like filament called a haptonema and the fourth form is a scaled, non-motile, siliceous cyst.
- It inhabits a variety of water bodies including rivers, lakes, estuaries, fjords, coastal oceans, and ponds, including eutrophic, **alkaline, and brackish waters**.
- It can reproduce rapidly and form a nearly monocultural bloom by **releasing toxins** into the water that immobilize or kill zooplankton and other phytoplankton to increase available food sources.
- It can survive in a range of **water temperatures, from 5°C to 35°C**, with blooms increasing between 10°C to 27°C.
- It is **mixotrophic**, supporting its growth with autotrophy (photosynthesis) or heterotrophy if nutrients are scarce.

River Oder

- It originates in the Czech Republic and flows through western Poland.
- It constitutes the **boundary between Poland and Germany** before reaching the **Baltic Sea** via a lagoon north of the Polish city of Szczecin.

Two Alexandrine parakeets seized from actor's home in Tamil Nadu

- It is named after Alexander the Great, who transported numerous birds from Punjab to various European and Mediterranean countries and regions.
- These birds are highly intelligent and are known to be **excellent talkers**, making them very popular pets.
- These parakeets are **diurnal social birds**. They usually live in small flocks but form larger groups in areas where food is abundant or at communal roosts.
- They are widespread in **South and South-East Asia** where they live in forests, woodlands, agricultural lands, and mangrove forests.
- **Conservation status:**
- **IUCN: Near Threatened**
- **Wildlife Protection Act, 1972: Schedule IV**

Wildlife Protection Act, 1972.

There are **Six Schedules** in this act. These Schedules give a different standard of protection.

- The Listed breeds and types of animals in **Schedule I and part II of Schedule II** get **supreme protection**. Offences under these are prescribed the highest penalties.
- For example Himalayan Brown Bear, Indian Elephant etc.
- The Listed breeds and types of animals in **Schedule III and Schedule IV** are also secured, but the **penalties are comparatively much lower**.
- For example, Barking Deer, Falcons, Kingfisher, Tortoise etc.
- **Schedule V** includes the animals which can be hunted.
- For example, Common Crow, Mice, Rats, Fruit Bats etc.
- The **plants, trees and crops mentioned in Schedule VI** are banned from Cultivation and Planting. For example, Kuth, Red Vanda, Pitcher Plant etc.

Commercial cultivation of liquorice begins in Palampur

Mulethi:

- Mulethi, **commonly known as licorice**, is a **sweet-tasting perennial shrub**.
- **Scientific name: Glycyrrhiza glabra**
- The **roots have a sweet taste** due to the **presence of glycyrrhizin**, which is **50 times sweeter than sucrose**.
- It has been **traditionally known and used** as medicine in **Ayurveda** (known in Ayurveda as 'Yashtimadhu') for rejuvenation.
- **Uses:**
- Herbal medicines use Mulethi for its **natural sweetness**.
- It is also **used in traditional medicines against chest and lung diseases**.
- It is **used to flavor candies**, tobacco, and alcohol, artificial and **natural sweeteners**.
- **Health Benefits:**
- It has **anti-viral, anti-inflammatory, antioxidant, and anti-bacterial**
- It is known to **boost immunity** due to the **increase in the production of macrophage and lymphocytes**.
- Mulethi herb can **treat asthma, cough**, cold, sore throat, and **other respiratory ailments**.
- It **helps in weight loss** as it **contains flavonoids** that help to **reduce excessive fats** accumulated in the body.
- It helps **improve the digestive system**, **lessens the acidic level** in the intestines, and also **helps to detox our body**.
- **Distribution:**
- The plant **thrives in a dry and sunny climate** and is cultivated in **subtropical and warm temperate regions**.
- Countries producing licorice include **Iran, Afghanistan, China, Pakistan**, Iraq, Azerbaijan, Uzbekistan, Turkmenistan, and **Turkey**.
- It is also cultivated in **Punjab and Sub Himalayan tracts in India**.

Two endangered pink dolphins rescued from shallow Colombia river

- It is the **Amazon River dolphin** which is also known as the pink river dolphin or boto and lives only in **freshwater**.
- It is found throughout much of the Amazon and Orinoco river basins in Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, and Venezuela.
- The river dolphin is **smaller than other types of saltwater dolphins**, and the species has excellent hearing.
- Pink dolphins must live in warm, shallow water areas because they have very little blubber.
- Unlike ocean-dwelling dolphins, pink dolphins **have a hump instead** of a dorsal fin.
- Generally, these dolphins become **more pink as they age**, which has led to the species becoming known as the 'pink dolphin.'
- These animal species **use echolocation** which lets the animal determine the size and shape of any surrounding item or object.
- **Conservation status**

- **IUCN: Endangered**

Medicinal plant commonly called Borthekera in Assamese found to have cardioprotective potential

- *Garcinia pedunculata*, popularly known as Bor Thekera in **Assamese**, is an evergreen tree related to the more familiar purple mangosteen (*Garcinia mangostana*).
- The tree is **endemic to the south-eastern regions of Asia** such as parts of Bangladesh and north-eastern parts of India.
- The sun-dried slices of the ripe fruit are used for culinary and medicinal purposes and are known to have therapeutic properties like **anti-inflammatory, anthelmintic, antibacterial**, antifungal, antidiabetic, hypolipidemic, nephroprotective, and even neuroprotective activity.
- With scientific interventions seeking proof of these claims, multiple studies have reported that *G. pedunculata* is a rich source of antioxidants.
- **Uses:** The ripe fruit is eaten cooked or raw. Sun-dried slices are much valued and used for preparing delicacies like "tenga diya masor jol" meaning Assamese sour fish curry.

Environment Ministry seeks report on Kaziranga rhino estimation

- **Location:** It is located in the Golaghat and Nagaon districts of **Assam**.
- It was declared a **national park in 1974**.
- It is also a **UNESCO World Heritage Site** and **houses two-thirds** of the total **world population of greater one-horned rhinoceros**.
- It is the **largest undisturbed area in the Brahmaputra Valley floodplains**.
- **Vegetation:** It is a mix of eastern **wet alluvial grasslands, semi evergreen forests** and **tropical moist deciduous forests**.
- **Flora:**
- It is primarily famous for its **dense and tall elephant grasses** intermixed with **small swamplands**.
- It also includes an **abundant cover of water lilies, water hyacinths and lotus**.
- **Rattan Cane**, a type of climbing palm, is also found here.
- **Fauna:**
- Important wildlife found are **One-horned rhinoceros, Leopard, Fishing Cat**, other Lesser cats, **royal Bengal tiger**, Large Indian Civet, Small Indian Civet, Sambar, **Barking deer, Hog deer**, Gaur, Hog Badger, Capped Langur, etc.
- It is also one of the **last remaining homes** of the **endangered and endemic western hoolock gibbon**, the **only species of apes found in India**.
- It is home to approximately **478 species of both resident and migratory birds**.
- It is one of the last homes of the **critically endangered Bengal florican**.

4 cops let off 4 smugglers of orangutans, suspended in Chennai

- These are **exclusively arboreal** which means they live among the trees of tropical

rainforests.

- According to the World Wide Fund for Nature (WWF), there are three species of orangutans: **Bornean, Sumatran and Tapanuli.**
- They feast on wild fruits like lychees, and figs, and slurp water from holes in trees.
- Orangutans can live up to 50 years, but they have a **relatively low reproductive rate** because females only give birth once every 5-10 years.
- Bornean and Sumatran orangutans differ a little in appearance and behaviour. While both have shaggy reddish fur, Sumatran orangutans have longer facial hair.
- Sumatran orangutans are reported to have closer social bonds than their Bornean cousins.
- Bornean orangutans are more likely to descend from the trees to move around on the ground.
- **Conservation status**
- **IUCN: Critically Endangered**

MP Government's Consent Not Needed For Eastern Rajasthan Canal Project: CM Gehlot

- This canal project aims to harvest surplus water available during the rainy season in rivers in Southern Rajasthan such as **Chambal and its tributaries, including Kunnu, Parvati, and Kalisindh**, and use this water in south-eastern districts of the state, where water is scarce for drinking and irrigation.
- It proposes to provide drinking water to 13 districts of Rajasthan and provide irrigation water for 2.8 lakh hectares of land through 26 different large and medium projects.

Chambal River

- It is one of the tributaries of the Yamuna River and the most pollution-free river in India.
- It originates at the **Singar Chouri peak** on the northern slopes of **the Vindhya mountains**
- On its south, east and west, the basin is bounded by the Vindhyan mountain ranges and on the **northwest by the Aravallis.**
- The Hadauti plateau in Rajasthan occurs in the upper catchment of the Chambal River to the southeast of the Mewar Plains.
- **Tributaries:** Banas, Kali Sindh, Sipra, Parbati, etc.
- **Major Dams on the River:** Gandhi Sagar Dam, Rana Pratap Sagar Dam, Jawahar Sagar Dam.
- The National Chambal Sanctuary is situated along river Chambal on the tri-junction of Rajasthan, Madhya Pradesh and Uttar Pradesh.

Return of vultures: Once nearly extinct species spotted in Dudhwa & Banbasa, seen nesting in Terai (white-rumped vulture)

- It is an Old World vulture in the family Accipitridae. It is one of the two largest Old World vultures and true raptors.
- ****Distribution:**** This species is found along **the Himalayas and the adjoining Tibetan**

- **Threat:** Himalayan vultures are also susceptible to toxicity induced by diclofenac, a drug whose residues are in domestic animal carcasses.
- But their population have however not shown signs of rapid decline as witnessed in populations of other Gyps vultures across Asia.
- **Conservation status**
- **IUCN: Near Threatened**

Other Vulture species found in India

- India is home to 9 species of Vulture namely the Oriental white-backed, Long-billed, Slender-billed, Himalayan, Red-headed, Egyptian, Bearded, Cinereous and Eurasian Griffon.

Mandapam seagrass could treat liver cancer

- Seagrasses are **flowering plants** that **grow submerged in shallow marine waters like bays and lagoons.**
- They are **so-named** because **most species have long green, grass-like leaves.**
- Seagrasses **have roots, stems, and leaves** and **produce flowers and seeds.**
- Like terrestrial plants, **seagrass also photosynthesizes** and **manufactures their own food** and **releases oxygen.**
- They **evolved around 100 million years ago**, and there are approximately **72 different seagrass species** that belong to four major groups.
- Some of the **important seagrasses** are **Sea Cow Grass** (*Cymodocea serrulata*), **Thready Seagrass** (*Cymodocea rotundata*), **Needle Seagrass** (*Syringodium isoetifolium*), **Flat-tipped Seagrass** (*Halodule uninervis*), Spoon Seagrass (*Halophila ovalis*) and Ribbon Grass (*Enhalus acoroides*).
- **Distribution:**
 - They are found on **all continents except Antarctica.**
 - The **tropical waters of the Indo-Pacific** hold the **highest diversity** of seagrasses in the world.
- **Seagrass distribution in India:**
 - They occur **all along the coastal areas of India.**
 - They are **abundant in the Palk Strait and Gulf of Mannar** in Tamil Nadu.
- **Ecosystem services:**
 - They are **considered to be 'Ecosystem Engineers'.**
 - Seagrasses **help maintain water quality.** They **trap fine sediments and suspended particles** in the water column and **increase water clarity.**
 - **They filter nutrients** released from land-based industries before they reach sensitive habitats like coral reefs.
 - The extensive **vertical and horizontal root systems of seagrasses stabilise the sea bottom.**
 - They are one of the **most productive ecosystems in the world.**

Pink Bollworm-resistant GM cotton gets green light for field trials in Haryana's Hisar

- It is one of the **most destructive pests of cotton.**

- **Scientific name: Pectinophora gossypiella**
- **Distribution:** Originally **native to India**, it is now **recorded in** nearly **all the cotton-growing countries** of the world.
- **Description:**
 - The **adults are small moths** about **3/8 inch long** and are **dark brown** with **markings on the fore wing**.
 - The **larval stage is the destructive** and identifiable stage.
 - The **larvae have distinctive pink bands** and can reach a length of **½ inches** right before they pupate.
- **Ecological Threat:**
 - Pink bollworms are **major pests of cotton**.
 - **Adults only last for 2 weeks**, but **females will lay 200** or more **eggs**.
 - **Adults lay eggs on cotton bolls**; once hatched, **the larvae eat the seeds** and **damage the fibers of the cotton, reducing the yield and quality**
 - When the **larvae mature, they cut out the boll** and drop to the ground and cocoon near the soil surface.
 - It has also been observed to **attack hibiscus, okra, and hollyhock plants**.

Tree toad from biodiversity hotspot Mollem on nat'l list

Malabar tree toad:

- The Malabar tree toad is a small species found in the forest **along the Western Ghats** in wet tree hollows or leaf bases containing water.
- This toad species is **found mainly during the monsoon season** and then it disappears.
- It is believed to be the only toad to **dwell on high canopies**.
- Its population is shrinking mainly due to habitat loss, climate change and **Batrachochytrium dendrobatidis**, a deadly fungus that has been decimating entire amphibian populations worldwide.
- **Conservation status**
 - **IUCN: Endangered**

Mollem National Park

- It is located in Sanguem taluk in **Goa** close to the border with Karnataka.
- This park also has several temples dating back to the Kadamba Dynasty.
- The park was earlier known as Mollem game sanctuary.
- It was declared a wildlife sanctuary in 1969 and renamed **Bhagwan Mahaveer Sanctuary**.
- Since then, the national park is called Bhagwan Mahaveer Sanctuary and Mollem National Park.
- **Fauna:** King Cobra, Hump-nosed pit viper, Indian rock python and Malabar pit viper are found in the park.

30 tigers die in 2 months, officials say no cause for alarm

National Tiger Conservation Authority (NTCA):

- It is a **statutory body** under the **Ministry of Environment, Forest, and Climate Change (MoEFCC)**.
- It was **established in 2006** under **Wildlife (Protection) Act 1972**.
- **Objectives:**
 - Providing **statutory authority to Project Tiger** so that compliance of its directives become legal.
 - Fostering **accountability of Center-State in management of Tiger Reserves** by providing a basis for MoU with States within the federal structure.
 - Providing for an **oversight by Parliament**.
 - **Addressing livelihood interests of local people** in areas **surrounding Tiger Reserves**.
- **NTCA Members:**
 - **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.

'Project Tiger'

- It is a **Centrally Sponsored Scheme (CSS)** of the **MoEFCC**.
- It was **launched on 1st April 1973**.
- It **provides funding support to tiger range States** for the **in-situ conservation of tigers** in designated tiger reserves.
- Project Tiger has been the **largest species conservation initiative of its kind in the world**.
- **National Tiger Conservation Authority (NTCA)** is the immediate **supervising agency**.

INTERNATIONAL RELATIONS

India's G20 Presidency: Gujarat's Rann of Kutch To Host First Tourism Meet



- Dholavira is an **archaeological site** of immense importance **associated with the Indus Valley Civilization**.
- It represents the **ruins of an ancient city of the Harappan civilization** that was inhabited over a period of 1,200 years from 3000 BCE through 1800 BCE.
- **Location:** The site is located near the village of **Dholavira, in the Kutch District** of the Indian state of **Gujarat**.
- Dholavira is **the fifth largest site of the Indus Valley Civilization** in the sub-continent.
- It **lies between two** seasonal streams, the **Mansar** in the north and **Manhar** in the south.
- It was declared a **UNESCO World Heritage Site** in 2021.
- **Features:**
 - It comprises **of two parts: a walled city and a cemetery** to the west of the city.
 - The walled city consists of a fortified Castle with attached fortified Bailey and Ceremonial Ground, and a fortified Middle Town and a Lower Town.
 - The archaeological remains of the city of Dholavira include **fortifications, gateways, water reservoirs, ceremonial ground**, residential units, workshop areas, and cemetery complex, all clearly representing the Harappan culture and its various manifestations.
 - A series of **reservoirs** are found to the east and south of the Citadel.

- The **water system of Dholavira was very well planned** with 16 reservoirs and water channels that stored water or diverted water from nearby rivulets.
- **Step wells** leading to large public baths have also been discovered here.

Rann of Kutch

- It is a **salt marshy land** in the Thar Desert in the **Kachchh district of western Gujarat**.
- It **lies between Gujarat** in India and the **Sindh province in Pakistan**.
- The Rann of Kachchh is **famous for its white salty desert** sand and is reputed to be the largest salt desert in the world.

State signs deal with OECD to hold PISA test for govt school students

- It is an **international organisation of 38 countries committed to democracy** and the **market economy**.
- OECD members are **typically democratic countries** that support free-market economies.
- The OECD was **established on Dec. 14, 1960**, by 18 European nations, plus the United States and Canada.
- **Headquarters: Paris, France.**
- The **stated goal** of the Organisation for Economic Co-operation and Development (OECD) is to **shape policies that foster prosperity, equality, opportunity and well-being for all**.
- The OECD **publishes economic reports, statistical databases**, analyses, and forecasts on the outlook for economic growth worldwide.
- The organization also **seeks to eliminate bribery and other financial crime worldwide**.
- The OECD **maintains a so-called "black list" of nations** that are considered **uncooperative tax havens**.
- India is one of the many non-member economies with which the OECD has working relationships in addition to its member countries.

Programme for International Student Assessment (PISA):

- It is an **international assessment** that measures **15-year-old students' reading, mathematics, and science literacy every 3 years**.
- **First conducted in 2000**, the major domain of study rotates between reading, mathematics, and science in each cycle.
- PISA also **includes measures of general or cross-curricular competencies**, such as collaborative problem solving.
- PISA is **coordinated by the OECD**.

Quad partners launch Cyber Challenge to advance cybersecurity across nations

- Under the challenge, **QUAD has invited Internet users across the Indo-Pacific** and beyond to become part of the challenge and **practice "safe and responsible cyber**

habits.

- The **challenge provides resources**, including **basic cybersecurity information** and **training for all users**, from corporations to educational institutions, small businesses and individuals.
- The action in India is being coordinated by the office of the **National Cyber Coordinator with the National Security Council Secretariat.**

QUAD

- The Quad, officially the **Quadrilateral Security Dialogue**, is a **group of four countries: the United States, Australia, India, and Japan.**
- One of the **primary objectives** of the Quad is to work for a **free, open, prosperous and inclusive Indo-Pacific region.**
- The group **met for the first time in 2007** on the sidelines of the Association of Southeast Asian Nations (ASEAN).
- It is considered an **alliance of maritime democracies**, and the forum is maintained by **meetings, semi-regular summits, information exchanges** and military drills of all the member countries.



G-20 tourists can use UPI at select Indian airports

- According to the RBI, banks and non-banks authorised to issue prepaid payment instruments (PPIs) can issue rupee-denominated full-KYC PPIs to foreign nationals and NRIs visiting India.

prepaid payment instruments (PPIs)

- **What is it?** PPIs are instruments that facilitate the purchase of goods and services,

including financial services, remittance facilities, etc., against the value stored on such instruments.

- **Examples:** Prepaid instruments can be issued as smart cards, magnetic stripe cards, internet accounts, internet wallets, mobile accounts, mobile wallets, paper vouchers and any of the instruments used to access the prepaid amount.
- PPIs that can be issued in India are classified as.
 - **Closed System PPIs:** These PPIs are issued by an entity for facilitating the purchase of goods and services from that entity only and **do not permit cash withdrawal**. The operation of such instruments doesn't require approval by the RBI.
 - **Semi-closed System PPIs:** These PPIs are issued **by banks (approved by RBI) and non-banks (authorized by RBI)** for the purchase of goods and services at merchant locations which have a specific contract with the issuer to accept the PPIs as payment instruments.
 - **Open System PPIs:** These PPIs are issued **only by banks (approved by RBI) and are used at any merchant for the purchase of goods and services. Cash withdrawal at ATMs / Point of Sale (PoS) terminals / Business Correspondents (BCs) is also allowed through such PPIs.**

India lends help as earthquake shakes Turkey, Syria to the core: What is Operation Dost?

- It is an **ongoing search and rescue mission initiated by the Government of India to help Syria and Turkey**, after they witnessed a massive earthquake that left thousands dead, injured and trapped under the rubble.
- Under operation dost, India has sent search and rescue teams, mainly **teams of the National Disaster Response Force (NDRF)**, materials, **medicines**, medical equipment and consumables to Turkey and Syria.
- The **NDRF teams comprise dog squad, medicines**, blankets, four wheelers.
- The **Indian Army's team of medical specialists is providing relief** to the injured at a **field hospital set up in Turkey's Hatay**. The hospital is running with medical, surgical and emergency wards.

National Disaster Response Force (NDRF):

- It is **India's specialized force for responding to natural disasters and chemical, biological, radiological and nuclear defense (CBRN) emergencies**.
- The force was **constituted under the Disaster Management Act of 2005**.
- NDRF is a force of 12 battalions, **organised on para-military lines, and manned by persons on deputation from the para-military forces** of India:

OPEC Urges Countries to Invest Significantly More in Oil

- It is a **permanent intergovernmental organization of oil-exporting countries**.
- **Mission:**
 - To **coordinate and unify the petroleum policies** of its Member Countries.

- Ensure the **stabilization of oil prices in the international oil markets**, with a view to eliminating harmful and unnecessary fluctuations.
- **Formation:** It was established in **1960 by the five founding members Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.**
- Currently, it has **13 members**, including **Algeria, Angola, Congo, Equatorial Guinea, Gabon, Libya, Nigeria, and the United Arab Emirates**
- **Headquarters: Vienna, Austria.**

OPEC+

- It is a **group of oil exporters consisting of 23 member countries** which meet regularly to decide how much crude oil to sell on the world market.
- It comprises **13 OPEC countries plus Azerbaijan, Bahrain, Brunei, Kazakhstan, Russia, Mexico, Malaysia, South Sudan, Sudan, and Oman.**

The First G20 Culture Group (CWG) meet to be organised in Khajuraho, Madhya Pradesh from 22nd to 25th February 2023.

- The working group will have four meetings and they will be held in Khajuraho, Bhubaneswar, and Hampi.
- The theme of the Khajuraho meet is **“Protection and Restitution of Cultural Property”**.

Khajuraho

- Khajuraho is an ancient city known for its majestic temples and elaborate sculptures.
- The Khajuraho Group of Monuments is a **UNESCO World Heritage Site** which was constructed by the **Chandela Dynasty** between 950-1050 AD.
- These monuments are built in **Nagara-style architecture** and ornamented with intricate and detailed sculptures.
- The monuments include **Hindu and Jain**
- According to historical records, there were 85 temples in the temple site in Khajuraho, covering 20 square kilometres, in the 12th Century AD.



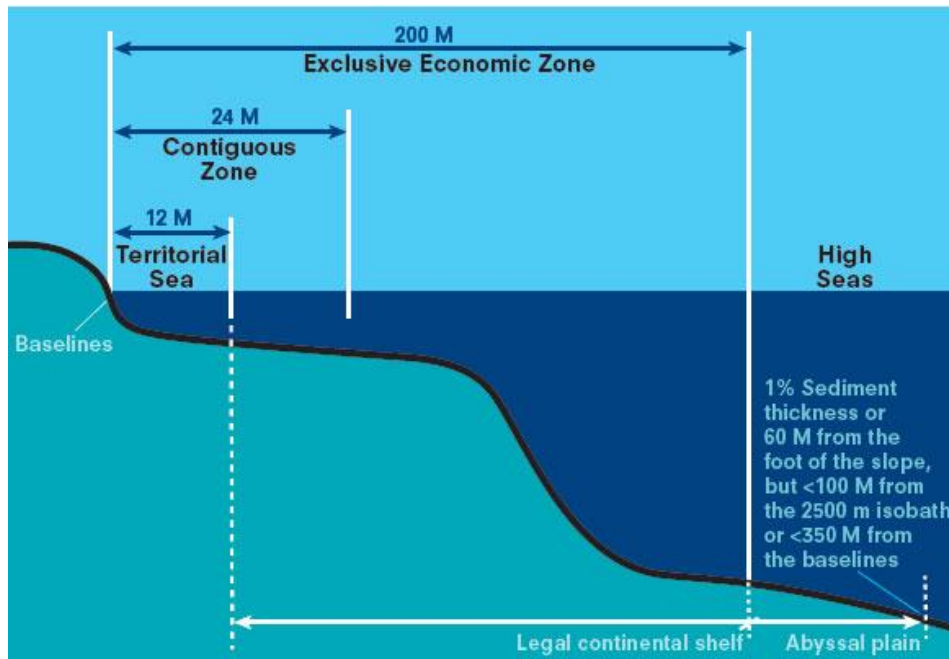
Fresh negotiations on UN High Seas Treaty begin in New York. Here's what to expect

- It is known as the **‘Paris Agreement for the Ocean’**, and the treaty to deal with

Biodiversity Beyond National Jurisdiction has been under discussion for several years.

- The proposed treaty concerns the ocean existing beyond the Exclusive Economic Zones (EEZ) that lie from the coast of a country to about 200 nautical miles into the sea (Countries have special rights for exploration till 200 nautical miles).
- The treaty was to be negotiated under the United Nations Convention on Laws of the Sea (UNCLOS) of 1982.

United Nations Convention on the Law of the Sea (UNCLOS)



- UNCLOS became effective on 16th November 1982.
- It superseded the four Geneva Conventions of April 1958, which respectively concerned the territorial sea and the contiguous zone, the continental shelf, the high seas, fishing and conservation of living resources on the high seas.
- As per UNCLOS, the sea is divided into 4 parts:
 - Territorial waters
 - Contiguous Zone
 - Exclusive Economic Zone (EEZ)
 - Continental Shelf

Financial crime watchdog FATF suspends Russia over Ukraine war

- FATF is an **inter-governmental policy-making** and **standard-setting body** dedicated to **combating money laundering and terrorist financing**.
- **Objective:** To **establish international standards**, and to develop and promote policies, both at national and international levels, **to combat money laundering and the financing of terrorism**.
- It was **established in 1989 during the G7 Summit** in Paris to develop policies

- against money laundering.
- In 2001 its mandate expanded to include terrorism financing.
 - **Headquarters: Paris, France.**
 - **FATF members include 39 countries**, including the United States, India, China, Saudi Arabia, Britain, Germany, France, and the EU as such.
 - **India became a member of FATF in 2010.**
 - **What are FATF 'grey list' and 'blacklist'?** FATF has 2 types of lists:
 - **Black List:** Countries known as **Non-Cooperative Countries or Territories (NCCTs)** are **put on the blacklist**. These **countries support terror funding and money laundering activities**. The FATF **revises the blacklist regularly**, adding or deleting entries.
 - **Grey List:** Countries that are **considered a safe haven for supporting terror funding and money laundering** are put on the FATF grey list. This inclusion serves as a warning to the country that it may enter the blacklist.
 - **Three countries North Korea, Iran, and Myanmar are currently in FATF's blacklist.**
 - **Consequences of being on the FATF blacklist:**
 - **No financial aid is given to them** by the International Monetary Fund (IMF), the World Bank, the Asian Development Bank (ADB) and the European Union (EU).
 - They also face a number of **international economic and financial restrictions and sanctions**.

Italian PM Giorgia Meloni to be chief guest at 8th Raisina Dialogue, says MEA

- It is **India's premier conference on geopolitics and geoeconomics**, committed to **addressing the most challenging issues** facing the global community.
- It is **held annually since 2016 in New Delhi**.
- The Dialogue is **structured as a multi-stakeholder**, cross-sectoral discussion involving **heads of state, cabinet ministers, and local government officials**, who are joined by thought leaders from the private sector, media, and academia.
- It is **organized by the Observer Research Foundation (ORF) in partnership with the Ministry of External Affairs**, Government of India.

Observer Research Foundation (ORF):

- **Established in 1990**, the **ORF is an independent, nonpartisan think tank** that **conducts policy research** on good governance, foreign policy, and sustainable economic development for India.
- ORF's work spans a **wide range of topics**, including climate, energy, cyber issues and media, economic development, and national security.
- It **provides non-partisan, independent, well-researched analyses and inputs** to diverse **decision-makers in governments**, business communities, academia, and to civil society around the world.
- **Mandate:** It **seeks to lead and aid policy thinking towards building a strong and prosperous India** in a fair and equitable world.

DEFENCE & SPACE

ISRO workhorse Vikas engine passes key test

- VIKAS (an acronym for Vikram Ambalal Sarabhai) engine is a family of **liquid-fuelled rocket engines** conceptualized and **designed by the Liquid Propulsion Systems Centre of ISRO in the 1970s**.
- The **early productions** involved imported **French components**, which were **later replaced by domestically produced equivalents**.
- These engines are **deployed for ISRO's Polar Satellite Launch Vehicle (PSLV)** and the **Geosynchronous Satellite Launch Vehicle (GSLV)** series of expendable launch vehicles for space launch use.
- The **fuel load** of the Vikas engine is **40 tonnes for the PSLV, GSLV Mark I and II**, and **55 tonnes for the GSLV Mark III**.

Liquid Propulsion Systems Centre (LPSC):

- The **LPSC** is a **research and development** center functioning **under ISRO**.
- It is the center for the **design, development**, and realization of **liquid propulsion stages for ISRO's Launch Vehicles**.
- LPSC activities and facilities are spread across its **two campuses**: LPSC, **Valiamala, Thiruvananthapuram**, and LPSC, **Bengaluru, Karnataka**.

ISRO Successfully Launches New Rocket To Deploy 3 Satellites Into Orbit

- The new vehicle was developed to capture the emerging small and microsatellite commercial market.
- The SSLV caters to the launch of up to **500 kg satellites to low earth orbits** on a 'launch-on-demand' basis.
- The launch vehicle uses **three solid stages** followed by a **liquid-fuel-based Velocity Trimming Module (VTM)** to place satellites in orbit
- The rocket provides low-cost access to space, offers low turn-around time and flexibility in accommodating multiple satellites, and demands minimal launch infrastructure.
- It placed the Indian Space Research Organisation (ISRO) earth observation satellite EOS-07 and two co-passenger satellites — Janus-1 and AzaadiSat2

Janus-1

- Janus-1 is a **technology demonstrator** satellite built by United States-based Antaris and its Indian partners XDLinks and Ananth Technologies.
- It weighs only 10.2 kg and is a six-unit cube satellite with five payloads on board — two from Singapore, and one each from Kenya, Australia, and Indonesia.

AzaadiSat2

- The payloads have been built by 750 girl students from across India.
- **The payloads include**: LoRa amateur radio, a sensor to measure radiation levels in

space, and sensors to measure the health of the satellite such as temperature, reset count, and inertial data.

In a major milestone, naval variant of indigenous Light Combat Aircraft lands on INS Vikrant

- It is the first ever **indigenously designed and constructed** aircraft carrier which will strengthen the country's stand as a **'Blue Water Navy'**.
- The ship has been designed in-house by **Indian Navy's Warship Design Bureau** and constructed by M/s Cochin Shipyard Limited.
- India also joined the elite group of nations – the US, Russia, France, the UK and China – who are capable of designing and constructing aircraft carriers.
- Also, with a displacement of 43,000 tonnes when fully loaded, INS Vikrant is set to be the seventh largest among the carriers or carrier classes in the world.

INS Vikrant

- INS Vikrant, with **pennant number R11**, was the first-ever aircraft carrier that was operated by the Indian Navy.
- The ship was officially laid down in 1943 and was being built for the Royal Navy as HMS (Her Majesty's Ship) Hercules when the constitution was put on hold after World War II ended.
- Like many other ships at the time, the under-construction HMS Hercules was put up for sale by the United Kingdom and was purchased by India in 1957.
- The construction work was completed and the ship was commissioned in the Indian Navy as INS Vikrant in 1961.

NASA's Perseverance rover completes 'sample depot' on Mars: Here's how they will reach Earth

- The tube will be part of a depot that will be considered for the return to Earth as part of the Mars Sample Return Campaign.

Perseverance rover:

- It is **robotic explorer to land on Mars** as part of NASA's ongoing **Mars 2020 Mission**.
- **Main Job: Seek signs of ancient life and collect samples of rock and regolith (broken rock and soil) for possible return to Earth.**
- The rover will collect samples of rock and soil, encase them in tubes, and leave them on the planet's surface to be returned to Earth at a future date.
- **Launch:** It was launched on **July 30, 2020** from Cape Canaveral, Florida.
- **Landing:** Successfully landed on the surface of **Mar's Jezero Crater on Feb. 18, 2021.**
- **Features:**
 - It is about **3 metres long, 2.7 metres wide**, and 2.2 metres tall.
 - It is about the **size of a car**, but weighs only about 1,025 kilograms with all instruments

- on board.
- Power source: Multi-Mission Radioisotope Thermoelectric Generator (MMRTG).
Converts heat from the radioactive decay of plutonium into electricity.

Ingenuity Helicopter:

- It is a **small, autonomous aircraft.**
- **Main Job:** Technology demonstration **to test the first powered flight on Mars.**
- The helicopter rode to Mars **attached to the belly of the Perseverance rover.**
- It became the **first aircraft in history** to make a powered, **controlled flight on another planet.**

Mass Determination of Single White Dwarf

- The Hubble Space Telescope measured the mass of a white dwarf designated LAWD 37, which burned out over 1 billion years ago.
- In the work, scientists used a phenomenon **called gravitational lensing.**

Gravitational lensing

- It was first predicted in 1915 by **Albert Einstein** which involves the bending of light by objects of great mass.
- A gravitational lens can occur when **a huge amount of matter**, like a cluster of galaxies, **creates a gravitational field** that distorts and magnifies the light from distant galaxies that are behind it but in the same line of sight.
- The effect allows researchers to **study the details of early galaxies** too far away to be seen otherwise with even the most powerful space telescopes.

Hubble telescope

- It is named in honour of the trailblazing **astronomer Edwin Hubble which was launched by the**
- It is a large, **space-based observatory**, which has revolutionized astronomy since its launch and deployment by the space shuttle Discovery in 1990.
- Hubble's domain extends from the ultraviolet through the visible (which our eyes see) and into the near infrared.
- It is one of **NASA's Great Observatories Programs**. The other missions in the program include the visible-**light Spitzer Space Telescope, Compton Gamma-Ray Observatory (CGRO), and the Chandra X-Ray Observatory (CXO).**

Scientists use outer space particles to examine the fortress wall of Xi'an city

- To analyse 14 kilometres long rampart, researchers deployed a technique called **muon tomography or muography**, which uses muons to generate three-dimensional images of such large structures.

Muons

- Muons are **subatomic particles** raining from space.
- The muon was discovered as a constituent of **cosmic-ray particle** “showers” in 1936 by the American physicists **Carl D. Anderson** and **Seth Neddermeyer**.
- They are created when the particles in **Earth's atmosphere collide with cosmic rays** — clusters of high-energy particles that move through space at just below the speed of light.
- It has **two forms**, the negatively charged muon and its positively charged antiparticle.
- These particles resemble electrons but are 207 times as massive. Therefore, they are sometimes called “fat electrons”.
- Muons are so heavy, they can travel through hundreds of metres of rock or other matter before getting absorbed or decaying into electrons and neutrinos
- They are highly unstable and exist for just 2.2 microseconds.

muon tomography

- Although muon tomography was first used in the 1960s, it has only recently gained widespread use among researchers, particularly in archaeology.
- It is conceptually **similar to X-ray** but capable of scanning much **larger and wider structures**, owing to the penetration power of muons.
- All that is required is to place a **muon detector** underneath, within, or near the object of interest.
- The detector then tracks the number of muons going through the object from different directions, to form a three-dimensional image.
- The image is then compared with a muon image of the “free sky.” This indicates how many muons have been blocked. The final picture is essentially a shadow of the object, in the light of cosmic muons.”

Scientists may have found a potentially sustainable planet nearby - WCIV

- It is a potentially habitable **exoplanet 31 light-years away from Earth**.
- It **orbits a red dwarf star, Wolf 1069**.
- Wolf 1069 b **lies within its star's habitable zone**.
- Wolf 1069 b **receives approximately 65% of the solar radiance** that Earth receives.
- Wolf 1069 b **is potentially a rocky world**, at about **26 the mass of Earth** and **1.08 the size**.
- **Its surface is cool**, which makes it **appear orange**.
- Wolf 1069 b is **tidally locked to its parent star**, meaning one side is always in daylight, and the opposite side is always in darkness.
- It **orbits the star within 15.6 days** at a distance equivalent to one-15th of the separation between the Earth and the sun.

Dwarf star

- A dwarf star **is any star of average or low luminosity, mass, and size**.
- **The colour of dwarf stars** can range from **blue to red**, the corresponding

temperature varying from high (above 10,000 K) to low (a few thousand K).

ISRO-NASA 'NISAR' satellite to be launched from India in September

- NISAR is a **Low Earth Orbit (LEO) observatory** jointly developed by **NASA and ISRO**.
- It is an **SUV-size satellite weighing 2,800 kilograms**.
- It **consists of both L-band and S-band synthetic aperture radar (SAR) instruments**, which makes it a **dual-frequency imaging radar satellite**.
- NISAR will be the **first satellite mission to use two different radar frequencies** (L-band and S-band) to measure changes in our planet's surface.
- SAR is **capable of penetrating clouds and can collect data day and night** regardless of the weather conditions.
- **NASA has provided the L-band radar**, GPS, a high-capacity solid-state recorder to store data, and a payload data subsystem. **ISRO has provided the S-band radar**, the GSLV launch system, and spacecraft.
- It also consists of a large **39-foot stationary antenna reflector** made of a gold-plated wire mesh which will be **used to focus "the radar signals emitted and received by the upward-facing feed on the instrument structure**.
- **Mission Objectives:**
- It will measure **Earth's changing ecosystems**, dynamic surfaces, and **ice masses**, providing **information about biomass, natural hazards, sea level rise, and groundwater**.
- NISAR will **observe Earth's land and ice-covered surfaces** globally with **12-day regularity** on ascending and descending passes

Ring discovered around dwarf planet Quaoar confounds theories

- Quaoar is a **dwarf planet** that's **located in the Kuiper Belt** at the solar system's edge.
- It is about **697 miles wide** (1,121 kilometers).
- It is roughly **one-twelfth the diameter of Earth**, one-third the diameter of the Moon, and **half the size of Pluto**.
- Quaoar is **greater in volume than all known asteroids combined**.
- Quaoar has its **own moon**, the 100-mile-wide (160 km) **Weywot**.
- Its surface is **moderately red** and **composed of low-density ices mixed with rock**.
- It takes about **288 years** for Quaoar to go **once around the sun** in a roughly **circular orbit**.

Kuiper Belt

- Kuiper belt, also called the **Edgeworth-Kuiper belt**, is a **flat ring of small icy bodies** that **revolve around the Sun beyond the orbit of the planet Neptune**.
- There are millions of **these icy objects**, collectively referred to as **Kuiper Belt objects (KBOs) or trans-Neptunian objects (TNOs)**, in this belt.
- The Kuiper Belt is a **region of leftovers from the solar system's early history**.
- It is thought to be the **source of most of the observed short-period comets**,

particularly those that orbit the Sun in less than 20 years.

Giant Asteroid to hit Earth's Atmosphere; Find out when will It happen

- 199145 (2005 YY128) is **an asteroid whose orbit crosses the orbit of Earth.**
- It **orbits the sun every 774 days (2.12 years)** in an **elliptical orbit.**
- 2005 YY128 is probably between **566 to 1.265 kilometers in diameter.**
- Its orbit is $0^{**}.03$ astronomical unit from Earth's orbit** at its closest point.

Asteroid

- Asteroids are **small, rocky objects that orbit the sun.**
- Although asteroids orbit the sun like planets, **they are much smaller than planets.**
- Most of them **live in the main asteroid belt—a region between the orbits of Mars and Jupiter.**

Astronomical unit (AU)

- An Astronomical Unit (AU) is the **average distance between Earth and the Sun, which is about 93 million miles or 150 million kilometers.**
- Astronomical units are usually **used to measure distances within our Solar System.**

Diyodar meteorite in 2022 was India's first aubrite in 170 years

- The pieces that fell in the two villages have been named the Diyodar meteorite, after the taluka in which the villages are located.
- This is only the second recorded crash of an aubrite in India. The last was on December 2, 1852, in Basti, Uttar Pradesh.

Aubrite meteorites

- Aubrite meteorites are coarse-grained **igneous rocks** that are formed in **oxygen-poor conditions.**
- They contain a variety of **exotic minerals** that are not found on Earth.
- The recently found aubrite meteorite in Gujarat is composed of orthopyroxene.

Pyroxenes

- Pyroxenes are **silicates** consisting of single chains of **silica tetrahedra** (SiO_4)
- Pyroxenes such as **diopside** and **jadeite** have been used as gems.
- **Spodumene** was historically used as lithium ore and rocks with pyroxene have also been used to make a crushed stone that is used in construction.

PM Shares aerial coverage of Ground and Air display captured

- It is known as **Tapas-BH** (Tactical Airborne Platform for Aerial Surveillance-Beyond Horizon 201), formerly referred to as **Rustom-II**.
- The UAV is named after Rustom Damania, a former professor at the Indian Institute of Science (IISc), Bengaluru.
- It is designed and developed by the **Aeronautical Development Establishment** (ADE), Bengaluru with production partners being Hindustan Aeronautics Ltd and Bharat Electronics Limited.
- It is being developed to **carry out surveillance and reconnaissance** (ISR) roles and is capable of carrying different combinations of advanced payloads and capable of auto-landing among others.
- It is being designed to **acquire real-time, high-quality pictures** and signal intelligence from fields of concern at medium to long ranges.
- Technologically it matches contemporary UAVs available and is also cheaper than the imported ones.

India-Japan joint military exercise Dharma Guardian to begin today

- It is the 4th joint military exercise between **India and Japan** which is being conducted since 2018.
- The scope of this exercise covers **platoon-level joint training** on operations in jungle and semi-urban or urban terrain.
- Troops of the **Garhwal Rifles Regiment** of the Indian Army and an Infantry Regiment from the Middle Army of the Japan Ground Self Defence Force are participating in the exercise.
- This joint exercise will enable the two armies to share best practices in tactics, techniques and procedures for conducting tactical operations under a UN Mandate.

India and Japan

- Malabar: India and Japan with the United States and Australia participate in the naval war gaming exercise named Malabar.
- **JIMEX** (naval)
- **SHINYUU Maitri** (Air Force)

Webb Uncovers New Details in Pandora's Cluster

- It is a **giant galaxy cluster**.
- It appears to be the **result of a simultaneous pile-up of at least four separate, smaller galaxy clusters**.
- The **crash took place** over a **span of 350 million years**.
- The **galaxies** in the cluster **make up less than five percent of its mass**.
- **The gas (around 20 percent)** is so hot that it **shines only in X-rays**.
- **Dark matter** makes up around **75 percent of the cluster's mass**.

- It is located around **4 billion light years from earth.**

Galaxy clusters

- They are the **largest objects in the universe that are held together by their own gravity.**
- They **contain hundreds or thousands of galaxies**, lots of **hot plasma**, and a **large amount of invisible dark matter.**
- Galaxy clusters are **home to the biggest galaxies in the known universe** and provide us with information about the structure of the universe on the largest scales.

IAF develops indigenous 'Vayulink' platform for jammer-proof communication with base station

- Vayulink is an **ad-hoc data link communication system** that would **help pilots deal with bad weather** and provide **jammer-proof uninterrupted communication with the base station.**
- It is **developed by the Indian Air Force (IAF).**
- It **uses the Indian Regional Navigation Satellite System (IRNSS) to send radio communication** to the base station **when the signals are low.**
- Vayulink, when installed in an aircraft, **gives the position of other aircraft close by and encrypted traffic data over a secure channel.**
- **Uses:**
 - The platform **helps to prevent fratricide or friendly fire**, i.e., it helps us to **know where the friendly forces are present.**
 - It provides **better combat teaming.**
 - Helps **plan real-time basis** where **multiple teams can get together** and go towards the **target coming from different areas.**
 - It can also **give the pilots data on the weather.**

Malabar drill to be held off Australia for the first time

- It was started in 1992 as a bilateral naval exercise between India and US navy.
- The first Malabar Exercise in the Bay of Bengal took place in 2007.
- It was expanded into a trilateral format with the inclusion of Japan in 2015.
- In 2020, the Australian Navy joined the Malabar Exercise, making it a quadrilateral naval exercise.
- The aim of the Malabar Exercise of **India, the US, Japan and Australia** is to coordinate for a free, open, and inclusive Indo-Pacific.
- It takes place annually in the Indian Ocean and Pacific Oceans alternatively.
- This exercise includes a diverse range of activities such as fighter combat operations and maritime interdiction operations.

Joint Maritime Exercises of India

- **IBSAMAR:** It is a maritime exercise held by India, South Africa, and Brazil.
- **SIMBEX:** India and Singapore.

- **SLINEX:** India and Sri Lanka.

NASA and Israel Partner to Launch ULTRASAT, the First Israeli Space Telescope, in 2026

- ULTRASAT is an ultraviolet observatory with a large field of view, that will investigate the secrets of short-duration events in the universe, such as **supernova explosions and mergers of neutron stars**.
- It is planned to launch into a **geostationary orbit** around Earth
- NASA will provide the launch opportunity, Flight Payload Adapter, and other launch-related responsibilities for ULTRASAT.

Geostationary orbit

- Satellites in geostationary orbit (GEO) circle Earth above the equator from west to east following Earth's rotation – taking 23 hours 56 minutes and 4 seconds – by travelling at the same rate as Earth.
- This makes satellites in GEO appear to be '**stationary**' over a fixed position.
- To perfectly match Earth's rotation, the speed of GEO satellites should be about 3 km per second at an altitude of 35 786 km. This is much farther from Earth's surface compared to many satellites.
- This particular orbit is used for **meteorological and communications satellites**.
- The geostationary orbit is a **special case of the geosynchronous orbit**, which is any orbit with a period equal to Earth's rotation period.

ITCM takes off with Manik success in Chandipur

- It was tested on the **subsonic cruise missile Nirbhay platform** from launching complex III of the integrated test range (ITR).
- It was **equipped with** the indigenously developed **small turbofan engine (STFE) Manik** and an upgraded radio frequency seeker, the missile was test fired for a reduced range.
- The domestic Manik engine with a thrust rating of 450 kgf has been designed and developed by Bengaluru-based Gas Turbine Research Establishment (GTRE) for cruise missiles and unmanned aerial vehicles.
- It is a generic twin-spool engine without an afterburner.

Nirbhay missile

- Nirbhay is a **Long-Range Sub-Sonic Cruise Missile**, which can be deployed from multiple platforms.
- It is capable of loitering and cruising at Mach 0.7 (sub-sonic) at an altitude as low as 100 meters. It can carry a nuclear warhead.
- **Developed by:** It has been indigenously designed & developed by Defence Research & Development Organisation (DRDO).

BEL to Manufacture Israel's LORA Ballistic Missile for Indian Tri-Services

- It is a **sea-to-ground and ground-to-ground system** which comprises a **long-range ballistic missile, a unique launcher, a command and control system, and a ground/marine support system.**
- It is **developed** by IAI's Missiles & Space Group **MALAM division.**
- It **provides ballistic assault capabilities** for multiple ranges with a precision level of **10 meters CEP** (circular error probable).
- The ballistic missile can be **launched from both ground and sea-based platforms.**
- It has a **range of 280 km.**
- It is **propelled** by a **single-stage, solid-fuel rocket motor.**
- Its **guidance system is based on** both the **Global Positioning System (GPS)** and the **Inertial Navigation System (INS)**, with possible **in-flight maneuvering capability.**

Indian Army Orders 100 Additional K9 Vajra Self Propelled Howitzers

- It is a **155 mm, 52-caliber tracked self-propelled artillery system.**
- It is **built by Larsen & Toubro** with **technology transferred from South Korean defence major Hanwha Defense** based on its K9 Thunder.
- **Features:**
- It has **all-welded steel armour up to 19mm thick.**
- The **main weapon** is the **155mm / 52 calibre gun.**
- It has a **burst rate of fire of three rounds per 15 seconds** and a maximum rate of fire of six to eight rounds a minute for three minutes.
- **Range: 40 km**
- The **K9 uses a digital fire control system**, by which it **can fire multiple rounds** that can impact a given area at the same time.

James Webb Space Telescope reveals packed stars in Milky Way's oldest cluster (photos)

- It is a **bright and large globular cluster in the constellation of Hercules.**
- It is located at a distance of **26,700 light-years from Earth.**
- It was **first discovered** by the **German astronomer Johann Elert Bode** in 1777.
- The **predominant elements** within Messier 92 are **hydrogen and helium.**
- Messier 92 has an **estimated mass of up to 330,000 solar masses.**
- The cluster is **approaching the Milky Way galaxy at a speed of about 112 km/s** (403,200 km/h; 250,500 mph).

Globular Cluster

- Globular clusters are **spherical aggregates of several thousand to millions of stars bound by gravity.**
- They **orbit mostly in the extended stellar halos** surrounding most spiral galaxies.
- They **contain some of the oldest stars in a galaxy.**

- These systems are thought to have **formed early on in the Universe** and can serve as perfect astrophysical laboratories for astronomers to understand how stars evolve through various phases.

Solar Mass

- It is the **mass of the sun**, which is **1.989×10^{30} kilograms** — about **333,000 Earths**

U.S. commits \$2 billion in drones and ammunition to Ukraine

- The Switchblade 600 kamikaze drone is a **man-portable tube-launched loitering munition developed** and designed by the US company AeroVironment.
- It is an **upgraded version of Switchblade 300 fitted with an ATGM** (Anti-Tank Guided Missile), designed to **neutralize tanks and heavy armored vehicles**.
- It aims to **provide precision optics for destroying targets** in a direct downward strike.
- **Features:**
- It **can fly, track and engage non-line-of-sight targets** and armored vehicles with **precision lethal effects without the need for external ISR**(Intelligence, Surveillance, and Reconnaissance) **or fire assets**.
- It has a **range of over 40km** and has more than **40 minutes of flight endurance**.
- It is **powered by an electric battery and propeller**.
- It is **equipped with high-resolution EO/IR sensors and advanced precision flight control**, which are used for navigation, surveillance, and targeting.

Kamikaze drones

- Kamikaze drones are **crewless aerial vehicles loaded with explosives** that can **fly directly to tanks** or units and **explode on collision**.
- They are **known as a “loitering munition”** because they are capable of **circling for some time in an area** identified as a potential target and **only striking once an enemy asset is identified**.
- They are **small, portable and can be quickly launched**.
- They are **designed to crash into a target and explode**, detonating their warhead and **destroying the drones** in the process.
- Their main advantage is that **they are hard to detect and can be fired from a distance**.

In a first, Indian submarine INS Sindhukesari docks in Indonesia

- It is a **3,000-tonne Kilo-class diesel-electric submarine**.
- It was **designed as part of Project 877** and built under a **contract between Rosvooruzhenie, Russia, and the Ministry of Defence (India)**.
- **Features:**
- It has a **displacement of 3,000 tons**.
- It has a **maximum diving depth of 300 meters, a speed of up to 18 knots**, and can

operate solo for 45 days with a crew of 53.

Kilo-class submarines

- The Kilo Class is the **NATO designation for a naval diesel-electric submarine made in Russia.**
- The **original version** of the vessels were **designated Project 877 Paltus (Halibut)** in Russia.
- They are mainly **intended for anti-shipping and anti-submarine operations in relatively shallow waters.**
- The **first Kilo Class submarine** entered service in the **Soviet Navy in 1980**, and the vessel continues to be in service in the Russian Navy.
- These submarines are **70-74 meters long**. It can travel at a **maximum speed of 10-12 knots when surfaced** and **17-25 knots when underwater.**
- These vessels **can carry up to eight surface-to-air missiles** and **18 torpedoes or 14 underwater mines.**

Indian air force to participate in exercise desert flag viii

- It is an annual **multinational large-force employment warfare** exercise hosted by the UAE Air Force.
- The IAF would be participating with five Light Combat Aircraft, LCA Tejas and two C-17 Globemaster III aircraft.
- **Participants:** Air Forces from UAE, France, Kuwait, Australia, the UK, Bahrain, Morocco, Spain, the Republic of Korea, and the USA would also be participating.
- The exercise is scheduled from the 27th of February to the 17th of March.

India's Joint Military Exercises with the UAE:

- With the UAE, India has In-UAE BILAT (bilateral naval exercise) as well as Desert Eagle-II (bilateral air force exercise).

What is ALMA telescope, that will soon get a 'new brain'?

- It is a state-of-the-art telescope that **studies celestial objects** at millimetre and submillimetre wavelengths.
- They can penetrate through dust clouds and help astronomers examine dim and distant galaxies and stars out there.
- It also has extraordinary sensitivity, which allows it to detect even **extremely faint radio signals.**
- The telescope consists of 66 high-precision antennas, spread over a distance of up to 16 km.
- It is operated under a **partnership** between the United States, and 16 countries in Europe, Canada, Japan, South Korea, Taiwan, and Chile.
- The radio telescope was designed, planned and constructed by the US's National Radio Astronomy Observatory (NRAO), the National Astronomical Observatory of

Japan (NAOJ) and the European Southern Observatory (ESO).

Discoveries made by ALMA

- It had observed the detailed images of the protoplanetary disc surrounding **HL Tauri** which is a very young T Tauri star in the **constellation Taurus**, approximately 450 light years from Earth.
- It helped scientists observe a phenomenon known as **the Einstein ring**, which occurs when light from a galaxy or star passes by a massive object en route to the Earth, in extraordinary detail.

Hubble Space Telescope captures jellyfish galaxy JO201

- It is a **jellyfish galaxy** which lies in **Abell 85 galaxy cluster**.
- It is at a **distance of about 700 million lightyears**, in the constellation of Cetus or the Whale.

Jellyfish galaxies

- They are a type of galaxy that **exhibit long “tentacles” or “tails” of gas, dust, and stars that appear to be streaming away from the galaxy’s main body**.
- These **tentacles are formed as the galaxy moves rapidly** through the hot gas of a galaxy cluster, **causing the gas to strip away from the galaxy and form a tail**. This process is called **ram-pressure stripping**.
- The tendrils of jellyfish galaxies **extend beyond the bright disc of the galaxy's core**.

Galaxy clusters

- They are the **largest objects in the universe that are held together by their own gravity**.
- They **contain hundreds or thousands of galaxies**, lots of **hot plasma**, and a **large amount of invisible dark matter**.
- Galaxy clusters are **home to the biggest galaxies in the known universe** and provide us with information about the structure of the universe on the largest scales.

First Look at Ryugu Asteroid Sample Reveals it is Organic-Rich

- It is a **Japanese spacecraft that studied the asteroid Ryugu, collected samples, and brought them to Earth** for analysis.
- It was the **first to deploy rovers to operate on an asteroid**.
- **Mission Objectives:**
- To **clarify the origin and evolution of the Solar System**, including the **beginnings of life**.
- To **establish deep space exploration technology** by taking on new challenges.
- It was **launched by the Japan Aerospace Exploration Agency (JAXA)** in December **2014**.
- It **arrived at asteroid Ryugu on June 2018, collected samples** from the asteroid

during two touchdowns in 2019, and delivered the sample capsule back to the Earth on December 2020.

- After delivering the capsule, the spacecraft continued on to a new mission. This new phase is referred to as the “Extended Mission”, with a new target destination of the small asteroid, 1998 KY26.
- Hayabusa2 is a follow-up to Japan’s original Hayabusa mission, which was the first spacecraft to take samples from an asteroid, and was also the first mission to successfully land and take off from an asteroid. It returned samples from asteroid 25143 Itokawa to Earth on June 13, 2010.

Something funky just happened near the sun's north pole

- Large, loop-like structures on the edge of the solar disk sometimes stand out brightly against the dark background of space. These enormous structures are called solar prominences.
- Prominences are anchored to the Sun's surface in the photosphere, and extend outwards into the Sun's hot outer atmosphere, called the corona.
- They are much cooler and denser than the surrounding plasma in the Sun's corona.
- Prominences are shaped by the Sun's complex magnetic field, often forming loops with each end anchored to the Sun's surface.
- Prominences are enormous, extending out for many thousands of kilometers.
- They can last for several days or up to several months.
- Some prominences erupt and break apart, giving rise to coronal mass ejections (CMEs).

Solar Filaments

- Sometimes prominences are observed against the bright background of the Sun itself, instead of at the edge of the Sun's disk.
- These prominences appear dark compared to the bright background of the Sun and are called solar filaments.

Coronal Mass Ejections (CMEs)

- CMEs are large expulsions of plasma and magnetic field from the Sun’s corona that propagates outward into interplanetary space.
- The blast of a CME carries about a billion tons of material out from the Sun at very high speeds of hundreds of kilometers per second.
- They can cause geomagnetic storms on Earth that can have significant impact on both ground- and space-based technological systems.

Nasa's Juno probe loses over 200 images of Jupiter after camera glitch

- JUNO is an acronym for **Jupiter Near-polar Orbiter**
- It was launched in 2011, the Juno spacecraft initially embarked on a 5-year journey to the largest planet in our solar system.
- Towards the end of its primary mission, the spacecraft’s objectives evolved, and it

transitioned into a full Jupiter system explorer **with flybys of Jovian moons.**

- **Goal:** Understand the **origin and evolution of Jupiter**, look for a solid planetary core, map the magnetic field, measure water and ammonia in the deep atmosphere, and observe auroras.

Jupiter

- Jupiter, **a gas giant planet covered** in thick red, brown, yellow and white clouds, boasts a diameter of about 89,000 miles.
- Interior models based on Juno data indicated Jupiter has **a large "diluted" core** representing about 5 to 15 % of the planet's mass comprised of rocky and icy material unexpectedly mixed with light elements like hydrogen and helium.

SOCIETY

38,800 teachers will be hired for Ekalavya Model Residential Schools: FM

- EMRS started in the year **1997-98** to impart quality education to **ST children in remote areas** to enable them to access the best opportunities in education and to bring them at par with the general population.
- EMRS are established in the States/UTs **from the grants received under Article 275(1) of the Constitution of India.**
- Features:
 - EMRS are **co-educational residential schools** from **Class VI to XII.**
 - Eklavya schools **will be on par with Navodaya Vidyalayas** and will **have special facilities for preserving local art and culture** besides providing training in **sports and skill development.**
 - Each school has a **capacity of 480 students** with equal number of seats for boys and girls.
 - **Non-ST students can be admitted** in these schools on seats **up to 10%** of the total seats.
 - **CBSE curriculum** is followed in these schools, and education is completely free.
- The **National Education Society for Tribal Students (NESTS)**, an autonomous organization has been set up under the Ministry of Tribal Affairs **to establish and manage EMRS** across the country.
- **Government Target:** As per the Budget 2018-19, **every block with more than 50% ST population and at least 20,000 tribal population will have an EMRS** by the year 2022.

Budget 2023-24: New mission for welfare of PVTGs launched

- The mission will be **launched as part of 'Reaching The Last Mile'**, one of the seven **Saptarishi priorities** enlisted in this year's Budget.
- The mission will **saturate the particularly vulnerable tribal groups** with **safe housing, clean drinking water, education, nutrition, road** and **telecom** connection and livelihood.
- A **Budget of Rs 15,000 crore** will be dedicated to this mission in the **next three years.**
- The scheme will **benefit 3.5 lakh tribals.**

Saptarishi priorities (seven priorities) enlisted in the 2023-24 budget:

- Inclusive Development
- Reaching the Last Mile
- Infrastructure and Investment
- Unleashing the Potential
- Green Growth
- Youth Power
- Financial Sector

PVTG (Particularly Vulnerable Tribal Groups)

- PVTGs are **more vulnerable among the tribal groups** who are in need of greater support and development.
- Out of the 705 Scheduled Tribes in India, **75 have been identified as PVTGs** and are spread **across 17 states and one Union Territory**.
- Government of India follows the following **criteria for identification of PVTGs**
 - Pre-agricultural level of technology
 - Low level of literacy
 - Economic backwardness
 - A declining or stagnant population.
- In **1975, the Government of India initiated** to identify the most vulnerable tribal groups as a separate category called PVTGs and declared 52 such groups.
- An additional 23 groups were added to the category in 1993.
- **Some Examples:** Cholanaikayan (Kerala), Kathodi (Gujarat), Jarawas (Andaman & Nicobar Islands), Koraga (Karnataka)

Visva-Bharati to be World's First Living Heritage University

- It is one of **India's major Central Government funded autonomous university** located in Santiniketan, **West Bengal**.
- It is well-known as a distinguished **centre for Visual Art practice and research** in India.
- The university was **established in 1921 by Nobel Prize Laureate, Rabindranath Tagore**.
- It was **named after Nobel Laureate Rabindranath Tagore** until Visva-Bharati Society was **registered as an organisation in May 1922**.
- The institution was given the **status of Central University in 1951** through a central Act.
- Its **first vice-chancellor was Rathindranath Tagore**, the son of Rabindranath Tagore, and the second vice-chancellor was grandfather of another Nobel Laureate economist Amartya Sen.
- The **President of India appoints the Vice-chancellor of the University**.
- Visva Bharati University is **renowned for its cultural festivals called Poush Mela and the Basanta Utsab** which attracts a number of artisans from all across the country.

President's greetings on the eve of birthday of sant guru ravidas

- Guru Ravidas Jayanthi is commemorated **on Magh Purnima**, the day of the full moon in the month of Magh, according to the Hindu Lunar calendar.
- Guru Ravidas was a 14th-century famous **Bhakti Movement saint**.
- He abandoned saguna (with attributes, image) forms of supreme beings, and **focused on the nirguna** (without attributes, abstract) form of supreme beings.
- Ravidas was a disciple of Sant Kabir and the founder of the Ravidassia religion.
- The Sikh scripture, **Guru Granth Sahib**, contains forty-one of his devotional songs and poems.

- The famous saint poetess, **Mirabai** was a disciple of Guru Ravidas.

The Incredible Story of How East African Culture Shaped the Music of Gujarat

- Dhamaal is a mix of **Sufi and African** (mostly East African) **musical and dance**
- It refers particularly to the spiritual practices of the **Siddis of Gujarat**.
- Usually, Dhamaal songs and dances are performed to celebrate the anniversary of the birth and death of spiritual leaders.
- They are performed in **two ways**
 - **Dance Dhamaal:** It is performed in both sitting and dance positions and the focus is more on the **sounds of the instruments**.
 - **Baithaaki Dhamaal:** is performed in the sitting position and the **focus is more on the lyrics** and less on the musical instruments.
- The spiritual songs that are sung during the **Dhamaals are known as zikrs**.

Siddis

- The term Siddi refers to **Afro-Indians**— Africans who mixed with Indians through marriage and relationships.
- They crossed the Indian Ocean and arrived in India during the 12th, 13th and 14th century
- They were transported by Islamic invaders and Portuguese colonisers as enslaved people, palace guards, army chiefs, harem keepers, spiritual leaders, Sufi singers, dancers and treasurers.
- In the present day, the majority of them are found in the west and **southwest of India**, in Gujarat, Maharashtra, Karnataka and Telangana states

Dilemma for first-time Bru voters in their new home

- Bru or Reang is a community indigenous to the Northeast, living mostly in **Tripura, Mizoram, and Assam**.
- In Tripura, they are recognised as a **Particularly Vulnerable Tribal Group**.
- They belong to **Indo-Mongoloid** racial stock. Their languages have an affinity with Austro-Asiatic groups under the Tibeto-Burman family.
- Ethnically they are divided into 2 major clans namely Meska and Molsoi.
- Their language is known as "**Kaubru**" which has a tonal effect on the Kuki language though broadly it is the Kok-Borok dialect.
- **Occupation:** They are still a **nomadic tribe** and a large number among them maintain their livelihood involving Hilltop **Jhum Cultivation** and other food gathering activities.
- They believe in **spirits and the existence of a soul**.
- By religion they are Hindus and most of their deities are akin to gods and goddesses of the Hindu faith. Among Reangs followers of Vaishnavism are found in good numbers.
- This tribal community traditionally are **endogamous** and does not marry outside their community.
- The village council chief known as "RAI" permits Divorce and Widow marriage.

PM Modi inaugurates Dayanand Saraswati's 200th birth anniversary celebrations

- Swami Dayanand Saraswati was a **philosopher, social leader and founder of the Arya Samaj**, a reform movement of Vedic dharma.
- He established the Arya Samaj on April 7, 1875, in Bombay -- with 10 principles that are beautifully based purely on God, soul and nature.
- This organisation brought about immense changes in the religious perceptions of Indians.
- He was the first to give the call **for Swaraj as "India for Indian" in 1876**.
- He preached 'Universalism', and not any specific caste.
- He introduced a complete overhaul of the education system and is often considered one of the visionaries of modern India.
- The **Dayanand Anglo Vedic schools** came into existence in 1886 to realize the vision of Swami Dayanand Saraswati.
- The first DAV School was established in **Lahore with Mahatma Hansarjas** the headmaster.
- One of his most influential works is the **book Satyarth Prakash**, which contributed to the Indian independence movement.
- His followers included Sri Aurobindo and S. Radhakrishnan.

PM expresses happiness over renovation of Shree Saptakoteshwar Devasthan

- The original Saptakoteshwar Temple was built around the twelfth century by the **Kadamba dynasty** in Narve on Divar Island.
- The main deity of this temple is
- There is a small entrance marked with bells, while the main five pillared halls are decorated with arches.
- Intricate designs adorn the ceiling while the sanctorum wall is composed of plain wood.
- The **mandapa** of the temple is built in a **distinctly European style**. Laterite and stone caves surround the temple.
- **Maratha King Shivaji** ordered the rebuilding of the Saptakoteshwar temple and the installation of the linga in its proper location. This order is still mentioned on a stone plaque near the temple's entrance.

Towards sustainability: Arunachal's Apatanis use a unique, integrated cultivation method; it needs encouragement

- The Apatani are a tribal group of people living in the **Ziro valley in Arunachal Pradesh**.
- They speak a local language called **Tani and worship the sun and the moon**.
- They have major festivals like **Dree, Myoko, Yapung and Murung**.
- Dree is celebrated with prayers for a **bumper harvest** and prosperity of all humankind and Myoka celebrates friendship similar to modern friendship day.
- They have been practising integrated rice-fish farming in their mountain terraces of Arunachal Pradesh.

- Apatanis principally use three rice varieties: Emeo, Pyape and Mypia.

Jaadui Pitara': Education minister launches learning-teaching material for foundational years

- The 'Jaadui Pitara' or 'Magic Collection is a **play-based learning material for children in the age group of three to eight years.**
- It is launched by the **Union Ministry of Education.**
- It has been **designed on the motto of "learning through play"**, as envisaged in the **new National Education Policy (NEP).**
- It **comprises of playbooks, toys, puzzles, posters, flashcards, storybooks, and worksheets, as well as reflecting the local culture, social context, and languages.**
- It is **designed to pique curiosity and accommodate the diverse needs** of learners at the foundational stage.
- It is **developed under the curricular goals of National Curriculum Framework for Foundational Stage (NCF-FS)** as recommended by the **National Education Policy (NEP) 2020.**
- The resources on 'Jaadui Pitara' will be **digitally available on DIKSHA platform – portal and mobile app.**
- The **pitara is available in 13 Indian languages.**

National Curriculum Framework for Foundational Stage (NCF-FS)

- It is **one of the four National Curriculum Frameworks (NCFs).**
- It is **India's first-ever integrated Curriculum Framework for children between ages 3-8.**
- It is a **direct outcome of the 5+3+3+4 'curricular and pedagogical' structure** that **NEP 2020 has recommended** for School Education.
- **NCF-FS has been developed by NCERT** through an extensive consultative process with States & Union Territories up to grass root level and various institutions and organizations.

The significance of the findings in Keeladi

- Keeladi excavation site is a **Sangam period settlement** that is being excavated by the Archaeological Survey of India and the Tamil Nadu Archaeology Department.
- The settlement lies on the bank of the **Vaigai River.** This is a large-scale excavation carried out in Tamil Nadu after the Adichanallur archaeological site.
- This site is estimated to be from the period between the 5th century BCE and the 3rd century CE.

Sangam period

- The word 'Sangam' is the Tamil form of the Sanskrit word Sangha which means a group of persons or an association.
- This sangama was an academy of poets who flourished in three different periods and different places under the **patronage of the Pandyan kings.**

- The **Sangam literature**, which was largely consolidated from the third Sangam, sheds light on people's living conditions at the start of the Christian era.
- It gives information about the secular matter relating to public and social activities like government, war, charity, trade, worship, agriculture, etc.
- Sangam literature consists of the earliest Tamil works (Tolkappiyam), the ten poems (Pattupattu), the eight anthologies (Ettutogai) and the eighteen minor works (Padinenkilkanakku), and the three epics.

Union Home Minister addresses 'Kol Janjati Mahakumbh' at Satna, Madhya Pradesh today

- The Kol tribes belonged to the **Proto-Australoid** ethnic stratum.
- They consider themselves to be the descendants of Sahara Mata, a member of the Savaras of epic fame; she is known as the "mother of the Kol."
- They are concentrated in the northern districts of **Madhya Pradesh** and Small Kol populations are also found in Orissa and Maharashtra.
- The Kol speak local dialects of Hindi and use the **Devanagari script** for writing.
- They celebrate the **Jawara festival** which appears to be an ancient Kol agricultural festival that later acquired some Hindu characteristics.
- The name is derived from the juari plant, a type of millet. Jawara is held twice a year, in the fall just before the sowing of the winter crop, and in the spring after it has been harvested.

Kol Revolt/uprising

- The Kols, tribal people from the Chhota Nagpur area, rose in revolt against the British in 1831.
- The rebel kols were under the leadership of Buddhu Bhagat, Joa Bhagat, Jhindrai Manki, Madara Mahato fought against British rules.

PM Modi gifts Meghalaya Stole, Nagaland Shawl to German Chancellor

- Meghalaya stoles were **originally woven for the Khasi and Jaintia royalty**, who considered them a **symbol of their power and status**.
- The stoles were **worn during ceremonial occasions and festivals**.
- They are **made using locally sourced wool, and natural dyes**.
- These stoles are **famous for their warmth and softness**.
- **The designs used in the stoles reflected the royal family's beliefs, myths, and legends**, and were a testament to their cultural heritage.
- They were **used as a form of diplomatic gift-giving**. The Khasi and Jaintia kings would often **present these stoles to other rulers as a symbol of goodwill and respect**.

Nagaland shawls:

- These shawls are known for their **vibrant colors, intricate designs, and the use of traditional weaving techniques**, which have been passed down from generation to

- generation.
- One of the most striking features of the Naga shawl is the **use of geometric and symbolic designs**.
 - The designs are **inspired by the tribe's myths, legends, and beliefs, with designs having specific meanings and significance**.
 - The Naga shawl is **made from locally sourced materials such as cotton, silk, and wool**.
 - The **colors used in these shawls are symbolic**. E.g., **Red color symbolizes courage**, while black represents mourning.
 - The **colors use natural dyes made from plants and roots**.
 - The shawls are often **worn during festivals, ceremonies, and other special occasions** as symbols of rank and lineage. They are **also used as blankets, seat coverings, and even as bags**.
 - The shawls **are known for their durability and can last for several generations**.

Shri Sarbananda Sonowal celebrates Unying Festival at Boleng

- The festival of Unying is celebrated to herald the **season of cultivation**, the beginning of the **Adi community's New Year**, arrival of spring seasons as well as a great way to strengthen the bond among the community.

Adi community

- They are believed to have come **from southern china in the 16th century**.
- The Adi constitute a major group and inhabit the lower part of the Lower Dibang Valley district, especially the Roing and Dambuk areas of Arunachal Pradesh.
- They are experts in making **cane and bamboo items**.
- The Adis are basically **dependent on agriculture**. Both wet rice cultivation and shifting cultivation are practised.
- **Solung** (a harvesting festival where animal sacrifices and rituals are performed) and **Aran** (a hunting festival where all the male members of the family go hunting) are two major festivals of the Adi tribes.

PM congratulates Ustad Bismillah Khan Yuva Puraskar awardees

- Karakattam is a form of **folk dance** performed at festivals, conferences, road shows, and primarily at **Mariamman festivals**.
- It is one of the many creative traditions that owe their **existence to Mariamman, the rain goddess**.
- While the dance form is not dying, it has undergone radical change and adaptation in recent years.
- Karakattam and agriculture have a link. It is because the Mariamman pooja is held in the month of **Medam after Makarakkoythu** (harvest season) in Kerala.
- Karakattam is mostly famous in Tamil Nadu, it's performed in different parts of Kerala as well.

Karakattam

- Karakattam performances are characterised by a lot of **swaying movements and joyous banter**.
- It requires a lot of practice and dedication. **Three tiers of flower arrangements** of different colours sit on top of a container filled to the brim with either water, rice, or soil.
- All of this is balanced on the head of a Karakattam dancer while he or she dances.”
- Other highlights include blowing fire, inserting needles into eyes, and keeping balance while holding a bottle parallel to the ground on the performer's back.

As part of Banjara community outreach, Union government to mark Sant Sevalal Maharaj Jayanti

- Banjara is made of various groups found throughout India and most of them are found in **Telangana, Andhra Pradesh and Karnataka** states in South India.
- This community settled across the country with different names, have permanently abandoned their nomadic lifestyle and settled in their **settlements called Tandas**.
- They **speak Gor Boli** also called **Lambadi** which belongs to the **Indo-Aryan Group** of Languages. Lambadi has **no script**.
- Banjara people celebrate the **festival of Teej during Shraavanam** (in the month of august). In this festival young unmarried Banjara girls pray for a good groom.
- **Fire dance and Chari** are the traditional dance forms of the banjara people.

Santh Sevalal Maharaj

- He is considered a **social reformer and spiritual teacher** of the Banjara community.
- He travelled across the country with his Ladeniya Troup to serve especially the forest dwellers and nomadic tribes.
- Due to his **extraordinary knowledge, excellent skills** and spiritual background in **Ayurveda and Naturopathy**, he was able to dispel and eradicate myths and superstitions prevalent in the tribal communities.

First Bodoland International Knowledge Festival begins in Assam's Kokrajhar

- The festival is being hosted by **Bodoland University** with support from the **Bodoland Territorial Region (BTR) government**.
- It seeks to **provide a platform for thought leaders, educators, Research scholars, researchers, and practitioners to engage with constituents of Higher Education Institutions in BTR** through participation.
- **Goal: To create, foster and promote knowledge exchange, solution sharing, and partnership building for the achievement of social development priorities and key Sustainable Development Goals (SDG) 2030 in contemporary BTR and the world.**
- It aims to draw the best practices from across the world to **enhance scientific temperament for the creation of "Peaceful, Green and Smart Bodoland"** in light of

the **Bodo Peace Accord 2020**.

Bodo Peace Accord 2020:

- It is a **tripartite accord signed in 2020** by **representatives of Bodo organizations** with the **Central and Assam governments**.
- The **Bodo parties** to the agreement include the **All Bodo Students' Union (ABSU)**, the **United Bodo People's Organisation (UBPO)**, and all **four factions of the National Democratic Front of Boroland (NDFB)**.
- It presents a **new model of power-sharing and governance** in Assam under the **Sixth Schedule** of the Indian Constitution.
- **Features:**
- **Bodoland Territorial Area Districts (BTAD)** which comprises four districts - Kokrajhar, Chirang, Baksa and Udalguri **will be renamed the Bodoland Territorial Region (BTR)**.
- The **number of seats in the Bodoland Territorial Council (BTC)** will be **increased from 40 to 60** without adversely affecting the existing percentage of reservation for tribals".
- It promises **more legislative, executive, and financial powers to the BTC** in respect of 40 subjects already transferred to it and eight additional subjects.
- The **Assam government will set up a Bodo-Kachari Autonomous Council**, which will be a satellite council for the focused development of Bodo villages outside the BTR.
- The **Indian government will expedite the process of granting Hills tribe status to Bodos** living in Hills areas.
- It also **promises Scheduled Tribe status to Bodos** living in the hill districts of **Karbi Anglong and Dima Hasao**.
- The Deputy Commissioners and **Superintendents of Police will be appointed in consultation with the BTC authority**.

FACTS FOR PRELIMS

The National Gallery of Modern Art in association with Liszt Institute, Hungarian Cultural Centre, celebrates the 110th birth anniversary of Amrita Sher-Gil.

- Amrita was an **Indian-Hungarian painter** and one of the avant-garde women artists.
- Though her art education was from Paris, she has discovered the artistic traditions of India.
- She travelled widely in India during 1939 which brought a robust impact on the style of expression, figuration and composition in her artwork.
- **Her famous works are**
 - A group of three girls.
 - Brahmacharis, Bride's toilet.
 - Lady Daljit Singh of Kapurthala, Musicians, women on Charpoy, Camels and Village girls.

Manipur's heimang is a versatile ingredient in Asian cuisines and packs a nutritional punch

- The Heimang tree grows widely in **Manipur and other north-eastern regions**
- Its fruit have a citrus-like tartness and, it is packed with nutrients such as **polyphenols, flavonoids, and antioxidants.**
- Traditional healers of Manipur called Maibas or maibis, prescribe heimang for common **gastrointestinal problems** like diarrhoea and dysentery.
- It is also recommended to eat water-soaked fruit for indigestion and stomach ulcer.
- The research found that compounds isolated from the stem of the heimang tree can significantly suppress **HIV-1 activity in vitro.**
- Local communities in the state also use heimang leaves to prepare a herbal shampoo called chinghi by boiling them with rice water.

DP World to develop container terminal at India's Deendayal Port

- Deendayal Port (previously called **Kandla port**) is **situated in the Kandla Creek** and is **90 kms** from the mouth of the **Gulf Of Kachch in Gujarat.**
- It is a **protected natural harbour.**
- It is **recognized as one of the major ports in India.**
- It was **constructed in the 1950s** as the **chief seaport serving western India**, after the partition of India from Pakistan left the port of Karachi in Pakistan.
- Deendayal Port is **hub for major imports like petroleum, chemicals and iron** also export grains, salt and textiles.
- It remains **India's biggest state-owned cargo handler by volume**, but it has steadily lost market share to privately owned Mundra Port (India's largest private port) 60km to the southwes

C-DAC developing India's first indigenous microprocessor

- It is the **apex research and development wing of the Ministry of Electronics and Information Technology.**
- It was **established** in the year **1988.**
- Its main purpose was to carry out **research and development in Electronics, IT and other associated areas.**
- It was **setup to build Supercomputers** in context of denial of import of Supercomputers by USA.
- C-DAC **build India's first indigenously built supercomputer Param 8000** in 1991.

Param 8000:

- It is **India's first supercomputer.**
- It was **developed by C-DAC in 1991.**
- PARAM 8000 is the **first machine in the PARAM supercomputers series** built from scratch in 1991.
- **All the chips and other elements** that were used in making of PARAM were **bought from the open domestic market.**
- **Applications: long-range weather forecasting, remote sensing, drug design and molecular modelling.**

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Bravehearts Vadivel and Sadaiyan shine a light for Irula cooperative

- Irulas are one of India's oldest indigenous communities and they are a particularly vulnerable tribal group.
- They live primarily in the northern districts of **Tamil Nadu**, as well as in parts of **Kerala and Karnataka.**
- They speak Irula, which is related to **Dravidian languages** like Tamil and Kannada.
- Irulas have traditionally caught snakes and rats, but they also work as labourers.
- Irulas' knowledge of snakes and snake venom is legendary. They can even locate snakes based on their tracks, smell, and droppings.

- The Irula Snake Catchers' Industrial Cooperative Society is a major producer of anti-snake venom (ASV) in the country.

Assam: Royal Bengal Tiger Found Dead in Orang National Park

- It is located on the north **bank of the Brahmaputra** River in the state of Assam.
- It was established as a sanctuary in 1985 and declared a National Park on 13 April 1999.
- It is also known as the **mini Kaziranga National Park** (IUCN site) since the two parks have a similar landscape made up of marshes, streams and grasslands and are inhabited by the Great Indian **One-Horned Rhinoceros**.
- It is also a Tiger Reserve of the country which was notified in 2016.
- **Fauna:** Rhinoceros, Tiger, Elephants, Hog Deer, Wild Pig, Civet Cat, One-Horned Rhinoceros.

Calm Asiatic black bears on a short fuse in Kashmir

- The Asiatic black bear is known as **the Moon bear**.
- The Asiatic black bear has 7 subspecies, out of which we find the **Himalayan Black Bear** subspecies in India.
- **Features:** The Asiatic Black Bear has a coat of smooth black fur and can be distinguished by a V of white fur on its chest.
- **Range:** The Asiatic black bear lives in a narrow band stretching from south-eastern Iran to Myanmar, across the Himalayan foothills.
- In India, it is found in Arunachal Pradesh, Assam, Sikkim, and the union territory of Jammu and Kashmir.
- The Asiatic black bear is omnivorous.
- **Conservation status**
 - **IUCN Red List: Vulnerable**
 - CITES: Appendix I
 - Wild Life Protection Act 1972: Schedule II

China promotes rice bran as staple food amid food shortage in country

- Rice bran is one of the main **byproducts in the process of the rice milling**.
- It is the **outer brown layer of brown rice and is separated during the milling process**.
- The bran fraction **contains 14-18% oil**.
- Rice bran oil is a **good source of unsaturated fats, vitamin E**, and other important **nutrients**.
- It is currently mostly used as **animal feed**.
- The health effects of RB including **antidiabetic, lipid-lowering, hypotensive, antioxidant, and anti-inflammatory effects**, while its consumption also improves bowel function.

UN agency says seven Haitian migrants died while waiting to leave Peru, blames protests

- The Andes is **the longest above-water mountain range in the world.**
- The Andes Mountains **extend over seven countries: Argentina** (Mount Aconcagua), **Bolivia** (Huayna Potosi), **Chile, Colombia, Ecuador, Peru, and Venezuela**, known as Andean States.
- It is about **5,500 miles (8,900 km) long** and **second only to the Himalayas in average elevation.**
- It **consists of a succession of parallel and transverse mountain ranges**, or cordilleras, and of intervening plateaus and depressions.
- The **highest elevation** in the Andes is **Mount Aconcagua in Argentina**, which is 22,841 feet (6,962 m) above sea level.
- The Andes are also **home to the world's highest volcano** when measured above sea level, **the Ojos del Salado on the Chile-Argentina border.**
- The Andes Mountains are over **50 million years old**, they were created when the **South American and Pacific tectonic plates collided.**

Peru:

- Peru is the **third largest country in South America**, after Brazil and Argentina.
- It is **made up of a variety of landscapes**, from mountains and beaches to deserts and rain forests.
- **Capital: Lima**
- The world's largest rain forest, the **Amazon, covers nearly half of Peru.**
- Peru shares **borders with Colombia, Brazil, Bolivia, Chile, and Ecuador.**

Shendurney's faunal diversity on the rise

- Shendurney Wildlife Sanctuary is a **protected area** located in the Western Ghats of India, in the Kollam district of
- This Sanctuary derives its name from **Chenkurinji** (*Gluta travancorica*), a species endemic to this region.
- It comes under the control of **Agasthyamalai Biosphere Reserve.**
- **Flora:** Tropical evergreen and semi-evergreen forests cover a major area of the sanctuary.
- **Fauna:** Includes tigers, gaurs, elephants, sambar deers, sloth bears, Malabar Raven, Malabar banded swallowtail, Red-disc Bushbrown, etc

Centre extends deadline for laggard solar scheme

- PM-KUSUM Scheme was launched in 2019.
- The scheme envisages **income generation for farmers** from their infertile land with the establishment of solar power plants.
- **Aim:** To help farmers access reliable daytime solar power for irrigation, reduce power subsidies, and decarbonise agriculture.

- The Scheme consists of three components
 - **Component A:** 10,000 MW of solar capacity through the installation of small Solar Power Plants of individual plants of capacity up to 2 MW.
 - **Component B:** Installation of 20 lakhs standalone Solar Powered Agriculture Pumps.
 - **Component C:** Solarisation of 15 Lakh Grid-connected Agriculture Pumps
- Nodal Ministry: **Ministry of New and Renewable Energy (MNRE)**

Parliament is the essence of democracy and it is the North Star of democracy: Vice President

- The North Star is also known as Pole Star.
- It is a very bright star — around 2,500 times **more luminous than the Sun**.
- It is part of the constellation **Ursa Minor** and is around 323 light years away from the Earth.
- The North star is less than 1° away from the north celestial pole, almost in direct line with the Earth's rotational axis.
- It appears to sit motionless in the northern sky, with all the other stars appearing to rotate around it.
- Its position and brightness have allowed humans to **use it for navigation** since late antiquity.
- The elevation of the star above the horizon gives the **approximate latitude of the observer**.
- Upon crossing the equator to the south, however, the North Star is lost over the horizon and hence stops being a useful navigational aid.

Ursa Minor

- It is one of the 48 constellations identified by the **Greek astronomer Ptolemy** in the second century.
- It is also called the Little Bear.

Deers maybe reservoir for old SARS-CoV-2 variants

White-tailed deer:

- They are the **smallest members of the North American deer family**.
- **Scientific name:** *Odocoileus virginianus*
- **Distribution:** They are found in **North America** from southern **Canada** through **Central America**.
- **Habitat:**
 - Includes areas along **streams and rivers, mixed woodlands, farms, forests, and burned shrub fields**.
 - **Open areas** are used **only when thick shrubs** or forests are **nearby**.
- **Features:**
 - It is **tan or brown in the summer and grayish brown in winter**.
 - It has **white on its throat**, around its **eyes and nose**, on its **stomach**, and on

- the underside of its tail.
- **Only male deer grow antlers**, which are shed each year.
- They are **excellent runners**. They can run at speeds of up to 30 miles an hour.
- **IUCN Status: 'Least Concern'**

No Bar Of Res Judicata On Second Petition For Divorce If It's Founded On New Facts: Madras High Court

- The concept of res judicata has **evolved from the English Common Law System**.
- Res judicata **literally** means **'the thing has been judged'**.
- The **principle of res judicata applies when a litigant attempts to file a subsequent lawsuit on the same matter** after having received a judgment in a previous case involving the same parties.
- It is a **judicial concept** which means that the **issue before the court has already been decided by another court**, between the same parties, and the **courts do not allow a petition to be filed in the same or to the other Court**.
- Therefore, the **court will dismiss the case** before it as being useless.
- Res Judicata as a concept is **applicable** both in the case of the **Civil as well as Criminal legal system**.
- **Purpose:**
- To **prevent injustice** to the parties of a case supposedly finished.
- To **avoid unnecessary waste of resources and time** of the Judicial System

RBI renews authorization for white label ATMs to Vakrangee

- Automated Teller Machines (ATMs) **set up, owned and operated** by non-banks are called White Label ATMs.
- Non-bank ATM operators are authorised under **the Payment & Settlement Systems Act, 2007** by the Reserve Bank of India (RBI).
- Such non-bank entities should have a minimum net worth of **Rs 100 crore** as per the latest financial year's audited balance sheet, which is to be maintained at all times.
- Foreign Direct Investment (FDI), **up to 100 per cent**, is allowed under the automatic route in the activity of White Label ATM (WLA) Operations.

Sebi proposes corporate governance norms for high value debt listed entity

- An entity which has listed its **non-convertible debt securities** on a recognised stock exchange and has an outstanding principal value of listed non-convertible debt securities of **500 Crore** and above will be categorized as a 'High-value debt listed entity'

'Non-Convertible Debentures (securities)

- Debentures **are long-term financial instruments** which acknowledge a debt

- obligation towards the issuer.
- The debentures which **can't be converted into shares or equities** are called non-convertible debentures (or NCDs).
 - To compensate for this drawback of non-convertibility, lenders are usually given a **higher rate of return** compared to convertible debentures.
 - In India, usually, these have to be issued with a **minimum maturity of 90 days**.

Eight projects under NICDIT sanctioned and approved by government

- The NICDIT is the implementing agency of the National Industrial Corridor Programme.
- The Government of India is developing various Industrial Corridor Projects as part of the **National Industrial Corridor Programme**.
- The Industrial Corridors are envisaged to be implemented by a Special Purpose Vehicle (SPV) in the form of a company set up under the Companies Act, 2013 as a joint venture between the **central and the state governments**.
- In 2016, the government approved the expansion of the scope of the existing DMIC-Project Implementation Trust Fund (PITF) and re-designated it as NICDIT.
- **Nodal Ministry:** Under the administrative control of the Department of Promotion of Industry and Internal Trade (DPIIT), **Ministry of Commerce and Industry**.

Quick Reaction Surface to Air Missile System

- QRSAM is a **Short Range Surface to Air Missile system** designed to **protect moving armoured columns from aerial attacks**.
- It was designed and developed by the **Defence Research and Development Organisation (DRDO)**.
- The entire weapon system is **configured on highly mobile platforms** and is capable of **providing air defence on the move**.
- **Range: 30 km**
- It is **propelled by Single Stage Solid Rocket Motor**.
- It can **engage 6 targets simultaneously**.

What is Skye UTM, cutting-edge drone air traffic management system unveiled by Minister Nitin Gadkari

- **What is it?** It is a **Cloud-based aerial traffic management system** that **integrates unmanned air traffic with manned aviation airspace**.
- **Purpose:** It has been built towards providing **situational awareness, autonomous navigation, risk assessment, and traffic management** to all drone/other aerial mobility operators across the airspace.
- **Operation:**
- It **captures more than 255+ parameters of Unmanned Aerial Vehicle (UAV) movements** and **stores them into its 'Blackbox,' a published systematic description** of the entire flight.

- The platform **offers the first 3-Dimensional view of the drone airspace** along with operations and regulations **mapping servers** which provide the latest airspace status, verified paths and **display real-time UAV movements**.
- It **connects and communicates with all types of drones**, from survey drones to delivery drones to aerial taxis.
- It can **handle more than 4000 flights per hour**.
- The platform **offers regulatory access to Air Traffic Controllers and other regulatory authorities**, allowing them to have real-time drone traffic movement information, pilot information, and other necessary data for evaluation and coordination.

Mumbai-Ahmedabad bullet train to be first in India to have undersea station

- It is an **inlet along the shoreline of the Arabian Sea** that **isolates the city of Mumbai** from the Indian mainland.
- The **east bank lies in the Thane and Navi Mumbai districts**, while the **west bank is in the Greater Mumbai district**.
- It is **Asia's largest creek**, with a length of 26 km.
- Thane Creek is **fed by numerous freshwater sources** (of which **Ulhas river is the largest**), making the **water brackish**.
- The creek is covered with **mangroves on both sides**.
- Thane Creek is a **very important wintering ground for waterbirds**. It supports over 1,00,000 birds **during winter**, including the **iconic flamingos**.
- A **major part of the creek** has been declared a bird sanctuary called **Thane Creek Flamingo Bird Sanctuary (TCFS)**.

Thane Creek Flamingo Bird Sanctuary (TCFS):

- TCFS also referred to as the **Airoli Flamingo Sanctuary**, is the **first flamingo sanctuary in India** located along the western bank of the Thane creek.
- It encompasses more than **1600 hectares of mudflats, mangroves, and water bodies**.
- The area was **declared a flamingo sanctuary in 2015** and is home to substantial bird life – both residential and migratory.
- TCFS was **declared a Ramsar site** by the International Wetlands Convention in **2022**.
- **Flora: Avicennia marina, Rhizophora mucronata, Acanthus ilicifolius, Aleuropus lagopoides, Sesuvium protulacastrum** etc.
- **Fauna: Over 205 species of birds** have been reported from this area, including **Lesser Flamingo, Greater Flamingo, Asian Openbill, White Stork, Pied Avocet, Eastern Golden Plover**, etc.

Science For All What is a kilonova?

- The newly found star system has been labelled CPD-29 2176 and is located about 11,400 light-years from the earth.

- CPD-29 2176 is currently a neutron star and a star orbiting each other.

Kilonova

- A kilonova is a cosmic event that occurs when a **neutron star smashes into another** neutron star or a black hole.
- It **releases heavy metals** like gold, silver, and selenium into outer space at tremendous velocities, as well as radiation.
- A kilonova **radiation** also accompanies a **gamma-ray burst**, one of the most energetic cosmic events ever known.

Neutron star

- The stars which are formed when a massive star runs out of fuel and collapses are called neutron stars
- The very central region of the star – the core – collapses, crushing together every proton and electron into a neutron.

Latest News, Photos, Videos on Vulture Conservation In India

- They are **medium-sized, dark vultures**.
- **Scientific name: Gyps bengalensis**
- **Distribution: Pakistan, India, Bangladesh**, Nepal, Bhutan, Myanmar (Burma), Thailand, Laos, Cambodia, and southern Vietnam.
- **Habitat:** Found mostly in **plains and less frequently in hilly regions**. Can also be seen in **villages** and cities **near to cultivation**.
- **Features:**
 - Adults are **75 to 85 cm tall**.
 - **White neck ruff, rump** and under wing coverts.
 - **Adults tend towards black coloration**, while younger individuals are browner
 - Their **wing span is 180 to 210 cm**
 - **Weight:** Ranges from **5 to 7.5 kg**
 - **IUCN Status: Critically Endangered**

ISRO successfully launches SSLV-D2

- It has been **developed by about 750 girl students across India**.
- They **contributed to the design and construction** of the satellite built by **Chennai-based startup Space Kidz India**.
- The girls **received training both online and, in some cases, in-person**.
- **Experiment materials were sent** to these girls and they were guided on how to use it.
- **“SpaceKidz developed basic and simple experiments** that students can learn and assemble with the simultaneous support of their science teachers.
- **Objective:** It aims to **measure various health data like temperature** and reset count from 75 student experiments installed inside the satellite.

Govt integrates Bhasini Mission's capabilities with UPI ecosystem

- It is a **local language translation mission** that aims to break the barrier between various Indian tongues by using available technology.
- BHASHINI4 aims to **build a National Public Digital Platform for languages**.
- This government platform **aims to make Artificial Intelligence and Natural Language Processing (NLP) resources available in the public domain** to be used by -- Indian MSMEs, startups and individual innovators.
- This will **help developers to offer all Indians easy access to the internet** and digital services **in their native languages**.
- This online platform also has a **separate 'Bhasadaan' section which allows individuals to contribute to multiple crowdsourcing initiatives** and it is also **accessible via respective Android and iOS apps**.

UPI 123 Pay

- It is an **instant payment system** which will allow users to **make UPI transactions without an internet connection**.
- It was **launched by the National Payments Corporation of India (NPCI)**
- Transactions through UPI 123Pay can be **done through IVR (interactive voice response) based payment solution, missed call, sound-based technology, and payment app**.

Mammatus Clouds: sagging pouch-like structures - WW2010

- Mammatus clouds refer to distinctive cloud formations that are separated by a bulge or protrusion emerging from the base of another cloud.
- They are usually formed in association with large **cumulonimbus clouds**.
- Typically, **turbulence within the cumulonimbus** cloud will cause Mammatus to form, especially on the underside of the projecting anvil as it rapidly descends to lower levels.
- Mammatus clouds generally form in the most unstable cumulonimbus, meaning that there is also a chance of hail, heavy rain and lightning in the vicinity, and if the air is cold enough during winter they can produce snow.

Survey records 290 bird species in Nagarahole

- Nagarahole is an important Tiger Reserve in **Karnataka** and is a major hub of conservation under Project Tiger and Project Elephant.
- Nagarahole Tiger Reserve previously known as Rajiv Gandhi National Park was named after the river Nagarahole.
- This tiger reserve forms a critical connecting habitat for tigers and elephants to other areas of the Western Ghats through the **Brahmagiri wildlife sanctuary** and to the Eastern Ghats through the **Bandipur Tiger reserve**.
- **Flora:** It consists mainly of **moist deciduous forests** with predominating trees of teak and rosewood.

- **Fauna:** Tiger, Leopard Asiatic, Wild Dog, Sloth Bear, Asiatic Elephant, Gaur, Sambar Chital Muntjac, Four Horned Antelope etc.

Here's how India is leading the AI revolution, CIO News, ET CIO

- It is the **National artificial intelligence Portal** of India which was launched on 28th May 2020.
- It is a joint initiative by the **Ministry of Electronics and IT (MeitY), National e-Governance Division (NeGD) and NASSCOM**.
 - **NeGD:** In 2009, NeGD was created as an Independent Business Division under the Digital India Corporation (a not-for-profit company set up by MeitY).
 - **NASSCOM:** It is a not-for-profit industry association and the apex body for the IT and IT-enabled products and services sector in India.
- It is the single central knowledge hub on artificial intelligence and allied fields for aspiring entrepreneurs, students, professionals, academics, and everyone else.

Artificial intelligence (AI)

- It is a wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence.

Climate change may worsen cholera crisis in Africa

- It is a life-threatening infectious disease and a public health hazard.
- It is an acute, diarrheal illness caused by infection of the intestine with **the bacterium Vibrio cholera**.
- **Symptoms:** Profuse watery diarrhoea, Vomiting, Leg cramps etc
- It is transmitted to humans through **water** or **food** which is contaminated with the cholera bacterium.
- The disease can spread rapidly in areas with inadequate treatment of sewage and drinking water.
- Currently, there are three WHO pre-qualified oral cholera vaccines (OCV), **Dukoral, Shanchol, and Euvichol-Plus**. All three vaccines require two doses for full protection.

186 species spotted during bird survey in Tansa Sanctuary

- **Location:** It is located in the **Thane District of Maharashtra, 90 km northeast of Mumbai** in the foothills of the **Western Ghats**.
- It is known to be a paradise **for birdwatchers**.
- It has **two rivers, the Tansa and Vaitarna**, and the sanctuary gets its **name from the former, which divides the sanctuary into two parts**.
- The **sanctuary forms the catchment area of Tansa lake**, along with the surrounding forests of Khardi, Vaitarna, Wada, and Shahapur ranges.
- **Tansa reservoir**, along with **Vaitarna** and **Bhatsa** reservoirs, is the **major source of water** for the cities of **Mumbai and Thane**.

- Within Tansa Sanctuary is a **fort at Mahuli, situated on a 762 m high hilltop.**
- **Vegetation:** The Sanctuary **has Southern Tropical Moist Deciduous Forest**, with a few patches of **Evergreen forest.**
- **Flora:** It consists of trees like **Kalamb, Bibla, Khair, Hed, Teak, and Bamboo.**
- **Fauna:**
 - At least **54 species of animals and 200 species of birds** exist in the sanctuary.
 - Major wild animals are **Panther, Barking deer, Mouse deer, Hyena, Wild boar,**
 - Two **Critically Endangered Gyps species of vultures**, the Vulnerable Pallas's Fish-Eagle *Haliaeetus leucoryphus*, is also seen here.

Frozen lake marathon in Ladakh on February 20

- Pangong Lake or Pangong Tso is a **long narrow, endorheic (landlocked)** lake situated at a **height of more than 14,000 ft (4,350 meters)** in the **Ladakh Himalayas.**
- The lake is **5 kilometers wide and 134 kilometers long**, with **one-third of it lying in India & the other two-thirds in China.**
- It is the **world's highest saltwater lake.**
- The lake is also **very deep** and reaches a maximum **depth of almost 328 feet.**
- It is also **known to change colors**, appearing blue, green, and red at different times

Lightning Strikes Brazil's Christ The Redeemer Statue

- **Location:** It is located at the summit of **Mount Corcovado, Rio de Janeiro, southeastern Brazil.**
- It **depicts Christ standing with his arms crossed and looking at the city.**
- It was **completed in 1931** and stands **98 feet (30 metres)** tall.
- Its horizontally outstretched **arms span 92 feet (28 metres).**
- It is made **of reinforced concrete** and is the **largest Art Deco-style sculpture in the world.**

Art Deco

- Art Deco, also **called style moderne**, is a **movement in the decorative arts and architecture** that originated in the **1920s** and developed into a major style in **western Europe and the United States during the 1930s.**
- It is a **modern art style** that attempts **to infuse functional objects with artistic touches.**
- This movement is **different from the fine arts** (painting and sculpture), where the art object has no practical purpose or use beyond providing interesting viewing.
- Art Deco works are **symmetrical, geometric, streamlined, often simple, and pleasing to the eye.**
- Art Deco design **represented modernism turned into fashion.**
- Its products **included both individually crafted luxury items and mass-produced wares.**

As a heatwave spectre hangs again over India's wheat harvest, its home-grown crop simulation model can help

- In 2004, InfoCrop version 1 was **launched by the IARI** which is being updated regularly.
- It is a **dynamic simulation model** for the assessment of **crop yields**, losses due to **pests**, and the environmental impact of agroecosystems in tropical environments.
- It has the life cycle data for almost all the local varieties of 11 crops: paddy, wheat, maize, sorghum, pearl millet, pigeon pea, chickpea, soybean, groundnut, potato and cotton.
- It provides daily and summary outputs on various growth and yield parameters, nitrogen uptake, greenhouse gas emissions, soil water and nitrogen balance.
- **InfoCrop version 2.1**, India's only dynamic crop simulation model developed and released by the IARI in 2015 to study the **long-term impact of climate change** and crop management practices on yield.

Decline in migratory bird species this year at Saman Bird sanctuary

- The Saman Bird Sanctuary in the Mainpuri district of **Uttar Pradesh** is a seasonal **oxbow lake on the Ganges floodplain**.
- It is designated as **Ramasar wetland** in 2019.
- It is heavily reliant on the arrival of the south-westerly monsoon in July and August, which provides the vast majority of annual rainfall.
- The Sanctuary regularly provides refuge to over 50,000 waterbirds
- It is an important wintering site for many migrating birds including the greylag goose (*Anser anser*), with over 1% of the South Asian population present during winter.
- Vulnerable species including the sarus crane and greater spotted eagle are also found in this wetland.

Turkey earthquake: 2000-year-old Roman-era Gaziantep castle destroyed by quake

- It is **located on a hilltop** in southern **Turkey's city of Gaziantep**.
- It is a **UNESCO World Heritage site**.
- It was **first built by the Hittite Empire as an observation point** and later **built into a main castle by the Roman Empire in the 2nd and 3rd century AD**.
- The castle underwent **further expansion and renovation under the Byzantine emperor Justinianus (called the "Architect of Castles") between 527 and 565 AD**.
- The **Ottomans repaired** the castle over time, but it **got a second full overhaul by Egyptian Sultan Qaitbay in 1481**.
- The castle **took its final shape in 2000** and has been renovated many times.
- **Features:**
- The castle has the **shape of an irregular circle**.
- It has **12 towers that house living quarters for soldiers** and various other chambers such as stables, prison cells, storerooms for treasure troves, or barracks for troops.
- The **walls are made from stone and span 1200 meters in circumference**.

231 bird species spotted at Periyar Tiger Reserve in survey

- **Location:** It is located in the **Western Ghats of Kerala**.
- It was declared a **Tiger Reserve in 1978**.
- It **gets its name from the River Periyar** which has its origin deep inside the reserve.
- Two main rivers, **Pamba and Periyar drain** the reserve.
- It is home to many **tribal communities** including the **Mannans and the Palians**.
- **Terrain:** **Hilly and undulating** with a **maximum altitude of 2016 m**.
- **Vegetation:** It consists of **tropical evergreen, semi- evergreen and moist deciduous**
- **Flora:**
- There are more than **171 species of grasses**.
- Important flora includes **teak, mangoes, rosewood, jamun, jacarandas, terminalias, tamarind, royal ponciana, bamboos** etc.
- **Fauna:**
- Includes **Elephants, Wild Pigs, Sambar, Gaur, Mouse Deer, Dole or Barking Deer, Indian Wild Dog and Tiger**.
- The major **four species of primates** are also found at Periyar - **the rare lion-tailed macaque, the Nilgiri Langur, Gee's Golden Langur, Common Langur** and Bonnet Macaque.
- It is also being considered as the **habitat of the elusive Nilgiri Tahr**.

NFOs back, but no need to rush bets

- A new fund offer (NFO) refers to the initial sale of fund shares issued by an investment company to investors.
- **Similar to an IPO** in the stock market, NFOs are intended to raise capital for the fund and attract investors.
- **Mutual funds** are the most common type of new fund offering.

Types of New Fund Offers

- **Open-End Fund:** These funds do not limit their number of shares. These funds can be bought and sold from a brokerage firm on their initial launch date and thereafter. The shares **do not trade on an exchange** and are managed by the fund company.
- **Closed-End Fund:** Closed-end new fund offers are often some of the most highly marketed new fund issuances since closed-end funds **only issue a specified number of shares** during their new fund offer. Closed-end funds **trade on an exchange with daily price quotes** throughout the day.

Sebi seeks F&O trade info from desi hedge funds

- **Futures Contract:** It is an agreement between buyer and seller to buy or sell an asset at a certain time in the future at a certain price.
- The **buyer must purchase or the seller must sell** the underlying asset at the set price, regardless of the current market price at the expiration date.

- Underlying assets include physical **commodities and financial instruments** (stocks, currencies and bonds etc.)
- They are subjected to **high risk and** can reap unlimited profit or loss.
- **Option Contract:** An option is a contract that gives an investor the right but not the **obligation to buy or sell** a commodity at a specified price at a specified future date.
- They carry **limited risk** and can reap either unlimited profit or loss.
- Advance is paid in the form of premiums in option contracts.

India ranks 47th in OECD's services trade restrictiveness index

- The 2022 STRI of **India is above the OECD average** and high compared to all countries in the STRI sample.
- India had been progressively introducing reforms over the past years, contributing to a slight liberalisation of services trade in some sectors, most notably between 2018 and 2021.

Services Trade Restrictiveness Index (STRI)

- It was launched in 2014 and provides information on regulations affecting trade in **services in 22 sectors across all member countries.**
- The regulatory database and indices are updated annually in December.
- There is also a Digital STRI that identifies, catalogues, and quantifies cross-cutting barriers that affect services traded digitally.
- **Scoring:** This index takes values between zero and one, one representing a totally closed and zeros a fully open sector.

Union Cabinet approves construction of Shinkun La tunnel to provide all-weather connectivity to Ladakh

- It will be constructed **at an altitude of over 16,500 feet** on the **Nimu-Padam-Darcha road link** on the **border between Ladakh and Himachal Pradesh.**
- The **length** of the tunnel will **be 4.1 km.**
- The **Border Roads Organization (BRO)** will construct the tunnel **at a cost of Rs. 1,681.5 crores.**
- The **traffic movement** in the tunnel **will not be vulnerable to long-range artillery shelling or missile firings** either by China or Pakistan.
- **Purpose:**
 - To provide **all-weather connectivity to the border areas of Ladakh.**
 - To enable **swift movement of troops and heavy weaponry** to forward areas.

NTCA approval to Debrigarh as tiger reserve

- Located near the **Hirakud dam** at Sambalpur, spread over an area of 347 sq km Debrigarh Wildlife Sanctuary is one of the famous tourist destinations of western **Odisha.**

- It will become the **third tiger reserve in Odisha** after Similipal and Satkosia.
- It was declared as a wildlife sanctuary in **1985** and situated in the **Bargarh district of Odisha** near Hirakud dam (Mahanadi River).
- It finds a special mention because of noted **freedom fighter veer Surendra sai**. **During his rebellion against the British Veer SurendraSaimade his base at 'Barapathara' located within the sanctuary.**
- **Fauna:** A wide varieties of animals including leopard, wild boar, bison, sambar, chital and Four-horned antelope are sighted in the sanctuary.

North India's first nuclear plant to come in Haryana

- It is located at Gorakhpur village of Fatehabad district in Haryana, which is about 150 km north of the national capital.
- It will have two units of 700 MWe capacity each of **Pressurised Heavy Water Reactor (PHWR) indigenous design.**

Pressurized Heavy Water Reactor (PHWR)

- It is a nuclear power reactor, commonly using unenriched natural uranium as its fuel, that uses heavy water (deuterium oxide D₂O) as its coolant and moderator.
- The heavy water coolant is kept under pressure, allowing it to be heated to higher temperatures without boiling, much as in a typical pressurized water reactor.
- While heavy water is significantly more expensive than ordinary light water, it yields greatly enhanced neutron economy, allowing the reactor to operate without fuel enrichment facilities (mitigating the additional capital cost of the heavy water) and generally enhancing the ability of the reactor to efficiently make use of alternate fuel cycles.

Parshottam Rupala launches Sagar Parikrama Phase-III from Hazira Port in Gujarat

- It is an initiative of Government of India, aiming to **resolve the issues of the fishers and other stakeholders and facilitate their economic upliftment** through various fisheries schemes and programs being implemented by the Government of India such as PMMSY.
- Sagar Parikrama is an evolutionary journey envisaged in the sea across the coastal belt demonstrating solidarity with all fisherfolk, fish farmers and concerned stakeholder's as a spirit of 75th Azadi Ka Amrit Mahotsav.
- **Nodal Ministry:** Ministry of Fisheries, Animal Husbandry & Dairying.
- The Parikrama shall be accompanied by the State Fisheries officials, Fishermen representatives, Fish-Farmers entrepreneurs, stakeholders, professionals, officials and Scientists from across the nation.
- Phase III program of 'Sagar Parikrama' will cover mainly the coastal areas of **Maharashtra and Gujrat.**
- The Phase –I and Phase- II programmes of 'Sagar Parikrama' has been organized in March 2022 and September 2022 respectively.

Conservation drive pays off, Sarus crane count nearly doubles in Kheda wetland in 7 years

- It is the **tallest flying bird in the world**.
- **Scientific name: Grus Antigone**
- **Distribution:** They live in **Southeast Asia, northern India** and in northern **Australia**.
- **Habitat:** They live mainly in **wetlands such as canals, marshes and ponds**, sometimes near humans.
- **Features:**
 - It is **152-156 cm tall** with a **wingspan of 240cm**.
 - It has a **predominantly grey plumage** with a **naked red head and upper neck** and **pale red legs**.
 - It weighs **8-7.8 Kgs**.
 - They are regarded as the **least social crane species**, found mostly in **pairs or small groups of three or four**.
 - They are **monogamous birds and pairs mate for life**.
- **Conservation Status:**
- **IUCN Red List: Vulnerable**
- **Wildlife (Protection) Act 1972: Schedule IV**

India-Uzbekistan biennial military training Exercise DUSTLIK 2023 to begin in Uttarakhand today

- It is a **military-to-military exchange program** between the **Indian Army** and **Uzbekistan**
- It is the fourth edition of the **biennial training Exercise**.
- The Indian contingent will be represented by the 14th Battalion, The GARHWAL RIFLES, part of Western Command in this bilateral exercise.
- The Uzbekistan Army will be represented by troops of the North Western Military District of Uzbekistan Army.
- This joint exercise is aimed at **enhancing military capability** to undertake multi-domain operations in a Sub Conventional scenario under United Nations Mandate.

Instrument on NASA's Parker Solar Probe switches off unexpectedly

- It was **launched in 2018** and will travel through the sun's atmosphere, closer to the surface than any spacecraft before it.
- In order to unlock the **mysteries of the sun's atmosphere** this will use Venus' gravity during seven flybys over nearly seven years to gradually bring its orbit closer to the sun.

Parker Solar Probe

- Trace the **flow of energy** that heats and accelerates the **solar corona and solar wind**.
- Determine the **structure** and dynamics of the **plasma and magnetic fields** at the

- sources of the solar wind.
- Explore mechanisms that accelerate and transport **energetic particles**.

Nitin Gadkari lays Foundation Stone of the world's largest and unique Divyang Park - Anubhuti Inclusive Park.

- It is the **world's first inclusive disabled park**.
- **Location: Nagpur, Maharashtra.**
- The park will be **developed by Nagpur Improvement Trust** in an area of **90 thousand square feet**.
- The park will have **adapted facilities for all 21 types of disabilities**, including a **touch and smell garden, hydrotherapy unit, water therapy, and independent room for differently abled** children, mothers, etc.