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POLITY

Over 9000 Janaushadhi Kendras in country

- Union Health Minister recently said that the number of Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBKs) has increased to 9,082 as on January 31, 2023.

Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBKs):

- **PMBKs are set up under Pradhan Mantri Bhartiya Janaushadhi Pariyojana**, which was **launched** by the Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers **in November 2008**.
- **Objective:** To **provide quality medicines at affordable prices for all**, particularly the poor, so as to **reduce out-of-pocket expenses in healthcare**.
- **PMBKs provides generic drugs**, which are available at lesser prices but are **equivalent in quality and efficacy as expensive branded drugs**.
- **All therapeutic medicines are made available from Jan Aushadhi Stores**.
- **Jan Aushadhi stores also sell allied medical products** commonly sold in chemist shops so as to improve the viability of running the Jan Aushadhi store.
- **Pharmaceutical & Medical Devices Bureau of India (PMBI)** has been established under the Department of Pharmaceuticals, Govt. of India, with the support of all the CPSUs for **co-coordinating procurement, supply, and marketing of generic drugs through the PMBKs**.
- **Who can open a Jan Aushadhi Kendra?**
 - **State Governments** or any organization / **reputed NGOs** / Trusts / **Private hospitals / charitable institutions** / Doctors / Unemployed pharmacists/ individual entrepreneurs **are eligible** to apply for the new Jan Aushadhi Kendra.
 - The applicants **shall have to employ one B Pharma / D Pharma degree holder as Pharmacist** in their proposed store.

Legislator facing disqualification can't attend floor test

- It was **introduced** in India **in 1985** through the **52nd amendment** to the Constitution of India.
- This amendment **added the Tenth Schedule to the Constitution**, which lists out the **provisions related to defection**.
- It **lays down the process by which legislators may be disqualified** on grounds of defection **by the Presiding Officer** of a legislature **based on a petition by any other member of the House**.
- This schedule applies **to both Central and State legislature**.
- **Aim:** The main aim of this schedule was **to prevent political defections** and to strengthen democracy by **bringing stability in politics** and make members of parliament more responsible and loyal to their parties.
- **Grounds of disqualification:** A member of any state or central legislature can be disqualified from being a member if,

- **He voluntarily gives up his membership of a political party.**
- **He disobeys the directions of his political party or votes or does not vote in the legislature contrary to the directions of his political**
- **After the election, he joins another political party.**
- **If a nominated member joins any political party after 6 months from the day, he becomes a member of the legislature.**
- **Exemptions:**
- Disqualification of a member is **not applied in case of a merger, provided** that this merger with or into another party **shall be done with the consent of at least two-thirds of its legislator** In such a scenario, **neither the members who decide to merge nor the ones who stay** with the original party **will face disqualification.**
- It exempts **the speaker, chairman, and deputy chairman** of various legislative houses from disqualification on the ground of defection.
- **Deciding authority:**
- The decision to disqualify a member under the anti-defection law is **taken by the presiding officer of the house. (Speaker or Chairman accordingly).**
- The law **does not specify a time period** for the Presiding Officer **to decide on a disqualification plea.**
- **The decisions** of the Speaker or Chairman in anti-defection cases **are subject to judicial review.**
- However, there **can not be any judicial intervention until the Presiding Officer gives his order.**

RTI Act will not apply to cooperative societies, says Madras HC

- The Madras High Court has set aside an order passed by Tamil Nadu State Information Commission directing a cooperative society to disclose information under the Right to Information (RTI) Act of 2005.

The Right to Information Act, 2005:

- The basic objective of RTI Act is to empower the citizens, promote transparency and accountability in the working of the Government.
- In view of it parliament passes an act called Right to Information (RTI) Act in June, 2005.
- Salient Features :
 - All citizens possess the right to information.
 - Applicability:
 - All Central, State and local level bodies which are set up under the Constitution or under any other State or Central statute, which includes even bodies like the President, the legislature and the judiciary and all related Ministries, departments and agencies.
 - Anybody owned, controlled or substantially financed or any non-Government organization substantially financed directly or indirectly by Government. This includes private bodies which receive funding from the Government.
 - Exemption:

- Some bodies such as security or intelligence agencies
- It requires that PIOs shall provide information within 30 days but applications requesting information regarding a citizen's life and liberty must be granted or refused within 48 hours.

Portal opened for complaints against decisions of social media platforms

Grievance Appellate Committee (GAC):

- The GAC was one of the **provisions** in the recently **amended Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**.
- GAC will **look into user complaints regarding unsatisfactory grievance redressal by social media intermediaries**.
- **Three such bodies** have been **constituted** of professionals from various fields.
- Each GAC will **comprise three government-appointed, full-time members, including a chairperson**.
- **Any user** aggrieved by a decision of a platform's Grievance Officer **can appeal to the GAC within 30 days** of the receipt of communication from the Grievance Officer.
- The Committee **has to dispose of the appeals within 15 days of receiving them**.
- **GAC's decisions will be binding** on the intermediary.

GAC portal:

- The GAC will be a **virtual Digital platform** that will **operate only online and digitally** — wherein the **entire appeal process**, from the filing of the appeal to the decision thereof, shall be **conducted digitally through the new portal <https://gac.gov.in>**.
- The new **portal lists out detailed FAQs** for the convenience of users.
- The **appellants can track the status of their appeal through the Appellant Login window**.
- **GAC will upload its order** on the portal, and the appellant will **receive notification of the same by SMS and email**

Press Council issues advisory on 'paid news'

- The PCI **was first set up in 1966** by the parliament **on the recommendations of the First Press Commission** under the chairmanship of Justice J.R Mudholkar.
- The **present council functions under the Press Council Act 1978**.
- It is a **statutory, quasi-judicial body** that acts as a **watchdog of the press in India**.
- **Composition:**
 - It consists of a **Chairman and 28 other members**.
 - The **Chairman is nominated by a committee** consisting of **Chairman of Rajya Sabha, the Speaker of Lok Sabha, and one representative of the council**
 - The **Chairman, by convention, has been a retired judge of the Supreme Court**.
 - **The term of the Chairman and the members of the Council is 3 years**.

- **Primary Function:** To check the media practice and to keep an eye on the freedom of the press.
- **Other Functions:**
 - **Helping newspapers to maintain their independence;**
 - **Building up a code of conduct for journalists and newspapers** according to high professional standards;
 - **Reviewing any development which is likely to restrict the supply and dissemination of news** of public interest and importance;
 - **Reviewing such cases** where assistance has been received by any newspaper or news agency in India from foreign sources, as referred to it by the Central Government;
 - **Providing facilities for the proper education and training** of persons in the profession of journalism;
 - **Studying developments that may lead towards monopoly** or concentration of ownership of newspapers and **suggest remedies;**
- **Powers:**
 - It **adjudicates the complaints either against the Press** for violation of journalistic ethics **or by the Press** for interference with its freedom.
 - The council **shall have the same powers** throughout India **as are vested in a Civil court** while trying a suit under the Code of Civil Procedure, 1908.
 - Every **inquiry held by the council shall be deemed to be a judicial proceeding** under sections 193 and 228 of the Indian Penal Code.
 - The **decision of the council is final** and **can not be challenged in any court of law.**

Government e-Marketplace (GeM) commemorates the success of “SWAYATT”, an initiative to promote Start-ups, Women and Youth Advantage through e-Transactions on GeM

- It is an initiative to promote Start-ups, Women and Youth Advantage Through eTransactions on Government eMarketplace (GeM).
- **Aim:** To promote the **inclusion** of various categories of sellers and service providers on the portal by taking proactive steps to **facilitate** their **training and registration**, develop **women's entrepreneurship**, and encourage **the participation of the MSME** sector and startups in **public procurement**.

Government e-Marketplace (GeM)

- GeM is an Online Market platform that was set up in 2016 to **facilitate the procurement of goods and services** by government ministries, departments, public sector undertakings (PSU) etc.
- It has been envisaged as the National Procurement Portal of India.
- This portal was **developed by the Directorate General of Supplies and Disposals** (Ministry of Commerce and Industry) with technical support from the National e-governance Division (Ministry of Electronic and Information Technology).
- GeM is a completely paperless, cashless and system-driven e-marketplace that enables procurement of common-use goods and services with minimal human

interface.

SATHEE: Education Minister to launch assessment platform designed by IIT Kanpur, IISc

- SATHEE is a new **initiative by the Ministry of Education in association with IIT Kanpur.**
- It provides Indian students with a **self-paced interactive learning and assessment platform to prepare for competitive and other exams.**
- It will help students gain access to training and **coaching for competitive examinations for free.**
- SATHEE **aims to make the students learn the concepts and focus on their weak topics** so they feel confident to give any exams **by watching videos prepared by IIT and IISc faculty members.**
- It provides **free learning resources, including 800 videos in 12 regional languages.**
- The platform will also provide **regular all-India mock tests** to help prepare for competitive exams, in addition to **mentorship sessions by IIT and AIIMS students who shall act like SATHEES.**
- The interactive programme **is currently open for coaching help for JEE and NEET.**
- It **makes use of** an indigenously-developed **AI programme called Prutor**, which was developed by IIT-Kanpur.

Expedite steps to appoint Appellate Authority members, Delhi HC tells Centre

- The **Central Government has been given** the power to set up an Appellate Tribunal under the Prevention of Money Laundering Act, 2002 (PMLA).
- **Composition:** The Tribunal consists of **a Chairperson and two other Members.**
- **Qualifications for appointment:**
 - A person shall not be qualified for appointment **as Chairperson** unless he is or has been a Judge of the Supreme Court or of a High Court judge or is qualified to be a Judge of the High Court.
 - A person shall not be qualified for appointment **as a Member** unless he/she has been a member of the Indian legal service/Indian revenue service/Indian economic service/Indian Customs and central excise service/Indian Audit and accounts Service.
- **Tenure:** They are appointed for a **term of five years or till the age of 65 years**, whichever is earlier.
- **Functions:** Appellate Tribunal has been constituted to **hear appeals against the orders of the Adjudicating Authority and the authorities under the PMLA.**

Prevention of Money Laundering Act, 2002:

- PMLA, 2002 was enacted in January 2003 to prevent money laundering in India.
- **Objective:**
 - To prevent and control money laundering.

- To confiscate and seize the property derived from, or involved in, money laundering.
- To provide punishment for the offense of money laundering.
- To appoint the Adjudicating Authority and Appellate Tribunal to deal with the matter connected with money laundering.
- To put obligations on banking companies, financial institutions, and intermediaries to maintain records.
- To deal with any other issue connected with money laundering in India.
- **PMLA empowers certain officers of the Directorate of Enforcement to carry out investigations** in cases involving the **offense of money laundering** and also to **attach the property** involved in money laundering.

Government e-Marketplace (GeM) commemorates the success of “SWAYATT”, an initiative to promote Start-ups, Women and Youth Advantage through e-Transactions on GeM

- It was **launched in February 2019** by the Union **Ministry of Commerce & Industry**.
- It is an initiative **to promote Start-ups, Women, and Youth advantage through e-transactions** on **Government e-Marketplace (GeM)**.
- The intent was to promote the inclusiveness of various categories of sellers and service providers on the portal.

Government e-Marketplace (GeM):

- GeM is an **Online Market platform set up under the Directorate General of Supplies and Disposals (DGS&D), Ministry of Commerce and Industry, in 2016**.
- It is a one-stop portal to facilitate online procurement of common-use Goods & Services required by various Government Departments / Organizations / PSUs.
- The **purchases through GeM by Government users were made mandatory** by the Ministry of Finance.
- It aims to **enhance transparency, efficiency, and speed in public procurement**.
- GeM is a **completely paperless, cashless, and system-driven e-market place**.

Supreme Court steps in: Panel of PM, LoP and CJI will choose CEC, ECs

- It is an **autonomous and permanent constitutional body** responsible for **organizing free and fair elections in India**.
- The Constitution grants the ECI with the power of direction, superintendence, and control of **elections to Parliament, state legislatures, the office of president of India, and the office of vice-president of India**.
- **Powers and responsibilities ECI:**
 - **Determining the Electoral Constituencies' territorial areas** throughout the country.
 - **Preparing and periodically revising electoral rolls and registering all eligible voters**.
 - **Notifying the schedules and dates of elections and scrutinizing**

- **nomination papers.**
- **Granting recognition to the various political parties and allocating them election symbols.**
- The Commission also has **advisory jurisdiction in the matter of post-election disqualification** of sitting members of Parliament and State Legislatures.
- It **issues the Model Code of Conduct in elections** for political parties and candidates so that no one indulges in unfair practice or there is no arbitrary abuse of powers by those in power.
- **Composition:** The commission consists of a **Chief Election Commissioner (CEC) and two Election Commissioners (ECs).**
- **How are the CEC and ECs currently appointed?**
 - Under **Article 324 (2)**, the **President appoints the CEC** and other
 - The President makes the appointment **on the advice of the Union Council of Ministers** headed by the Prime Minister.
 - The **Constitution does not prescribe any qualifications**, academic or otherwise, for appointment to these offices.
 - The **tenure of office and the conditions of service** of all the commissioners is **determined by the President.**
 - **The tenure of commissioners is 6 years or up to the age of 65**, whichever is earlier.
 - The CEC and the two other ECs **have the same powers and emoluments**, including salaries, which are the same as a **Supreme Court judge.**
 - **All three commissioners have the same right of taking a decision. In case of a difference of opinion** amongst the three members, the matter is **decided by the Commission by a majority.**
- **Can CEC and ECs be removed?**
 - **Article 324** of The Constitution of India **mentions the provisions to safeguard and ensure the independent and impartial functioning of the Election Commission.**
 - **The CEC is provided with security of tenure. He cannot be removed from his office except in the same manner and on the same grounds as a judge of the Supreme Court.**
 - **Any other election commissioner or a regional commissioner cannot be removed from office except on the recommendation of the CEC.**
- **What does the recent Supreme Court ruling say?**
 - The **CEC and other ECs should be appointed by the President on the advice of a committee** comprising the prime minister, the leader of the opposition in the Lok Sabha, and the Chief Justice of India.

Govt to rope in more industry partners under SAMARTH scheme

- Samarth (**Scheme for Capacity Building in Textiles Sector**) is a **demand-driven and placement-oriented umbrella skilling programme.**
- The implementation period of the scheme is up to **March 2024.**
- It aims to incentivize and supplement the efforts of the industry in creating jobs in the organized textile and related sectors, covering the entire value chain of textiles,

- excluding Spinning and Weaving.
- In addition to the **entry-level skilling**, a special provision for upskilling/ re-skilling programme has also been operationalized under the scheme towards improving the productivity of the existing workers in the Apparel & Garmenting segments.
- It also caters to the upskilling/ re-skilling requirement of the traditional textile sector such as handloom, handicraft, silk and jute.
- **Nodal Ministry: Ministry of Textiles.**

Sale of hallmarked gold jewelry or gold artefacts without 6 digit alphanumeric Hallmark Unique Identification Number (HUID) to be prohibited after 31st March 2023

- The HUID is a unique **6-digit alphanumeric code** consisting of numbers and letters.
- The HUID will be given to **every piece of jewellery at the time of hallmarking** and it is unique for every piece of jewellery.
- This unique number is stamped manually, on jewellery at the Assaying & Hallmarking centres.
- **Present scenario:** Earlier, the HUID used to be 4 digits and now both 4 and 6-digit HUIDs are used in the market.
- From April 1st 2023, only 6-digit alphanumeric codes will be allowed.
- Symbol - The BIS Hallmark consists of 3 symbols **namely the BIS logo, Purity/Fineness Grade, and a six-digit alphanumeric code**
- The authenticity of hallmarked jewellery can be checked by using the '**verify HUID**' feature on **the BIS Care App**.

Bureau of Indian Standards

- Bureau of Indian Standards (BIS), the National Standards Body of India established under the **BIS Act 2016**.
- **Objective:** Harmonious development of the activities of standardisation, and quality assurance of goods and articles.
- It works under the Ministry of Consumer Affairs, Food & Public Distribution.
- BIS represents India in International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC).

Centre begins survey of enemy properties across the country

- The enemy properties are **those left behind by the people who took citizenship of Pakistan and China after leaving India during the partition and after 1962 war**.
- The enemy properties are **vested with the Custodian of Enemy Property for India (CEPI)**, an authority **created under the Enemy Property Act 1968**.
- The **2017 amendment to the Act** (Enemy Property (Amendment and Validation) Act, 2017) **stated that the successors** of those who migrated to Pakistan and China **ceased to have a claim over the properties left behind in India**.
- The **amended law stated that enemy property should continue to vest in the Custodian even if the enemy, enemy subject, or enemy firm ceases to be an enemy** due to death, extinction, business winding up, or change of nationality or if the

- legal heir or successor is an Indian citizen or a citizen of a non-aggressive country.
- Of the total **9,406 enemy properties in India**, 9,280 are left behind by Pakistani nationals and 126 properties by Chinese nationals.
 - **Maximum number of enemy properties is in Uttar Pradesh** - 4,991. Bengal has 2,735, and Delhi has 487.

President of india confers swachh sujal shakti samman 2023

- Swachh Sujal Shakti Samman' is to highlight and **acknowledge the leadership and contribution of women at the grass-root level in the journey** towards making a 'Swachh Sujal Bharat'.
- The women achievers who have contributed exceptionally to ODF Plus Model Villages, Har Ghar Jal Villages, Water Conservation, etc. under the National Flagship Missions were felicitated.
- This year's event was organized by the **Union Ministry of Jal Shakti** to honour the women champions of the rural water and sanitation sector.

Rain campaign

- Catch the Rain is a Jan Andolan campaign to encourage all stakeholders to create **rainwater harvesting structures (RWHS)**.
- Tag line: **Catch the rain, where it falls, when it falls.**
- The campaign is implemented by the **National Water Mission (NWM)**, Ministry of Jal Shakti.
- The campaign takes place across the country, in both **rural and urban areas**.

Court martial suggests life term to Captain for 'staged' encounter

- A court-martial has been granted the authority **to judge the guilt of members of the armed forces** which is subject to military law, and, in the case, if the accused or defendant is found guilty, to decide upon punishment which they have to carry.

Legal Provision related to court martial in India

- The **Armed Forces Tribunal Act 2007** was passed by the Parliament and led to the formation of the Armed Forces Tribunal.
- This tribunal is empowered with the adjudication of disputes and complaints concerning the commission, appointments, enrolments and conditions of service in respect of persons subject to **the Army Act, 1950, The Navy Act, 1957 and the Air Force Act, 1950**
- **Composition of the Armed Forces Tribunal**
 - The Judicial Members are **retired High Court Judges** and Administrative Members are **retired Members of the Armed Forces** who have held the rank of Major General/ equivalent or above for a period of three years or more.
 - Judge Advocate General (JAG) who has held the appointment for at least one year is also entitled to be appointed as the Administrative Member.

- There are **four kinds** of courts-martial in India namely; General Court Martial (GCM), District Court Martial (DCM), Summary General Court Martial (SGCM) and Summary Court Martial (SCM).
- Under the Army Act, army courts can try personnel for all kinds of offences, **except for murder and rape of a civilian**, which are primarily tried by a **civilian court of law**.
- **Pardoning power:** The **president of India** can use his judicial power **under Article 72** of the Constitution to pardon, reprieve, respite or remission of punishment or sentence given by a court martial.

ONDC will help small retail survive onslaught of large tech-based e-com firms: Piyush Goyal

Open Network for Digital Commerce (ONDC):

- It is an **open-source network** set up to **enable buyers and sellers to transact** with each other **irrespective of the e-commerce platform on which either of them are registered**.
- It is an **initiative of the Department for Promotion of Industry and Internal Trade (DPIIT)** under the **Ministry of Commerce and Industry**.
- It **comprises of buyer-side apps** where consumers can place orders**, seller-side apps** that onboard merchants and display their listings, **and logistics platforms** that handle deliveries.
- **Aim:**
 - To **promote open networks for all aspects** of exchange of goods and services **over digital or electronic networks**.
 - To create new opportunities, **curb digital monopolies** and by **supporting micro, small and medium enterprises** and small traders and **help them get on online platforms**.
 - It seeks to **democratise digital or electronic commerce, moving it from a platform-centric model to an open-network**.
- **Benefits:**
 - It **offers small retailers** an opportunity to **provide their services**, and goods **to buyers across the country** through an e-commerce system.
 - ONDC **enables merchants to save their data to build credit history** and reach consumers.
 - It is expected to **digitise the entire value chain**, promote inclusion of suppliers, derive efficiencies in logistics and enhance value for consumers.
 - ONDC protocols would **standardize operations** like cataloguing, inventory management, order management and order fulfilment.

BJP's Prashant Umrao gets transit bail till March 20

Transit Anticipatory Bail:

- A transit anticipatory bail is **sought when a case against a person has been or is likely to be filed in a state different from the one** in which the person is **likely to be**

arrested.

- **The purpose** of transit bail is to allow the person bail, so **they can approach the appropriate court in the state in which the case has been filed** for anticipatory bail.
- In the absence of transit anticipatory bail, the result would be that another state's police could arrest a person from their home state without them having the opportunity to apply for anticipatory bail at all.
- The **procedure** to be followed in transit anticipatory bail is exactly the **same as** of any **other anticipatory bail application**.
- The **concept of transit anticipatory bail is not codified in Indian law** but has found its identity through **judicial practice and legal precedents**.

Bail

- Bail is a **judicial release of an accused person from custody on the condition** that the accused person **will appear in court at a later date**.
- **Sections 436 to 439 of the Criminal Procedure Code** deal with the concept of Bail.
- Under the CrPC, bail can be granted to an accused person **either by a police officer or by a judicial magistrate**.

Anticipatory Bail

- It is the **bail granted to a person in anticipation and apprehending arrest**.
- **Under Section 438 of CrPC**, any individual who discerns that he may be tried for a non-bailable offense can apply for anticipatory bail.
- The **application shall be made to the High Court or Sessions Court**, where the crime is alleged to be committed.
- Anticipatory Bail is **bail before the arrest**, and the **police can't arrest an individual** if the Court has granted anticipatory Bail.

Ask state govts to provide mandatory cover for uninsured vehicles: Irdai

- The Insurance Regulatory and Development Authority of India (Irdai) has recently come up with a 'zero-tolerance' policy to achieve 100% motor insurance.

IRDAI:

- It is an **autonomous** and **statutory body** established under the **IRDA Act 1999**.
- It is the apex body that **supervises and regulates the insurance sector** in India.
- **Objective:** To **protect the interests of policyholders**, to **regulate**, promote and ensure orderly growth of the **insurance industry** in India.
- **Nodal Ministry:** Ministry of Finance
- **Head Office:** Hyderabad.
- **Composition:** IRDAI is a **10-member body** Chairman, **five full-time members**, and **four part-time members appointed by the Government of India**.
- **Functions:**
 - To have a fair **regulation of the insurance industry** while ensuring financial soundness of the applicable laws and regulations.

- **Frame regulations** periodically so that there is no ambiguity in the insurance industry.
- **Registering and regulating insurance companies;**
- Protecting policyholders' interests;
- **Licensing and establishing norms** for insurance intermediaries;
- Promoting professional organizations in insurance;
- Regulating and **overseeing premium rates** and terms of non-life insurance covers;
- **Specifying financial reporting norms** of insurance companies;
- **Regulating investment of policyholders' funds** by insurance companies;
- Ensuring the **maintenance of solvency margin** by insurance companies;
- Ensuring insurance coverage in rural areas and of vulnerable sections of society.

The Ministry of Tourism inaugurates a pavilion at ITB, Berlin 2023, under its “Incredible India” brand line on 7th March

Incredible India Campaign:

- The ITB is a prestigious platform and **is among the top international travel shows**, where travel professionals come together to connect and showcase destinations and tourism products.
- In view of promoting Incredible India holistically, the Ministry of Tourism has developed five thematic television commercials on different themes which are Adventure Tourism, Heritage Tourism, MICE Tourism, Art & Craft and Wellness Tourism.
- Encouraging inbound travel and particularly in the backdrop of India's G20 Presidency as well as grand celebrations of India@75 'AzadikaAmritMahotsav', the Ministry of Tourism has declared **“Incredible India! Visit India Year 2023”**.

Incredible India Campaign

- Incredible India is the name of an international tourism campaign maintained by the Government **of India since 2002**, to promote tourism in India.
- **Incredible India 2.0 Campaign:** It aims to shift from generic promotions to promotional plans **specific to the market and content creation with thematic creatives** depending on different niche products such as spiritual, medical, and wellness tourism.
- The Incredible India 2.0 campaign **focuses on promoting niche tourism products**, including yoga, wellness, luxury, and cuisine wildlife.
- Incredible India 2.0 represents the post-pandemic plan for Indians in the sector.
- **Nodal Ministry: Ministry of Tourism.**

Incredible India 2.0 Campaign:

- The Holistic Island Development plan focuses on the Andaman & Nicobar (A&N) and Lakshadweep Islands.

No deputy speaker in Lok Sabha for last 4 years

- Parliament has been functioning without a deputy speaker, a post usually held by the main Opposition party, for nearly four years.

Deputy Speaker:

- **History:**
 - The institutions of Speaker and Deputy Speaker **originated in India in 1921 under** the provisions of the **Government of India Act of 1919**(Montague-Chelmsford Reforms).
 - In **1921, Frederick Whyte** and **Sachidanand Sinha** were **appointed** by the Governor-General of India as the **first Speaker** and the **first Deputy Speaker** (respectively) **of the Central Legislative Assembly**.
 - At that time, the Speaker and the Deputy Speaker were **called the President** and **Deputy President**, respectively, and the same **nomenclature continued till 1947**.
 - **Mavalankar and Ananthasayanam Ayyangar** had the distinction of being the **first Speaker and the first Deputy Speaker** (respectively) **of the Lok Sabha**.
- **Constitutional Provision w.r.t. Office of Deputy Speaker:**
 - **Article 93** of the Constitution **says that the House** of the People (Lok Sabha) **shall choose two members** of the House **to be, respectively, Speaker and Deputy Speaker**.
 - **The article** also says that **when the office** of Speaker/Deputy Speaker **becomes vacant**, the **House shall choose another member** to be Speaker or Deputy Speaker.
- **Election of Deputy Speaker:**
 - Like the Speaker, the **Deputy Speaker is also elected by the Lok Sabha** itself **from amongst its members**.
 - He is elected **after the election of the Speaker** has taken place.
 - **The date of election** of the Deputy Speaker is **fixed by the Speaker**.
- **Term of Office:**
 - Like the Speaker, the **Deputy Speaker remains in the office** usually **during the life of the Lok Sabha**. However, **he may vacate his office earlier** in any of the following **three cases** –
 - if **he ceases to be a member** of the Lok Sabha;
 - if **he resigns by writing to the Speaker**; and
 - if **he is removed by a resolution** passed by a **majority of all the then members** of the Lok Sabha. Such a resolution can be moved only after giving **14 days' advance notice**.
- **Role/Power of Deputy Speaker:**
 - The Deputy Speaker **performs the duties of the Speaker's office when it is vacant**.
 - He also **acts as the Speaker** when the **latter is absent** from the sitting of the House. In both cases, **he assumes all the powers of the Speaker**.
 - **Deputy Speaker is not subordinate to the Speaker**. He is directly **responsible to the House**.
 - He also **presides over the joint sitting** of both Houses of Parliament **in case**

the Speaker is absent from such a sitting.

- The Deputy Speaker has one special privilege, that is, **whenever he is appointed as a member of a parliamentary committee, he automatically becomes its chairman.**
- **When the Speaker presides** over the House, **the Deputy Speaker is like any other ordinary member** of the House. **He can speak** in the House, **participate** in its proceedings, **and vote on any question** before the House.

Commerce Minister Piyush Goyal to chair 6th meeting of 'National Startup Advisory Council' today

National Startup Advisory Council:

- It was constituted by the Department for Promotion of Industry and Internal Trade (DPIIT) under **the Union Ministry of Commerce and Industry.**
- **Objective:** To advise the Government on measures needed to build a strong ecosystem for nurturing innovation and startups in the country to drive sustainable economic growth and generate large-scale employment opportunities.
- **Composition of the council**
 - ****Chairman:**** Minister for Commerce & Industry.
 - ****Ex-officio Members:**** Nominees of the concerned Ministries/Departments/Organisations not below the rank of Joint Secretary.
 - Besides the ex-officio members, the council has non-official members, representing various stakeholders such as founders of successful startups, veterans who have grown and scaled companies in India
- NSAC is playing an important role in identifying areas of intervention for the expansion of the startup ecosystem and ideating and nurturing national programs under the Startup India initiative.

Startup India initiative

- Startup India is a flagship initiative of the Government of India, intended to catalyse startup culture and build a strong and inclusive ecosystem for innovation and entrepreneurship in India.
- It was launched in 2016.

Prime Minister Shri Narendra Modi inaugurates 3rd Session of National Platform for Disaster Risk Reduction

- It is an award to recognize and honour the invaluable contribution and selfless service rendered **by individuals and organizations** in India in the field of disaster management.
- **Eligibility :**
 - Only **Indian nationals and Indian institutions** are eligible to apply for the award.
 - **Institutions, voluntary organisations, corporate entities,**

- academic/research institutions, response/ uniformed forces or any other institution may apply as an institution for the award.
- The candidate for the award must have worked in the area of Disaster Management like Prevention, Mitigation, Preparedness, Rescue, Response, Relief, Rehabilitation, Research/ Innovations or Early Warning related work in India.
- The award is **announced every year on 23rd January**, the birth anniversary of Netaji Subhash Chandra Bose.
- The award carries a cash prize of Rs. 51 lakh and a certificate in the case of an institution and Rs. 5 lakh and a certificate in the case of an individual.

Government launches MSME Competitive (LEAN) scheme

- The scheme attempt to improve quality, productivity & performance, and capability to change the mindsets of MSME manufacturers and transform them into world-class manufacturers.
- **Objective:** Through the LEAN journey, MSMEs can reduce wastages substantially, increase productivity, improve quality, work safely, expand their markets, and finally become competitive and profitable.
- Under the scheme, MSMEs will implement **LEAN manufacturing tools like 5S, Kaizen, KANBAN, Visual workplace, Poka Yoka** etc under the able guidance of trained and competent LEAN Consultants to attain LEAN levels like Basic, Intermediate and Advanced.
- **Government support**
 - The government will **contribute 90% of the implementation cost** for handholding and consultancy fees.
 - There will be an additional contribution of **5% for the MSMEs** which are part of SFURTI clusters, owned by Women/SC/ST and located in the Northeast region.
 - There will be an **additional contribution of 5% for MSMEs** which are registered through Industry Associations/ Overall Equipment Manufacturing (OEM) organizations after completing all levels.

CAG report on allegations of discrepancies in accreditation not final yet: NAAC

National Assessment and Accreditation Council (NAAC):

- NAAC was **established in 1994** as an **autonomous institution of the University Grants Commission (UGC)**.
- **Head Quarter: Bengaluru.**
- **Function: Evaluation, assessment, and accreditation of Higher Education Institutions (HEIs)** in the country.
- **Assessment is a performance evaluation of an institution** and its units and is accomplished through a process based on self-study and peer review using defined criteria.
- **Accreditation refers to the certification given by NAAC**, which is **valid for a period**

- of five years.
- **The ratings of institutions range from A++ to C.** If an institution is graded D, it means it is not accredited.
 - At present, the Assessment and Accreditation by NAAC is **done on a voluntary basis.**
 - **Composition:**
 - It functions through its **General Council (GC) and Executive Committee (EC)**, comprising educational administrators, policymakers, and senior academicians from a cross-section of the Indian higher education system.
 - The **Chairperson of the UGC is the President of the GC** of the NAAC.
 - The **Chairperson of the EC is an eminent academician nominated by the President of GC** (NAAC).
 - The **Director is the academic and administrative head of NAAC** and is the member-secretary of both the GC and the EC.
 - **NAAC is advised by the advisory and consultative committees** constituted from time to time.

University Grants Commission (UGC):

- It came into existence on 28th December 1953 and became a **statutory Organization of the Government of India by an Act of Parliament in 1956.**
- **Objective:** Coordination, determination, and **maintenance of standards of teaching, examination, and research in university education.**
- UGC **provides recognition to universities** in India and **disburses funds** to such recognized universities and colleges.

Parliament Session: Nipun Bharat & NEP bringing big changes, Anganwadis being revamped

- It has been launched as a National Mission called "National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat)" in 2021.
- **Aim:** To ensure that every child in the country necessarily attains foundational literacy and numeracy by the end of Grade 3, by 2026-27.
- A **five-tier implementation mechanism** will be set up at the National- State- District- Block- School level in all States and UTs, under the aegis of **the centrally sponsored scheme of Samagra Shiksha.**
- It is one of the components of the NEP 2020^{**}.^{**}
- **Implementing agency:** The Department of School Education & Literacy, **Ministry of Education.**

Representation On Making RTE Act Compulsory Subject In All Law Schools Will Be Looked Into: BCI To Delhi High Court

Right of Children to Free and Compulsory Education Act, 2009 (RTE Act):

- The Constitution (**Eighty-sixth Amendment**) Act, 2002 **inserted Article 21-A** in the

Constitution of India to **provide free and compulsory education of all children in the age group of six to fourteen years as a Fundamental Right.**

- **RTE Act** is an Act of the Parliament of India **enacted on 4 August 2009** as envisaged under **Article 21-A.**
- **Main Features of the RTE Act:**
 - **Free and compulsory education** to all children of India in the **6 to 14 age group.**
 - It clarifies that '**compulsory education**' means the **obligation of the appropriate government** to provide free elementary education and **ensure compulsory admission, attendance, and completion** of elementary education to every child in the six to fourteen age group.
 - **No child shall be held back, expelled, or required to pass a board examination** until the completion of elementary education.
 - It makes **provisions for a non-admitted child to be admitted to an age-appropriate class.**
 - It **specifies the duties and responsibilities of appropriate Governments, local authorities, and parents** in providing free and compulsory education and **sharing of financial and other responsibilities** between the **Central and State Governments.**
 - It lays down the **norms and standards** relating inter alia to **Pupil Teacher Ratios (PTRs), buildings and infrastructure, school-working days, and teacher-working hours.**
 - It provides for the appointment of appropriately trained teachers, i.e., **teachers** with the requisite entry and **academic qualifications.**
 - **It prohibits physical punishment and mental harassment, screening procedures** for admission of children, **capitation fee, private tuition by teachers,** and running of schools without recognition.
 - It provides for the **development of a curriculum** in consonance with the **values enshrined in the Constitution.**

Give PM Mitra project implementation in Tamil Nadu to SIPCOT, Stalin tells Modi

- Seven sites were chosen out of 18 proposals for PM MITRA parks which were received from 13 States.
- The Parks will come up in **Tamil Nadu, Telangana, Gujarat, Karnataka, Madhya Pradesh, Uttar Pradesh and Maharashtra.**

PM MITRA

- It will offer the opportunity to **create an Integrated Textiles Value Chain** right from spinning, weaving, processing/dyeing and printing to garment manufacturing etc. at one location and will reduce the logistics cost of the Industry.
- A **Special Purpose Vehicle** owned by the Centre and State Government will be set up for each park which will oversee **the implementation of the project.**
- **Funding**
 - The Ministry of Textiles will provide financial support in the form of **Development Capital Support up to Rs. 500 crores** per park to the Park

- SPV.
- A Competitive Incentive Support (CIS) of up to Rs 300 crore per park to the units in PM MITRA Park shall also be provided to incentivise speedy implementation.
- State governments will provide a **contiguous and encumbrance-free land** parcel of at least 1000 acres of land.
- **Nodal Ministry:** Ministry of Textiles

Set up online RTI portal within 3 months, SC tells HCs

Right to Information (RTI) Act, 2005:

- It is a law enacted by the Parliament of India "to provide for **setting out the practical regime of right to information for citizens**.
- The **Right to Information** is **derived** from our **fundamental right of Expression** under **Article 19** of the Constitution of India.
- The Act **applies to all States and Union Territories** of India.
- Under the provisions of the Act, **any citizen may request information from a "public authority"** (a body of Government or "instrumentality of State") by making an **application in writing** or through **electronic means**.
- The information seeker is **not required to give reasons** for seeking information.
- **Time Period for Supply of Information:**
 - **In the normal course**, information to an applicant shall be **supplied within 30 days** from the receipt of the application by the public authority.
 - If the **information sought concerns the life or liberty of a person**, it should be **supplied within 48 hours**.
- **Public Information Officer (PIO):** Every public authority shall **designate** some of its officers as They are **responsible for giving information** to a person who seeks information under the RTI Act.
- The Act also **requires every public authority to computerize their records** for wide dissemination and to **proactively publish** certain categories of **information** so that the citizens need minimum recourse to request information formally.
- **Exemptions:**
 - It also contains **several exemptions** which **enable public authorities to deny** requests for information. It ranges from the **sovereignty and security of India to trade secrets**.
 - Section 24 of the act exempts certain security and intelligence organizations from the purview of the act **except** the information pertaining to the **allegations of corruption and human rights violations**.

World Happiness Report: India ranked at 126th place

- It is an annual publication of the **United Nations Sustainable Development Solutions Network (SDSN)**.
- It is based on **global survey** data from people in **more than 150 countries**.
- It is based on **people's own assessment of their happiness**, as well as economic

- and social data.
- The report considers **six key factors: social support, income, health, freedom, generosity, and absence of corruption.**
 - It assigns a happiness score **based on an average of data over a three-year period.**
 - **Highlights of World Happiness Report 2023:**
 - **Finland** has been named the **happiest country in the world** for the sixth consecutive year.
 - **India is ranked 126**, ten places higher than its ranking of 136 in 2022. It remains **below most neighboring countries**, including Pakistan (108) and Sri Lanka (112).

United Nations Sustainable Development Solutions Network (SDSN)

- It was **launched in 2012 under** the auspices of the **UN Secretary-General.**
- SDSN **mobilizes global scientific and technological expertise** to promote practical **solutions for sustainable development**, including the implementation of the Sustainable Development Goals (SDGs) and the Paris Climate Agreement.
- SDSN **works closely with United Nations agencies**, multilateral financing institutions, the private sector, and civil society.

Govt's PMFME scheme for micro food processing units sanctions over 25,000 loans

PM Formalisation of Micro Food Processing Enterprises Scheme (PMFME):

- It is a **centrally sponsored scheme** launched in 2020 with an **outlay of Rs.10,000 crore.**
- **Nodal Ministry: Ministry of Food Processing Industries.**
- **Duration:** It will be implemented over a **5-year period** from **2020-21 to 2024-25.**
- **Fund Sharing:** The expenditure under the scheme would be shared in a **60:40 ratio between Central and State** Governments, a 90:10 ratio with North Eastern and Himalayan States, a 60:40 ratio with UTs with legislature, and 100% by Centre for other UTs.
- **Objectives:**
 - **Formalization of micro units** by means of GST, Udyog Aadhar, and FSSAI registrations.
 - **Financial assistance to individual units** for the upgradation of food processing facilities.
 - **Quality improvement and skill development** through training and technical knowledge.
 - **Financial assistance to Farmer Producer Organizations (FPOs), Self Help Groups (SHGs), and producer's cooperatives for setting up common infrastructure facilities.**
 - **Branding and marketing support** to FPOs, SHGs, and producer cooperatives.
 - Support and **assistance in availing bank loans** and preparation of detailed project reports (DPR)
- **Financial Support:**

- **Support to Individual micro-units:**
 - Micro enterprises will get **credit linked subsidy at 35% of the eligible project cost** with a **ceiling of Rs.10 lakh**.
 - The **beneficiary contribution will be minimum of 10%** and the balance from the loan.
- **Support to FPOs/SHGs/Cooperatives:**
 - **Seed capital** will be given to **SHGs (at Rs. 4 lacks per SHG) for loans to members** for working capital and small tools.
 - **Grant for backward/ forward linkages**, common infrastructure, packaging, marketing & branding.

Minister of State for Labour and Employment informed Rajya Sabha about the PENCIL portal and implementation of the National Child Labour Project (NCLP) Scheme.

PENCIL Portal:

- **Full Name:** Platform for Effective Enforcement for No Child Labour (PENCIL).
- **Objective:** It is a separate online portal to ensure effective enforcement of the provisions of the Child Labour Act and smooth implementation of the National Child Labour Project (NCLP) Scheme.
- **What are the Components?** The PENCIL Portal has various components, namely Child Tracking System, Complaint Corner, State Government, National Child Labour Project and Convergence.
- **Features of the portal**
 - The Portal connects Central Government to State Government(s), District(s), all Project Societies and the General public.
 - Further, online complaints regarding child labour can also be filed by anybody on the Pencil Portal. The complaint gets assigned to the concerned Nodal Officer automatically by the system for further necessary action.

National Child Labour Project (NCLP)

- The National Child Labour Project (NCLP) is a **Central Sector Scheme** for the rehabilitation of child labour.
- Under this Scheme, **funds** are provided directly to the **District Project Societies headed by the District Magistrate/Collector/Deputy Commissioner** who in turn allocates the funds to NGOs/Voluntary Agencies, etc. for running Special Training Centres.

Detailed feasibility studies completed for 8 projects for implementation of Ropeways under PARVATMALA program

Parvatmala Programme:

- The National Ropeway Development Programme also known as 'Parvatmala' (Parvatmala means garlanding mountains) was announced in the 2022-23 Union

Budget.

- **Aim:** To decongest mountainous areas where road and train connectivity cannot be upgraded beyond a limit.
- Under phase-I of the project, 30 priority points or stretches will be constructed
- Parvatmala will construct ropeways in mountainous terrains of India under the **Public Private Partnership (PPP)**.
- **Nodal Ministry:** The Ministry of Road Transport and Highways undertakes the project.
- The ministry will oversee all the affairs related to the ropeway construction, research, and policy-making.
- **Implementing Agency:** The National Highways Logistics Management Limited (NHLML) has been mandated by the ministry to implement the project. It is a 100% owned SPV of the National Highways Authority of India (NHAI).

Cabinet Approves MSP For Raw Jute In 2023 24 Season

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.**

Minimum support price

- A minimum support price (MSP) is a **minimum price** for any crop that the Government considers as remunerative for farmers and hence deserving of "support".
- It is also the price that Government agencies pay whenever they procure a particular crop from the farmers.
- There is currently **no statutory backing for these prices**, nor any law mandating their enforcement.
- **Crops covered under MSP:** At present, the Central Government sets **MSP for 23**
 - **7 cereals** (Bajra, wheat, maize, paddy, barley, ragi and jowar);
 - **5 pulses** (tur, chana, Masur, urad and moong);
 - **7 oilseeds** (sunflower, mustard, niger seed, soya bean, groundnut, sesame and sunflower);
 - **4 commercial crops** (raw jute, cotton, copra and sugarcane).

Government decide on the MSP

- The Government announces the MSP at the start of each cropping season (Rabi and

- Kharif).
- The MSP is decided after the Government exhaustively studies the recommendations made by the Commission for Agricultural Costs and Prices (CACP).
 - CACP is an attached office of the **Ministry of Agriculture and Farmers Welfare**.

Mere membership of an unlawful association sufficient to constitute offence under UAPA, rules Supreme Court

Unlawful Activities Prevention Act (UAPA):

- The UAPA was **enacted in 1967**.
- It **lays down** the definitions and **rules for designating an organization as an "unlawful association"** if it is engaged in certain types of activities.
- **'Unlawful activity' is defined** as any action taken by an individual or association – through an act, words, spoken or written, or by signs or visible representation – which is intended to, or supports a claim to, **bring about the cession of a part of the territory of India**, or the secession of a part of the territory of India from the Union, or **which incites any individual or group of individuals to bring about such cession or secession**.
- It **covers** activities which disclaim, question, disrupt or are intended **to disrupt the sovereignty and territorial integrity of India**, and which cause or intend to cause disaffection against India.
- In 2004, the **UAPA was amended**, and **'terrorist activities' were brought within its fold**, under which 34 outfits, including the Lashkar-e-Taiba and the Jaish-e-Mohammad, were banned.
- Under the Act, the central **government may designate an organization as a terrorist organization** if it:
 - commits or **participates in acts of terrorism**;
 - **prepares for terrorism**;
 - **promotes terrorism**;
 - is otherwise **involved in terrorism**;
- The **2019 Amendment** gave the **Home Ministry the power to designate individuals as terrorists**.
- The **Act extends to the whole of India**.
- It also **applies to citizens of India who are abroad**, persons in service of the Indian government, and persons on ships and aircraft registered in India.

Centre has decided to decrease disturbed areas in Nagaland, Assam and Manipur: Amit Shah

About Armed Forces (Special Powers) Act (AFSPA):

- It is a law enacted by the Parliament which **gives armed forces** (Army, the Air Force and Central paramilitary forces) **the special powers and immunity to maintain public order in "disturbed areas"**.
- **When is it applied?** It can be applied **only after an area has been declared**

- “disturbed” under section 2 of the act.
- **What is a Disturbed area?** An area can be considered to be disturbed due to **differences or disputes among different religious, racial, language or regional groups or castes or communities.**
 - **Who declares an area as disturbed?** Section (3) of AFSPA empowers the **governor** of the state/Union territory to issue an official notification **declaring the state or a region within as a “disturbed area”, after which the centre can decide** whether to send in armed forces.
 - **The ‘special powers’ of armed forces under Section 4 are:**
 - **Power to use force even to the extent of causing death**, destroy arms / ammunition dumps, fortifications/ shelters / hideouts.
 - **Power to arrest without a warrant.**
 - **Power to seize and search’ without any warrant** any premise.
 - It stipulates that **arrested persons and seized property is to be handed over to the nearest Police Station** with least possible delay.
 - **These armed forces are immune from prosecution unless Union Government provides sanction to the prosecuting agencies.**

Central Bureau of Narcotics (CBN) busts Drug syndicate in Delhi

- During the British East India Company Rule, collection of revenue from opium was made part of fiscal policy and various Opium Agencies such as the Bengal, Benaras, Bihar, and Malwa Agencies were formed over time.
- Before 1950, the administration of the Narcotics Laws, namely, **the Opium Act of 1857 & 1878 and the Dangerous Drugs Act of 1930** vested with the Provincial Government.
- The amalgamation of these Agencies laid the foundation of the Opium Department in November 1950 which is presently known as the Central Bureau of Narcotics (CBN).
- All three enactments mentioned above were repealed by **the Narcotics Drugs & Psychotropic Substances Act, of 1985 (NDPS Act, 1985).**
- The **headquarters** of the Central Bureau of Narcotics was shifted from Shimla to **Gwalior** in 1960.
- **Functions of the Central Bureau of Narcotics**
 - **License farmers** to cultivate opium poppy.
 - Supervises and controls the cultivation.
 - **Procures the opium** produced by licenced cultivators.
- **Nodal Ministry:** Under the Department of Revenue, **Ministry of Finance**
- India is a **signatory** to the **UN Convention on Narcotic Drugs 1961, UN Convention on Psychotropic Substances 1971 & UN Convention against the Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988** which obligates member countries to monitor the implementation of the United Nations drug control conventions.
- CBN interacts with the International Narcotics Control Board, Vienna and the Competent Authorities of other countries to verify the genuineness of the transaction before authorizing the shipments.

Speed up disbursement of loans sanctioned by HEFA: panel to Education ministry

Higher Education Financing Agency:

- Higher Education Financing Agency provides financial assistance for the creation of **capital assets in premier educational institutions** in India.
- It is registered under **Section 8 as a Not-for-profit under the Companies Act 2013** as a Union Govt company and as Non-deposit-taking Systemically Important (NBFC-ND-SI) with RBI.
- It was established on 31st May 2017 and **is a joint venture of the Ministry of Education, GoI and Canara Bank** with agreed equity participation in the ratio of 90.91% and 09.09% respectively
- **What are the objectives?** The main aim of HEFA is for the development of India's top-ranked institutions like IITs, IIITs, NITs, IISCs, and AIIMS into globally top-ranking institutions through **improvement in their academic and infrastructure quality**.
- It is particularly interested in financing the building of educational infrastructure, and R&D infrastructure and thereby enabling the institutions to reach top rankings globally.

NCLAT upholds penalty on Google; sets aside certain directions issued by CCI

National Company Law Appellate Tribunal (NCLAT):

- It was constituted under **Section 410 of the Companies Act, 2013** for hearing appeals against the orders of the National Company Law Tribunal(s) (NCLT), with effect from 1st June 2016.
- **Functions:**
 - Hearing appeals against the orders passed by NCLT(s) under Section 61 of the **Insolvency and Bankruptcy Code, 2016 (IBC)**.
 - To hear and dispose of appeals against any direction issued or decision made or order passed by the **Competition Commission of India (CCI)**.
 - It also hears and disposes of appeals against the orders of the **National Financial Reporting Authority**.

Competition Commission of India (CCI)

- The Competition Commission of India (CCI) was established in March 2009 by the Government of India under **the Competition Act, 2002** for the administration, implementation, and enforcement of the Act.
- It is a **quasi-judicial body** which gives opinions to statutory authorities and also deals with other cases.
- **Composition of the CCI**
 - The Commission consists of **one Chairperson and six Members who shall be appointed by the Central Government**.
 - The Chairperson and other Members shall be whole-time Members
- **Objectives of this commission:**
 - It will eliminate practices having adverse effects on competition.

- To Promote and sustain competition.
- It helps in protecting the interests of consumers.
- Ensuring freedom of trade in the markets of India.

Union Minister initiates 'Captive Employment' initiative under Deen Dayal Upadhyaya Kaushalya Yojana (DDU-GKY), paving the way for greater industry participation in skilling rural poor youth

- Captive Employment is a first-of-its-kind initiative aimed at addressing the vision of a dynamic and **demand-based skilling ecosystem catering** to the requirements of industry partners assuring sustainable placements for rural poor youth.
- The Union Ministry of Rural Development (MoRD) signed an MoU with 19 Captive Employers.
- It aims to train and provide jobs for rural youth under the **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)**.
- The Captive Employment Guidelines ensure the **RTD (Recruit, Train and Deploy) model**.
- The RTD model addresses the needs of the industry, trains accordingly and ensures sustainable placements for rural youth.
- This initiative caters to the needs of industry partners, ensuring long-term employment for underprivileged rural youth.
- Captive Employers are **the companies or industries that select rural youths**, skill them, and deploy them in one of their establishments, sister concerns or subsidiaries.
- **Captive Employers are required to**
 - Offer captive (in-house) placement to all the trained candidates.
 - Provide captive employment to a minimum of 70% of trained candidates for 6 months.
 - Captive employment gives a minimum salary of Rs 10,000 (for less than a 6-month course) and Rs 12,000 (for more than a 6-month course).

Delhi High Court Restrains Institute Of Cost Accountants Of India From Using 'ICAI' Acronym

Institute Of Cost Accountants Of India

- It is a **statutory body** established by an act of Parliament, the **Cost and Works Accountants Act, 1959**.
- **Mandate: Regulation** of the **profession of cost and management accountancy**.
- It is the **only recognised statutory professional organisation and licensing body** in India specialising exclusively in **Cost and Management Accountancy**.
- It is under the administrative control of the **Ministry of Corporate Affairs**.

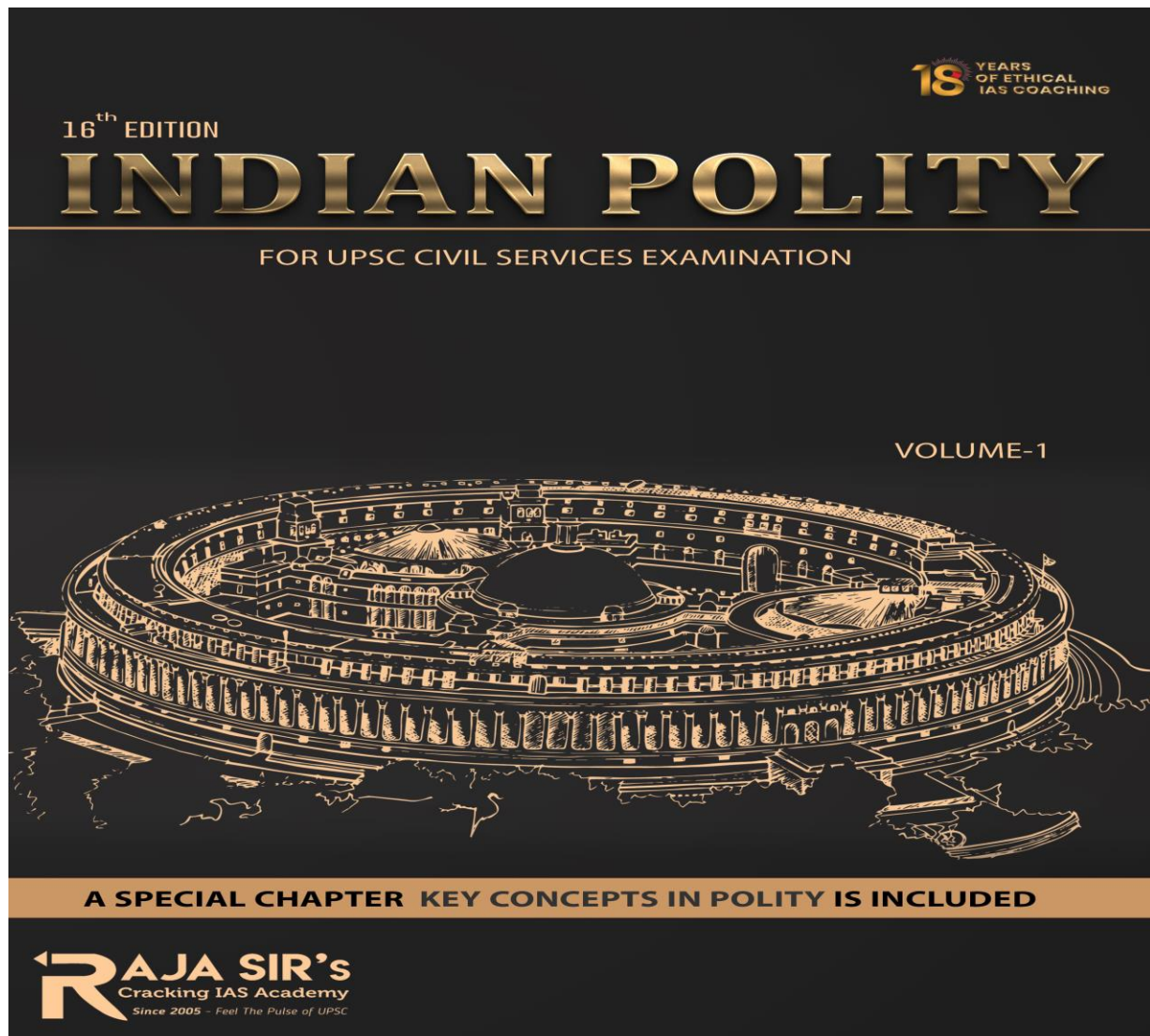
Cost Accounting

- It is the **reporting and analysis of a company's cost structure**.
- It is a process of **assigning costs to cost objects** that typically include a company's

- **products, services, and any other activities** that involve the company.
- Cost accounting can **identify where a company is spending its money, how much it earns, and where money is being lost.**
- It aims to **report, analyze,** and lead to the improvement of internal cost controls and efficiency.

Institute of Chartered Accountants of India (ICAI):

- It is a **statutory body** established under the **Chartered Accountants Act 1949.**
- **Mandate: Regulating the profession of Chartered Accountancy** in the country; **Formulation of Accounting Standards;** and Prescription of Standard Auditing Procedures.
- It functions under the **administrative control of the Ministry of Corporate Affairs,** Government of India.



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ECONOMY

RBI's new pilot project on coin vending machines

- QCVN is a **cashless coin dispensation machine** that would **dispense coins** with the requisite amount being debited from the customer's account **using United Payments Interface (UPI)**.
- It will **eliminate the need for physical tendering of banknotes** and their authentication.
- It will be launched with an **aim to promote the distribution of coins and enhance the accessibility to coins**.
- Customers will also have the **option to withdraw coins in required quantity and denominations** in QCVNs.
- The pilot project is planned to be **initially rolled out at 19 locations** in 12 cities across the country.
- These vending machines are **intended to be installed at public places** such as railway stations, shopping malls, and marketplaces to enhance ease and accessibility.

Banks can absorb expected credit loss regime impact

- The Reserve Bank of India (RBI) recently proposed to move the banking system to an expected credit loss-based provisioning approach from an "incurred loss" approach.

loan-loss provision

- The RBI defines a loan loss provision as an **expense that banks set aside for defaulted loans**.
- Banks set aside a **portion of the expected loan repayments from all loans** in their portfolio **to cover the losses either completely or partially**.
- In the event of a loss, instead of taking a loss in its cash flows, the **bank can use its loan loss reserves to cover the loss**.
- The level of loan loss provision is **determined based on the level expected to protect the safety and soundness of the bank**.

Expected Credit Loss (ECL) regime

- Under this practice, a **bank is required to estimate expected credit losses based on forward-looking estimations** rather than wait for credit losses to be actually incurred **before making corresponding loss provisions**.
- As per the proposed framework, **banks will need to classify financial assets (primarily loans) as Stage 1, 2, or 3, depending on their credit risk profile**, with Stage 2 and 3 loans having higher provisions **based on the historical credit loss patterns observed by banks**.
- This will be in **contrast to the existing approach of incurred loss provisioning, whereby step-up provisions are made based on the time the account has remained in the Non-Performing Asser (NPA) category**.

- **Benefits of the ECL regime:**
 - It will **result in excess provisions as compared to a shortfall in provisions**, as seen in the incurred loss approach.
 - It will further **enhance the resilience of the banking system** in line with globally accepted norms.

Problem with the incurred loss-based approach

- It **requires banks to provide for losses that have already occurred or been incurred.**
- The **delay in recognizing loan losses resulted in banks having to make higher levels of provisions** which affected the bank's capital. This affected banks' resilience and posed systemic risks.
- The **delays in recognizing loan losses overstated the income generated by the banks**, which, coupled with dividend payouts, **impacted their capital base.**

FCRA licence of think tank CPR suspended: What is FCRA, why the licence matters

- This act was enacted **during the Emergency in 1976** amid apprehensions that foreign powers were interfering in India's affairs by pumping money into the country through independent organisations.
- The FCRA requires **every person or NGO seeking** to receive foreign donations to be
 - Registered under the Act
 - To open a bank account for the receipt of foreign funds in the State Bank of India, Delhi.
 - To **utilise those funds** only for the purpose for which **they have been received** and as stipulated in the Act.

Eligibility criteria

- These registrations are **granted to individuals or associations** that have definite cultural, economic, educational, religious, and social programmes.
- The applicant should not be fictitious or benami; and should not have been **prosecuted or convicted for indulging in activities** aimed at **conversion** through **inducement or force**, either directly or indirectly, from one religious faith to another.
- Once granted, FCRA registration is **valid for five years**. NGOs are expected to apply for renewal within six months of the date of expiry of registration.
- Registration can be cancelled if an inquiry finds a false statement in the application
- Once the **registration** of an NGO is **cancelled**, it is not eligible for re-registration for **three years**.
- The ministry also has the power to suspend an NGO's registration **for 180 days** pending inquiry and can freeze its funds.
- All orders of the government **can be challenged in the High Court.**

SWAMIH Fund completes 20557 homes since inception in 2019

- The **Special Window for Affordable and Mid-Income Housing (SWAMIH) Investment Fund I** is India's largest social impact fund specifically formed for completing stressed and stalled residential projects.
- The Fund is **sponsored by the Ministry of Finance**, Government of India, and is **managed by SBICAP Ventures Ltd.**, a State Bank Group company.
- The Fund has no precedent or comparable peer fund in India or the global markets.
- It is a ****Category-II AIF (Alternate Investment Fund)**** debt fund registered with SEBI
- Since the Fund considers first-time developers, established developers with troubled projects, developers with a poor track record of stalled projects, customer complaints and NPA accounts, and even projects where there are litigation issues, it is considered **as the lender of last resort for distressed projects.**

Alternate Investment Fund

- Alternative Investment Fund or AIF means any fund established or incorporated in India which is a privately pooled investment vehicle which collects funds from sophisticated investors, whether Indian or foreign, for investing it in accordance with a defined investment policy for the benefit of its investors.

Centre mulls possible extension of ECLGS

- It was **launched by the Government of India in 2020** as a special scheme in **view of the Covid-19 crisis.**
- **Objective:** To **provide 100 percent guaranteed coverage to the banks**, non-banking financial institutions (NBFCs), and other lending institutions **to extend emergency credit to business entities that have suffered due to the Covid-19 pandemic** and are struggling to meet their working capital requirements.
- ECLGS is **under the operational domain of the Ministry of Finance**, Department of Financial Services (DFS).
- **National Credit Guarantee Trustee Company Ltd (NCGTC) has been set up** by the Union Ministry of Finance to manage and **provide guarantees to these loans.**
- ECLGS was **launched in different phases** - ECLGS 1.0, ECLGS 2.0, ECLGS 3.0, and ECLGS 4.0. In different phases, the **scope of this scheme was increased to include multiple sectors.**
- **Sanctions/disbursements** are made by lending institutions **based on assessment of the borrower's requirements and eligibility.**
- **Processing charges**, foreclosure, and prepayment charges **are waived under the scheme.**
- **No collateral is required for this scheme.**
- **ECLGS 1.0:**
 - Under the scheme, **borrowers could avail of additional credit of up to 20 percent of their overall outstanding credit** as on February 29, 2020.
 - **Eligibility: Business Enterprises/MSMEs** with **outstanding loans of up to Rs 25 crore** as of February 29, 2020, **with an annual turnover cap of Rs 100 crore for the financial year 2019-2020.**

Belated, but essential: On bringing all trade in virtual digital assets under the PMLA

- According to the **Income tax act**, 'virtual digital asset' **refers to any information, code, number, or token (not being Indian currency or foreign currency) generated through cryptographic means** or otherwise and can be called by whatever name.
- It can be **transferred, stored, or traded electronically**.
- The definition of VDA also **specifically includes a non-fungible token**, i.e., NFT, or any other token of similar nature, by whatever name is called.

Non-fungible tokens (NFTs)

- NFTs **are assets that have been tokenized via a blockchain**.
- They are **assigned unique identification codes** and metadata that distinguish them from other tokens.
- NFTs can be **traded and exchanged for money, cryptocurrencies**, or other NFTs.
- **NFTs can represent digital or real-world items** like artwork and real estate. They can **also represent individuals' identities**, property rights, and more.

Banks expect a spike in overnight call money rates

- Credit demand and reversal of the Covid era's targeted long-term repo operations (TLTRO) are also expected to suck cash out from the banking system.
- Data show the weighted average rate in the tri-party repo system (TREPS) that also draws mutual funds participation has increased to 6.70% on March 17, up from 6.27% at the start of the month.

Long term repo operations

- LTRO is a tool that allows banks to **borrow one to three years of funds** from the Central Bank at the Repo rate.
- It is called 'Targeted' LTRO if the Central Bank wants banks opting for funds under this option to be specifically **invested in investment-grade corporate debt**.
- LTRO was first introduced by the European Central Bank (ECB) during its sovereign debt crisis that began in 2008.

Tri-party repo or TREPS

- Tri-party repo is a type of repo contract where a third entity (apart from the borrower or lender), called a Tri-Party Agent, acts **as an intermediary between the two parties to the repo to facilitate services** like collateral selection, payment and settlement, custody and management during the life of the transaction."
- The triparty repo is a financial market instrument like the market repo and not like the Central Bank repo (RBI's repo).

Eligible Tri-Party Agents

- All tri-party agents need authorization from RBI to act in that capacity before they commence operations.
- **Scheduled commercial banks** are eligible to be tri-party agents.
- **Eligible collateral:** Government Securities and Corporate securities.

RBI proposes to expand scope of TReDS to improve cash flows for MSMEs

Trade Receivables Discounting System (TReDS) platform:

- It is an **electronic platform** for facilitating the **financing/discounting of trade receivables** of Micro, Small, and Medium Enterprises (**MSMEs**) through multiple financiers.
- These receivables **can be due from corporates and other buyers**, including Government Departments and Public Sector Undertakings (PSUs).
- **Purpose:** To **allow MSME sellers to discount invoices** raised against major corporations, which **helps them manage their working capital demands**. The platform **enables MSMEs to receive payments more quickly**.
- **Participants:**
 - **Sellers, buyers, and financiers** are the participants on a TReDS platform.
 - **Only MSMEs** can participate as **sellers** in TReDS.
 - **Corporates, Government Departments, PSUs, and any other entity** can **participate as buyers** in TReDS.
 - **Banks, NBFC - Factors, and other financial institutions**, as permitted by the RBI, can **participate as financiers** in TReDS.
- RBI has **not made it compulsory** for any buyer, seller, or financier **to participate in TReDS**.
- The Government has **made it compulsory for certain segments** of companies to **mandatorily register as buyers on the TReDS platform(s)**. The government directive, however, **does not make it compulsory** for these entities **to perform transactions** in TReDS.
- **How does TReDS work?**
 - **Creation of a Factoring Unit (FU) - standard nomenclature** used in TReDS **for invoice(s) or bill(s) of exchange** - containing details of invoices/bills of exchange.
 - **Acceptance of the FU by the counterparty** - buyer or the seller, as the case may be;
 - **Bidding by financiers;**
 - **Selection of best bid** by the seller or the buyer, as the case may be;
 - **Payment made by the financier** (of the selected bid) **to the MSME seller** at the agreed rate of financing/discounting;
 - **Payment by the buyer** to the financier on the due date.

Trade receivables

- Trade receivables are defined as the **amount owed to a business by its customers following the sale of goods or services on credit**.

PSUs Asked To Issue LoCs Based On Their Financial Strength

Letter of Comfort (LoC):

- **What is it?** An LoC is a **letter issued to a lending institution by a stakeholder of the company acknowledging the support of the attempt for financing asked by that company.**
- They are usually issued by a **third party or a stakeholder in the transaction.**
- For instance, a **holding company can give an LoC on behalf of its subsidiary**, or a **government can issue a letter of comfort for PSUs.**
- It is **not legally binding** and **does not imply** that the **parent company guarantees repayment** of the loan being sought by the subsidiary company.
- It **merely gives reassurance** to the lending institution **that the parent company is aware of the credit facility being sought** by the subsidiary company and supports its decision.
- This **provides some comfort to the financial institution to lend money** for the short term or long term.
- It, thus, is a **moral rather than a legal obligation** for the borrower.
- It **can also be issued by banks, NBFCs, and auditors.**
- It **lays down the contract conditions** and steps to **complete the transaction successfully.**

Tax demands of Rs 13,566 crore raised in four fiscals under black money law: MoS Finance

- Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015, or the **Black Money Act** (as popularly known), has **come into force w.e.f. 01.07.2015.**
- **Objective:** To create a deterring effect on illegal foreign transactions and **bring back undisclosed Indian money abroad.**
- **Features of the Act:**
 - **Applicability:**
 - The Act will apply to all **person resident in India.**
 - It will also **apply to a person being Not an ordinary resident** or Non-resident **but who was an ordinary resident** of India **during the previous year when undisclosed income was earned** or assets acquired **outside India.**
 - Provisions of the Act will **apply to both undisclosed foreign income and assets** (including financial interest in any entity).
 - **Tax:**
 - Undisclosed foreign income or assets shall be taxed at a **flat rate of 30 percent.**
 - **No deductions, exemptions, carry forward, or set-off** shall be available while computing tax liability under the BM Act, **unlike the Income Tax Act.**
 - **Penalties:**

- The penalty for non-disclosure of income or an asset located outside India will be equal to **three times the amount of tax payable thereon**, i.e., **90 percent of the undisclosed income** or the value of the undisclosed asset. **This is in addition to the tax payable at 30%.**
- There are **other penalties also** leviable on account of **non-disclosure of required information**, and **there are prosecution provisions also** within the Act.
- **One-time compliance opportunity:**
 - The Act also provides a one-time compliance opportunity **for a limited period** to persons who have any undisclosed foreign assets which have hitherto not been disclosed for the purposes of Income-tax.
 - **Such persons may file a declaration** before the specified tax authority within a specified period, **followed by payment of tax at the rate of 30 percent and an equal amount by way of penalty.**
 - Such persons **will not be prosecuted under the stringent provisions of the Act.**

Blow for bond markets as long-term tax benefit scrapped for debt MFs

Debt mutual funds:

- Debt funds are mutual fund schemes which invest in fixed-income generating securities such as **Commercial Papers (CP)**, **Certificate of Deposit (CD)**, Corporate Bonds, T-Bills, government securities and other money market instruments.
- These instruments **have a fixed maturity date** and interest rate that the buyers could earn till the maturity of the security.
- They are considered to be **less volatile than equity funds** and are hence ideal for investors who are relatively risk-averse and are looking for stability in their investments.

Capital Gain tax

- The capital gains tax is **the levy on the profit** that an investor makes when an investment is sold. It is owed for the tax year during which the investment is sold.
- It applies to capital assets, which include **stocks, bonds, digital assets** like cryptocurrencies and NFTs, jewellery, coin collections, and real estate.
- **Types of capital gain tax**
 - ****Long-term Capital Gains Tax:**** It is a levy on the profits from the sale of assets held for **more than a year**. The rates are 0%, 15%, or 20%, depending on the tax bracket.
 - **Short-term Capital Gains Tax:** It applies to assets held for a year or less and is taxed as ordinary income.

MUDRA loans to joint liability group micro enterprises now eligible for credit guarantee fund

- MUDRA Loan is offered under the **Pradhan Mantri Mudra Yojana (PMMY)**.
- PMMY was **launched in 2015** with the aim to **help small-scale businesses expand and attain success**.
- **Support under the scheme:** It provides **loans of up to 10 lacks to non-corporate, non-farm small/micro enterprises**.
- **Purpose of loan:** To **start a new business, enhance existing or meet working capital requirements**, and for business expansion purposes
- These loans are **classified as MUDRA loans** under PMMY.
- **Eligibility:** **Any Indian Citizen who has a business plan for a non-farm sector** income-generating activities such as manufacturing, processing, trading, or service sector.
- These loans are **given by Commercial Banks, RRBs, Small Finance Banks, MFIs, and NBFCs**.
- **Types of loans:**
 - **Shishu** - Covering loans **up to Rs 50,000**;
 - **Kishor** - Covering loans **above Rs 50,000 and up to Rs 5 lakh**;
 - **Tarun** - Covering loans **above Rs 5 lakh and up to Rs 10 lakh**.

RBI releases MPC's meeting schedule for 2023-24

Monetary Policy Committee (MPC)

- The Reserve Bank of India Act, 1934 (**RBI Act**) has been amended by the Finance Act, 2016 **to provide for a statutory and institutionalized framework for a MPC**.
- **Under Section 45ZB of the amended RBI Act, 1934, the central government is empowered to constitute a six-member MPC**.
- **Function:** The MPC is entrusted with the task of **fixing the benchmark policy rate (repo rate) required to contain inflation within the specified target level**.
- **Composition:**
 - MPC will have **six members** - the **RBI Governor (Chairperson)**, the **RBI Deputy Governor in charge of monetary policy**, one **official nominated by the RBI Board**, and the **remaining three members would represent the Government of India**.
 - The **external members hold office for a period of four years**.
- The **quorum** for a meeting **shall be four Members, at least one of whom shall be the Governor** and, in his absence, the Deputy Governor, who is the Member of the MPC.
- The MPC **takes decisions based on a majority vote**. In case of a tie, the **RBI governor will have the second or casting vote**.
- The **decision of the MPC would be binding on the RBI**.

Lok Sabha passes Finance Bill, set to tax investors heavily from April

- Financial Bills are also **called "Act for Appropriation of Funds for Appropriations"**.
- Financial bills are **responsible for fiscal matters** such as **government spending or revenue**.

- It specifies the amount of money to be spent by the government and the way it is to be spent.
- According to **Rule 219 of the Lok Sabha's Rules of Procedure**, a "Finance Bill" is defined as the Bill that is typically introduced each year to give effect to the Government of India's financial proposals for the upcoming fiscal year, as well as a Bill to give effect to supplementary financial proposals for any period.
- Financial bills are a component of the union budget. The Indian Constitution's **Article 110(a)** requires that a finance bill be presented together with the budget.
- It proposes all the necessary legal changes required for the proposed tax adjustments.
- It is accompanied by a Memorandum containing explanations of the provisions included in it.
- When a question arises about whether a Finance bill is a money bill or not, the speaker of the house decides on the matter, and his decision shall be final in this regard.

Types Of Financial Bills:

- **Financial bills (i): Article 117 (1)**
 - It includes not only the subjects stated in Article 110 of the Constitution but also other legislative provisions.
 - Financial bill (i) is comparable to the money bill in two ways. Firstly, both of these bills can only originate in the Lok Sabha and not Rajya Sabha. Secondly, both the bills can be introduced only on the President's advice.
 - A finance bill (I) follows the same parliamentary process as an ordinary bill in all other respects.
- **Financial bills (ii): Article 117 (3)**
 - A financial bill (II) does not contain any of the items listed in Article 110, but it does contain measures impacting Consolidated Fund of India
 - It is regarded as an ordinary bill and is handled in every way by the same parliamentary process as an ordinary bill.
 - This bill's sole unique feature is that neither House of Parliament may pass it without the President first requesting that it be brought up for consideration.

Money Bill

- Under Article 110(1), a Bill is said to be a Money Bill if it only contains provisions related to taxation, borrowing of money by the government, and expenditure from or receipt to the Consolidated Fund of India.
- Bills that only contain provisions that are incidental to these matters would also be regarded as Money Bills.
- Who decides if a Bill is a Money Bill? The Speaker certifies a Bill as a Money Bill, and the Speaker's decision is final.
- **Passage of Money Bills:**
 - A Money Bill may only be introduced in Lok Sabha on the recommendation of the President.
 - It must be passed in Lok Sabha by a simple majority of all members present and voting.

- Following this, it may be sent to the **Rajya Sabha** for its recommendations, which **Lok Sabha** may reject if it chooses to. If such recommendations are **not given within 14 days, it will be deemed to be passed by Parliament.**

How is a Money Bill different from a Financial bill

- While **all Money Bills are Financial Bills, all Financial Bills are not Money Bills.**
- For example, the Finance Bill, which only contains provisions related to tax proposals, would be a Money Bill.
- However, a Bill that contains some provisions related to taxation or expenditure but also covers other matters would be considered a Financial Bill.
- The **Rajya Sabha cannot amend or reject the money bill**, but it has the **power to amend or reject the finance bill.**
- **Money bills and finance bill (1) can be introduced only in the Lok Sabha**, whereas a Finance Bill (2) can be introduced both in Rajya Sabha and the Lok Sabha.
- To resolve a deadlock, the **President can summon a joint sitting of Lok Sabha and the Rajya Sabha in case it is a finance bill.** However, no such provision is made in case of a money bill.

Transaction tax on F&O hiked; high-frequency traders to be hit

Securities Transaction Tax (STT):

- **What is it?** It is a **direct tax** charged **on the purchase and sale of securities** listed on the recognized stock exchanges in India.
- It is **levied and collected by the central government** of India.
- STT is **governed by Securities Transaction Tax Act (STT Act)**, and STT Act has specifically **listed various taxable securities** **transactions, **e., transactions on which STT is leviable.
- Taxable securities **include equities, derivatives, or equity-oriented mutual funds investment units** (excluding commodities and currency).
- **The rate of taxation is different for different types** of securities.
- STT is **not applicable to off-market transactions** or to **commodity or currency transactions.**
- **The liability of applying the STT is on the broker** when the client undertakes transactions in the stock market. **The collected amount is then paid to the government.**
- The charges and rate of STT are reflected on the contract notes which a broker provides to its clients for every execution of trades.

Futures and Options Trading

- Futures and options are the **major types of stock derivatives trading** in a share market.
- These are contracts signed by two parties **for trading a stock asset at a predetermined price at a later date.**
- It **provides individuals to reduce future risk** with their investment **through pre-**

- **determined prices.**
- Future and options in the share market are **contracts that derive their price from an underlying asset** (known as underlying), such as shares, stock market indices, commodities, ETFs, and more
- **Future v/s Option:**
 - Future and option trading **are different in terms of obligations imposed on individuals.**
 - While **futures act as a liability on an investor, requiring them to follow up on a contract** by a pre-set due date, **an options contract gives an individual the right to do so** (provides a buyer with a choice to do the same, if he/she profits from a trade.)

Derivatives

- Derivatives are **financial contracts** set between two or more parties **that derive their value from an underlying asset**, group of assets, or benchmark.
- A derivative **can trade on an exchange or over the counter.**
- **Prices** for derivatives **derive from fluctuations in the underlying asset.**
- Common derivatives **include futures contracts, forwards, options, and swaps.**

Export benefits under RoDTEP extended to certain textile items

Remission of Duties and Taxes on Exported Products (RoDTEP) scheme:

- The RoDTEP scheme would **refund to exporters** the embedded central, state and local duties or taxes that were so far not been rebated or refunded.
- It was launched in January 2021 as a replacement for the Merchandise Export from India Scheme (MEIS).
- Under this scheme, a rebate will have to be claimed as a **percentage of the Freight On Board value of exports.**
- Rebates will be issued in the form of a transferable duty credit/ electronic scrip (e-scrip) which will be maintained in an electronic ledger by the **Central Board of Indirect Taxes and Customs (CBIC).**

Freight on Board

- It is also called Free on Board (FOB) is a term used to indicate who is liable for goods damaged or destroyed during shipping.
- **FOB origin** means the buyer is at risk and takes ownership of goods once the seller ships the product.
- **FOB destination** means the seller retains the risk of loss until the goods reach the buyer.

PPF, Sukanya Samridhi Account interest rate hike may remain elusive

- The PPF Scheme is a very popular **long-term savings scheme** in India because of its

- combination of tax savings, returns, and safety.**
- The PPF was **first offered** to the public in the year **1968** by the **Finance Ministry's National Savings Institute**.
 - **Objective:** To help individuals make small savings and provide returns on the savings.
 - It is one of the **safest investment products**. i.e., the **government of India guarantees** your investments in the fund
 - **Tenure: 15 years** (Can be renewed in blocks of 5 years).
 - **Interest rate:** Interest rates currently payable on such accounts **stand at 7.1%**.
 - **Investment Amount: Minimum Rs.500, Maximum Rs.1.5 lakh p.a.**
 - **Who is eligible for a PPF account? Any Indian citizen** can open a PPF account.
 - The PPF accounts **cannot be held jointly**, though you can **make a nomination**.
 - **Investment** in PPF is **tax-exempt under section 80C of the Income Tax Act (ITA)**, and the **returns from PPF are also not taxable**.

Sukanya Samridhi Yojana

- It was **launched on 22 January 2015**.
- **Aim: Betterment of the girl child in the country** by abolishing sex determination, gender discrimination, protection of girls, and higher participation of girls in education and other fields.
- **Features of Sukanya Samridhi Account:**
 - **Minimum deposit ₹ 250/- Maximum deposit ₹ 1.5 Lakh** in a financial year.
 - Account can be opened in the name of a girl child till she **attains the age of 10 years**.
 - **Only one account can be opened** in the name of a girl child.
 - The account can be **opened in Post offices and in authorised banks**.
 - **Withdrawal shall be allowed for the purpose of higher education** of the Account holder **to meet education expenses**.
 - The account **can be prematurely closed in case of marriage of girl child** after her **attaining the age of 18 years**.
 - The account **can be transferred anywhere in India** from one Post office/Bank to another.
 - The account shall **mature on completion of a period of 21 years** from the date of opening of the account.
 - **Deposit qualifies for deduction under Sec.80-C of I.T.Act.**
 - **Interest earned** in the account **is free from Income Tax** under Section -10 of I.T.Act.

Banks Must Give Opportunity Of Hearing To Borrowers Before Classifying Their Accounts As Fraud : Supreme Court

About Audi Alteram Partem:

- The **literal meaning** of Audi Alteram Partem is to **"hear the other side"**.
- It denotes that **every party shall get an opportunity of hearing** and no one shall go unheard in a case.

- Under this doctrine, **every party shall get an opportunity to plead and assert evidence to support his case.**
- This **ensures a fair hearing and fair justice to both the parties.**
- **No decision can be declared without hearing both the parties.** The aim of this principle is to give an opportunity to both the parties to defend themselves.
- The doctrine is the **basic concept of the principle of natural justice.**
- The following are the **key components of this doctrine:**
- **Notice:**
 - Before any action is taken, the **affected party must be given a notice to show cause** against the proposed action and seek his explanation.
 - A notice must contain the **time, place and date of hearing, jurisdiction** under which the case is filed, the **charges**, and **proposed action** against the person.
 - Any **order passed without giving notice** is against the principles of natural justice and **is void.**
- **Hearing:**
 - The **order passed** by the authority **without providing** the reasonable **opportunity of being heard** to the person affected by it adversely **will be invalid and must be set aside.**
- **Evidence:**
 - It is an important part which is to be **brought properly before the Court in the presence of both the parties** and a judicial or quasi judicial **authority must have to act on the evidence produced** as in the case.
- **Cross-Examination:**
 - Every person has the **right to contest or object to the evidence** presented by the other party.
- **Legal Representation:**
 - Every person is not able to present his case assertively. Thus, he needs some assistance from a specialised legal attorney to present his case.
 - The **Indian Constitution also provides that every person has a right to get legal assistance.**
- **Exceptions to the doctrine of Audi Alteram Partem:**
 - The word exception doesn't mean the principles of natural justice and fair play will not be there.
 - These exceptions only **denote those conditions in which nothing unfair will occur, even if certain conditions** of this maxim **are relaxed.**
 - **Some conditions for exceptions are:**
 - Emergency;
 - Confidentiality;
 - Impracticability;
 - Statutory Exclusion;
 - Legislative Function

SEBI getting set to regulate index providers

- Index providers are those **institutions that formulate and manage indices.**
- One of the important roles of the index provider is to **classify and define markets**, as their indices represent a market or a proportion of a market and **provide a benchmark**

- of performance for that market or sector.**
- They have the responsibility to **set the rules that decide what securities to include in each index, how the index will be managed and how securities will be added or removed** from that index over time.
 - They also usually **determine how stocks can be classified**, e.g. is a particular stock a Healthcare or an Oil & Gas stock, or is it a Developed or Emerging market stock.
 - An index **allows investors** and other stakeholders **to get a snapshot of the market.**
 - **S&P Dow Jones, MSCI, and Bloomberg** are some of the **globally renowned institutions** that provide indices.
 - **In India**, this activity is generally **carried out by subsidiaries of stock exchanges.** The most prominent indices in India are the **Nifty50 by NSE Indices** and **Sensex** provided **by a venture of S&P Dow Jones Indices and BSE Ltd.**

Sebi to set up corp debt mkt development fund with Rs 3,000 crore initial corpus from MFs

Corporate Debt Market Development Fund:

- The 'Corporate Debt Market Development Fund (CDMDF) is a **backstop facility** for specified debt funds during market dislocations.
- The fund is intended to provide **liquidity support** in the event of a financial crisis.
- It aims to instil confidence amongst the participants in the corporate bond market and to generally enhance secondary market liquidity.
- The proposed CDMDF will have an **initial corpus of Rs 3,000 crore** contributed by mutual funds.
- The government has approved a 10-time leverage of the fund (Additional corpus), thus CDMDF may raise funds up to Rs 30,000 crore.
- Contributions to the fund can be done by the **specified debt-oriented mutual fund** schemes and asset management companies of mutual funds.
- This fund is guaranteed by the **National Credit Guarantee Trust Company (NCGTC)** and the backstop facility will be managed by **SBI Mutual Fund.**
- Specified mutual fund schemes will have access to the fund for selling securities during market dislocation.
- This access is proportional to the contribution made to the fund at a mutual fund level.

Backstop facility

- A backstop is an act of **providing last-resort support or security** in a securities offering for the unsubscribed portion of shares.
- When a company is trying to raise capital through an issuance, it may get a backstop from an **underwriter or a major shareholder**, such as an **investment bank**, to buy any of its unsubscribed shares.

INTERNATIONAL RELATIONS

First Anti-Corruption Working Group Meeting

- It is under India's chairpersonship, and **Italy is the co-chair country**.
- Over 90 delegates from 20 member countries, 10 Invitee countries, and 9 International Organizations will engage in **detailed deliberations on strengthening International Anti-corruption mechanisms**.
- **Focus areas:**
 - Enhancing the effectiveness of **asset-tracing and identification mechanisms**;
 - Developing mechanisms for **rapid restrain of illicit assets**;
 - Promoting **effective use of open-source information and asset recovery networks**;
- **The theme** of India's G20 Presidency is - "**VasudhaivaKutumbakam**" or "One Earth. One Family, One Future".

ACWG:

- The G20 Anti-Corruption Working Group (ACWG) was **set up in June 2010 at the Toronto Summit**.
- G20 ACWG has been at the **forefront of guiding the anti-corruption initiatives of G20 countries**
- **Primary Goal:** To prepare "comprehensive recommendations for consideration by leaders on how the G20 could continue to make practical and **valuable contributions to international efforts to combat corruption**."
- ACWG will explore the **proactive sharing of information, improving** the existing **Mutual Legal Assistance framework** and simplifying mechanisms for **sharing of information** between domestic law enforcement authorities in criminal matters.
- The ACWG actively works with the **World Bank Group, OECD, UNODC, IMF, and FATF**, as well as with Business 20 (B20) and the Civil Society 20 (C20).

Windsor Framework: What is the deal UK and EU have reached to solve the Northern Ireland Protocol tangle

- The 'Windsor Framework' will **replace the Northern Ireland Protocol**.
- **What is Northern Ireland Protocol?**
- **Northern Ireland is a British-ruled province and part of the United Kingdom** that shares a long porous border with Ireland, a member of the European Union.
- **Trade over the open border** when Britain left the EU was one of the **most difficult parts of the Brexit negotiations** which **culminated in the Northern Ireland Protocol**.
- The protocol is **part of the Brexit deal, which sets Northern Ireland's trade rules**.
- It **keeps Northern Ireland inside the EU's single market** for goods.
- It **keeps the Irish land border open** but means **products arriving into Northern Ireland** from the rest of the UK **are subject to checks and controls**.

- The checks made trade between Great Britain and Northern Ireland cumbersome.
- **Features of Windsor Framework:** The framework has two crucial aspects – the introduction of a two lanes system and the ‘Stormont Brake’.
- **The two lanes:**
- **Goods from Britain destined for Northern Ireland** will travel through a new "green lane", with a separate "red lane" for goods at risk of moving onto the EU.
- Products coming into Northern Ireland through the **green lane** would see **checks and paperwork significantly reduced**.
- **Red lane goods** would still be **subject to checks**.
- **Bans on certain products** - like chilled sausages - entering Northern Ireland from Great Britain **would be removed**.
- **Northern Ireland would also no longer have to follow certain EU rules**, for example, on VAT and alcohol duties. The new agreement reduces the proportion of EU rules applied in Northern Ireland to less than 3%.
- **Stormont brake:**
- Under this, the **democratically elected Northern Ireland Assembly can oppose new EU goods rules** that would have significant and lasting effects on everyday lives in Northern Ireland.
- The **brake cannot be used for "trivial reasons"** but reserved for **"significantly different" rules**
- Once the UK tells the EU the brake has been triggered, the rule cannot be implemented.
- **It can only be applied if the UK and EU agree.**

International courts and climate change

- A group of 16 countries led by Vanuatu - an island country in the South Pacific Ocean, recently launched an effort to fight the problem of climate change at the United Nations (UN), and the group seeks an advisory opinion from the International Court of Justice (ICJ) on the issue of climate change.

International Court of Justice (ICJ):

- The ICJ, also known as the **World Court**, is the **principal judicial organ of the UN**.
- It was **established in June 1945** by the **Charter of the United Nations** and began **work in April 1946**.
- **The seat of the Court is at the Peace Palace in The Hague (Netherlands)**.
- **Of the six principal organs** of the United Nations, **it is the only one not located in New York, United States**.
- **The hearings of the ICJ are always public**.
- **French and English are the official languages** of the Court.
- **Powers and Functions:**
 - The Court may entertain **two types of cases: legal disputes between States submitted to it by them (contentious cases)** and requests for **advisory opinions on legal questions referred to it by United Nations organs and specialized agencies (advisory proceedings)**.
 - **Only States** (which are members of the United Nations and other States which

- have become parties to the Statute of the Court or which have accepted its jurisdiction under certain conditions) **may be parties to contentious cases.**
- **Advisory proceedings** before the Court are **only open to five organs of the United Nations** and **16 specialized agencies** of the United Nations family or affiliated organizations.
 - The **court's judgments in contentious cases are final and binding** on the parties to a case and **without appeal.**
 - Unlike the Court's judgments, **advisory opinions are not binding.**
 - The **ICJ decides disputes in accordance with international law** as reflected in **international conventions, international custom, general principles of law** recognized by civilized nations, judicial decisions, and writings of the most highly qualified experts on international law.
 - **Composition:**
 - The Court is composed of **15 judges, all from different countries**, who are **elected for terms of office of nine years by the United Nations General Assembly (UNGA) and the Security Council (UNSC).**
 - **To be elected**, a candidate must receive an **absolute majority of the votes in both UNGA and UNSC.**
 - **One-third** of the composition of the Court is **renewed every three years.**
 - Judges are **eligible for re-election.**
 - Once elected, a **member of the Court is a delegate neither of the government of his own country nor of any other State.**
 - **Members of the Court are independent judges** whose first task, before taking up their duties, is to make a solemn declaration in open court that they will exercise their powers impartially and conscientiously.

You may need ETIAS for your next trip to Europe

- It is a proposed **digital travel authorization system for visa-exempt visitors to the EU and its Schengen Area.**
- ETIAS is not a visa and is more accurately **referred to as a visa waiver.**
- It is a completely **electronic system** that allows **and keeps track of visitors** from countries who do not need a visa to enter the Schengen Zone.
- It will gather, keep track of, and **update necessary information regarding visitors to determine whether it is safe for them to enter Schengen countries.**
- The ETIAS will **undergo a detailed security check of each applicant** to determine whether they can be allowed to enter any Schengen Zone country.
- The ETIAS, besides being used for **business and tourist purposes, will also allow people** to visit the Schengen countries **for medical and transit reasons.**
- It will be **mandatory for all countries that are Schengen visa-free.**

Schengen Area

- The Schengen Area, or Schengen Countries Zone, is a **group of 27 European nations that have abolished border controls between each other.**
- **Most European Union (EU) countries are signatories to the Schengen Agreement**, although some non-Schengen countries, like Bulgaria and Romania, are

- signed up but not yet active members.
- **Switzerland, Iceland, and Norway are not in the EU but are inside of the Schengen Area.**

Ocean treaty: Historic agreement reached after decade of talks

- It is the **first-ever treaty to protect the world's oceans that lie outside national boundaries.**
- It is also known as the **'Paris Agreement for the Ocean.'**
- It is a **legally binding treaty** to protect marine life in international waters.
- It **aims to place 30% of the seas into protected areas by 2030** (a pledge made by countries at the UN biodiversity conference in 2022).
- It will **provide a legal framework for establishing vast marine protected areas (MPAs)** to protect against the loss of wildlife and **share out the genetic resources of the high seas.**
- It **also covers environmental assessments** to evaluate the potential damage of commercial activities, such as deep-sea mining.
- It will **establish a conference of the parties (CoP)** that will **meet periodically** and **enable member states to be held to account on issues such as governance and biodiversity.**
- The treaty **also includes a pledge by signatories to share ocean resources.**
- The treaty is **built on the legacy of the UN Convention on the Law of the Sea (UNCLOS)**, which is the **last international agreement on ocean protection**, signed 40 years ago in 1982. UNCLOS established an area called the high seas.

High Seas

- The high seas **begin at the border of countries' exclusive economic zones**, which extend up to 370km (200 nautical miles) from coastlines.
- Beyond that point, the seas are **under the jurisdiction of no country**, and **all countries have a right to fish, ship, and do research.**
- They make up **more than 60% of the world's oceans by surface area.**
- **Activities on the high seas are often unregulated** and insufficiently monitored, leaving them vulnerable to exploitation.

Away from the spotlight, India holds conference of global intelligence chiefs

- It is a **conference of intelligence and security chiefs** and top officials from around the world.
- It is **modeled on the lines of the Munich Security Conference** and **Singapore's Shangri-La Dialogue.**
- It is **organized by the Research and Analysis Wing (R&AW)** and the **National Security Council Secretariat (NSCS).**
- It was **held for the first time in April 2022.**
- **Raisina Security Dialogue 2023:**
 - This is the **second edition** of the dialogue.

- It saw **participation from over 26 countries**, including intelligence chiefs from the U.K, Japan, France, and Bahrain.
- The **focus of the discussions was largely on global security**, which encompassed counterterrorism, radicalization, drug trafficking, and illegal arms smuggling, among others.

Munich Security Conference:

- It is an **annual conference on international security policy** that has been held in **Munich, Bavaria, Germany since 1963**.
- It has become the **most important independent forum** for the exchange of views by **international security policy** decision-makers.
- The list of attendees includes **heads of state, governments and international organizations, ministers**, members of parliament, high-ranking representatives of armed forces, science, and civil society, as well as business and media.
- The conference is **held annually in February**. The **venue is the Hotel Bayerischer Hof in Munich, Bavaria, Germany**.

Shangri-La Dialogue:

- It is **Asia's premier defense and security summit**.
- It is attended **by Defence Ministers, permanent heads of ministries and military chiefs** of 28 **Asia-Pacific countries**.
- It is **organized by** an independent think-tank, **International Institute for Strategic Studies (IISS)**.
- The summit is **named after the Shangri-La hotel in Singapore**, where it has been held since 2002.

Shri Rajeev Chandrasekhar addresses 5th ASEAN-India Business summit

- It is being held as part of the ASEAN-India Year of Friendship to commemorate the more than three-decade-long engagement between India and the 10-member bloc in Kuala Lumpur.

ASEAN

- It is a group of the Association of Southeast Asian Nations, which was established in 1967 with the signing of the **Bangkok declaration**.
- **Founding members:** Indonesia, Malaysia, Philippines, Singapore and Thailand.
- Presently ASEAN comprises 10 member states namely Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei, Laos, Myanmar, Cambodia and Vietnam.
- It promotes intergovernmental cooperation and facilitates economic, political, security, military, educational, and sociocultural integration between its members and other countries in Asia.

Rise in temperature leads to forest fire in Andhra's Nallamala forest

- It is one of the **largest stretches of undisturbed forest in South India**, apart from the Western Ghats.
- **Location:**
 - It is **spread over five districts** in the Indian states of **Andhra Pradesh and Telangana**.
 - It is **located in Nallamala Hills**, which is a part of the **Eastern Ghats**.
 - It lies **south of the Krishna river**.
 - The forest has a **good tiger population**, and a **part of the forest belongs to the Nagarjunsagar-Srisailem Tiger Reserve**, the largest tiger reserve in the country.
- **Climate:**
 - It has a **warm to hot climate throughout the year**, with **summer especially hot and winters mostly cool and dry**.
 - It gets most of its rain during the **South West monsoon**.
- **Vegetation: Tropical dry deciduous.**
- **Flora:** It harbors **endemic species** like **Andrographis nallamalayana**, *Eriolaena lushingtonii*, *Crotalaria madurensis* var, *Dicliptera beddomei* and *prema hamiltonii*.
- **Fauna:** It is home to as many as **700 species** of animals besides **tigers, leopards**, such as **black buck, wild hog, peacock**, pangolin, Indian Python and King Cobras and several rare bird species.

BIMSTEC holds virtual ministerial meeting

- During the meeting, the Ministers approved several documents including rules of Procedure for Core BIMSTEC Mechanisms, **Sectoral BIMSTEC Mechanisms** and BIMSTEC's External Relations for submission to the 6th BIMSTEC Summit.
- The meeting also approved the draft Host Country Agreement between India and the BIMSTEC Secretariat for **establishing BIMSTEC Centre for Weather and Climate in India**.
- The Meeting also approved the **Terms of Reference for an Eminent Person's Group** on the Future Directions of BIMSTEC.
- The Terms of Reference were finalized under the special scheme for institution building.
- Besides **BIMSTEC Bangkok Vision 2030** was also approved and will be launched at the 6th BIMSTEC Summit.
- The Meeting also gave its nod to the Administrative and Disciplinary Rules of the Secretariat and amended Financial Rules and Regulations of the BIMSTEC Secretariat.

BIMSTEC

- It is a regional organization that was established on 06 June 1997 with the signing of the **Bangkok Declaration**.
- **Member countries:** Bangladesh, India, Myanmar, Sri Lanka, Thailand, Bhutan and

- Nepal
- The **Chairmanship of BIMSTEC rotates according to the alphabetical order** of the English names of the Member States.
- During the Third BIMSTEC Summit, the **Secretariat** was established in **Dhaka, Bangladesh**.

Pentagon accused of blocking effort to hand Russia war crimes evidence to ICC

International Criminal Court (ICC):

- It is the **only permanent international criminal tribunal**.
- **Background:** It was **created by the 1998 Rome Statute** of the International Criminal Court (its founding and governing document), and **began functioning on 1 July 2002** when the Statute came into force.
- **Mandate:** It **investigates** and, where warranted, **tries individuals charged with the gravest crimes of concern to the international community:** genocide, war crimes, crimes against humanity, and the crime of aggression.
- **HQ: Hague, Netherlands.**
- **Members: 123 nations** are States Parties to the Rome Statute and recognize the ICC's authority; the **notable exceptions being the US, China, Russia, and India.**
- **Funding:** The Court is funded by **contributions from the States Parties** and by **voluntary contributions** from Governments, international organizations, individuals, corporations, and other entities.
- **Composition:**
 - **Judges:** The court **has eighteen judges**, each from a **different member country**, elected to **nonrenewable nine-year terms**.
 - **The Presidency:** Consists of **three judges** (the **President and two Vice-Presidents**) elected from among the judges. It **represents the Court to the outside world** and helps with the **organization of the work of the judges**.
 - **Judicial Divisions: 18 judges in 3 divisions**, the Pre-Trial Division, the Trial Division, and the Appeals Division.
 - **Office of the Prosecutor (OTP):** OTP is responsible for **receiving referrals** and any **substantiated information on crimes** within the jurisdiction of the Court. OTP **examines these referrals and information, conducts investigations**, and **conducts prosecutions** before the Court.
 - **Registry:** The core function of the Registry is to **provide administrative and operational support** to the Chambers and the Office of the Prosecutor.
- **Jurisdiction of ICC:**
 - Unlike the International Court of Justice, which hears disputes between states, the **ICC handles prosecutions of individuals**.
 - The ICC is only **competent to hear a case if:**
 - the **country where the offence was committed is a party** to the Rome Statute; or
 - the **perpetrator's country of origin is a party** to the Rome Statute
 - The ICC may **only exercise its jurisdiction** if the **national court is unable or unwilling to do so**.
 - The ICC **only has jurisdiction over offences committed after** the Statute's

entry into force on **1 July 2002**.

- **Relation with UN:**
 - While not a United Nations organization, the **Court has a cooperation agreement with the United Nations**.
 - When a situation is not within the Court's jurisdiction, the **United Nations Security Council can refer the situation to the ICC, granting it jurisdiction**.

Joint Statement of India-US Commercial Dialogue held on 10.03.2023 in New Delhi

- Recently, the National Security Advisors of India and the US led the inaugural meeting of the iCET in Washington, DC.

U.S.-India initiative on Critical and Emerging Technology (iCET):

- It was **launched** by the US President and Indian Prime Minister **on the sidelines of the Quad summit on May 2022**.
- **Goal:** To **elevate and expand Indo-U.S. strategic technology partnership and defense industrial cooperation** between the governments, businesses, and academic institutions of the two countries.
- The initiative will be **spearheaded by the National Security Council Secretariat in India and the US National Security Council**.
- The initiative would help **forge links** between the government, academia, and industry **in areas such as AI, quantum computing, 5G/6G, biotech, space, and semiconductors**.
- Under iCET, the two sides have identified **six focus areas** of co-development and co-production:
 - strengthening **innovation ecosystems**;
 - **defense innovation** and technology cooperation;
 - resilient **semiconductor supply chains**;
 - **space**;
 - **STEM** (science, technology, engineering, and math) talent;
 - **next-generation telecom**;

Resolution in U.S. Senate to recognise McMahon Line as international boundary between China and Arunachal Pradesh

- It is a **geographical border** between **Northeast India and Tibet**.
- It is the **boundary between China and India**, although its legal status is **disputed by the Chinese**
- It was **negotiated between Tibet and Great Britain** at the end of the **Shimla Conference in 1914**.
- It is **named after Henry McMahon**, who was the foreign secretary of British India and the **chief negotiator of the convention** at Simla.
- The length of this boundary is **890 kilometers**.
- It **runs from the eastern border of Bhutan along the crest of the Himalayas** until it **reaches the great bend in the Brahmaputra River**, where that river emerges from its

Tibetan course into the Assam Valley.

- Though **India considers the McMahon Line as the legal national border**, **China rejects it**, contending that Tibet was not a sovereign state and therefore did not have the power to conclude treaties.

The Shimla Treaty of 1914

- It was signed in 1914 by **delegates from India and Tibet** to establish a clear demarcation between the two countries.
- **China was not present in this treaty** since Tibet was an autonomous region at the time.
- According to the treaty the **McMahon Line is the clear boundary line between India and China**.
- The British rulers, on behalf of India, considered Tawang in Arunachal Pradesh and the southern portion of Tibet to be part of India, which the Tibetans consented to.
- As a result, **Arunachal Pradesh's Tawang region became a part of India**.

LAC

- LAC is a **demarcation line that separates Indian-controlled territory from Chinese-controlled territory**.
- **India considers the LAC to be 3,488 km long**, while the **Chinese** consider it to be only **around 2,000 km**.
- It is currently the **de-facto border between the two countries**.
- The Line of Actual Control (LAC), is **divided into three sectors**:
 - **Western** (Ladakh, Kashmir),
 - **Middle** (Uttarakhand, Himachal) and
 - **Eastern** (Sikkim, Arunachal): Here, the alignment of the LAC is **along the McMahon Line**.

China boosts South Pacific influence with Solomons port deal

- **Location**:
 - It is an **island country** consisting of **six major islands** and over **900 smaller islands** in Oceania.
 - It is situated in the **southwest Pacific Ocean**, approximately 2,000 km to the **northeast of Australia**.
- **Capital**: Its capital, **Honiara**, is located on the **largest island, Guadalcanal**.
- The **terrain is mountainous and heavily forested**.
- **More than 90%** of the islanders are **ethnic Melanesians**.
- Once a British protectorate, the **Solomon Islands achieved independence** as a republic in **1978**.
- **Language**:
 - There are **63 distinct languages** in the country, with numerous local dialects.
 - **English is the official language**, but **Pijin is the common language** for the majority of people.

India-UAE partnership: CEPA review to focus on key data sharing

Comprehensive Economic Partnership Agreement (CEPA):

- It is a type of free trade pact that covers negotiation on the **trade in services and investment, and other areas** of economic partnership.
- CEPA also looks into the regulatory aspect of trade and encompasses an agreement covering the regulatory issues.

Types of Trade Agreements

- **Free Trade Agreement:** It is an agreement in which two or more countries agree to provide preferential trade terms, tariff concession etc. to the partner country. Here a negative list of products and services is maintained on which the terms of FTA are not applicable.
- **Preferential Trade Agreement:** In this, two or more partners give preferential right of entry to certain products. This is done by reducing duties on an agreed number of tariff lines. India signed a PTA with Afghanistan.
- **Comprehensive Economic Partnership Agreement:** It is more comprehensive than an FTA. CECA/CEPA also looks into the regulatory aspect of trade.
- **Comprehensive Economic Cooperation Agreement:** CECA generally covers negotiation on trade tariffs and TQR rates only. It is not as comprehensive as CEPA. India has signed CECA with Malaysia.
- **Framework agreement:** It primarily defines the scope and provisions of the orientation of the potential agreement between the trading partners. It provides for some new areas of discussion and set the period for future liberalisation. India has previously signed framework agreements with the ASEAN, Japan etc.

Putin says Moscow to place nuclear weapons in Belarus, US reacts cautiously

Tactical Nuclear Weapons:

- **Nuclear weapons**, just like other weapons, can be **categorised into two types** — strategic and tactical.
- **Strategic Nuclear Weapons:** They refer to nuclear weapons that have **bigger objectives**, such as **destroying cities or larger targets**, with **larger war-waging objectives** in mind.
- **Tactical Nuclear Weapons (TNWs):**
 - They are nuclear weapons **used for specific tactical gains on the battlefield**.
 - They are intended to **devastate enemy targets in a specific area without causing widespread destruction and radioactive fallout**.
 - These are designed for **use in battle** as part of an attack **with conventional weapon forces**.
 - These **warheads can be delivered via a variety of missiles**, torpedoes and gravity bombs from naval, air or ground forces. They could even be simply

- **driven into an area and detonated.**
- **The explosive yield** of tactical nuclear weapons can **range from under one kiloton to about 100 kilotons**, whereas strategic nuclear weapons can have a yield of up to one thousand kilotons.
- **Delivery systems** for tactical nuclear weapons also tend to **have shorter ranges, typically under 310 miles (500 kilometres)**, compared with strategic nuclear weapons, which are typically designed to cross continents.
- They are the **least-regulated category of nuclear weapons covered in arms control agreements.**
- **Countries possessing TNWs:**
 - **Nine countries** have tactical nuclear weapons, according to the Federation of American Scientists.
 - They are **Russia, the United States, China, France, the United Kingdom, Pakistan, India, Israel and North Korea.**
 - **Russia** has a stockpile of an estimated **2,000 tactical nuclear missiles.**
 - The US. has an estimated **200 tactical nuclear bombs**, half of which are **at bases in Europe.**

SOCIETY

A thumbs down for the 'Adopt a Heritage' scheme

- Recently one archaeologist from USA criticized Adopt a Heritage Scheme of India.

Adopt a Heritage Scheme:

- The “Adopt a Heritage: Apni Dharohar, Apni Pehchaan” scheme was launched in 2017 on World Tourism Day
- It is a collaborative effort by the Ministry of Tourism, Ministry of Culture, Archaeological Survey of India.
- The project aims to encourage companies from public sector, private sector, corporate citizens, NGOs, individuals and other stakeholders to become ‘Monument Mitras’.
- They will take up the responsibility of developing and upgrading the basic and advanced tourist amenities at these sites as per their interest and viability in terms of a sustainable investment model under CSR.
- The Monument Mitras are selected by the ‘oversight and vision committee,’ co-chaired by the Tourism Secretary and the Culture Secretary.
- The oversight committee also has the power to terminate a memorandum of understanding in case of non-compliance or non-performance.

13th century temple discovered at Pushpagiri Kshetram in Cuddapah district

- 13century Hindu temple ruins have been unearthed amidst a shrub jungle northeast of the Durga temple, atop a hillock in the Pushpagiri Kshetram in **Kadapa district, Andhra Pradesh.**

th
- The architectural features of the ruins reveal a style that is contemporary to a temple at Vallur, **built by the Kayastha rulers.**

Kayastha rulers:

- The Kayasthas (**1239 AD - 1297 AD**) were **subordinates to the rulers of the Kakatiya dynasty.**
- In the history of the Kakatiyas, the Kayastha played a prominent role both as loyal subordinates and traitors.
- It is believed that they originally belonged to **a class of warriors of Western India.**
- **They ruled the region with Vallur as the capital.**
- Some rulers of this community were -Ganagaya Sahini (1239 - 1258 AD), Jannigadeva (1258 - 1268 AD), and Ambadeva II (1272 - 1294 AD). The last ruler was **Trupurari II** (1294 - 1297 AD).

Pushpagiri Kshetram:

- Pushpagiri is referred to as **Hari-Hara Kshetra**, as there are a number of temples dedicated to both **Shiva and Vishnu**.
- It is located on the **banks of the Pennar river**.
- Pushpagiri is also **called the second Hampi** due to its beautiful architecture.

Land mafias damage rampart of ancient fortified city of Sisupalgarh

- It is **located** near the city of Bhubaneswar in **Odisha**.
- It was **once the capital of Kalinga**, which is the ancient name of Odisha.
- It is considered **one of the largest** and best-preserved **ancient fortifications in India**.
- The fortifications are **over 2,000 years old** and **date back to the 3rd or 4th century BC**.
- **The remains** of the fortification were **discovered in 1948** by the Indian archaeologist B.B. Lal.
- **Features:**
 - It was **designed and constructed in a complete square shape** that was **surrounded by defensive walls**.
 - **Each side spreads for over half a mile**, and the interior is full of stone ruins and sculptures.
 - The **walls of the fortification** are a little over **nine meters (30 feet) tall**.
 - There were **eight gateways into the city**, **two in each of the four sides** of the wall.
 - The **gateways were connected by streets** in a **grid-like arrangement** with the palace in the center.
 - The **gates were elaborate structures made of brick and stone**.
 - There is evidence of **stone-lined reservoirs** that were likely used for harvesting rainwater.
 - **Intelligent traffic management, pedestrian-friendly pathways**, grand gateways with **guard houses**, wide roads, and a vast open space were some of the key features of this ancient city.
 - The city is believed to have a **population of around 20,000 to 25,000**.

Yaoshang festival begins in Manipur

- The festival is celebrated every year on the full moon of Lamta month (February-March) of the Meitei lunar calendar.
- The festival is celebrated by the **Meitei people** who are predominantly Hindu.
- It is celebrated at the same time as Holi and is known as 'Manipur's version of Holi'.
- The five-day-long celebration begins with the burning of 'yaoshang' (a small thatch hut/straw hut) which is constructed with bamboo and straws on the first day
- The highlight of the festival is the **ThabalChongba**, a traditional **Manipuri folk dance** where boys and girls hold hands and sing and dance in a circle.
- The festival marks the rejuvenation of the spirit of life and commemorates the birthday

of **Chaitanya Mahaprabhu**.

- Children visit neighbours to ask for a monetary donation which is called

Meitei people

- Meiteis are the dominant population of **Manipur** in northeastern India.
- A majority follow Hinduism while more than 8% are Muslims, locally known as
- The **Marup system** (literally, "friendship association"), a type of cooperative saving and credit institution, is an intriguing aspect of Meitei village's socio-economic organisation.
- They speak a **Tibeto-Burman language**, they differ culturally from the surrounding hill tribes by following Hindu customs.

First Edition of Women Icons Leading Swacchata (WINS) Awards 2023 Launched By MoHUA

- The WINS Awards 2023 aims to recognize **celebrate and disseminate inspiring and exemplary initiatives in urban sanitation and waste management** by women-led organizations and individual women.
- Applications for the Awards are open to Self-Help Groups (SHGs), Micro-enterprises, Non-Government Organisations, Startups and Individual Women Leaders/Swachhata champions.
- Applications will be considered under the thematic areas of **Management of Community/Public Toilets Septic Tanks, Cleaning Services Treatment Facilities** (Used Water/Septage), Municipal Water collection and /or Transportation, Operation of Material Recovery Facilities and Others.
- **Process:** The Application Form will be made available to all States.
- States & Cities will publicize details of WINS Awards 2023 via their website, portals, and social media.
- Urban Local Bodies (ULBs) will evaluate entries & nominate up to 5 applicants to the State via the **Swachhatam portal**.
- ULBs can organize public felicitation of their nominees as **city winners**.
- ULB-wise nominations will be evaluated at the State level. Up to 3 entries in each category will be nominated by the State to the Ministry of Housing and Urban Affairs (MoHUA).
- A state can organize public felicitation of nominees as State winners.
- State nominations will be evaluated at the national level on their innovativeness, impact, uniqueness, sustainability & replicability.
- At the national level, the MoHUA team will set up a Jury to evaluate the applications and select winners in each category.
- The Jury shall comprise stakeholders from cities and States, independent experts, brand ambassadors, influencers and industry representatives. Winning entries will be featured in a compendium.

NCPCR has an online portal Baal Swaraj to do real-time monitoring of children living on

streets: WCD Minister Smriti Irani

Baal Swaraj Portal:

- It is a portal launched by NCPCR for **online tracking and digital real-time monitoring** mechanism of **children in need of care and protection**.
- The portal has two functions- **COVID care and CiSS**.
 - **COVID Care** link caters to the children who have lost either or both parents due to COVID-19 or otherwise post March 2020.
 - **Cissto** help in the rehabilitation process of **Children in Street Situations**.
- Portal also provides a platform for professionals and organizations to provide any help for children in need in the form of open shelters, counselling services, medical services, de-addiction services, education services, volunteering etc.
- It has been launched under a centrally sponsored scheme namely **Mission Vatsalya**.

Mission Vatsalya:

- Mission Vatsalya scheme (**erstwhile Integrated Child Protection Scheme**) **launched in 2009-10** for supporting the children in difficult circumstances.
- **Vision:** To secure a healthy & happy childhood for each and every child in India, ensure opportunities to enable them to discover their full potential and assist them in flourishing in all respects.
- **Components** under Mission Vatsalya include:
 - Improve functioning of statutory bodies;
 - Strengthen service delivery structures;
 - Upscale institutional care/services;
 - Encourage non-institutional community-based care;
 - emergency outreach services;
 - Training and capacity building
- **Implementing Agency:** The National Commission for Protection of Child Rights (NCPCR).
- **Nodal Ministry:** Women and Child Development Ministry.

Grants-in Aid to NGOs for Welfare of Senior Citizens Atal Vayo Abhyuday Yojana

ATAL VAYO ABHYUDAY YOJANA:

- It is a **Central Sector Scheme**, which is formerly known as National Action Plan for Senior Citizens.
- Its vision is to **create a society where senior citizens live healthy, happy and empowered life**.
- It has **two components** – the Integrated Program for Senior Citizens (IPSrC) and the State Action Plan for Senior Citizens (SAPSrC)
 - **IPSRc:** It entails setting up homes to improve the quality of life of senior citizens, especially indigent senior citizens for writing basic amenities.
 - **SAPSRc:** Each state/union territories expected to frame its own action plan for the welfare of senior citizens.

- Under **IPSR component grant in aid is provided** to NGOs/ Voluntary Organisations (VOs) for running and maintenance of old age homes, Continuous Care Homes.
- **Five schemes** have been launched under this umbrella scheme:
 - Poshan Abhiyan for elderly
 - Livelihood and skilling initiatives for senior citizens
 - scheme on promoting silver economy
 - Awareness generation and capacity building for welfare of senior citizens
 - Channelising CSR funds for elderly care.
- **Nodal Agency: Ministry of Social Justice and Empowerment.**

PM urges people to visit Matua Maha Mela

Matua community:

- Matuas trace their ancestry to East Bengal, and many of them entered **West Bengal** after Partition and after the formation of Bangladesh.
- Today, Matuas constitute the second largest SC population of West Bengal.
- The Matua community has members on either side of the Bengal border.
- The **Matua Mahasangha, a religious reform movement** and a sect was formed by **Harichand Thakur** in East Bengal in the mid-1800s.
- It is a **Hindu reform movement** which has a considerable number of adherents in West Bengal as well as in Bangladesh.

Music Academy to confer Sangita Kalanidhi award on Bombay Jayashri

Sangita Kalanidhi award:

- It is considered the highest award in the **field of Carnatic music**.
- The award is conferred by the **Madras Music Academy**.
- The award comprises a gold medal and a birudu patra (citation).
- It is a landmark institution in the history of the fine arts. It emerged as an offshoot of the **All India Congress Session** held in Madras in December 1927.

Carnatic music

- Carnatic music is commonly **associated with southern India** including the states of Andhra Pradesh, Telangana, Karnataka, Kerala, and Tamil Nadu, but also practised in Sri Lanka.
- It is one of two major genres of Indian classical music that evolved **from ancient Hindu traditions**, the other being Hindustani music, which emerged as a distinct form in northern India as a result of Persian and Islamic influences.

Government will attempt to open corridor to Sharda Peeth in PoK for devotees: Amit

Shah

- Sharda Peeth is an abandoned Hindu temple and ancient centre of learning.
- ****Location:**** It is located in the village of Sharda in the valley of **Mount Harmukh**, along the **Neelam River** in the Pakistani-administered territory of Azad Kashmir. It lies 16 miles to the northwest of the Line of Control.
- **As a Centre of Learning:** Between the 6th and 12th centuries CE, it was one of the foremost centres of higher learning, hosting scholars such as **Kalhana, Adi Shankara, and Vairotsana**.
- It is also said to be where Panini and Hemachandra completed and stored their writings on Sanskrit grammar.
- **Religious significance:** Sharda is the most revered religious place for Kashmiri Pandits. They believe that Sharada in Kashmir is a tripartite embodiment of the goddess Shakti: Sharada (goddess of learning), Saraswati (goddess of knowledge), and Vagdevi (goddess of speech).
- It is one of the 18 Maha Shakti Peethas throughout South Asia that commemorate the location of fallen body parts of the Hindu deity Sati.

Central Vista's certified workmen awarded under NIPUN scheme organized by NAREDCO

- It is an innovative project for the **skill training of construction workers**.
- It is an **initiative of the Ministry of Housing & Urban Affairs (MoHUA)** under its flagship scheme of the Deendayal Antyodaya Yojana-**National Urban Livelihoods Mission (DAY-NULM)**.
- **Objective:** To **train over 1 lakh construction workers** through fresh skilling and upskilling programmes and **provides them with work opportunities in foreign countries**
- The **National Skill Development Corporation (NSDC)**, the nodal agency under the Ministry of Skill Development & Entrepreneurship (MSDE), Government of India, **will be the Implementation Partner** for the project NIPUN.
- **The project implementation is divided into three parts:**
 - training through **Recognition of Prior Learning (RPL)** at construction sites;
 - training through **Fresh Skilling by Plumbing and Infrastructure Sector Skill Council (SSC)**;
 - **International Placement** through industries/ builders/ contractors;
- The **courses are aligned with National Skills Qualifications Framework (NSQF)** and will be imparted at accredited and affiliated training centres.
- It will **provide trainees with 'Kaushal Bima', three-year accidental insurance with coverage of Rs 2 lakhs**.

Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM)

- It is a **Centrally Sponsored Scheme**, being implemented since 2014-15.
- **Implementing ministry: Ministry of Housing and Urban Poverty Alleviation.**
- **Coverage:** The scheme covers **all 4041 statutory cities and towns**.
- **Objectives:**

- To **reduce poverty and vulnerability of the urban poor households** by enabling them to access gainful self-employment and skilled wage employment opportunities.
- **Providing the shelter** equipped with essential services to the urban homeless in a phased manner.
- **Providing suitable space, institutional credit, and social security and skills** to the urban street vendor for accessing emerging market opportunities. **India's first cable-stayed rail bridge on Anji river in J-K nears completion; deck to be ready by May**
- It is an **under-construction railway bridge** in the Reasi district of **Jammu and Kashmir**.
- It will be the **first cable-stayed railway bridge in India**.
- It forms a part of the **Udhampur Srinagar Baramulla Rail Link Project (USBRL)** connecting Katra and Reasi Station on the Jammu-Baramulla line.
- **Features:**
 - It is an **asymmetrical cable-stayed bridge balanced on the axis of a central pylon**, and it **has tunnels on both ends**.
 - The **cable-stayed portion of the Anji bridge is 472.25 metres**, while the total length of the bridge is 725.5 metres, which is divided into four parts, including an embankment.
 - The **central span of the bridge is 290 metres**; its **total deck width will be 15 metres**.
 - It stands at the height of **331 metres above the Anji river bed**.
 - **Trains can run up to 100km/h**, and the bridge **can withstand wind speeds up to 213 km/hr**.

Dalai Lama names US-born Mongolian boy as 3rd highest spiritual leader

Tibetan Buddhism:

- Buddhism originated in India and became the predominant religion in Tibet by the 9th century AD.
- It evolved from the Mahayana and Vajrayana traditions of Buddhism, incorporating many tantric and shamanic practices of both post-Gupta period Buddhism in India.
- Tibetan Buddhism also incorporates the Bon religion which was spread across Tibet before Buddhism's arrival.
- Tibetan Buddhism has 4 major schools: **Nyingma** (8th century), **Kagyü** (11th century), **Sakya** (1073) and **Gelug** (1409)
- The Janang school (12th century) is one of the smaller schools that grew as an offshoot of the **Sakya school**.

Gelug School

- Since 1640, the Gelug School has been the predominant school of Tibetan Buddhism.
- The Dalai Lama belongs to Gelug School (**'Dalai' means 'ocean' in Mongol**).
- The Dalai Lama is the **foremost spiritual and temporal authority of Tibet**.
- The 5th grand lama of the school, **Ngawang Lobsang Gyatso**, was first conferred the

- title of Dalai Lama.
- To consolidate his rule, he instituted the tradition of succession through reincarnation in the Gelug School.
 - He claimed to be the reincarnation of **Avalokiteshvara**, one of the most important Bodhisattvas in Mahayana traditions.

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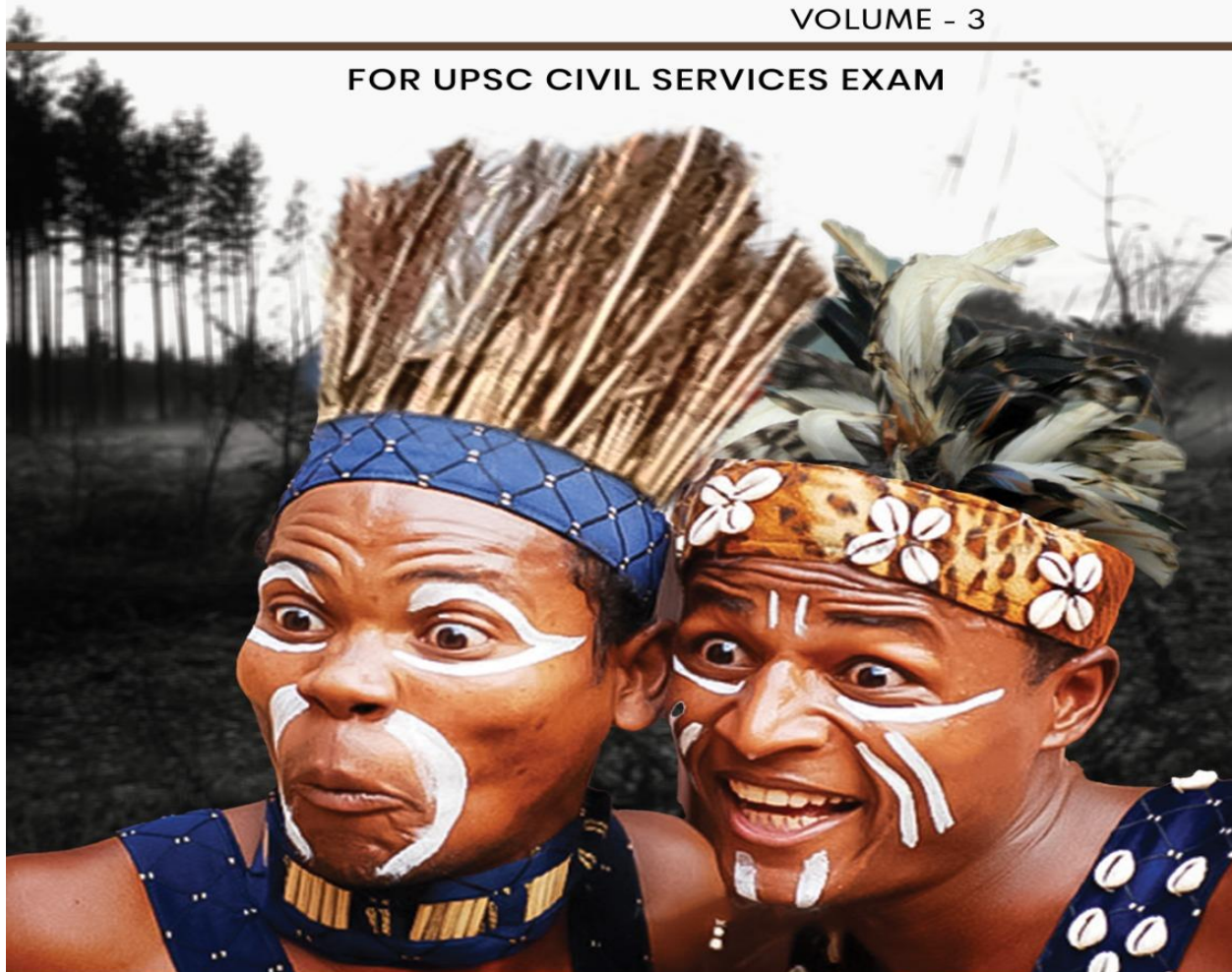
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SCIENCE & TECHNOLOGY

Zero-calorie sweetener linked to heart attack and stroke, study finds

- The researchers have pointed out the following issues in the report
 - Long-term use of this particular artificial sweetener is associated with an increased risk of heart attack and stroke.
 - Erythritol **made platelets easier to activate and form a clot.**
 - After ingestion, erythritol is **poorly metabolised by the body.** Instead, it goes into the bloodstream and leaves the body mainly through urine.
 - The human **body creates low amounts of erythritol** naturally, so any additional consumption can accumulate.

Erythritol

- Erythritol is a popular **artificial sweetener** that is widely available throughout the world.
- It is an organic compound - a naturally occurring, four-carbon sugar alcohol (or polyol).
- It is used as a food additive and sugar substitute.
- Erythritol is 60–70% as sweet as sucrose (table sugar).
- However, it is almost **completely noncaloric** and does not affect blood sugar or cause tooth decay.
- **Synthesis:** It is synthesized from corn using enzymes and fermentation.

Decoding dengue: India's first prospective DNA vaccine against disease is promising; but challenges lie ahead

- The DNA vaccine has been in development since 2019 by scientists from the National Centre for Biological Sciences (NCBS), Bengaluru, in collaboration with nine institutions in India, Africa, and the US.

DNA Vaccine:

- DNA vaccines use **engineered DNA to induce an immunologic response in the host against bacteria, parasites, and viruses.**
- The **basic working principle** behind DNA vaccine **involves the use of a DNA plasmid that encodes for a protein that originated from the pathogen** in which the vaccine will be targeted.
- DNA vaccine will **avoid extracellular degradation** and **successfully enter the nucleus of target cells** to induce a long-term immune response.
- It is considered to be **more stable, cost-efficient, and easier to handle** than traditional vaccines.

Dengue disease:

- Dengue is a mosquito-borne viral infection **found in tropical and sub-tropical**

- climates** worldwide, mostly in urban and semi-urban areas.
- The primary vectors that transmit the disease are **Aedes aegypti mosquitoes**.
 - The **virus** responsible for causing dengue is called the **dengue virus (DENV)**.
 - It can be **transmitted to humans through the bite of infected mosquitoes**.
 - The World Health Organization (WHO) also states that the **virus can transmit from pregnant mother to baby**.
 - There is **no specific treatment for dengue/severe dengue**. Early detection of disease progression associated with severe dengue and access to proper medical care lowers fatality rates of severe dengue to below 1%.

Farmers queue up to purchase high-yielding basmati seeds

- It is an **improved version of the popular Basmati rice variety**, Pusa Basmati 1509 with **inbuilt resistance to bacterial blight and blast disease**.
- This variety **possesses two genes each for bacterial blight resistance**, namely, xa13 and Xa21, **and blast resistance**, namely, Pi54 and Pi2.
- It is an **early maturing** and **semi-dwarf** basmati rice variety.
- It has an **average yield of 5.7 tonnes/ ha**.
- This variety was **released for commercial cultivation in 2021**.

Uniqueness of Basmati Rice

- It is **cultivated in the Himalayan foothills** of the Indian sub-continent and is universally known for its **long grain size, fluffy texture, and unique inherent aroma and flavor**.

Climatic conditions required for rice cultivation

- **Temperature:** Between **22-32°C** with **high humidity**.
- **Rainfall:** Around **150-300 cm**.
- **Soil Type:** **Deep clayey and loamy soil**.
- **Top Rice Producing States:** **West Bengal > Punjab > Uttar Pradesh > Andhra Pradesh**

Nano Urea is a part of our various efforts to bring a long term difference in the lives of our farmers: PM

- It is a **nanotechnology-based** revolutionary **Agri-input** that **provides nitrogen to plants**.
- It is **developed and patented** by the **Indian Farmers Fertiliser Cooperative Limited (IFFCO)**.
- IFFCO Nano Urea is the **only nano fertilizer approved by the Government of India** and included in the Fertilizer Control Order (FCO).
- **Features:**
 - Compared to conventional urea prill, Nano Urea has a **desirable particle size of about 20-50 nm** and **more surface area** (10,000 times over 1 mm urea)

- prill) **and number of particles** (55,000 nitrogen particles over 1 mm urea prill).
- It **contains 4.0 % total nitrogen** (w/v).
- **Benefits:**
 - It is produced by an **energy-efficient, environment-friendly production process** with less carbon footprints.
 - **Increased availability to crop by more than 80%**, resulting in **higher nutrient use efficiency**.
 - It is expected to **improve crop productivity, soil health, and nutritional quality** of produce and address the "imbalanced and excessive use" of conventional fertilizer.

Indian Farmers Fertiliser Cooperative Limited (IFFCO):

- It is **India's largest multi-state cooperative society** that is **entirely owned by Indian cooperatives**.
- IFFCO is primarily engaged in the **production and distribution of fertilizers**.
- **Headquarters: New Delhi, India.**

What are Lewis super acids?

- Lewis super-acids are derived from Lewis acids, **named after the chemist, G N Lewis**.
- Lewis superacids are used as catalysts in chemistry to accelerate reactions.
- These are compounds that **add electron pairs** and can be used to break strong chemical bonds and speed up reactions.
- These are highly reactive reagents, thus difficult to produce and use.
- It enables non-biodegradable fluorinated hydrocarbons (similar to Teflon) to be converted back into sustainable chemicals.
- It can even convert climate-damaging greenhouse gases, such as sulphur hexafluoride into sustainable ones.

Lewis Acid and Base

- **Lewis Acid:** It is an electron-pair acceptor such as a Hydrogen ion (H⁺)
- **Lewis Base:** It is an electron-pair donor such as the hydroxide (OH⁻) ion.

Researchers in India identify better drug treatment for Severe Scrub Typhus

- Scrub typhus is a life-threatening infection caused by **Orientia tsutsugamushi bacteria** which is a major public health threat in South and Southeast Asia.
- It is spread to people through bites of infected chiggers (larval mites).
- **Symptoms:** The most common symptoms of scrub typhus include fever, headache, body aches, and sometimes rash.
- **Treatment:** Scrub typhus should be treated with the antibiotic doxycycline. Doxycycline can be used in persons of any age.

- There is no vaccine available for this disease.

Typhus fever

- Typhus fevers are a group of diseases caused by bacteria that include epidemic typhus, scrub typhus, and murine typhus.
 - **Epidemic typhus** is caused due to *Rickettsia prowazeki* and spread by body lice.
 - **Scrub typhus** is caused due to *Orientia tsutsugamushi* and spread by chiggers.
 - **Murine typhus** is caused due to *Rickettsia typhi* spread by fleas.

After Nano Urea, Nano DAP gets approved; PM calls it a step towards making life easier for farmers

- It is a **concentrated phosphate-based fertilizer**.
- It **provides phosphorous nutrition** throughout the crop growth and development cycle.
- Nano-DAP is jointly **manufactured by Indian Farmers Fertiliser Cooperative (IFFCO) in association with a private player Coromandel**.
- Nano-DAP will be **sold at Rs 600 per bottle of 500 ml. One bottle will be equivalent to one bag of DAP**, which currently costs Rs 1,350.
- **Expected benefits:**
 - **DAP is the second most consumed fertilizer** in the country after urea.
 - Out of the estimated annual consumption of around 10-12.5 million tonnes, local production is around 4-5 million tonnes, while the rest has to be imported.
 - Nano-DAP **will help to bring down India's fertilizer import bill**.
 - It is also expected to contribute to **bringing down the annual subsidy on non-urea fertilizers**.

Fertilizer Control Order(FCO)

- It has been **issued under the Essential Commodities Act 1955**.
- It is **administered by Department of Agriculture Cooperation, Govt. of India**.
- The **FCO lays down,**
 - **what substances qualify for use as fertilizers** in the soil;
 - **product-wise specifications;**
 - **methods for sampling and analysis** of fertilizers;
 - the **procedure for obtaining a license/registration** as a manufacturer/dealer in fertilizers;
 - conditions to be fulfilled for trading thereof;

What are 'bio-computers' and what can they tell us about the human brain?

- Organoids are **lab-grown tissues that resemble organs**.
- They are **three-dimensional structures** usually **derived from stem cells**.

- They are **smaller, simpler versions of an organ** and can **mimic the architecture and function of specific organs** in the body.
- They can be **crafted to replicate much of the complexity of an organ** or to express selected aspects of it, like producing only certain types of cells.
- Organoids **can range in size** from less than the width of a hair to five millimeters.

'Organoid Intelligence'

- It refers to the **ability of organoids to exhibit certain behaviors or responses that are indicative of intelligence**, such as **problem-solving, learning**, or adapting to changing environments.
- It is an **emerging field where researchers are developing biological computing using 3D cultures of human brain cells (brain organoids) and brain-machine interface technologies**.
- These **organoids share aspects of brain structure** and function that play a key role in cognitive **functions like learning and memory**.
- They would essentially **serve as biological hardware** and could one day be even more efficient than current computers running AI programs.
- **OI requires scaling up current brain organoids** into complex, durable 3D structures enriched with cells and genes associated with learning and **connecting these to next-generation input and output devices** and AI/machine learning systems.
- **OI requires new models, algorithms, and interface technologies** to communicate with brain organoids, understand how they learn and compute, and process and store the massive amounts of data they will generate.

Biocomputers

- They are a type of **computer that use biological molecules, such as DNA or proteins, to perform computational tasks**.
- These computers can **perform certain operations much faster than traditional electronic computers** and have the potential to revolutionize fields such as medicine and biotechnology.
- One type of biocomputer is a **DNA computer**, which **uses strands of DNA to store and process information**.

Scientists Joint Venture Unearth Potential New Therapeutic Target For Inflammatory Diseases

- Scientists have found that an enzyme called Fumarate Hydratase is repressed in macrophages, a frontline inflammatory cell type implicated in a range of diseases **including Lupus, Arthritis, Sepsis and Covid-19**.
- They have made an important link between **Fumarate Hydratase and immune proteins called cytokines** that mediate inflammatory diseases.
- The research revealed that when Fumarate Hydratase is repressed, RNA is released from mitochondria which can bind to key proteins '**MDA5**' and '**TLR7**' and trigger the release of **cytokines**, thereby worsening inflammation.

Cytokines

- Cytokines are **signalling proteins** that are released by cells at local high concentrations.
- The role of cytokines is to facilitate the regulation of **the immune response** in the body.

Lupus

- Lupus is an **autoimmune disease** in which the body's immune system starts attacking your own tissues and organs.
- The condition primarily affects the kidney, but it also has an impact on the skin, blood vessels, connective tissue, heart, brain, and nearly every other organ.
- It is treated by immunosuppression via drugs such as mycophenolate, azathioprine, cyclophosphamide, rituximab
- The **SLEDAI disease activity index** is used for the prognosis of this disease.

Govt prohibits use of propylene glycol from supplier linked to Uzbekistan deaths

Propylene Glycol:

- Propylene glycol is a **synthetic food additive** that belongs to the same chemical group as alcohol.
- **Characteristics of Propylene Glycol**
 - Propylene glycol is a synthetic liquid substance that absorbs water.
 - It is a clear, **colourless, slightly syrupy liquid** at room temperature.
 - It may exist in air in the vapour form, although propylene glycol must be heated or briskly shaken to produce a vapour.
 - It is practically **odorless and tasteless**.

Uses of Propylene Glycol

- Propylene glycol is used to **make polyester compounds** and as a base for deicing solutions.
- Propylene glycol is used by the **chemical, food, and pharmaceutical industries** as an antifreeze when leakage might lead to contact with food.
- It is used to absorb extra water and **maintain moisture in certain medicines, cosmetics, or food products**.
- It is a solvent for food colors and flavours and in **the paint and plastics industries**.
- Propylene glycol is also used to create artificial smoke or fog used in fire-fighting training and theatrical productions.

IIT Roorkee researchers discover new antibacterial molecule 'IITR00693'

- It is a novel **antibacterial small molecule**.
- It has shown potent antibacterial activity **against a wide range of Gram-positive and**

Gram-negative bacteria, including some of the most problematic **drug-resistant strains**.

- IITR00693 **acts like a dual sword**; it not only **strikes down the most stubborn bacteria** but also **prevents the emergence of resistance**, ensuring that it remains effective for generations to come.
- It **enhances the activity of antibiotics** that are used in the treatment of bacterial infections.
- It **potentiates the activity of polymyxins against** two notorious **multidrug-resistant skin-infecting pathogens**, Staphylococcus aureus, and Pseudomonas aeruginosa.

Gram-positive and Gram-negative bacteria

- **Gram-positive bacteria:**
 - They show **blue or purple after gram-staining** in a laboratory test.
 - They have **thick peptidoglycan cell walls**.
 - They **do not have a protective outer membrane**.
- **Gram-negative bacteria:**
 - They show **pink or red on staining**.
 - They have **thin peptidoglycan cell walls**.
 - They **have an outer membrane**.
- **They release different toxins and affect the body** in different ways.

Salt to taste? Reduce your sodium intake. It may save your life, says new WHO report

- Of the 194 WHO member states, 55 per cent have implemented sodium reduction policies and other measures through mandatory and voluntary approaches.
- The **global average salt intake** is estimated to be **10.8 grams per day**, more than double the WHO recommendation of fewer **than 5 grams of salt per day (one teaspoon)**.
- **Bread and bread products** are the most targeted food category for sodium reduction across the implemented reformulation policies in member states.
- This was followed by **meat, poultry, game or fish, ready-made** and convenience foods and composite dishes and savoury snacks.
- Key salt reduction measures will generate an extra year of healthy life for a cost that falls below the average annual income or gross domestic product per person.

Sodium

- Sodium (Na) is a chemical element of **the alkali metal group**(Group 1) of the periodic table.
- It is a very soft **silvery-white metal**.
- It is the most common alkali metal and the sixth most abundant element on Earth, comprising 2.8 per cent of Earth's crust.
- It shows an **exploding reaction with water**.
- It occurs abundantly in nature in compounds, especially common salt—sodium chloride (NaCl)—which forms the mineral halite and constitutes about 80 per cent of

the dissolved constituents of seawater.

Two die as H3N2 influenza cases rise

H3N2 influenza

- **Influenza A H3N2 is a seasonal virus** and the occurrence of influenza infections normally peaks during season changes.
- **Symptoms-** Fever, body ache, sore throat, cough, runny/blocked nose and a few shortness of breath.
- It can spread from person to person and while anyone can get infected- older, adults and younger children are at a higher risk from H3N2.
- The **method of testing** for H3N2 is also **similar to COVID-19 testing** – RTPCR.
- There is a **vaccine for seasonal flu that also covers H3N2**.

Seasonal influenza:

- According to WHO, seasonal influenza is an **acute respiratory infection** caused by influenza viruses.
- There are **4 types of seasonal influenza viruses**, types - A, B, C and D. In which Influenza viruses **A, B, and C can infect humans**.
- Influenza A viruses are further classified into subtypes according to the combinations of **the hemagglutinin (HA) and the neuraminidase (NA), the proteins** on the surface of the virus.
- There are 18 different subtypes of HA, which are numbered H1 through H18. Similarly, there are 11 different subtypes of NA, numbered N1 through N11.

NIOT's desalination plant in Lakshadweep gains momentum

Low-temperature thermal desalination Technology:

- The LTTD is a process under which **the warm surface seawater is flash evaporated** at **low pressure and the vapour** is condensed with cold deep seawater.
- The LTTD technology **does not require any chemical pre and post-treatment** of seawater and thus the pollution problems are minimal and suitable for island territories.
- This technique works on the principle that water in the ocean 1,000 or 2,000 feet below is about 4° C to 8° C colder than surface water. So, salty surface water is collected in a tank and subject to high pressure (via an external power source).
- The pressured water vapourises and is trapped in tubes or a chamber. Cold water plumbed from the ocean depths is passed over these tubes and the vapour condenses into fresh water and the resulting salt is diverted away.
- Currently, the desalination plants, each of which provides at least 100,000 litres of potable water every day, are powered by diesel generator sets — there being no other source of power in the islands.

Snake venom may help prevent Parkinson's and Alzheimer's

- Researchers have developed two novel custom peptides (commercially produced peptides for use in biomedical laboratories) ---**TNP and HNP inspired by snake venom neurotrophin** that regulate the development, maintenance, and function of vertebrate nervous systems.
- These peptides show selective binding to the human **TrkA receptor of nerve cells** and hence can improve the selectivity and specificity of drug molecules toward the receptor, thereby enhancing the therapeutic potency of those drug molecules.

Peptides

- Peptides are naturally occurring **short chains of amino acid monomers** connected by amide bonds.
- They include many **antibiotics, hormones and other substances** that involve in the biological functions of living beings.
- Peptides are separated from proteins based on size. Proteins are comprised of multiple polypeptides that are placed in a biologically functional way.

Types of Peptides:

- **Milk Peptides:** Formed when the **digestive system breaks down a milk protein called Casein**. They are also formed from proteinases arising from lactobacilli during the fermentation of milk.
- **Peptones:** These are produced during the proteolysis of animal milk or meat. Sometimes it also can be formed from vitamins, fats, metals and some salts.
- **Ribosomal Peptides:** These are produced by translation (a process in which cellular ribosomes create proteins) of mRNA. To achieve a mature form, they are often subjected to proteolysis.

Applications of Peptides:

- It is used in many **anti-ageing creams**. The most commonly used peptides are those that are obtained from ocean plants like sea jasmine, sea fennel and sea beet.
- It is used **in treating the skin** that is affected by injury, sun damage or acne lesions.
- **Aspartame** which is a synthesized peptide used as an **artificial sweetener** with zero calories found in many diet foods is produced in labs and is 200 times sweeter than sugar.

Indian Institute of Astrophysics researchers develop low-cost star sensor

- The star sensor Starberry-Sense can help **small CubeSat class satellite missions** find their orientation in space.
- Any satellite needs to know where it is pointed in space, and the instrument used for this purpose is called a star sensor.
- The position of stars in the sky is fixed relative to each other and can be used as a **stable reference frame** to calculate the **orientation of a satellite in orbit**.

- **Features of Starberry-Sense**

- The brain of the instrument is a **single-board Linux computer called Raspberry Pi**, which is widely used among electronics hobby enthusiasts.
- Based on commercial/off-the-shelf components, this star **sensor costs less than 10% of those available in the market.**
- It is ready for launch on **the PS4-Orbital Platform by ISRO** and can be used for **CubeSats** and other **small satellite missions** in the future.
- The star sensor has successfully undergone the **vibration and thermal vacuum** test that qualifies it for a space launch and operations, and these tests were conducted in-house at the environmental test facility located at the CREST Campus of IIA in Hosakote.

CubeSats

- CubeSats are a class of **research spacecraft** called nanosatellites.
- CubeSats are built to standard dimensions (Units or "U") of 10 cm x 10 cm x 10 cm.
- They typically **weigh less than 1.33 kg** (3 lbs) per U.

Substrate promiscuity of fungi generated enzyme Laccase shows potential in degrading industrial dye effluents

- Laccase **is generated by a group of fungi** that have been found capable of degrading a variety of hazardous organic **dye molecules** that are regularly drained into waterbodies after dyeing clothes in the textile industry.
- This observed characteristic which the scientists **termed substrate promiscuity** can have deep implications in designing enzyme-coated cassettes for treating heavily dye-polluted water.
- Laccase was known for its capacity to **degrade various organic molecules.**
- Laccase, generated by a group of fungi, contains **4 copper atoms** in two different **oxidation states**, and degrades substrates **through redox reactions**, producing only **water** and the simplest non-virulent or less virulent **oxides of carbon, nitrogen and sulphur.**
- Hence the scientists saw scope in using it to develop a technology to treat/degrade the dye effluents emanating from textile industries.
- Combining UV/Visible spectroscopy and computer simulations they demonstrated that many organic dye molecules with varying kinetics and wide variation in charge, size and shape can be degraded by the enzyme laccase.
- This substrate promiscuity of laccase **offers immense biotechnological potential** for a broad-spectrum degrader for industrial dye effluents.

Enzyme promiscuity

- Enzyme promiscuity is defined as the **capability of an enzyme to catalyze a reaction** other than the reaction for which it has been specialized.
- Although the enzyme is known for its specificity, many enzymes are reported to be promiscuous.

Enzymes

- An enzyme is a substance **that acts as a catalyst in living organisms** and regulates the rate at which chemical reactions proceed without being altered in the process.

Physical activity can help patients with Parkinson's disease improve their quality of life: Research

- It is a **progressive neurological disorder** that **affects the nervous system** and the parts of the body controlled by the nerves.
- It is a **condition** in which a **patient holds limited or no control over his movements and body balance.**
- It occurs and **progresses with ageing**, but in rare cases, it is also witnessed among children and teenagers as well.
- It has **no cure.**
- Many studies have suggested that **men are more likely to be affected** by Parkinson's than women.
- **Cause:**
 - It is caused by the **degeneration of nerve cells** in the part of the brain called the **substantia nigra, which controls movement.**
 - These nerve cells die or become impaired, **losing the ability to produce** an important chemical called **dopamine.**
 - **Dopamine** operates with other neurotransmitters to help **coordinate the millions of nerve and muscle cells involved in the movement.**
- **Symptoms:**
 - **Tremors** (trembling in the hands, arms, legs, and jaw); **rigidity** (stiffness of the limbs); **slowness** of movement; and **impaired balance** and coordination.
 - Parkinson's patients **may also experience** other symptoms such as **difficulty in swallowing**, chewing, and **speaking**, urinary problems, constipation, skin problems, **depression**, emotional changes, and **sleep disruption.**
- Currently, **no blood laboratory or radiological tests are available to diagnose** Parkinson's disease.

Why Finland's installation of the world's 1st sand battery may be a game-changer

- The battery, made of sand collected from construction sites, can solve the problem of round-the-year energy supply, a known limitation of renewable energy sources that can be harnessed intermittently.
- Sand can be **heated up to 600 degrees Celsius (°C)**, whereas water starts to boil at 100°C. It also has low heat conductivity, which reduces energy loss.
- The storage system has three **main components: the sand silo, an electrical air heater and an air-to-water heat exchanger.**
- For charging the sand silo, the air is heated to 600°C in the electric air heater.
- The hot air is then circulated inside the silo using a heat-exchange pipe and blowers to raise the temperature of the sand at the silo's core to 600°C.
- When the storage enters the discharging stage, the blowers are used to pump air into

- the pipe inside the sand silo.
- Once the air reaches 200°C, it is transferred to the air-to-water heat exchanger, where it is used to boil water. It is then sent to the heating network.
 - The **storage system requires electricity at all times.**
 - It is needed to charge the battery, monitor the temperature during standby and run the blowers when the battery is used.
 - 1,000 times more power is discharged as heat than is used as electricity.

IIT Madras Researchers develop Database on Coronavirus Antibodies

Ab-CoV database:

- **What is it?** It is an **online open-source database of coronaviruses' neutralizing antibodies encompassing** crucial features such as **binding affinity** and **neutralization profiles** of antibodies.
- It is an exhaustive repository of antibodies, **not just specific to SARS CoV-2** but also to **other members of the coronavirus family**, such as Severe Acute Respiratory Syndrome (**SARS**) and Middle East Respiratory Syndrome (**MERS**) viruses.
- It also **contains the source of each antibody** and the **viral protein(s)** and virus strains **they recognize.**
- It includes 1,780 coronavirus-related antibodies, including 211 nanobodies, and can **help develop drugs against new variants** of SARS-CoV-2.
- Ab-CoV has a **wide range of search and display options** through which users can directly search and download the processed data based on the antibody's name, viral protein epitope, neutralized viral strain, antibody, and nanobody.
- It also has the **option to view structures of antibodies** or viral proteins **in a 3D model.**
- **Applications:** The information compiled in this database **can assist researchers in,**
 - **antibody engineering;**
 - **analyzing immune escape** for known and future variants of SARS-CoV-2;
 - **computational studies** on neutralizing antibodies;
 - **relating structural features** with binding affinity;

Potentially deadly fungus spreading rapidly in US health care facilities

Candida Auris (C. auris):

- It is a **multi-drug resistant fungus** that is capable of **causing invasive infections** in the human body.
- It was **first identified** in **Japan** in **2009.**
- **How is it contracted?**
 - **Most cases** of the fungus have been **reported in healthcare settings**, such as hospitals and nursing homes.
 - It is generally thought to be **spread through contact with contaminated surfaces** or by **person-to-person transmission.**
 - **People who are already suffering** from other medical conditions, recent

- hospital stays, and invasive devices **are most at risk of contracting** the fungus.
- **How does the fungus act on the body?** There are **two ways C. auris** can affect the body,
 - The fungus **can either live on a specific region**, such as the skin, rectum, or mouth, in a process called "**asymptomatic colonization**," where a **patient has no symptoms but can spread it** to other people.
 - It can **enter the bloodstream** or wounds, where it can **cause severe invasive infections**.
 - **Symptoms:**
 - Its symptoms are often **similar to those of other common diseases** and hence **diagnosis is difficult**.
 - The most **common symptoms** of C.auris include **fever and chills** that **don't go away after treatment with antibiotics**.
 - **Mortality Rate:** It is estimated to be between **30-60%**.
 - **Treatment:**
 - Most C. auris infections are **treatable with antifungal medications** called **echinocandins**.
 - However, there has been a **rise in cases resistant to the main three classes of antifungals** available, **making it harder to treat patients**.

NASA Researchers Track 'Dent' in Earth's Magnetic Field

South Atlantic Anomaly (SAA)

- **It is a region at the Earth's surface** where the **intensity of the magnetic field is particularly low**.
- It stretches out **between South America and southwest Africa**.
- **Why it occurs?**
 - **Earth's magnetic field** acts like a protective shield around the planet, **repelling and trapping charged particles from the Sun**.
 - **SAA exists** because the **Earth's inner Van Allen radiation belt comes closest to the planet's surface**, causing an increased flux of energetic particles.
 - This **leads to the penetration of solar energetic particles deep into Earth's atmosphere**, posing severe **problems for airplanes** and ships' **positioning systems** as well as **spacecraft electronic systems**.

Van Allen radiation belts

- The Van Allen radiation belt is a **zone of energetic charged particles**, most of which **originate from the solar wind**.
- The particles are **captured by and held around a planet by that planet's magnetic field**.
- It surrounds Earth, containing a nearly impenetrable barrier that **prevents the fastest, most energetic electrons from reaching Earth**.
- The **outer belt is made up** of billions of **high-energy particles** that **originate from**

- the Sun and become trapped** in Earth's magnetic field, **an area known as the magnetosphere.**
- **The inner belt results from interactions of cosmic rays with Earth's atmosphere.**

International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), have developed a novel bi-metallic joining process using a technique called laser powder bed fusion (L-PBF) or selective laser melting (SLM) technique of metal 3D printing.

- Researchers have developed a novel **bi-metallic joining process** to create a bimetallic composite made from copper and steel by using the Laser powder bed fusion (L-PBF)
- One such bimetallic composite, made from **copper and steel**, has high thermal and electrical conductivity, exceptional corrosion resistance, and mechanical properties.
- The researchers have successfully demonstrated the formation of the **interfacial microstructure and bonding mechanism** and investigated the reason for achieving a strong interfacial bond.
- **Why it is significant?** In the world of technological advancements, high-performing and multifunctional structures and components are in great demand.
- To cater to this demand, the development of bimetallic structures has gained significant attention.

Powder bed fusion Technique

- Powder bed fusion (PBF) is a 3D printing method that joins powdered material point by point using an energy source, typically a laser beam or an electron beam.
- It is one of the most common 3D printing techniques used **for industrial additive manufacturing (AM).**
- PBF is possible with **both metals and polymers**, although not all materials are compatible.
- Due to the combustible nature of the metal powders, LPBF is usually performed **under inert gas such as argon, or under a vacuum.**

NALCO-BARC Releases India's 1st Bauxite CRM

BARC B1201:

- It is the **first of its kind** Certified Reference Material (CRM) in India and **5th in the World.**
- This new product will act as an import substitution for use by Industries, Research Laboratories and Academic Institutions **as a calibration standard in evaluating analytical methods, the** performance of Instruments, and data quality control in routine analysis of bauxite.

Bauxite

- Bauxite is an important ore that is used **for making aluminium**. It is not a specific mineral but a rock consisting mainly of hydrated aluminium oxides.
- The deposits of Bauxite are mainly associated with laterites and occur as capping on hills and plateaus, except in coastal areas of Gujarat and Goa.
- Bauxite is primarily used to produce alumina through **the Bayer process**.
- In India **Odisha** alone accounts for 53% of the country's resources of bauxite and it is also found in the states of Andhra Pradesh, Jharkhand, Madhya Pradesh and Maharashtra.

India Gets Its First Cloned Gir Female Calf, Named Ganga

Cloned Cow-calf:

- It is India's first cloned Gir female calf named Ganga.
- To clone the Gir, **oocytes** are isolated from live animals using ultrasound-guided needles, and then, matured for 24 hours under control conditions.
- The **somatic cells of elite** cows are used as donor genomes, which are fused with OPU-derived enucleated oocytes. Following chemical activation and in-vitro culture, the developed blastocysts are transferred into recipient mothers to deliver the Gir calf.

Cloning

- The term cloning describes a number of different processes that can be used to produce **genetically identical copies of a biological entity**.
- Cloning can be **natural or artificial**. Examples of cloning that occur naturally are as follows:
 - **Vegetative reproduction** in plants, e.g. water hyacinth producing multiple copies of genetically identical plants through apomixis
 - Binary fission in bacteria.
- Clones can also be produced through artificial means. Biotechnological methods are employed to produce such clones.
 - **Molecular cloning**, where copies of specific gene fragments are produced
 - **Cellular cloning**, where single-celled organisms with the exact genetic content of the original cell are produced in cell cultures.
 - **Organism cloning**, or reproductive cloning, where a multicellular clone is created generally through somatic cell nuclear transfer

Somatic cells

- The word "somatic" is derived from the Greek word soma, meaning "body". Hence, all body cells of an organism – apart from the sperm and egg cells, the cells from which they arise (gametocytes) and undifferentiated stem cells – are somatic cells

Researchers reveal effectiveness of vaccination against specific types of cancer

Adjuvants:

- **What is it?** An adjuvant is a substance that is **added to a vaccine to stimulate** and enhance the **magnitude and durability of the immune response**.
- They are commonly **used to improve the effectiveness of a vaccine**.
- Adjuvants **allow for lesser quantities of the vaccine** and fewer doses.
- Generally, they are **injected alongside an antigen to help** the immune system **generate antibodies that fight the antigen**.
- Adjuvanted vaccines **can cause more local reactions** (such as redness, swelling, and pain at the injection site) and **more systemic reactions** (such as fever, chills and body aches) than non-adjuvanted vaccines.
- **Example: Aluminum adjuvants** are used in vaccines such as hepatitis A, hepatitis B, diphtheria-tetanus-containing vaccines etc.

Scientists Created a New Recyclable Plastic Not Made From Crude Oil

Recyclable Plastic:

- The new recyclable plastic is based on **Poly(ethyl cyanoacrylate) or PECA**, which is prepared from the monomer used to make Super Glue.
- It is formed through a **process of polymerization** where single, repeating monomer units are strung together in a chemical reaction to make one long chain.
- It has comparable properties to existing plastics and **is stable in hot, humid environments**.
- The long polymer chains of the PECA plastic can be thermally 'cracked' at temperatures of 210 °C and the resulting monomers distilled into a clean product to use again.

Ethyl cyanoacrylate

- Ethyl cyanoacrylate is a **highly reactive monomer** that has been used nearly exclusively to make Super Glue and related fast-setting adhesives
- It is produced on the ton scale from **methanol, chloroacetic acid, and sodium cyanide**, which themselves are sourced from hydrogen, nitrogen, methane, carbon monoxide, chlorine, and sodium hydroxide.

Polymerization

- It is a process in which relatively small molecules called **monomers combine chemically to produce** a very large chainlike or network molecule, called a polymer.
- The monomer molecules may be all alike, or they may represent two, three, or more different compounds.

Study finds how body's anti-viral immune response may eliminate aging cells

Cellular Senescence:

- It refers to a **state of stable cell cycle arrest** in which **proliferating cells become resistant to growth-promoting stimuli**, typically in **response to DNA damage**.
- During this phase, the **cell undergoes numerous phenotypic and metabolic changes**.
- **Senescent cells accumulate during ageing** and have been implicated in **promoting a variety of age-related diseases**.
- Cellular senescence **can compromise tissue repair and regeneration**, thereby **contributing towards ageing**.
- **Removal of senescent cells can attenuate age-related tissue dysfunction** and extend health span.
- **Senescence can also act as a potent anti-tumour mechanism** by preventing the proliferation of potentially cancerous cells.

Scientists spot piezoelectric effect in liquids for the first time

Piezoelectric effect

- It is a phenomenon where specific types of material produce an **electric charge** proportional to the **mechanical stress applied to them**.
- It was first time discovered in 1880, in quartz.
- Quartz is the most famous piezoelectric crystal. Quartz is silicon dioxide (SiO_2).
 - The quartz crystal consists **of silicon and oxygen atoms** at the four vertices of a three-sided pyramid; each oxygen atom is shared by two pyramids. These pyramids repeat themselves to form the crystal.
 - When **mechanical stress is applied** – i.e., when the crystal is squeezed – the position of the charge is pushed further from the centre, giving rise to a small voltage. This is the source of the effect.
 - It is used in this capacity in analog wristwatches and clocks. Such crystals are also used in **cigarette lighters, electric guitars, TV remote controls, audio transducers**, and other instruments where converting mechanical stress to a current is useful.
- This effect has only been expected in solids thus far because the body being squeezed needs to have an organised structure, like pyramids of quartz.
- Liquids don't have such a structure. Instead, they take shape of their container.

DEFENCE & SPACE

ISRO successfully conducts key rocket engine test for Chandrayaan-3

- It has been **designed and developed by the Liquid Propulsion Systems Centre (LPSC)**, a subsidiary of ISRO.
- It will **power the Cryogenic Upper Stage of the LVM3 launch vehicle** for the **Chandrayaan-3 mission**.
- It is the **first Indian cryogenic engine to feature a gas-generator cycle**.
- It is one of the most **powerful upper-stage cryogenic engines in the world**.
- This engine develops a **nominal thrust of 186.36 kN in vacuum**.

Cryogenic stage

- The cryogenic stage is technically a very **complex system** due to its **use of propellants at extremely low temperatures** and the associated thermal and structural problems.
- It uses **liquid fuels that are cooled to very low temperatures**.
- A Cryogenic rocket stage is **more efficient and provides more thrust for every kilogram of propellant it burns** compared to solid and earth-storable liquid propellant rocket stages.

Chandrayaan-3 Mission:

- Chandrayaan-3 is **India's third moon mission** and is a follow-on mission to Chandrayaan-2 to demonstrate **end-to-end capability in safe landing and roving on the lunar surface**.
- Chandrayaan-3 mission has **three major modules** — the **Propulsion module, Lander module, and Rover**.
- The mission is slated to be launched **later this year by Launch Vehicle Mark 3 (LMV3)** from the Satish Dhawan Space Centre at Sriharikota.

Union Cabinet approves procurement of 70 HTT-40 basic trainer aircraft from HAL

- The **Hindustan Turbo Trainer-40 (HTT-40)** is a **basic trainer aircraft (BTA)**.
- It is designed and developed by **Hindustan Aeronautics Limited (HAL)**.
- **Features:**
 - It is a **turboprop aircraft** designed to have **good low-speed handling** for better training effectiveness.
 - It has a **maximum take-off weight of 2.8 tonnes**.
 - It can achieve a **top speed of 450 Km/hr** and a **maximum range of 1,000km**.
 - The **fully aerobatic tandem seat** HTT-40 has an **air-conditioned cockpit, modern avionics** with multifunction displays, **hot refueling**, and **zero-zero** (zero speed and zero altitude) **ejection seats**.
- The aircraft will **meet the shortage of BTAs for the training of newly inducted pilots** of the Indian Air Force (IAF).

- It will be used for **basic flight training**, aerobatics, **instrument flying**, and close formation flights, in addition to undertaking secondary missions such as navigation and night flying flights.

Turboprop aircraft

- A turboprop aircraft **uses a turbo-prop** engine rather than a piston-powered engine or a jet engine.
- They have **one or more gas-turbine engines connected to a gearbox** that turns the propeller(s) to **move the aircraft on the ground and through the air**.
- Turboprop aircraft **have lower operating costs** than jets because **they burn less fuel**, but **they are also slower than jets**.

Astronomers discover baby star near centre of Milky Way galaxy

Sagittarius A* (Sgr A*)

- It is a **supermassive black hole** located at the **center of the Milky Way Galaxy**.
- It is located in the **constellation Sagittarius**.
- It has a **mass equivalent to four million Suns**.
- It has a **diameter** of around **5 million kilometers**.
- It is **mostly dormant** and only occasionally absorbs gas or dust.
- The **event horizon** of the black hole **has a radius of 12 million km**.

Black hole

- A black hole is a **region in space where gravity pulls so much that even light can not get out**.
- The **gravity is so strong** because **matter has been squeezed into a tiny space**. This can **happen when a star is dying**.
- Because no light can get out, **it is difficult to detect a black hole**.
- The **largest black holes are called "supermassive"**. These black holes have masses that are more than 1 million suns together.
- **Albert Einstein first predicted** the existence of black holes in 1916, with his general theory of relativity.

'Event horizon' of a Black hole

- It is the **boundary defining the region of space around a black hole from which nothing** (not even light) **can escape**.
- The **escape velocity** for an object within the event horizon **exceeds the speed of light**.
- The radius of the event horizon is **called the Schwarzschild radius**, after the German astronomer Karl Schwarzschild.

NASA Confirms DART Mission Impact Changed Asteroid's Motion in Space

- NASA's DART mission **was a spacecraft** designed to **test a method of deflecting an asteroid** for planetary defense, **using the "kinetic impactor" technique** (in simplest terms means smashing a thing into another thing).
- DART was the **first-ever space mission to demonstrate asteroid deflection** by kinetic impactor.
- **The target** of the spacecraft **was a 160-meter-wide asteroid known as Dimorphos**, which is a moonlet in orbit around the larger asteroid, Didymos.
- It was **launched in November 2021**.
- DART spacecraft **successfully collided with Dimorphos on 26 September 2022, altering the asteroid's orbit by 33 minutes**.
- **It is the first time humanity intentionally changed the motion of a celestial object** in space.

Russian submarine hits target with Kalibr cruise missile from Sea of Japan in drill

- Kalibr missiles have been **used by Russia to attack targets in Ukraine**.
- Russia targeted Ukraine power stations by launching Kalibr missiles from submarines and ships in the Black Sea.

Kalibr Missile:

- It is a **Russian family of the ship-, submarine-, surface- and air-launched cruise missiles** that can engage hostile warships and land targets.
- This family **includes a variety of different missiles**, that share common design features.
- They were **developed and produced by Russia's Almaz-Antey corporation**.
- **Features:**
 - All missiles have the **same diameter of 533 mm**.
 - It **fits in a standard torpedo tube** of a submarine.
 - These missiles can **carry conventional or nuclear warheads**.
 - These missiles **use inertial guidance with satellite navigation update**.
 - They can **accelerate in the terminal stage to supersonic speed** to avoid enemy defenses.
 - **Range:** It varies **between 200km to 2500km** depending on the type.

Indo-France joint exercise at Pangode military station

- It is the **first joint military exercise between the Indian Army and French Army**.
- This is the **first time** the two countries have engaged in a **military exercise in a team format consisting of a company group**.
- **Objective: Enhancing interoperability, coordination, and cooperation** between both forces **at the tactical level**.
- **The theme** for the exercise is based on **"Humanitarian Assistance and Disaster**

Relief Operations in a Contested Environment”.

Indian-France Military

- Exercise **Garuda: Air Force**
- Exercise **Varuna: Navy**
- Exercise **Shakti: Army**

NASA's IXPE Unlocks Mysteries of Historic Tycho Supernova

- The explosion of a supernova which was named **Tycho** was visible to people on Earth in 1572, and the shock wave from the blast is still propagating through the cosmos.

Imaging X-ray Polarimetry Explorer (IXPE)

- IXPE is an international collaboration **between NASA and the Italian Space Agency**.
- It studies the most extreme and mysterious objects in the universe – supernova remnants, supermassive black holes, and dozens of other high-energy objects.
- It is the first satellite dedicated to measuring **polarized X-rays from objects**, such as neutron stars and supermassive black holes, to reveal previously hidden details of the universe.

Tycho

- The Tycho supernova is classified as a **Type Ia supernova**, which occurs when a white dwarf star in a binary system shreds its companion star, capturing some of its mass and triggering an explosion.
- Tycho **released as much energy as the Sun** would emit over ten billion years and blasted particles out into space near the speed of light.
- Researchers used IXPE to reveal the magnetic field geometry close to Tycho's shock wave to investigate further how particles are accelerated there.

ISRO to undertake controlled re-entry experiment of decommissioned satellite on March 7, 2023

- Megha-Tropiques is an **Indo-French Joint Satellite Mission** for studying the water cycle and energy exchanges in the tropics.
- **Objective:** To understand the life cycle of convective systems that influence tropical weather and climate and their role in the associated energy and moisture budget of the atmosphere in tropical regions.
- It provides scientific data on the contribution of the **water cycle to the tropical atmosphere**, with information on condensed water in clouds, water vapour in the atmosphere, precipitation, and evaporation.
- With its circular orbit inclined 20 deg to the equator, the Megha-Tropiques is a unique satellite for climate research that should also aid scientists seeking to refine prediction models.

- The Megha-Tropiques has **day, night and all-weather viewing capabilities**; it passes over India almost a dozen times every day, giving scientists an almost real-time assessment of the evolution of clouds.

Megha-Tropiques carries the following four payloads:

- Microwave Analysis and Detection of Rain and Atmospheric Structures (**MADRAS**), an Imaging Radiometer developed jointly by CNES and ISRO
- Sounder for Probing Vertical Profiles of Humidity (**SAPHIR**), from CNES.
- Scanner for Radiation Budget (**ScaRaB**), from CNES.
- Radio Occultation Sensor for Vertical Profiling of Temperature and Humidity (**ROSA**), procured from Italy.

INS Trikand reaches Bahrain for her first participation in International Maritime Exercise/Cutlass Express 2023

- INS Trikand is a frontline frigate equipped with a versatile range of weapons and sensors. The ship is a part of the Indian Navy's Western Fleet, based in Mumbai.
- It belongs to the **Talwar class of guided missile frigates**.
- It was built by the Yantar shipyard in Kaliningrad, Russia.

International Maritime Exercise/ Cutlass Express 2023

- It is one of the largest **multinational maritime exercises** in the world.
- While this is Indian Navy's maiden IMX participation, it also marks the second occasion where an Indian Naval ship is participating in an exercise conducted by the combined maritime forces.
- The newest iteration of Cutlass Express will primarily be carried out in **Djibouti, Kenya and Mauritius**.
- It will feature a series of shore-based and at-sea training activities that will take place along the eastern coast of Africa.
- It aims to bolster **regional security and stability in the Western Indian Ocean**.
- Participating nations will include the US, Canada, Djibouti, Madagascar, Mozambique, Mauritius, the UK, Japan, Tanzania, Seychelles, France, Kenya, Georgia, Comoros and Greece.

Indian navy successfully tests brahmos missile

Medium Range Surface-to-Air Missile:

- This weapon system also called the '**Abhra**' **Weapon System** is a state-of-the-art medium-range air defence weapon system.
- It is a joint venture of **DRDO and Israeli Aerospace Industries (IAI)** and is produced at Bharat Dynamics Limited (BDL).
- It is designed to destroy hostile aircraft, helicopters cruise missiles and drones **at a**

70km range.

BrahMos missile

- It is a **joint venture of India and Russia** which makes supersonic cruise missiles
- It has a **speed of 2.8 Mach** or about three times the speed of sound.
- The missiles can be launched from a range of platforms such as submarines, ships, aircraft, or land.
- BrahMos Aerospace is also developing the BrahMos NG, a compact version of the missile.

NASA's IBEX spacecraft back to studying edge of solar system after glitch

- NASA's Interstellar Boundary Explorer (IBEX) was launched in October 2008 to **study the outer edge of the heliosphere.**
- The spacecraft is designed to map the boundary where winds from the Sun interact with winds from other stars.
- The solar system's boundary is studied by observing **energetic neutral atoms or ENAs.**
- ENAs are high-energy particles produced at the very edge of our solar system.
- **Major discoveries of IBEX**
 - This spacecraft fully **mapped the heliosphere** within a year after its launch.
 - Its most famous discovery is uncovering a dense region of particles, **the 'IBEX ribbon**

Heliosphere

- Heliosphere is the region where the **constant flow of particles from our Sun**, called the solar wind, **collides with material from the rest of the galaxy.**

Indian army's new attack system PALM 400 to be a game changer

- The PALM 400 - acronym for '**Precision Attack Loitering Munition**' is a **long-range, high-precision loitering munition system.**
- It is the result of a **joint venture** between **AVision Systems (Israel), UVision Air Ltd, and Aditya Precitech Private Ltd (APPL).**
- It is built to fly over **areas where armored vehicles are concentrated** or are anticipated.
- Each PALM 400 selects its targets when armored vehicles enter the kill zone and **launch an armor-piercing projectile, penetrating it** from the top where there is least protection.
- **Features:**
 - It can be **discharged from a canister** and **fly 3000-4000 feet above a kill zone for up to 120 minutes.**
 - It has a **range** of more than **100 km** and travels at a **speed of 50 to 140 knots (90 to 260 km/h).**

- It uses **electro-optical/infrared stabilized cameras to detect** and engage targets both **during the day and at night**.
- It uses **complex navigational techniques** that enable it to function even in environments where the GPS has been disabled.
- It **can loiter above a target in stealth mode**, collect information, and immediately strike at time-sensitive threats.

Navy's major operational level exercise TROPEX concludes

- Full form: Theatre Level Operational Readiness Exercise (TROPEX 2023).
- This operational level exercise is conducted biennially and witnesses participation not only by all Indian Navy units but also of Indian Army, Indian Air Force and Coast Guard assets.
- Features: It witnessed the participation of approximately 70 Indian Navy ships, six submarines and over 75 aircraft.
- As part of the exercise, all surface combatants of the Indian Navy including Destroyers, Frigates, and Corvettes as well as submarines and aircraft are put through complex maritime operational deployments.
- The overall exercise construct included the Coastal Defence exercise Sea Vigil and the Amphibious Exercise AMPHEX.
- Timeline: Nov 2022 to March 2023.

NASA and Italian Space Agency Join Forces on Air Pollution Mission

Multi-Angle Imager for Aerosols mission:

- It is a joint mission **between NASA and the Italian Space Agency ASI**.
- This will investigate the **health impacts of air pollution** in the world's most populated cities.
- Its primary goal is to benefit societal health. Epidemiologists and public health researchers will be directly working on the development of a satellite mission.
- It will consist of **the PLATiNO-2 satellite**, which will be provided by ASI, and a science instrument that will be built at NASA's Jet Propulsion Laboratory (JPL).
- The MAIA mission will collect and analyse data from the observatory, sensors on the ground and atmospheric models.
- The JPL hosts a **pointable spectropolarimetric camera** which captures images from multiple angles in the ultraviolet, visible, near-infrared and shortwave infrared portions of the electromagnetic spectrum.
- During the course of the three-year mission, MAIA will focus on 11 primary target areas that include major urban centres across the world: Los Angeles, Atlanta, Boston, Rome, Addis Ababa, Ethiopia, Barcelona, Spain, Beijing, Johannesburg, **New Delhi**, Taipei, Taiwan; and Tel Aviv.
- The MAIA observatory is **set to launch before the end of 2024**.

Russia fires hypersonic Kinzhal missiles in Ukraine

- The **Kh-47M2**, nicknamed "**Kinzhal**" (**Dagger**), is a **nuclear-capable, Russian air-launched ballistic missile**.
- It was one of six "**next generation**" weapons unveiled by Russian President Putin during a speech in March 2018.
- **Features:**
 - The Kinzhal can reach **speeds of up to Mach 10** (12,350 km/hr).
 - It can carry **both conventional and nuclear warheads** with a payload of up to 480 kg and a thermonuclear option with a 10-50 kt warhead.
 - It has a reported **range of 1,500-2,000 km**.
 - The Kinzhal has a **length of 8 m**, a body **diameter of 1 m**, and a **launch weight of approximately 4,300 kg**.
 - It is **designed to be launched from MiG-31 fighter jets** at altitudes of about 18 km (59,000 ft).
 - This **missile maneuvers during all stages** of its flight to overcome hostile air defense systems.

Hypersonic Missiles

- A hypersonic missile is a weapon system which **flies at least at the speed of Mach 5e. five times the speed of sound** and is manoeuvrable.
- These missiles are **extremely fast** and far **harder for surface-to-air missile defence systems to target**.

ALH Dhruv fleet operations halted due to Navy accident

- Advanced Light Helicopter (ALH) Dhruv is a **multi-role and multi-mission light utility helicopter** in the 5**.5-ton weight class**, intended for both **military and civil operators**.
- It is **developed indigenously by Hindustan Aeronautics Limited (HAL)**.
- The ALH choppers are **operated by all three Indian defense forces**, including the Army, Navy, and Air Force, **along with the Indian Coast Guard**.
- The **major variants** of Dhruv are classified as **Dhruv Mk-I, Mk-II, Mk-III & Mk-IV**.
- **Exported countries: Bolivia, Myanmar, Israel, Maldives, and Nepal**.
- **The Mk-IV version** of the HAL ALG Dhruv helicopter **is the Armed variant for Attack**, Close Air Support, and High altitude operations.
- **Features of Dhruv Mk-IV:**
 - It is also **called ALH Rudra** and can **carry a 20 mm Turret Gun, 70 mm Rocket, and Air to Air missiles**.
 - It has a **twin-engine configuration** allowing continued flight virtually throughout the flight envelope.
 - It has a **maximum take-off weight of 5800 kg** and a **range of 590 km**.
 - ALH Mk-IV has a **rigid rotor design** making it **aggressively maneuverable** in air.
 - It has a dedicated **Electronic Warfare suite for self-protection**.

- Its **countermeasures** suite can include: **radar and missile detectors**, infrared jammer, **chaff and flare dispensers**.

Millions of Galaxies Emerge in New Simulated Images From NASA's Roman

Nancy Grace Roman Space Telescope:

- The Nancy Grace Roman Space Telescope or **Roman Space Telescope (RST)** is a **NASA deep space infrared observatory**.
- Though originally referred to as the Wide Field Infrared Space Telescope (WFIRST), NASA **renamed** the mission in 2020 **after Nancy Grace Roman, NASA's first chief astronomer**.
- **Objective:** RST will help answer essential astrophysics questions about **dark energy, dark matter, exoplanets, and infrared astrophysics**.
- It is set to **launch around 2026 or 2027**.
- The mission is **projected to last for five years**.
- RST will be **situated at Lagrange point 2**, a stable gravitational point between Earth and the sun located around 1 million miles (1.5 million kilometers) from our planet.
- **Features of the Mission:**
 - The **primary mirror of the RST has a diameter of 2.4 meters, the same size as the mirror of the Hubble Space Telescope**.
 - It will have a **field of view that is 100 times greater than the Hubble infrared instrument, capturing more of the sky with less observing time**.
 - Roman's gigantic field of view will enable the mission to **create infrared images** that are around **200 times larger than the Hubble Space Telescope**.
 - It has **two other instruments:** the **Wide Field Instrument** and the **Coronagraph Instrument**.
 - The **Wide Field Instrument performs microlensing surveys to find exoplanets**, and the **Coronagraph Instrument performs high-contrast imaging and spectroscopy of nearby exoplanets**.

Hubble telescope:

- It is NASA's **large, space-based observatory** which has revolutionized astronomy since its **launch in 1990**.
- Hubble's domain extends from the **ultraviolet through the visible** (which our eyes see) and into the **near-infrared**.
- It is **larger than a school bus in size**, has a **7.9 feet mirror**, and captures stunning images of deep space, playing a major role in helping astronomers understand the universe by **observing the most distant stars, galaxies, and planets**.

Norway provides Ukraine with NASAMS ground-based air defence system

NASAMS (Norwegian Advanced Surface-to-Air Missile System):

- It is a **medium-range ground-based air defense system**.

- It is designed to **engage air targets at low and medium altitudes in all weather conditions.**
- It was designed and **developed jointly by Raytheon (United States) and Kongsberg Defence&Aerospace (Norway).**
- It is used by **Norway, the United States, Canada, Chile, Finland, Indonesia, Netherlands, Oman, Qatar, Spain, the United Kingdom, and Ukraine.**
- It is **best suited to defend important stationary assets**, such as key military assets, infrastructure, or cities.
- It has been integrated into the **S. National Capital Region's air defense system** since 2005.
- **Features:**
 - It is the **world's first networked** short- and medium-range air defense system that **could integrate with other equipment and air defense systems.**
 - It features an X-Band, 360-degree phased array air defense radar with a **75-kilometer (approximately 47-mile) range to identify targets.**
 - The NASAMS is armed with **three launchers, each carrying up to six missiles.**
 - The system can **engage 72 targets simultaneously** in active and passive modes.
 - It **uses AIM-120 AMRAAM air-to-air missiles**, which have been modified for ground launch and have an **engagement range of about 30 kilometers.**

Indian Navy's P-8I aircraft to participate in 'Exercise Sea Dragon 23'

- The Sea Dragon is an **annual, multinational anti-submarine warfare (ASW)** exercise conducted by **the United States Navy.**
- Participating Countries: **India, USA, Japan, Canada and South Korea.**
- The annual exercise launched in 2014. This is the third edition of the coordinated multi-lateral ASW exercise for Long Range MR ASW aircraft.
- The Exercise aims to achieve high levels of synergy and coordination between the friendly navies, which is based on **their shared values and commitment to an open, inclusive Indo-Pacific.**
- The Exercise would witness representation by **an Indian Navy P8I aircraft** along with other countries' aircrafts.
- This exercise will test the capabilities of participating aircraft in tracking simulated and live underwater targets, whilst also sharing mutual expertise.

India and USA:

- **Malabar:** India and USA with Japan, Australia participate in the naval war gaming exercise named Malabar.
- **Yudh Abhyas:** Military Training Exercise
- **VAJRA PRAHAR:** Special Forces Exercise

MQ-9 Reaper: All about the US drone that crashed into the Black Sea

- The MQ-9 Reaper, also known as Predator B, is an **unmanned aerial vehicle (UAV)** capable of remotely **controlled or autonomous flight operations**.
- It is **developed by General Atomics Aeronautical Systems (GA-ASI)**, primarily for the **United States Air Force (USAF)**.
- It is **remotely operated by a two-person team** consisting of a pilot and an aircrew member who operates sensors and guides weapons.
- The US uses the MQ-9 Reaper **for both surveillance and strikes**.
- **Features:**
 - It is **11 metres long** with a **wingspan of over 22 metres**.
 - Reapers can be **armed with air-to-ground Hellfire missiles** as well as **laser-guided bombs**.
 - It carry as many as **16 Hellfire missiles**, equivalent to the payload capacity of an Apache helicopter.
 - It can **fly at an altitude of 50,000 ft (15 km)** and can **loiter over targets** for for **over 27 hours**.
 - **Top speed: 275 mph**.

Indian Army procures Integrated Mobile Camouflage Systems from a start up

- This is the **first-ever procurement** order of an **Innovations for Defence Excellence (iDEX) project** by the Indian Army.

Integrated Mobile Camouflage Systems (IMCS):

- It **comprises low emissivity** and/or **CAM-IIR coatings** and **mobile camouflage system materials that enable** armoured fighting vehicles (AFVs) to **blend** in with their **terrain background**.
- It **achieves a reduction in the detection range of AFVs when viewed through a Hand Held Thermal Imager (HHTI)/Battle Field Surveillance Radar (BFSR) tank-based thermal camera** under given environmental and weather conditions.
- It **achieves signature management by controlling the Visual, Thermal, infrared, and Radar Signatures of the object**.
- It will provide significant capability **enhancement in stealth for AFVs**.

Defence Excellence (iDEX) project:

- The iDEX initiative was **launched** by the Government in **April 2018**.
- **Aim:** To achieve **self-reliance** and **foster innovation** and technology development in **Defence and Aerospace by engaging Industries** including MSMEs, start-ups, individual innovators, R&D institutes, and academia.
- iDEX is **funded and managed** by **Defence Innovation Organisation (DIO)** under the **Ministry of Defence**.

India approves capital acquisition of military hardware worth Rs 70,584 crore

Defence Acquisition Council (DAC):

- **What is it?** The DAC is the **highest decision-making body** of the defence Ministry on **procurement**.
- **Objective:** To ensure **expeditious procurement of the approved requirements of the armed forces**.
- **Formation:** It was formed after the **Group of Minister's recommendations** on 'Reforming the National Security System', **in 2001, post-Kargil War (1999)**.
- **Composition:**
 - The **defence minister is the chairman** of DAC.
 - Its members include the **Chief of Defence Staff (CDS)** and **chiefs of the Army, Navy, and Air Force**.
- **Functions:**
 - Give **in-principle approval of a 15 years Long Term Integrated Perspective Plan (LTIPP) for defence forces**.
 - **Accord of acceptance of necessity** to acquisition proposals.
 - **Categorization of the acquisition proposals** relating to 'Buy', 'Buy & Make', and 'Make'.
 - **Look into issues relating to single vendor clearance**.
 - **Take decisions regarding 'offset' provisions** in respect of acquisition proposals **above Rs 300 crore**.
 - **Take decisions regarding the Transfer of Technology** under the 'Buy & Make' category of acquisition proposals.
 - **Field trial evaluation**.

Venus' volcanoes may be active, show decades-old radar images

- Venus the second planet from the sun, is the **hottest and brightest planet** in the solar system.
- Venus is **highly visible from Earth** due to its reflective clouds.
- Venus and Earth are often called **twins** because they are similar in size, mass, density, composition and gravity.
- With respect to other **planets, Venus and Uranus spin backwards** which means for these two planets, the sun rises in the west and sets in the east.

Magellan spacecraft

- A 2.2 square kilometre volcanic vent on Venus changed shape in eight months, indicating volcanic activity.
- It showed signs of drained lava, hinting at activity and eight months later, radar images indicated that the same vent had doubled in size and the lava lake seemed to have reached the rim.
- The vent is associated with **Maat Mons**, Venus's second-highest volcano.
- It sits in the **Atla Regio**, a vast highland region near **Venus' equator**. These changes were likely due to lava flow escaping the vent, hinting at a possible volcanic activity.

Magellan spacecraft

- It was one of the most successful deep space **missions of NASA..**
- It was the **first spacecraft to image the entire surface of Venus** and made several discoveries about the planet.

India to host African Chiefs Conclave, second Africa-India field training exercise

AFINDEX:

- The **first Africa-India Field Training Exercise** was held in **Pune in March 2019**. It saw participation from 20 African nations.
- The first India-Africa Defence Ministers Conclave was held on the sidelines of the DEFEXPO, 2020 in Lucknow.
- The exercise is **divided into four phases** in which trainers would be initially trained. This would be followed by a humanitarian mine action and a peace-keeping operations phase.
- **Maximum use of indigenous equipment** is being made during the exercise and new-generation equipment manufactured in India would be showcased during the exercise.
- **Objective:**
 - To continue **building upon initiatives** taken to strengthen India-Africa relations, with a focus on **enhancing peace and security**, and creating opportunities to exchange ideas and perspectives.
 - Learning from the African experience in cooperative security, management of security crises and conflicts, and promoting a collaborative approach in capacity enhancement of African armies

Over 26,000 defence items uploaded on SRIJAN Portal and offered to Industry for indigenisation

- Pursuant to the Atmanirbhar Bharat announcement, the **Department of Defence Production has developed an indigenization portal**
- It will give information on items that can be taken up for **indigenization by the private sector**.
- On this portal, DPSUs/OFB/SHQs can display the items which they have been importing or are going to import which the Indian Industry can design, develop and manufacture as per their capability or through a joint venture with OEMs.
- The Indian Industry will be able to show their interest. The concerned DPSUs/OFB/SHQs, based on their requirement of the items and their guidelines & procedures will interact with the Indian industry for indigenization.
- **Nodal Ministry:** Ministry of Defence.

CUMI signs pact with DRDO for licensing missile technology

Ceramic Radome technology:

- Ceramic Radome Technology is the state-of-the-art technology for Missiles across the world. ASTRA/ QRSAM, **high Mach missiles experience high surface temperatures** during their traverse due to atmospheric thermal heating.
- To mitigate the thermal heating, Ceramic is considered a radome material.
- Ceramic Radome fabrication is a two-stage process, gel-casting followed by sintering.

ceramic

- Ceramics are classified as **inorganic and nonmetallic materials** that are essential to our daily lifestyle.
- **Properties of ceramics:** In general, ceramics are corrosion-resistant, hard, and brittle. The majority of ceramics are also **excellent insulators** and can withstand high temperatures.

Radome

- Radomes are structures or enclosures designed to protect an antenna and associated electronics from the surrounding environment and elements such as rain, snow, UV light, and strong wind.

Anti-submarine craft INS Androth launched

INS Androth:

- It is an **Anti-Submarine Warfare Shallow Water Craft (ASW SWC)**.
- It is **built by Garden Reach Shipbuilders and Engineers (GRSE)** in Kolkata for the Indian Navy.
- **Primary Role:** To conduct **anti-submarine operations** in coastal waters, low-intensity maritime operations**,** and **mine-laying operations**.
- It is also capable of full-scale sub-surface surveillance of coastal waters and various surface platforms and coordinated ASW operations with aircraft.
- **Features:**
 - It is about **77.6 meters long** and **10.5 meters wide** and requires a **draught** of only **2.7 meters**.
 - It is **propelled by three diesel-driven water jets**.
 - It can attain a **maximum speed** of **25 knots**.
 - It carries **lightweight torpedoes, ASW rockets** and **mines**, a close-in weapon system (with a 30 mm gun), and 16.7 mm **stabilized remote-controlled guns**.
 - It will be fitted with **hull-mounted sonar** and a **low-frequency variable depth sonar**.

Union Minister inaugurates Asia's largest 4-metre International Liquid Mirror Telescope at Devasthal in Uttarakhand

- ILMT is the first liquid mirror telescope designed exclusively for **astronomical observations** and is the first optical survey telescope in India.
- It has a 4-meter-diameter rotating mirror made up of a thin layer of liquid mercury to collect and focus light.
- The **metal mercury is in liquid form at room temperature**, which is highly reflective and designed to survey the strip of the sky passing overhead each night.
- The **Devasthal observatory** is equipped with the largest aperture telescope available in India that will use Big Data and Artificial Intelligence/Machine Learning (AI/ML) algorithms to classify objects in the sky.
- The telescope has **three components**: A bowl containing a reflecting liquid mercury metal, an air bearing (or motor) on which the liquid mirror sits, and a drive system.
- The mercury is protected from the wind by a scientific grade thin transparent film of mylar.
- The reflected light passes through a sophisticated multi-lens optical corrector that produces sharp images over a wide field of view and a 4k CCD camera, located above the mirror at the focus, records 22 arc-minute wide strips of the sky.
- The data collected from the ILMT, over an operational time of 5 years, will be ideally suited to perform a deep photometric and astrometric variability survey.
- Maintained by the **Aryabhata Research Institute of Observational Sciences (ARIES)**.

Army, Air Force Conduct Joint Exercise Vayu Prahar

- It is a **multi-domain air-land exercise** jointly conducted by the **Indian Army and the Indian Air Force**.
- **The special forces also participated** along with the Army and the Navy in the **96-hour exercise** which was **held in the eastern theatre**.
- **Objective**: To **validate joint plans** to prosecute **synergized multiple-domain operations**.
- **The scope** of the exercise **included the rapid mobilization** of an earmarked **Rapid Reaction Force from the hinterland to undertake air-landed operations** in a nominated Advance Landing Ground.
- The air-landed force further **executed contingency tasks** as per a realistic exercise scenario **in challenging high-altitude terrain conditions**.
- The exercise **enabled coordination and rehearsal amongst various agencies** for quick mobilization, transportation, and deployment of forces within a theatre.

Defence Ministry signs ₹3,700-crore contracts for radars, radar warning receivers

Arudhra Radar:

- Arudhra is a **Medium Power Radar (MPR)** designed and **developed by** the Defence

- Research and Development Organisation (DRDO).
- It will be **manufactured by BEL**.
 - **Features:**
 - It is a **4D multi-function** phased array radar with **electronic steering** in **both azimuth** (angular position from a reference direction) **and elevation** for surveillance, detection, and **tracking of aerial targets**.
 - It features a **rotating active phased array antenna** with **solid state transceiver** modules operating in **S-band** (2-4GHz).
 - The transceiver modules (TRM) are based on the antenna array itself, leading to **high receiver sensitivity**, **enabling the radar to detect low observable targets at a long range**.
 - **It can track** a small fighter-sized target **as far as 300km at an altitude between 100 meters to 30 km**.
 - Arudhra is **fully programmable** from the local Operator Work Station and from the remote Operator Work Station Unit.
 - Arudhra **being a 4D radar**, can **determine the range** (straight distance from radar), **azimuth** (angular position from a reference direction), **altitude** (distance from the ground), as well as **velocity vector** (representation of the direction of motion) of a target.

India, UK hold annual bilateral maritime exercise 'Konkan' in Arabian Sea

- Konkan exercise is the **annual bilateral maritime** exercise between the **Indian Navy and the UK's Royal Navy**.
- **INS Trishul**, a guided missile frigate, and **HMS Lancaster**, a Type 23 guided missile frigate, **participated in this edition**.
- They **undertook multiple maritime drills** to **enhance interoperability** between the two forces and **imbibe best practices**.
- The exercises **covered all domains of maritime operations**, air, surface, and sub-surface.
- It included **gunnery shoots on the surface inflatable target** 'Killer Tomato', helicopter operations, anti-air, and **anti****submarine warfare drills**, Visit Board Search and Seizure (VBSS), ship maneuvers, and exchange of personnel.
- The exercise will help the Indian Navy and Royal Navy work together to **improve maritime security and maintain a rules-based order in the region**.

Radical NASA Propulsion Concept Could Reach Interstellar Space in Under 5 Years

Pellet-Beam Propulsion System:

- The pellet-beam concept was partly inspired by the Breakthrough Starshot initiative, which is working on a 'light-sail' propulsion system.
- This system requires **two spacecraft** – **one that sets off for interstellar space**, and one that goes into orbit around Earth.
- The spacecraft orbiting Earth would **shoot a beam of tiny microscopic particles** at the interstellar spacecraft.

- Those particles would be heated up by lasers, causing part of them to melt into plasma that accelerates the pellets further, a process known as laser ablation.
- Those pellets could reach 120 km/second (75 miles/second) and either hit the sail of the interstellar spacecraft or repel a magnet within it, helping to propel the spacecraft to huge speeds that would let it whizz out of our heliosphere – the bubble of the solar wind around our Solar System.
- This proposal examines a new propulsion architecture for **fast transit of heavy (1 ton and more) payloads** across the Solar System and to the interstellar medium.

NASA prepares for the historic sample transfer from asteroid Benu by OSIRIS-REx

OSIRIS-Rex Mission:

- The Origins Spectral Interpretation Resource Identification Security - Regolith Explorer was launched by NASA in 2016 for the journey to Benu.
- The spacecraft travelled to a **near-Earth asteroid called Benu** and bring back a sample to Earth for study.
- The mission will help scientists investigate how planets formed and how life began, as well as improve our understanding of asteroids that could impact Earth.

Asteroid Benu

- It is located about 200 million miles away from the Earth.
- It was discovered by a team from the NASA-funded Lincoln Near-Earth Asteroid Research team **in 1999**.
- It is a **B-type asteroid**, implying that it contains significant amounts of carbon and various other minerals.
- Around 20-40 percent of Benu's interior is empty space and scientists believe that it was **formed in the first 10 million years of the solar system's creation**, implying that it is roughly 4.5 billion years old.
- Benu is believed to **have been born in the Main Asteroid belt between Mars and Jupiter** and because of gravitational tugs from other celestial objects and the slight push asteroids get when they release absorbed sunlight, the asteroid is coming closer to Earth.

ISRO's LVM3 Successfully Places 36 OneWeb Satellites in Orbit

Launch Vehicle Mark- 3(LVM-3):

- It was previously known as **the Geosynchronous Satellite Launch Vehicle (GSLV) Mark-III**.
- The recent launching of 36 satellites was the sixth launch of India's heaviest rocket LVM-3.
- It was the second dedicated commercial satellite mission undertaken by Space PSU **NewSpace India Limited (NSIL)** for Network Access Associates Ltd (OneWeb).

GSLV

- It is a **3-stage space launch** vehicle operated by the ISRO to launch satellites and other space objects into geosynchronous Transfer Orbits (GTO ~37,000 km).
- The third stage of this vehicle uses a **Cryogenic engine**, which uses liquefied oxygen and hydrogen as fuel.
- It has been designed for launching **communication satellites**.
- GSLV delivers satellites into a higher elliptical orbit - GTO.

NewSpace India Limited (NSIL)

- It is a Central Public Sector Enterprise established in 2019.
- It is the **second commercial entity of the Department of Space** (DoS) after Antrix Corporation Limited, which was set up in 1992 to market the products and services of the Indian Space Research Organisation (ISRO).
- **Mandate**
 - Transfer technology to industry for producing commercially successful PSLV spacecraft launchers.
 - Outsource assembly of small satellites and the upcoming Small Satellite Launch Vehicle (SSLV).
 - To commercially exploit the R&D work done by ISRO centres and DoS constituents.

Indian Naval Ship Sumedha enters Algeria

INS SUMEDHA:

- INS Sumedha is an indigenously built **Naval Offshore Patrol Vessel** deployed for multiple roles independently and in support of Fleet Operations.
- It is part of the Indian Navy's Eastern Fleet based at Visakhapatnam and functions under the operational command of the Flag Officer Commanding-in-Chief, **Eastern Naval Command**.
- It is the **third ship of the indigenous** Naval Offshore Patrol Vessel (NOPV) Project to be inducted into the Indian Navy.
- The ship has been **designed and built by Goa Shipyard Limited**.
- The primary role of the ship is to **undertake EEZ surveillance, anti-piracy patrols**, fleet support operations, provide maritime security to offshore assets and carry out escort operations for high-value assets.

James Webb Space Telescope finds no atmosphere on Earth-like TRAPPIST-1 exoplanet

- It is a **hot rocky exoplanet orbiting** an ultracool red dwarf star TRAPPIST-1.
- It is the **innermost of** seven known planets in the TRAPPIST-1 system.
- It has **1.4 times the mass** and **1.1 times the radius of Earth**.
- It **orbits its star** at a distance of **0.011 astronomical unit (AU)**, completing one

circuit in just 1.51 Earth days.

- It **receives** about **four times the amount of energy that Earth gets from the Sun.**
- TRAPPIST-1b is **tidally locked**, meaning that one side of the planet always faces the star, and one side looks away.

Astronomical unit (AU)

- An AU is the **average distance between Earth and the Sun**, which is about 93 million miles or **150 million kilometres.**
- It is usually used to **measure distances within our Solar System.**

British Challenger 2 tanks arrive in Ukraine to join fight against Russia

- It is the **British Army's main battle tank (MBT).**
- It is a **third-generation MBT**, the same generation as the Russian T-80 and T-90 tanks.
- It is **heavily armoured and highly mobile**, designed for **use in direct fire zones.**
- Whilst its **primary role is to destroy or neutralise armour**, Challenger 2 can **operate across a spectrum of high-intensity conflict**, counter-insurgency and peacekeeping roles.
- Countries using: It is in service with the **United Kingdom (386) and Oman (38).**
- **Features:**
 - The **armour** of the Challenger-2 is **called the Chobham armour** or the **Dorchester armour** and is considered among the **best in the world.**
 - The tank is **27 feet long and eight feet tall.**
 - It has a **range of 547 kilometres** with a **maximum speed of 59 kilometres per hour.**
 - It is **armed with a rifled Royal Ordnance L30 120-mm main gun**, which can deliver main armament rounds up to a **range of around four kilometres.**
 - The **secondary armament consists of two 7.62 mm machine guns.**

Russia starts exercises with Yars intercontinental ballistic missiles

Yars intercontinental ballistic missile:

- The Yars (also known as **RS-24 or SS-29**) is a **Russian intercontinental ballistic missile (ICBM).**
- **Features:**
 - It is a **three-stage solid-fuel missile** and can be **launched from a silo or mobile launcher.**
 - The missile weighs around **49,000 kg** and is **9 metres long.**
 - It has a **range of 12 000 km.**
 - The Yars missile is **equipped with Multiple Independently-targetable Reentry Vehicles (MIRVs).** This allows it to ****carry multiple independently targetable nuclear warheads (**at least six).**
 - It has the **capability to manoeuvre during flight** and **deploy both active and**

passive decoys, which gives Yars the advantage against modern missile defence systems.

Intercontinental ballistic missile (ICBM)

- An ICBM is a **guided missile** that is designed to **deliver nuclear warheads**, although **it could also deliver other payloads**.
- According to the Federation of American Scientists, ICBMs **have a minimum range of 5,500 kilometres (3,400 miles)**, with maximum ranges varying from 7,000 to 16,000 kilometres.
- ICBMs are **much faster** and have a **greater range than other types of ballistic missiles**.
- **Agni-Vis** is an Indian ICBM with a **range of over 5,000 km**.

Russia says it has test-fired missiles in the Sea of Japan

Moskit cruise missiles:

- It is a **supersonic anti-ship cruise missile** that has conventional and nuclear warhead capacity
- It has the fastest flying speed among all anti-ship missiles in today's world.
- It reaches Mach 3 at a high altitude and its maximum low-altitude speed is M2.2.
- It is capable of destroying a ship within a range of up to 120 kilometres.

Cruise missiles

- A cruise missile either **locates its target or has a preset target**.
- It navigates using a guidance system such as inertial or beyond visual range satellite GPS guidance and comprises a payload and aircraft propulsion system.
- Cruise missiles **can be launched from land, sea or air** for land attacks and anti-shipping purposes, and can travel at subsonic, supersonic and hypersonic speeds.
- They stay relatively **close to the surface of the earth**, cannot be detected easily by anti-missile systems, and are designed to carry large payloads with high precision.

Ballistic Missiles

- Ballistic Missiles are launched **directly into the upper layers of the earth's atmosphere**.
- They travel outside the atmosphere, where the warhead detaches from the missile and falls towards a predetermined target.
- They are rocket-propelled self-guided weapons systems which can carry conventional or nuclear munitions. They can be launched from aircraft, ships and submarines, and land.

World's first artificial shooting star display to be launched by Japanese space start up

Sky Canvas Project:

- It is the **world's first artificial meteor shower project**.
- **The aim** of the project will be to **collect atmospheric data in the mesosphere**.
- Under this project, **meteor-replicating particles will be installed in a satellite 250 miles (400 km) up and then released over a designated area**.
- These **metallic particles** will be spheres with a **diameter of 0.4 inches (1 cm)** and a **mass of a few grams**.
- **The pea-sized balls** have a secret chemical formula that causes them to **light up from the friction of re-entry** at speeds of up to five miles (8km) a second.
- ALE says they will **travel more slowly and light up for longer than natural shooting stars** - up to ten seconds each.
- They **will be visible over a 125-mile (200 km) area**.
- The ingredients in the pellets can be altered to change the colour, which means that a multi-coloured flotilla of shooting stars could be created.

Mesosphere

- The mesosphere is a **layer of Earth's atmosphere**.
- It is **directly above the stratosphere and below the thermosphere**.
- It extends from about **50 to 85 km (31 to 53 miles) above our planet**.
- **The transition between the mesosphere and the thermosphere is called**
- **Temperature decreases with height throughout the mesosphere**.
- The **coldest temperatures in Earth's atmosphere**, about **-90° C (-130° F)**, are found near the top of this layer.

After Navy & IAF, Army to get dedicated satellite Gsat-7B as MoD inks Rs 3k cr deal with NSIL

GSAT 7B:

- It is a **communication satellite** part of the **GSAT-7 series**.
- GSAT 7 series satellites are **advanced communication satellites developed by the Indian Space Research Organisation (ISRO)** to meet the **communication needs of the defence services**.
- The GSAT 7B will **primarily fulfil the communication needs of the Indian Army**.
- It is a geostationary satellite which will considerably **enhance the communication capability of the Indian Army** by providing mission-critical beyond-the-line-of-sight communication to troops and formations as well as weapon and airborne platforms.
- It is the **first-ever in the five-tonne category** that will be designed indigenously **by the ISRO**.

GSAT 7 Series Satellites:

- **GSAT-7 (Rukmini):**
 - It is **India's first military satellite**.
 - It was **launched in August 2013** from an Ariane 5 ECA rocket from Kourou in

- French Guiana.
- It is an **advanced communication satellite** developed by ISRO and primarily provides **communication services to the Indian Navy**.
- **GSAT 7A:**
 - It primarily provides communication **services to the Indian Air Force**.
 - **It also helps in satellite-controlled operations of UAVs**.

ISRO releases images of Earth captured by its EOS-06 satellite

- Earth Observation satellite (EOS-6) is the third-generation satellite in the Oceansat series.
- This is to provide continuity services for Oceansat-2 spacecraft with enhanced payload specifications as well as application areas.
- Payloads of the satellite are
 - Ocean Color Monitor (OCM-3)
 - Sea Surface Temperature Monitor (SSTM)
 - Ku-Band Scatterometer (SCAT-3)
 - ARGOS

Objectives

- To ensure the data continuity of Ocean colour and wind vector data to sustain the operational applications.
- To improve the applications, some additional datasets such as **Sea Surface Temperature** and more number of bands in the Optical region for fluorescence and in the Infrared region for atmospheric corrections are accommodated.
- To develop/improve related algorithms and data products to serve in well-established application areas and to enhance the mission utility.
- The EOS-06 is envisaged to observe **ocean color data**, sea surface temperature and wind vector data to use in Oceanography, **climatic and meteorological applications**.
- The satellite also supports value added products such as potential **fishing zone** using chlorophyll, SST and wind speed and land based geophysical parameters.

ENVIRONMENT

Constitution of Greater Panna Landscape Council

- To ensure systematic and time-bound implementation of the Greater Panna Landscape Management plan, **the Greater Panna Landscape Council (GPLC)** has been constituted under the **chairmanship of the Chief Secretary, Govt. of Madhya Pradesh** with members from all the stakeholders.

Panna Tiger Reserve

- Panna Tiger Reserve is a critical tiger habitat located in **Vindhya Hill in northern Madhya Pradesh**.
- The dominating vegetation type is **dry deciduous forest interspread with grassland**
- In the north, it is surrounded by **teak forest** & in the east, it is surrounded by Teak-Kardhai mixed forest.
- The North East-South West, running Vindhya Hill ranges link the eastern and western populations of wild animals.
- **Fauna:** Leopard, Wild dog, wolf, Hyaena, Sloth bear etc.

Ken-Betwa Link Project

- Under this, the transfer of excess water **from the River Ken to the Betwa basin** through the use of a concrete canal is proposed.
- It is the first project under the National Perspective Plan for the interlinking of rivers.
- It aims to provide irrigation to the **Bundelkhand region**, which is one of the worst drought-affected areas in India.
- A Tripartite Memorandum of Understanding was signed between the Centre and the governments of UP and MP for the project.
- **Implementing Agency:** A Special Purpose Vehicle (SPV) called Ken-Betwa Link Project Authority (KBLPA) will be set up to implement the project.

New moai statue uncovered on Easter Island

- They are **massive megalithic stone-carved human-shaped statues** found at **Easter Island**.
- They are **famous for their carved heads** and "Pukao," a **hat-like covering** made from a **soft red stone**.
- They were **built in** approximately **1400 - 1650 A.D.** by the **natives of this island known as Rapa Nui**.
- There are **around 1000 Moai statues** which are **made up of volcanic tuff**, the tallest of them being 33 feet.
- **On average**, they weigh between **3 to 5 tons**, but the heaviest ones **can weigh up to 80**.
- The **tools used** for carving the moai statues **are called toki, and are simple handheld chisels**.

- **What do moais represent?**
 - They were **built to honor chieftains** or other important people **who had passed away**.
 - They were **placed on rectangular stone platforms called ahu**, which are **tombs for the people** that the statues represented.
 - The moais were **intentionally made with different characteristics** since they were intended **to keep the appearance of the person they represented**.

Easter Island:

- Easter Island, **also called Rapa Nui**, is a **remote Chilean territory** located in the **Pacific Ocean**, roughly 2,200 miles from mainland Chile.
- It is one of the **most remote inhabited places in the world**.
- Much of the island, which is home to some 8,000 residents, is **protected as a national park** and a **UNESCO World Heritage site**.

World Wildlife Day: Why is it celebrated on March 3? Know the significance of CITES agreement on its 50th

- It is a **United Nations International day** to **celebrate** all the **world's wild animals and plants and the contribution** that they make to our lives and the health of the planet.
- It is celebrated **every year on March 3**.
- This date was chosen as **it is the birthday of CITES**, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, **signed in 1973**.
- **The theme** of World Wildlife Day 2023 is **'Partnerships for Wildlife Conservation'**.

Key facts about CITES:

- **CITES** (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an **international agreement between governments**.
- **Aim:** To ensure that **international trade** in specimens of **wild animals and plants does not threaten the survival of the species**.
- **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**.
- 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.

After 89 years, frog endemic to the higher altitudes of Western Ghats 'rediscovered'

- It is also known as Jerdon's narrow-mouthed frog or Malabar Hill frog
- It is endemic to the **Western Ghats** of India.

- The typical habitat in which this frog is found in tree holes in the rainy season is in **the moist deciduous forest to evergreen forest.**
- This frog is considered a montane species and is restricted to higher altitude ranges of 800-1,700 metres.
- They are distributed from near Wayanad south **across the Palghat and the Shencottah gaps to the Agasthyamalai hills.**
- Its tadpoles are **free-swimming and exotrophic**, which means they feed on other species.
- **Conservation status:**
 - **IUCN: Near Threatened**

With overfishing, great seahorses bolt from the Coromandel

- Great seahorses can be found in relatively deep waters.
- These are **ovoviviparous** and the **males give birth to live young.**
- They also have some traits, such as **small body size, fast growth and high fecundity**, that may confer resilience to high levels of exploitation
- There are 46 known species of seahorses worldwide. India's coastal ecosystems are home to nine of the twelve species found in the **Indo-Pacific**, which is a hotspot for seahorse populations.
- They are distributed across diverse ecosystems such as **seagrass, mangroves, macroalgal beds, and coral reefs.**
- These nine species are distributed along the coasts of **eight States and five Union Territories from Gujarat to Odisha**, apart from Lakshadweep and the Andaman and Nicobar Islands.
- They are **poor swimmers but migrate to new habitats by rafting** (clinging to floating substrata such as macroalgae or plastic debris for dispersal by ocean currents) to ensure the survival of their population.
- **Conservation status**
 - **IUCN: Vulnerable**
 - **CITES: Appendix II**

G20 delegates enjoy day out with birdwatching, pottery at Sultanpur National Park

- Sultanpur National Park, formerly known as Sultanpur Bird Sanctuary, is **located in the Gurgaon district in Haryana.**
- It is spread over 1.42 sq km, **comprising mainly wetlands.**
- This national park is a **major habitat for aquatic birds**, including migratory and resident birds.
- It was **notified as a Ramsar site**, a wetland of international importance, **in 2021.**
- **Vegetation: Tropical and dry deciduous.**
- **Flora: Grasses, dhok, khair, tendu, ber, jamun, banyan tree, neem, berberis, Acacia nilotica and Acacia tortilis.**
- **Fauna:**
 - More than **320 species of birds** have been recorded from the Park.
 - This is a very important **wintering ground for waterfowl.**

- Some of the resident and migratory species of birds found in the area are the **Common hoopoe, Purple sunbird**, Black francolin, Little cormorant, Indian Cormorant, **Siberian Crane, Greater Flamingo**, Common Teal, Common Greenshank, Ruff, etc.
- **Other Key Fauna: There is no large wild mammal of conservation concern** in this Park. **Nilgai antelope** (*Boselaphus tragocamelus*) is the **major wild ungulate** in this park.

Rise in temperature leads to forest fire in Andhra's Nallamala forest

- It is one of the **largest stretches of undisturbed forest in South India**, apart from the Western Ghats.
- **Location:**
 - It is **spread over five districts** in the Indian states of **Andhra Pradesh and Telangana**.
 - It is **located in Nallamala Hills**, which is a part of the **Eastern Ghats**.
 - It lies **south of the Krishna river**.
 - The forest has a **good tiger population**, and a **part of the forest belongs to the Nagarjunsagar-Srisailem Tiger Reserve**, the largest tiger reserve in the country.
- **Climate:**
 - It has a **warm to hot climate throughout the year**, with **summer especially hot** and **winters mostly cool and dry**.
 - It gets most of its **rain during the South West monsoon**.
- **Vegetation: Tropical dry deciduous.**
- **Flora:** It harbors **endemic species** like **Andrographis nallamalayana**, *Eriolaena lushingtonii*, *Crotalaria madurensis* var, *Dicliptera beddomei* and *prema hamiltonii*.
- **Fauna:** It is home to as many as **700 species** of animals besides **tigers, leopards**, such as **black buck, wild hog, peacock**, pangolin, Indian Python and King Cobras and several rare bird species.

U.N. takes step towards new way of tracking greenhouse gases

World Meteorological Organisation (WMO):

- It is a **specialized agency of the United Nations (UN)**.
- It is the **UN system's authoritative voice on the state and behavior of the Earth's atmosphere**, its interaction with the **oceans**, the **climate** it produces, and the resulting **distribution of water resources**.
- It **originated from the International Meteorological Organization (IMO)**, which was founded in 1873.
- **Established in 1950, WMO became the specialized agency of the UN for meteorology** (weather and climate), **operational hydrology and related geophysical sciences**.
- **Headquarters: Geneva, Switzerland.**
- Currently it has a **membership of 187 countries**.

- **Governance Structure:**
 - Its **supreme body** is the **World Meteorological Congress**, which **consists of representatives of all members**. It **meets at least every four years to set general policy** and adopt regulations.
 - A **36-member Executive Council** meets annually and **implements policy**.
 - The **Secretariat, headed by a secretary-general** appointed by the congress for a four-year term, **serves as the administrative centre of the organization**.
 - **Six regional associations** address problems peculiar to their regions.
 - **Eight technical commissions**.
- **Major Programmes:**
 - **World Weather Watch:** A system of satellites and telecommunication networks connecting land and sea sites for monitoring weather conditions.
 - **World Climate Programme:** It monitors climate change, including global warming.
 - **Atmospheric Research and Environment Programme:** Designed to promote research on issues such as ozone depletion.

India to launch global alliance for big cats, invest \$100 million

About International Big Cat Alliance (IBCA):

- It is a **proposed mega-global alliance** that will work toward the **protection and conservation of the seven major big cats** — tiger, lion, leopard, snow leopard, puma, jaguar, and cheetah.
- **Membership** to the alliance will be **open to 97 'range' countries**, which contain the natural habitat of these big cats, **as well as other interested nations, international organizations**, etc.
- The alliance's **purpose** is to provide a platform for the **dissemination of information on benchmarked practices, capacity building**, resources repository, research and development, **awareness creation**, etc., on the protection and conservation of big cats.
- Its major activities will include **advocacy**, partnership, **knowledge e-portal**, capacity building, eco-tourism, partnerships between expert groups and finance tapping.
- After the first five years, which will be supported by India's 'total grant assistance' of \$100 million, the **IBCA is expected to sustain itself through membership fees, and contributions from bilateral and multilateral institutions and the private sector**
- **Governance Structure:**
 - A **General Assembly** consisting of all member countries.
 - A **Council of at least seven** but not more than 15 member countries **elected by the General Assembly** for a **term of 5 years**, and a **Secretariat**.
 - Upon the recommendation of the Council, the **General Assembly will appoint the IBCA Secretary General** for a specific term.

Factors influencing the habitat selection of Mugger crocodile (*Crocodylus palustris*)

and its conservation threats in the Rapti River of Chitwan National Park, Nepal

Mugger Crocodiles:

- The mugger or marsh crocodile is one of the 24 extant species of crocodylians found globally.
- It is **native to freshwater and inhabits** marshes, lakes, rivers and artificial ponds.
- The mugger is found in 15 Indian states, with the largest populations in the **middle Ganges (Bihar-Jharkhand)** and **Chambal (Madhya Pradesh, Gujarat and Rajasthan)**
- They are found all over south Asia — India, Pakistan, Sri Lanka, Nepal and Bangladesh — as well as south-eastern Iran.
- **Conservation status**
 - **IUCN Red List: Vulnerable**
 - **CITES Appendix I**

Rapti River

- The Rapti **originates in the Mahabharat Hills** and lower range of the Himalayas and flows westward along the northern border of the Chitwan National Park.
- It drains the Rapti zone in Mid-Western Region in Nepal and then the Awadh and Purvanchal regions of Uttar Pradesh state in India.
- It joins the river Ghaghara which is a major left-bank tributary of the Ganga.

U.N. takes step towards new way of tracking greenhouse gases

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- **Eight technical commissions.**
- **Major Programmes:**
 - **World Weather Watch:** A system of satellites and telecommunication networks connecting land and sea sites for monitoring weather conditions.
 - **World Climate Programme:** It monitors climate change, including global warming.
 - **Atmospheric Research and Environment Programme:** Designed to promote research on issues such as ozone depletion.

Sudden rain, hailstorm damage crops in Madhya Pradesh

Hailstorm:

- **Hail is a type of solid rain made up of balls or lumps of ice.**
- **Storms that produce hail** which reaches the ground **are known as hailstorms.**
- **Conditions for Hailstorms to occur:**
 - Highly developed **Cumulonimbus clouds need to be present.** These are the massive anvil or mushroom-shaped clouds that are seen during thunderstorms which can reach heights up to 65,000 feet.
 - There must be **strong currents of air ascending through these clouds.** These currents are commonly **known as updrafts.**
 - The clouds will need to contain **high concentrations of supercooled liquid water.**
- **How are Hails formed?**
- It **begins as a water droplet** that is **swept up by an updraft** inside of a thundercloud.
- Other **supercooled water droplets** which are already present inside the cloud will **adhere to the water droplet's surface, forming layers of ice around**
- As the **water droplet reaches higher elevations** within the cloud, **it comes into contact with more** and more **supercooled particles.**
- The **hail embryo will grow larger** and larger as it reaches higher altitudes in the updraft.
- Finally, **it will reach a size and weight where gravity will begin to act on it and pull it down.**

63 species of birds spotted at Guindy national park

- Guindy is India's **eighth-smallest national park** and one of the very few national parks **located inside a city.**
- It is located in the heart of **Chennai's metropolitan area of Tamil Nadu.**
- It is one of the **last remnants of the tropical dry evergreen forests** of the Coromandel Coast.
- **Flora:** Tropical dry evergreen forest, Scrub and thorn forests.
- **Fauna:** Blackbuck, Toddy cat, Civet cat, Jungle cat, Pangolin, Hedgehog, Shrew and black-naped hare etc.

Tropical dry evergreen forests of India

- The Tropical Dry Evergreen Forest is a **unique forest found only in Tamil Nadu and Andhra Pradesh**.
- Its distribution is restricted **to the narrow coastal strip** from Vishakhapatnam in Andhra Pradesh in the north to Ramanathapuram in Tamil Nadu in the south.
- The dissymmetric climatic condition of this region, where **rainfall occurs both during summer and winter monsoons** and extended the dry season from March to September, favours the development and sustenance of the Tropical Dry Evergreen forest in this narrow strip.
- The TDEF has a mixture of trees, shrubs, lianas, and herbs and forms a complete canopy in pristine condition and provides habitat to a wide variety of animals including insects, amphibians, reptiles, and mammals.

Moth found in Tirunelveli, Thoothukudi districts after 127 years

- The researchers from Ashoka Trust for Research in Ecology and the Environment (ATREE) Tamil Nadu Wetland Mission are the first in the world to photograph the **moth species Mimeusemia ceylonica**.
- It was first illustrated and described by English entomologist **George Hampson** and was sighted 127 years ago - at Trincomalee in Sri Lanka in 1893.
- *Mimeusemia ceylonica* is a moth species belonging to the subfamily **Agaristinae** and family Noctuidae.

Kalakkad–Mundanthurai Tiger Reserve

- The Kalakkad Mundanthurai Tiger Reserve (KMTR) in Tirunelveli and Kanyakumari District of **Tamil Nadu** is one of the protected areas having diverse flora and fauna.
- It was declared as the “First Tiger Reserve of Tamil Nadu” and the 17th Tiger Reserve of the country.
- It consists of the **Kanyakumari Wildlife sanctuary in the south** and the **Nellai Wildlife Sanctuary in the North**.
- The **river Thamirabarani** originates from this tiger reserve.
- The reserve is **also known as the “River Sanctuary”** with as many as 14 rivers originating from this Tiger Reserve.
- **Flora:** This region has got vegetation types which gradually change **from dry thorn forest to dry deciduous, moist deciduous and a patch of West coast wet evergreen forests** on the higher reaches of the reserve.
- **Fauna:** Lion Tailed Macaque, Nilgiri Tahr, Nilgiri Pipit, Grey Headed Bulbul, Blue Winged Parakeet etc.

Three tigers to be released in Madhav National Park today

Madhav National Park:

- **Location:**

- It is situated near Shivpuri town in **Shivpuri District**, which lies in the northwest region of **Madhya Pradesh**.
- It lies on the **northern fringe of the Central Highlands** of India, forming a **part of the Upper Vindhyan Hills** intermixed with plateaus and valley sections.
- It was **named after Madho Rao Scindia**, the **Maharaja of Gwalior** belonging to the Scindia dynasty of the Marathas.
- The Park was the **hunting ground of Mughal emperors** and **Maharaja of Gwalior**.
- It got the **status of a National Park in 1958**.
- The **Sakhya and Madhav Sagar lakes** are two of the most **critical zones of the park** and are always surrounded by animals and birds seeking relief from the heat.
- The Park is gifted with a **diverse ecosystem comprising lakes, forests, and grasslands**.
- **Vegetation:** The Park represents the **Northern Tropical dry deciduous mixed forest as well as dry thorn forest**.
- **Flora:** Some of the main tree species found inside the park include **Khair** (Acacia catechu), **Salai, Kerdhai, Dhawda**, Tendu, Palash, and others alike.
- **Fauna:**
 - It is home to **antelopes like Nilgai, Chinkara, Chowsinga**, and Deer, including Chital, Sambar, and Barking Deer.
 - Animals like the **Leopard, Wolf, Jackal, Fox, Wild Dog**, Wild Pig, Porcupine, Python etc., are also sighted in the park.

NBM conducts National Workshop of Bamboo Sector Development and Bamboo Exhibition in New Delhi

- It is a Centrally Sponsored Scheme started in the year 2006-07 and was subsumed under the Mission for Integrated Development of Horticulture (MIDH), for the years 2014-15 and 2015-16.
- MIDH is a **Centrally Sponsored Scheme** implemented from 2014-15 for the **holistic development of horticulture** in the country, covering fruits, vegetables, root and tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew and cocoa.
- The aim of the National Bamboo Mission will focus on the development of bamboo in limited States where it has social, commercial and economical advantages. in the
- **Nodal Ministry:** Department of Agriculture & Cooperation (DAC) under the **Ministry of Agriculture & Farmers Welfare**.
- Bamboo is majorly grown in North Eastern region and States including Madhya Pradesh, Maharashtra, Chhattisgarh, Odisha, Karnataka, Uttarakhand, Bihar, Jharkhand, Andhra Pradesh, Telangana, Gujarat, Tamil Nadu and Kerala.
- **Benefits of the Mission:**
 - The initiative would assist farmers, local craftspeople, and other persons involved in the bamboo industry, including allied sectors, both directly and indirectly.
 - The initiative aims to reduce the import of bamboo goods while also increasing farmer income.

- It establishes a full value chain for the expansion of the bamboo sector.

Mornings sans coffee? Global production under threat due to climate hazards, finds study

Coffee production:

- The vast majority of the world's coffee comprises two species — Coffea Arabica (Arabica) and Coffea Canephora (Robusta). Coffee, especially Arabica, is considered a sensitive crop, vulnerable to climate variability and change.
- **Climatic conditions required for coffee production**
 - It requires a hot and humid climate for its growth.
 - Temperatures ranging between 15°C and 28 °C
 - **Rainfall:** 150 to 250 cm.
 - **Soil: Well-drained, loamy soil** containing a good deal of humus and minerals like iron and calcium are ideal for coffee cultivation.
 - It is generally grown under shady trees.
 - Dry weather is necessary at the time of ripening of the berries.
 - It is grown on hill slopes at elevations from 600 to 1,600 metres above sea level.
- In India coffee is largely cultivated in Karnataka, Kerala, Tamil Nadu, Andhra Pradesh and Odisha, among which, Karnataka produces the most with over 70% of the total output.

Cyclone Freddy on track to become longest sustaining cyclone

- **Origin:** It originated off the **northern coast of Australia** and became a named storm on February 6, 2022.
- It **crossed the entire South Indian Ocean** and **traveled more than 8,000 kilometers**, affecting Mauritius and La Réunion, before making **landfalls in Madagascar** two weeks later **and then Mozambique**.
- Freddy was the **first tropical cyclone in the Southern Hemisphere to undergo six separate rounds of rapid intensification**.
- It also **holds the record for all-time accumulated cyclone energy (ACE)** (storm strength during its lifetime) **for the Southern Hemisphere**.
- Freddy is **fuelled by the energy provided by the warm ocean surface**, consistently sourcing heat and moisture throughout its lifetime.

Tropical Cyclone

- It is a **rapidly rotating storm originating over warm tropical oceans** from where it draws the energy to develop.
- It has a **low-pressure center** and **clouds spiraling towards the eyewall** surrounding the "eye", the central part of the system where the weather is normally calm and free of clouds.
- Its **diameter is typically around 200 to 500 km** but can reach 1000 km.

- The winds **blow counterclockwise in the Northern Hemisphere** and **clockwise in the Southern Hemisphere**.
- A tropical cyclone **brings very violent winds**, torrential rain, **high waves**, and, in some cases, very destructive storm surges and coastal flooding.

Fire in Mhadei Wildlife Sanctuary 'under control' after 3 days

- Mhadei wildlife sanctuary is located in the **Northern Part of Goa**, near the village of Valpoi.
- There are a number of picturesque waterfalls within the sanctuary boundaries. The most prominent are the **Vazra Sakla Falls and the Virdi Falls**.
- The cliff face near the Vazra falls is notable for being the nesting grounds of the **critically endangered Long-billed vultures**.
- **Flora:** The sanctuary is thickly forested with **moist deciduous vegetation** and some evergreen species too. The sanctuary is particularly well-known for its **sacred groves that protect rare and indigenous trees**.
- **Fauna:** Indian gaur, Barking deer, Sambar deer, Asian palm civet, small Indian civet, Wild boar, Indian hare etc.
- The sanctuary is a huge attraction for herpetologists since it contains a large variety of snakes including all of the 'big four' of Indian venomous snakes which are the Indian krait, Russell's viper, Saw-scaled viper and Spectacled cobra

Sacred grooves

- Sacred Groves are the **tracts of virgin forests** that are left untouched by the local inhabitants and are protected by the local people **due to their culture and religious beliefs**.
- Sacred groves are relic vegetation of once dominant flora. They are repositories of our rich biodiversity; they are also the last bastion where the rich culture and the customs of the indigenous people are still preserved.

Indonesia's Merapi volcano erupts

- Mount Merapi (**Mountain of Fire**) is one of the world's most active volcanos located in
- It rises to 9,551 feet and has steep slopes with dense vegetation on its lower flanks.

volcanoes in Indonesia

- Indonesia is located on the **Ring of Fire**, a vast area around the Pacific Ocean.
- It consists of over 17,000 islands and islets — and nearly 130 active volcanoes.
- The Ring of Fire also referred to as the **Circum-Pacific Belt**, is a path along the Pacific Ocean characterized by active volcanoes and frequent earthquakes.
- The abundance of volcanoes and earthquakes along the Ring of Fire is caused by the amount of **movement of tectonic plates in the area**.
- Along much of the Ring of Fire, plates overlap at convergent boundaries **called subduction zones**. That is, the plate that is underneath is pushed down, or

- subducted, by the plate above. As rock is subducted, it melts and becomes magma.
- The abundance of magma so near to Earth's surface gives rise to conditions ripe for volcanic activity.
 - A significant exception is a border between the Pacific and North American Plates. This stretch of the Ring of Fire is a **transform boundary**, where plates move sideways past one another.
 - This type of boundary generates a large number of earthquakes as tension in Earth's crust builds up and is released.

Rare White Deer Spotted In UP's Katarniya Ghat Wildlife Sanctuary

- **Location:** It is situated in the **Upper Gangetic plain** falling in the **Terai** of Bahraich district of **Uttar Pradesh**.
- It is **part of the Dudhwa Tiger Reserve**.
- The Katarniaghat Forest provides **strategic connectivity between the tiger habitats** of Dudhwa and Kishanpur in **India** and the Bardia National Park in **Nepal**.
- **Ecosystem:** Its fragile **Terai ecosystem** comprises a mosaic of **sal and teak forests**, lush **grasslands**, numerous **swamps**, and **wetlands**.
- **Girwa river flows** through the sanctuary, which is one of the **best places** in the world for **seeing the Gharial (Critically Endangered) in its natural habitat**.
- **Climate:**
 - The whole of the area is subject to the climatic variations **typical** of the plains of **Northern India with their extremes of heat and cold**.
 - The average annual **rainfall is about 1300 mm**.
 - **During the hot weather**, there are often **strong west winds** and **mild hurricanes from the north and west** accompanied by showers.
- **Flora:** It is dominantly **Sal Forest** with its associated tree species like Terminalia alata (**Asna**), Lagerstroemia parviflora (**Asidha**), Adina cordifolia (**Haldu**), Mitragyna parviflora (**Faldu**), etc.
- **Fauna:** It is home to a number of **endangered species, including gharial, tiger, rhino, Gangetic dolphin, Swamp deer**, Hispid hare, Bengal florican, the White-backed and Long-billed vultures.

Albinism

- Albinism is a **genetic disorder** that results in **decreased production** of a pigment called **melanin in the skin, hair, and eyes, resulting in light color or no color**.

HC seeks report from Gujarat govt on mining leases granted within Wild Ass Sanctuary

- **Location:** It is located in the **Little Rann of Kutch** of the **Gujarat** State in India.
- It is the **only place where the Indian wild ass**, locally called **Khacchar**, **is found**.
- The sanctuary is home to a sizeable population of **Rabari and Bharwad tribes**.
- **Topology:**
 - It can be considered a large **ecotone**, a transitional area between marine and terrestrial ecosystems.

- It is a continuum of a **dry area of dark silt** with **salt encrustation**.
- It is dotted with about **74 elevated plateaus** or **islands**, locally called '**bets**'.
- During the **monsoon**, **large parts are flooded** to depths of up to 2m.
- **Flora:**
 - It is **full of dry thorny scrub**, and there are **no large trees except on the fringes** and bets.
 - Some of the plants and trees that are found in this sanctuary are **Morad, Unt morad, Theg, Dolari, Khijdo, Kerdo, Mithi jar, Kheri pilu, Akado**, etc.
- **Fauna:**
 - Besides Indian Wild Ass, the other mammals found here include **Blackbuck, Nilgai, Bluebull, Hare, Wolf, Foxes, Desert Cat, Indian fox, Jackal, Hyena, Wild boar**, etc.
 - There is rich birdlife, including the **Houbara bustard, Sandgrouse, Pale harrier, Black-shouldered kite, Pelican**, etc.

Indian Wild Ass:

- It is a **sub-species of Asian Wild Ass**, i.e., *Equus hemionus*.
- **Scientific name:** *Equus hemionus khur*
- It is characterized by **distinctive white markings** on the anterior part of the rump and on the posterior part of the shoulder and a **stripe down the back that is bordered by white**.
- **Distribution:** **World's last population** of Indian Wild Ass is restricted to **Rann of Kachchh, Gujarat**.
- **Habitat:** **Desert and grassland ecosystems**.
- **Conservation Status:**
 - **IUCN:** Near threatened.
 - **CITES:** Appendix II
 - **Wildlife Protection Act (1972):** Schedule-I

Presence of Eurasian otter show stretches of J&K stream still unpolluted

Eurasian Otter:

- It is a **semi-aquatic carnivorous mammal**.
- **Scientific Name:** *Lutra lutra*
- **Distribution:**
 - It has one of the **widest distributions** of all Palearctic mammals.
 - Its range covers parts of three continents: **Europe, Asia, and Africa**.
 - In India, it occurs in **northern, northeast, and southern India**.
- **Habitat:**
 - It lives in a **wide variety of aquatic habitats**, including highland and lowland lakes, rivers, streams, marshes, swamp forests, and coastal areas.
 - In the **Indian sub-continent**, Eurasian otters occur in **cold hill and mountain streams**.
- **Features:**
 - It has a **long lithe body** with a **thick tail** and **short legs**.

- It has **sensitive whiskers** around the snout to **help detect prey**.
- It has **two layers of fur**: a thick waterproof outer one and a warm inner one with 50,000 hairs/cm²
- It has an **acute sense of sight, smell, and hearing**.
- **Conservation Status:**
 - **IUCN: Near threatened**
 - **Wildlife Protection Act, 1972: Schedule II**
 - **CITES: Appendix I**

BRO opens strategic Zojila Pass in record 68 days

- Zojila Pass, also known as 'The Mountain Pass of Blizzards', is a strategic pass that **connects Kashmir Valley to Ladakh**.
- It is located on the **Srinagar-Kargil-Leh highway (NH-1)** at a height of **11,650 feet**.
- The pass remains **closed for almost half of the year** due to heavy snowfall.
- **History:**
 - It was the **site of the Indo-Pakistan War of 1947-48**.
 - It was **captured by militias aided by the Pakistan Army** in 1848, with the ultimate aim of capturing Ladakh.
 - However, the pass itself **was captured by the Indian Army** on 1st November 1948 in **an assault codenamed Operation Bison**.

Zojila Tunnel

- **Location:** It is an **under-construction** tunnel situated at **an altitude of 11,578 ft** (around 3,500 metres) on the **Srinagar-Leh Highway** in Jammu and Kashmir.
- The tunnel would provide **all-weather connectivity between Srinagar and Leh** on NH-1.
- **Total Length: 14.15 km.**
- It **will be India's longest road tunnel**, and **Asia's longest bi-directional tunnel**.
- It would be **9.5-meter wide** and **7**.57-meter high**** in the **shape of a horseshoe**.

Coral breach: A silent, catastrophic invasion has happened in the Gulf of Mannar; here is how

Kappaphycus alvarezii:

- It is **seaweed (alga)** which is native to the **Indo-Pacific region**.
- The International Union for Conservation of Nature lists it as one of the world's 100 most **invasive species**.
- It is one of the prime threats that killed the **corals near Kurusadai** which was deliberately introduced in Ramanathapuram for commercial cultivation some two decades ago.

Gulf of Mannar Marine National Park

- The Gulf of Mannar is one of the **biologically richest coastal regions** in all of the mainland of India. It is the first Marine Biosphere Reserve in South and South East Asia.
- In India, the **Gulf of Mannar region in Tamil Nadu** is one of the four major coral reef areas and the others are the Gulf of Kutch in Gujarat, Lakhsadweep and Andaman and Nicobar islands.
- It is designated as a **Biosphere Reserve**.
- This Biosphere Reserve encompasses a chain of 21 islands (2 islands already submerged) and adjoining coral reefs off the coasts of the Ramanathapuram and the Tuticorin districts.

Tiger helps uncover timber 'depots' in Arunachal Pradesh's Namdapha National Park

Namdapha Tiger Reserve:

- Namdapha Tiger Reserve is located in the Changlang district of **Arunachal Pradesh**.
- Namdapha is the name of a river which originates from Daphabum and meets the Noa-Dehing river.
- This river flows right across in a **North-South direction** of the National Park and hence the name Namdapha has been given.
- This protected area is wedged between the **Dapha Bum ridge of Mishmi Hills**, of North Eastern Himalayas and the **Patkai Ranges**.
- **Flora:** Evergreen Forests, Moist deciduous forests, sub-tropical forests, Temperate Forests and Alpine.
- **Fauna:** Earthworms, Butterflies & Moths, Amphibians, Reptiles etc.

Horseshoe crabs disappearing off Odisha has scientists alarmed

Horseshoe crabs:

- The horseshoe crab is a **marine chelicerate arthropod** living in shallow coastal waters on **soft sandy or muddy bottoms** and spawns mostly on intertidal beaches at summer-spring high tides.
- The Chelicerata is a division within the Arthropoda, containing animals such as spiders, scorpions, harvestmen, mites and ticks. Like all arthropods, they have a **segmented body** and **segmented limbs and a thick chitinous cuticle** called an exoskeleton.
- It is known as a marine **'living fossil'**.
- There are **four extant horseshoe** crab species:
 - The American horseshoe crab (*Limulus polyphemus*) along **the eastern coast of the USA and in the Gulf of Mexico**,
 - The tri-spine horseshoe crab (*Tachypleus tridentatus*),
 - The coastal horseshoe crab (*Tachypleus gigas*)
 - The mangrove horseshoe crab (*Carcinoscorpius rotundicauda*)
- The last three are **Indo-Pacific species** found mainly in the coastal waters of **India, Southeast Asia, China and Japan**.

- **Odisha** is the largest habitat of horseshoe crabs in India.
- **Conservation status in India**
 - **Wildlife Protection Act 1972: Schedule IV**
- **IUCN Status**
 - **American horseshoe crab: Vulnerable**
 - **Tri-spine horseshoe crab: Endangered**
 - The two other species are not listed yet

Brazilian researchers find 'terrifying' plastic rocks on remote island

Plastic rocks

- Melted plastic has become intertwined with rocks on the island, located 1,140 km (708 miles) from the southeastern state of Espirito Santo.
- They are made of a mixture of **sedimentary granules** and other debris held together by
- The pollution on this island mainly comes from fishing nets, which are very common debris on Trinidad Island's beaches.
- The (nets) are dragged by the marine currents and accumulate on the beach. When the temperature rises, this plastic melts and becomes embedded with the beach's natural material."

Trindade Island

- It is located in the **South Atlantic Ocean**.
- It is one of the world's most important **conservation spots for green turtles, or Chelonia mydas**, with thousands arriving each year to lay their eggs.
- The members of the Brazilian navy maintain a base on the island and protects the nesting turtles.

Female leopard dies in suspected roadkill in Wayanad Wildlife Sanctuary

- Wayanad Wildlife Sanctuary is **located in Kerala** and is an integral part of the Nilgiri Biosphere Reserve.
- This Sanctuary is **contiguous to the tiger reserves of Nagarhole and Bandipur of Karnataka and Madhumalai of Tamil Nadu**.
- **Kabini river** which is a tributary of the Kaveri River flows through the sanctuary.
- **Flora:** It includes moist deciduous forests, West coast semi-evergreen forests and plantations of teak, eucalyptus and Grewelia.
- **Fauna:** Elephant, Gaur, Tiger, Panther, Sambar, Spotted deer**, Barking deer**, Wild boar, Sloth bear, Nilgiri langur etc.

Nilgiri Biosphere Reserve

- It harbours a wide spectrum of ecosystem types such as tropical evergreen forests, Montane sholas and grasslands, semi-evergreen forests, moist deciduous forests, dry

- deciduous forests and thorn forests.
- The major part of the **core areas spread** over **Kerala and Tamil Nadu States**.
 - ****Tribal Population:****Tribal groups like the **Todas**, Kotas, **Irullas**, Kurumbas, Paniyas, Adiyans, Edanadan Chettis, Cholanaickens, Allar, Malayan, etc., are native to the reserve.
 - **Protected Areas within the Nilgiri Biosphere Reserve are**
 - The **Mudumalai Wildlife Sanctuary**, Wayanad Wildlife Sanctuary, Bandipur National Park, Nagarhole National Park, **Mukurthi National Park** and Silent Valley.

Tripura's lone butterfly park a major tourist attraction

- It is nestled in a village near the **India-Bangladesh international** border in **Tripura's** South district.
- According to wildlife and environment experts, butterflies are deemed to be indicators of a **good ecological balance and healthy nature**
- The park is near the endangered bison park at **Trishna wildlife sanctuary** and Indo-Bangla Maitri Park to commemorate the Bangladesh liberation war.

Trishna wildlife sanctuary

- Trishna wildlife sanctuary is located in the **state of Tripura**.
- **Flora:** The vegetation of the sanctuary consists of four types of forest – **the tropical semi-evergreen forest**, the east Himalayan lower Bhanar Sal, the **Moist mixed deciduous** forest and the **Savannah woodland**.
- **Fauna:** The Indian Gaur (Bison), Deer, **Hooklock Gibbon**, **Golden langur**, Pheasants, Lalmukh Bandar, Wild Boar, Wild Cat, Leopard etc.

What is the IPCC AR6 synthesis report and why does it matter?

Intergovernmental Panel on Climate Change (IPCC):

- The IPCC is the **United Nations body** for assessing the science **related to climate change**.
- It was **established by** the **World Meteorological Organization (WMO)** and the **United Nations Environment Programme (UNEP)** in **1988**.
- **Membership:** It has **195 Member countries**.
- **Objective:** To **assess scientific, technical, and socio-economic** information relevant to the **understanding of human-induced climate change**, potential **impacts** of climate change, and options for **mitigation and adaptation**.
- The **main activity** of the IPCC is the **preparation of reports** assessing the state of knowledge **of climate change**. These include assessment reports, special reports and methodology reports.
- The assessment reports are a **key input** into the international **negotiations to tackle climate change**.
- The **IPCC does not itself engage in scientific research**. Instead**, it asks scientists

from around the world to go through all the relevant scientific literature related to climate change and **draw up logical conclusions.**

- **What are the IPCC working groups?** It comprises **three working groups**, which **focus on different aspects** of climate science and climate change response.
 - **Working Group I:** looks at the **physics of climate change**;
 - **Working Group II:** examines climate change **impacts and adaptation**;
 - **Working Group III:** focuses on climate change **mitigation**;
 - The three working groups **release separate reports**, which are then **compiled into a synthesis report.**

ENVIS Hub Manipur Status of Environment and Related Issues

Keibul Lamjao National Park:

- It is the **world's only floating national park.**
- **Location:**
 - It is located in the **Bishnupur district** in **Manipur.**
 - The park is located in the **southwestern part of the famous Loktak Lake**, which is well known for the **floating biomass called phumdis.**
- This is the **last natural habitat of the endangered brow-antlered deer (Sangai deer)**, the **dancing deer** of Manipur.
- **Vegetation:** The park is a **combination of wetland, terrestrial and aquatic**
- **Flora:**
 - It comprises of **Saccharum munja (Khoimom)**, **Zizania latifolia (Wild Rice)** (Ishing kambong), **Eiranthus procerus (Singnang)**, **S. bengalensis**, **Cynodon dactylon (Tinthou)**, **Discorea bulbifera (Phumha)** etc.
 - Another kind of **aquatic flora, phumdis**, can be found in **two types phumdi aruppa** (sinking) and **phumdi ataoba** (floating).
- **Fauna:** Includes **Wild boar, Hog deer, common otter, Large Indian jungle cat, fox, Bay bamboo rat, golden cat, etc.**

Sangai deer:

- **Scientific Name:** **Rucervus eldii**
- **Common Name:** **Sangai, Brow antlered deer, Dancing Deer.**
- **Habitat and Distribution:** It is found **only in Keibul Lamjao National Park.**
- **Features:**
 - It is a **medium-sized deer**, with uniquely **distinctive antlers**, with extremely **long brow tine**, which forms the main beam.
 - It has a **dark reddish-brown winter coat**, which turns paler in summer.
- **Conservation Status:**
 - **Wildlife (Protection) Act, 1972: Schedule-1**
 - **IUCN Red List: Endangered**

Loktak Lake:

- It is the **largest freshwater lake in Northeast India.**

- It is **famous for the phumdis** floating over it.
- It was **designated** as a wetland of international importance under the **Ramsar Convention in 1990**.
- It is also listed under the **Montreux Record in 1993**, "a record of Ramsar sites where changes in ecological character have occurred, are occurring or are likely to occur".

Lost Continent Found: Zealandia Emerges After 375 Years

- It is a long, narrow **microcontinent** that is mostly **submerged in the South Pacific Ocean**.
- Zealandia or **Te Riu-a-Māui in the Māori language** was formally one of the **constituent continents** of the ancient **supercontinent called Gondwana**, which also included Western Antarctica and Eastern Australia over 500 million years ago.
- It **began to "pull away" from Gondwana** roughly **105 million years ago**.
- As Zealandia started pulling away, **it began to sink beneath the waves**, with **over 94 percent remaining underwater** for millennia.
- It is approximately **1.89 million square miles (4.9 million square km) in size**, about half the size of Australia.
- The **vast majority** of this new continent **lies beneath 6,560 feet (2km) of water**.
- The part of Zealandia which is **above water forms** the foundation of **New Zealand's north and south islands** as well as the **island of New Caledonia**.
- The existence of Zealandia was **first recorded in 1642 by Dutch businessman** and sailor **Abel Tasman**, who was on a mission to find the "great Southern Continent," or Terra Australis.

Odisha: Royal Bengal Tiger kills villager in Sunabeda Wildlife Sanctuary

Sunabeda Wildlife Sanctuary:

- **Location:**
 - It is located in the **Nuapada district of Odisha**, adjoining Chhattisgarh.
 - It **adjoins the Sitanadi and Udanti sanctuaries of Chhattisgarh**.
- The sanctuary harbors a great **diversity of wildlife habitats** with a **vast plateau, canyons, and 11 waterfalls**.
- It also **forms the catchment area of the Jonk River**, over which a dam has been constructed to facilitate irrigation.
- **Vegetation:** The important vegetation of this sanctuary comprises **dry deciduous tropical forests**.
- **Flora:** **Bija** (Pterocarpus marsupium), **Teak**(Tectona grandis), **Sisoo** (Dalbergia latifolia), **Asan** (Terminalia tomentosa), **Dharua** (Anogeisus latifolia), Mahul (Madhuca indica), Char (Buchnaniania lanzan), **Sandal wood** (Santalum album), Sidha (Lagestroemia parviflora) etc.
- **Fauna:**
 - It is an **ideal habitat for the Barasingha (swamp deer)**.
 - It also works as a **migration link for rare wild Buffaloes** between the states of **Orissa and Chhattisgarh**.

- Other important animals found are **tigers, Leopards, hyenas, Barking Deer, Chital, Gaur, Sambar, Sloth Bear, Hill Myna, etc.**

Recent Census shows increased population of endangered Hangul at Dachigam National Park

- The Kashmir stag also called hangul is a subspecies of Central Asian red deer **endemic to Kashmir** and surrounding areas.
- It is found in dense riverine forests in the high valleys and mountains of Jammu and Kashmir and northern Himachal Pradesh.
- In Kashmir, it is found primarily in **the Dachigam National Park** where it receives protection.
- A small population has also been witnessed in **Overa-Aru Wildlife Sanctuary in south Kashmir.**
- **Conservation status**
 - **IUCN: Critically Endangered**
 - **CITES : Appendix I**

Dachigam National Park

- The actual beauty of the park lies in the **deep valleys, rocky outcrops**, steep wooded slopes and rolling alpine pastures.
- Being located in a mountainous area, Dachigam National Park faces a huge variation in altitude that ranges from 1600 m to 4200 m above sea level.
- This variation in altitude categorises Dachigam National Park into two regions- the upper region and the lower region.
- **Flora:** It is extremely rich in Wild Cherry, Pear, Plum, Peach, Apple, Apricot, Walnut, Chestnut, Oak, Willow, Poplar, Chinar, Birch, Pine and Elm.
- **Fauna:** Hangul (Kashmir Stag), **Musk deer**, Brown Bear, Leopards, Jungle Cats, Himalayan black bear, and a few species of wild goats like the **markhor and ibex.**

New Catfish species discovered by scientists of ZSI in Arunachal Pradesh - Sentinellassam

Exostoma Dhritiae:

- It is a **new species of catfish** of the **genus Exostoma.**
- It is a **small fish locally called 'Ngorang'** by local tribals.
- The new species has been **named 'Exostoma Dhritiae' after Dhriti Banerjee, the first woman director of the ZSI.**
- It was **found in Siking stream, a tributary of the Siang River** in the Upper Siang district of **Arunachal Pradesh.**

Catfish:

- Catfish represent one of the **largest groups of freshwater fishes**, with more than

- 2000 species.
- Most catfish are found in freshwater but a **few are marine**.
 - Most species of catfish are **nocturnal**.
 - Catfish are **primarily benthic or bottom-dwellers**.
 - **Features:**
 - Most catfish have a **cylindrical body with a flattened ventral** to allow for benthic feeding.
 - Catfish are **so-named because of the long barbels**, or feelers, which are present about the mouth of the fish and **resemble cat whiskers**.
 - Most catfish possess **leading spines in their dorsal and pectoral fins**.
 - **Catfish are scaleless**, a characteristic of catfishes distinguishing them from others.

Free of encroachments, Mahim Fort to be turned into a tourist spot

Mahim Fort:

- **Location:** It is a fort in **Mahim in Mumbai**, Maharashtra state.
- The fort was **built by Maharaja Pratapbimb** of the Rajput dynasty **in the 11th century AD**.
- **History:**
 - In **1516**, **Portuguese commander Dom Joao de Monoy** entered the Mahim Creek and **defeated the commander of the Mahim fort**.
 - The fort was the **site of frequent skirmishes between the Portuguese and the Ali Shah**, a Gujarati ruler before the **island of Mahim was appropriated from Bahadur Shah of Gujarat by the Portuguese in 1534**.
 - In **1661**, the **Portuguese ceded the island of Mahim as dowry to Charles II of England**.
 - After the English gained control of the fort, **it was strengthened by Sir Thomas Grantham in 1684** and became a strategic watchtower against possible Portuguese attacks and later from the Marathas.
 - In **1772**, the **Portuguese attempted to attack this fort**, but they were **repelled by the British** with cannonballs.
- **Architecture:**
 - The present structure seen here is the **last modified structure by the British East India Company**.
 - The **building material** used here is **Sea rocks, limestones, and granite stones**.
 - This fort is **unique for its masonry rock works**.
 - The total design of this fort looks **square and rectangular shape** when seen from the outer side.
 - The main fortification **walls are built high** and thick.
 - There are **many bastions found** on these walls, which are **in a square model**.

Odisha declares Gandhamardan Hill as biodiversity heritage site

- The Gandhamardan hill (Gandhamardan Reserve Forest) spreads in **Bargarh and Balangir districts in Odisha**.
- This ecologically fragile ecosystem is rich in floral and faunal diversity and is protected under the Odisha Biodiversity Rules - 2012.
- ****What is the Significance?***The hill range has a diverse socio-economic, ecological and biological significance for the people of Odisha.
- This hill consists of medicinal plants, the hill system is considered the 'Ayurvedic paradise' of Odisha.
- The hills have 2 historical monuments (hill shrines) which are major pilgrimage sites of Odisha.
 - **Nrusinghanath temple** is located on the northern slope.
 - **Harishankar temple** on the southern side.
- In his chronicles, **Hiuen Tsang** described the hill shrine as a Buddhist heritage site named

Biodiversity heritage sites

- These are well-defined areas that are unique, ecologically fragile ecosystems with a high diversity of wild and domesticated species, the presence of rare and threatened species, and keystone species.
- **Legal Provision:** As per provision under Section 37(1) of 'The **Biological Diversity Act, 2002**', The State Government may, from time to time in consultation with the local bodies, notify the Official Gazette, of areas of biodiversity importance as under this Act.

Ibisbill, the poorly understood Himalayan waterbird faces threats, finds study

- It is a bird which belongs to the **family Ibisbillidae**. It is the **only species in this family**.
- It is a **charismatic and uncommon wader seen in the Himalayas** and foothills of India.
- **Scientific Name:** *Ibisbillia struthersii*
- **Distribution:**
 - They are common in **Central Asia and the Himalayas**.
 - They are found in **India, Pakistan, Afghanistan, Uzbekistan, Kazakhstan, Turkmenistan, Tajikistan, Kyrgyzstan, Nepal, Bhutan, Myanmar and China**.
- **Habitat:**
 - It lives at **high altitudes near rivers**.
 - They exhibit **altitudinal migration, breeding in the higher reaches of the mountains and descending to lower elevations during winters**.
- **Features:**
 - It is a **medium-sized wader, measuring 38 to 42 cm in length and weighing 270 to 320 grams**.
 - It has a **long, downward curved and sharply-pointed pink bill; a grey body;**

- a **white belly with a black band on its chest**; and a **black face**.
- The **sexes are similar**, which makes this species monomorphic as well.
- **They are good swimmers**.
- **Conservation Status:**
 - **IUCN: Least Concern**

Shri Bhupender Yadav launches Aravalli Green Wall Project

- The project is a major initiative to green the 5 km buffer area **around Aravalli Hill**.
- The Aravalli Green Wall Project is part of the Union Environment Ministry's vision to create green corridors across the country **to combat land degradation and desertification**.
- The project covers the states of **Haryana, Rajasthan, Gujarat and Delhi** - where the Aravalli hills landscape span over 6 million hectares of land.
- The project will involve **planting native species of trees and shrubs on scrubland, wasteland** and degraded forest land, along with rejuvenating and restoring surface water bodies such as ponds, lakes and streams.
- The project will also focus on agroforestry and pasture development to enhance the livelihoods of local communities.
- **Some of the objectives of the Project:**
 - Improving the ecological health of the Aravalli range.
 - To **prevent the eastward expansion of the Thar Desert** and to **reduce land degradation** by creating green barriers that will prevent soil erosion, desertification and dust storms
 - Contribute to India's commitments under various international conventions such as UNCCD (United Nations Convention to Combat Desertification), CBD (Convention on Biological Diversity) and UNFCCC (United Nations Framework Convention on Climate Change).

Aravali Hills

- The Aravalli Range is one of the **oldest fold mountains of the world** which runs in a southwest direction, starting near Delhi, passing through southern Haryana and Rajasthan, and ending in Gujarat.
- The highest peak is **Guru Shikhar** at 1,722 metres (5,650 ft).
- Three major rivers originate from the Aravali hills, namely **Banas, Sahibi and Luni** River (which flows into the Rann of Kutch).

Four tiger cubs born in Mumbai's Sanjay Gandhi National Park after 13 years

- It is located in the state of **Maharashtra** which was formerly known as Borivali National Park.
- The 2400-year-old **Kanheri caves** are sculpted out of the rocky cliff which lies within the park.
- **Flora:** Kadamba, Teak, Karanj, Shisham, and species of acacia, Ziziphus, euphorbias etc are found in this National Park.

- **Fauna:** Chital, Rhesus macaque, Bonnet macaque, Black-naped, Bengal Tiger etc.

Kanheri caves

- The Kanheri Caves are a group of caves and **rock-cut monuments** cut into a massive basalt outcrop in the forests of the Sanjay Gandhi National Park, western outskirts of
- The Kanheri caves comprise more than 110 different rock-cut monolithic excavations and are one of the largest single excavations in the country.
- These excavations were primarily undertaken during the Hinayana phase of Buddhism but also have several examples of the Mahayana stylistic architecture as well as a few printings of the Vajrayana order.
- The name Kanheri is derived from 'Kanhagiri' in Prakrit and occurs in the Nasik inscription of the **Satavahana ruler Vasisthiputra Pulumavi**.
- They contain Buddhist sculptures and relief carvings, paintings and inscriptions, dating from the **1st century CE to the 10th century CE**.
- The earliest reference to Kanheri is ascribed to Fa-Hein who visited India during 399-411 CE.

30-year celebration of 'Project Elephant' recently officials from the Ministry of Environment, Forest and Climate Change said that the DNA profiling of 270 of the 2,675 captive elephants in the country has been completed.

- The DNA profiling was started in August 2022 for Gaj Sochna Mobile Application for forest officials.
- DNA profiling is the process where a **specific DNA pattern, called a profile**, is obtained from a sample of bodily tissue.

Project Elephant

- It was launched in 1992 as a **Centrally-Sponsored Scheme** to protect elephants and improve **their habitat and corridors, reduce Human-elephant conflict and ensure their welfare**.
- Under this project, financial and technical support is given to wildlife management efforts by states for their **free-ranging populations of wild Asian Elephants**.
- Project elephant is mainly implemented in **16 States**.
- **Conservation status of Asian Elephant**
 - **IUCN: Endangered**
 - **Wildlife (Protection) Act, 1972: Schedule I.**
 - **CITES: Appendix I**

Biotransformation technology and its promise to turn plastics biodegradable

- Biotransformation technology is a process which **alters the state of plastics**
- The technology would digest the plastic packaging waste naturally **with the help of microbes** without leaving behind any microplastics.
- It ensures that plastic which escaped refuse streams is fully biodegraded in the natural

- environment.
- Plastics made using this technology are given a pre-programmed time during which it looks and functions like conventional plastics.
 - After expiry and exposure to the external environment, it self-destructs and **biotransforms into bioavailable wax**.
 - This wax is then consumed by microorganisms, converting waste into water, CO₂, and biomass.
 - The technology attacks the crystalline and amorphous region of the polymer structure, rapidly turning it into a wax-like material.
 - This wax-like material is no longer plastic and is not harmful to the environment.

Sacred Hopi site in Arizona awarded ICOMOS Water and Heritage Shield

- The purpose of the Shield is to help the public become aware of the significance of **water and indigenous sacred sites** all over the world and the right to cultural and historical memory.
- The **Sípàapu is a rocky dome made** of limestone as well as a spring located on the Little **Colorado river**, a tributary of Colorado.
- Little Colorado joins the main stem of the river within the Grand Canyon, a **UNESCO World Heritage Site**.
- The ancestors of the Hopi dwelled throughout the Grand Canyon before the 1250 Common Era.
- Little Colorado, especially the confluence, is sacred not only to the Hopi but also to other Native American groups such as the Navajo and Zuni.
- The Hopi consider the Sípàapu to be the place from where their ancestors emerged from another world into this one.

International Committee On Monuments and Sites:

- It is a global **non-governmental organization** associated with **UNESCO**
- Its mission is to promote the conservation, protection, use and enhancement of monuments, building complexes and sites.
- It is **an Advisory Body** of the **World Heritage Committee** for the implementation of the World Heritage Convention of UNESCO.
- As such, **it reviews the nominations** of cultural world heritage and ensures the conservation status of properties.
- It also contributed to a series of resource manuals jointly prepared by the Advisory Bodies (ICOMOS, IUCN and ICCROM) and the UNESCO World Heritage Centre.

Hopi Tribal people

- The Hopi are known as one of the oldest living cultures in documented history, having migrated north to Arizona in the 12th century.

Sundarbans Get 90 Spotted Deer From Parmadan Forest

Bibhutibhusan Wildlife Sanctuary:

- Bibhutibhusan Wildlife Sanctuary, also known as Parmadan Forest is an animal sanctuary in the North 24 Parganas district in **West Bengal**.
- It is situated on the banks of **river Ichamati**.

Sundarban Tiger Reserve

- The Sundarbans is located on the delta of the **Ganga, Brahmaputra and Meghna** rivers in the Bay of Bengal.
- In 1973 it was declared a tiger reserve **under Project Tiger**.
- It is a part of the world's largest delta and home to the largest **mangrove forests**.
- ****Flora:****The vegetation of the area is moist tropical forests and tidal forests.
- ****Fauna:****It is home to Royal Bengal Tiger, Estuarine Crocodile, Gangetic Dolphin, Water Monitor Lizard etc.

Project Tiger

- It is a **tiger conservation programme launched in April 1973** by the Government of India during Prime Minister Indira Gandhi's tenure.
- **Aim:** Ensuring a viable population of Bengal tigers in their natural habitats, protecting them from extinction, and preserving areas of biological importance as a natural heritage

Oldest sea reptile remains from 2 million years ago found on Arctic island

Ichthyosaurs:

- Ichthyosaurs were a group of animals that strongly resembled modern dolphins.
- They **evolved from land-dwelling creatures** that returned to the sea in the Early Triassic, thriving until the late Cretaceous.
- A changing climate and slowness to adapt brought their time to an end around 95 million years ago.
- These reptiles quickly adapted to life in the water: their legs turned to fins, their snouts elongated and filled with fish-snatching teeth, and their bones became spongy like those of modern cetaceans.
- It was fully adapted to life as a marine reptile within 2 million years of the final days of the **End-Permian Mass Extinction**.

Permian Mass Extinction

- It is also called the Permian-Triassic extinction, a series of extinction pulses that contributed to the **greatest mass extinction in Earth's history**.
- Many geologists and palaeontologists contend that the Permian extinction occurred over the course of 15 million years during the latter part of the Permian Period (299 million to 252 million years ago).
- This event **ranks first in the severity of** the five major extinction episodes that span

geologic time.

Spitsbergen Island

- It is the largest island in the Svalbard archipelago,
- It is the only permanently inhabited part of Svalbard.

Gauhati HC Directs Forest Dept to File Report on Amchang Wildlife Sanctuary's Border Issue

Amchang Wildlife Sanctuary:

- The Amchang Wildlife sanctuary is located on the eastern fringe of Guwahati,
- It comprises three Reserve forests-Khanapara, Amchang, and South Amchang.
- It stretches from the **Brahmaputra River in the north** to the hilly forests of Meghalaya in the south, forming a continuous forest belt through Meghalaya's Maradakdola Reserve Forests.
- **Flora:** Khasi Hill Sal Forests, East Himalayan Mixed Deciduous Forest, Eastern Alluvial Secondary Semi-evergreen Forests and East Himalayan Sal Forests.
- **Fauna:** Flying fox, Slow loris, Assamese macaque, Rhesus macaque, Hoolock gibbon, Porcupine. White-backed Vulture, Slender-billed Vulture.
- **Tree yellow butterflies** (gancana harina) are found at the Amchang wildlife sanctuary which is indigenous to Thailand, Malaysia, Singapore and northeast India

New species of Moray eel discovered off Cuddalore coast named after Tamil Nadu

- Moray eels or Muraenidae are a family of eels **found worldwide**
- They have small eyes and rely primarily on their highly developed sense of smell to ambush prey. Their body is mostly patterned.
- Moray eels **live in shallow water** among reefs and rocks in **all tropical and subtropical seas**.
- Moray eels can be found in both **freshwater and saltwater environments**.
- They are distinguished by two types of jaws: regular (oral) jaws with large teeth and the pharyngeal jaw (which drags prey inside the eel's stomach).
- The newly discovered species has been named after Tamil Nadu as **Gymnothorax tamilnaduensis** with common name as Tamil Nadu brown moray.

CRISP: Rubber Board launches comprehensive rubber information system

- The **Comprehensive Rubber Information System Platform (CRISP) application** has been developed by the Rubber Research Institute of India (RRII) in collaboration with the Digital University of Kerala.
- It gives **information to rubber cultivators** related to production and productivity enhancement, reduction of cultivation cost, maintenance of soil fertility, disease control

measures, etc.

Rubber Plantations in India

- Natural rubber is a polymer made up of a chemical molecule called isoprene.
- It is a native of the Amazon basin which was introduced to countries in the tropical belts of Asia and Africa in the late nineteenth century.
- **Climatic conditions required for Rubber**
 - **Rainfall:** It requires **moist and humid climates** with heavy rainfall of **more than 200 cm.**
 - **Temperature:** It grows well in equatorial climates and temperatures **above 25 degrees Celsius.**
 - **Soil:** Well-drained, weathered soils.
- India is the world's largest producer and the **third-largest user of natural rubber.**
- Rubber Growing Areas in India
 - **Traditional Areas:** Primarily in Tamil Nadu's Kanyakumari District and Kerala.
 - **Non-traditional regions:** Coastal Karnataka, Goa, Maharashtra's Konkan Region, coastal Andhra Pradesh and Orissa, the northeastern provinces, and the Andaman and Nicobar Islands, among other places.

'India supports marine protected areas in Antarctica to conserve ocean life'

Marine Protected Areas (MPAs):

- MPAs are **areas of the ocean set aside for long-term conservation aims.**
- They **support climate change adaptation and mitigation** while providing other **ecosystem services.**
- The **specific purposes, legal authority, level of protection, management approaches, and use allowance of individual marine protected areas (MPAs) can vary greatly from site to site**
- **Many MPAs allow people to use the area** in ways that do not damage the environment. Some ban fishing. **A few do not allow people to enter the area at all.**
- MPAs currently **cover about 6.35% of the ocean.** However, **only just over 1.89% of that area is covered by exclusively no-take MPAs** that do not allow any fishing, mining, drilling, or other extractive activities.

United Nations High Seas Treaty

- It is the **first-ever treaty to protect the world's oceans that lie outside national boundaries.**
- It is also known as the '**Paris Agreement for the Ocean.**'
- It is a **legally binding treaty to protect marine life in international waters.**
- It aims to place **30% of the seas into protected areas by 2030** (a pledge made by countries at the UN biodiversity conference in 2022).
- It will **provide a legal framework for establishing vast marine protected areas (MPAs)** to protect against the loss of wildlife and share out the genetic resources of

the high seas.

Pumas might be 'gardening' to attract prey to hunting hotspots

- A recent study revealed that Puma is using a **garden-to-hunt strategy**; meaning they **fertilise the soil in their hunting spots** with their kills to attract more prey.
- The animal carcasses of their prey are helping the animals **create nutrient-rich hotspots** that may continue to improve their future hunting success over time.
- These nutrients in the soil increase plant quality and attract ungulates — large mammals with hooves.
- Decomposing ungulate carcasses deposits elevated nitrogen, carbon and other valuable elements that improve soil and plants' chemistry and nutrient makeup.

Puma (Puma concolor):

- Puma is a member of the family Felidae and is also called **mountain lion, cougar**, or catamount (archaic).
- It is a large brownish New World cat comparable in size to the jaguar.
- **Habitats:** Pumas live in a variety of habitats, including **desert scrub, chaparral, swamps, and forests** but they avoid agricultural areas, flatlands, and other habitats lacking cover (vegetative or topographic).
- Puma has the widest distribution of any New World mammal, with a range extending from **southeastern Alaska to southern Argentina and Chile**.
- **Conservation status**
 - **IUCN: Least Concern**

India needs to back its wind energy ambitions with investment: Global Wind Energy Council

Global Wind Energy Council (GWEC)

- It is a **member-based trade association** that represents the **entire wind energy sector**.
- It was **established in 2005** to provide a credible and representative forum for the **entire wind energy sector** at an international level.
- The members of GWEC **represent over 1,500 companies, organisations and institutions in more than 80 countries**, including manufacturers, developers, component suppliers, research institutes, national wind and renewables associations, electricity providers, and finance and insurance companies.
- **Headquarters: Brussels, Belgium.**
- **Mission:** To promote the **development and deployment of wind power as a sustainable and cost-effective source of energy**.
- The GWEC **conducts research, provides market intelligence**, and advocates for policies that support the growth of wind energy.
- It also **organizes events and conferences** to bring together stakeholders from around the world to discuss key issues in the industry.

- **Reports published: Global Wind Report**

Rare Eurasian griffon vulture spotted at Delhi biodiversity park

Eurasian Griffon Vulture:

- It is a **large Old World vulture** in the bird of prey family **Accipitridae**.
- It is one of the **largest birds in the vulture family** and is **Europe's second-largest bird**.
- **Scientific Name: Gyps fulvus**
- **Distribution:**
 - It has a very **large range**, across the **Middle East, North Africa, and Europe**, from **India** to Portugal and Spain
 - They are most commonly **found in countries that border the Mediterranean**.
- **Habitat:**
 - They live in areas of **mountains, plateaus, shrubland, grassland**, and semi-desert, **usually in warm climates**, but **also in harsher conditions of cold, rain, mist, and snow** to secure particularly favourable breeding or foraging conditions.
 - They tend to **avoid forests, lakes, wetlands, and marine waters**.
- **Features:**
 - The griffon vulture is **93–122 cm long** with a **2.3–2.8 m wingspan**.
 - Adult birds are identical with a **white head, neck** and **'feathery' ruff-like collar**.
 - **Its body and upper wings are pale brown**.
 - They are **social birds**, often **gathering in large groups** to feed on a single carcass.
- **Conservation Status:**
 - **IUCN: Least Concern**

Vembanad, Ashtamudi: NGT slaps Rs 10 crore on Kerala for its failure to protect Ramsar sites

Vemband Lake:

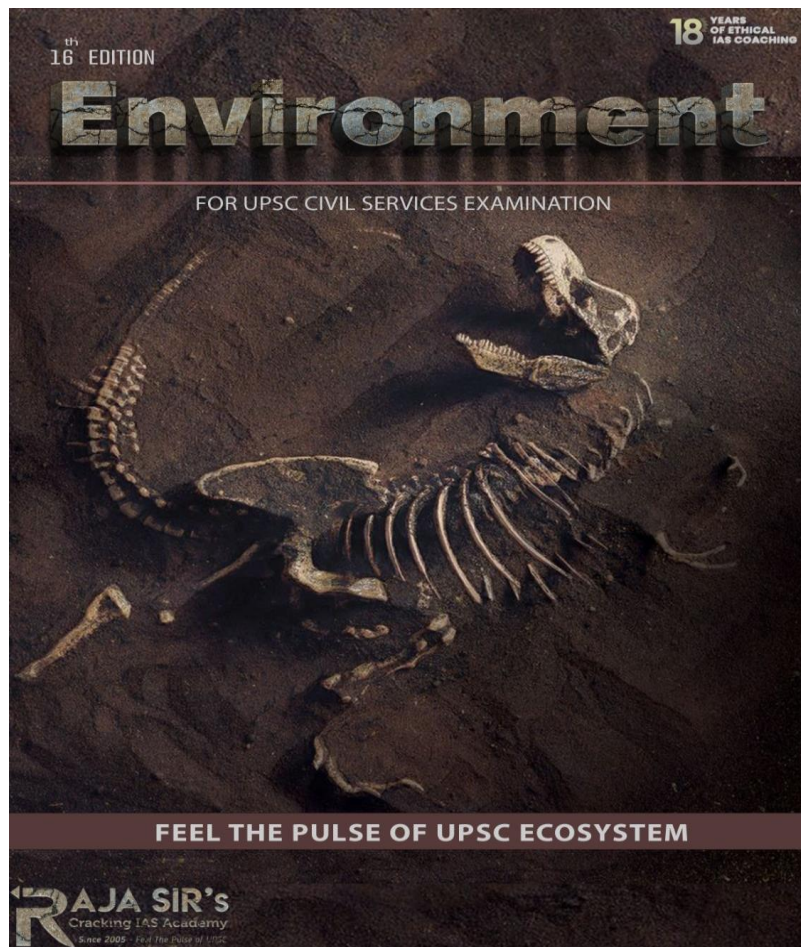
- Vemband is the **largest lake in Kerala** and the **longest Lake in India**.
- It is also known as Vembanad Kayal, Vembanad Kol, Punnamada Lake (in Kuttanad) and Kochi Lake (in Kochi).
- The lake has its source in four rivers, **Meenachil, Achankovil, Pampa and Manimala**.
- It is separated from the Arabian Sea by a narrow barrier island and is a popular backwater stretch in Kerala.
- **Vallam Kali** (i.e **Nehru Trophy Boat Race**) is a Snake Boat Race held every year in the month of August in Vembanad Lake.
- In 2002, it was included in the list of wetlands of international importance, as defined by the **Ramsar Convention**.
- The Government of India has identified the Vembanad wetland under the National

- Wetlands Conservation Programme.
- The **Kumarakom Bird Sanctuary** is located on the **east coast of the lake**.

CAG: Tata Chemicals' open channel may affect national park ecosystem

Gulf of Kutch National Park:

- It is India's first Marine Wildlife Sanctuary and first Marine National Park which were created in the Gulf of Kutch in 1980 and 1982, respectively.
- It is an archipelago of 42 tropical islands along the northern coast of Jamnagar district and the southern coast of Kutch.
- Some of the finest coral reef fringe islands are found at **Pirotan, Narala, Ajad and Positara**, with species of hard and soft coral.
- **Fauna:** There are 7 species of mangrove which are breeding grounds for colonies of near-threatened species of birds such as the Painted Stork, Darter and **Black-necked Ibis**. Endangered Sea Turtles like the **Green Sea, Oliver Riddley & Leather Back** can also be found here.



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FACTS FOR PRELIMS

Another milestone in India-Japan Defence ties

Shinyuu Maitri :

- It is a **bilateral military exercise** between **Indian Air Force (IAF)** and **Japan Air Self Defence Force (JASDF)**.
- The exercise is being **organized on the sidelines** of the **Indo-Japan Joint Army Exercise, Dharma Guardian**.
- The **IAF contingent is participating** in the exercise **with one C-17 Globemaster III**
- The first phase of the exercise consists of **discussions on transport operations** and **tactical manoeuvring**, followed by the second phase of **flying drills by IAF's C-17 and JASDF C-2 transport aircraft**.
- The exercise will enhance mutual understanding and interoperability between the two air forces.

Union Minister Dr Jitendra Singh launches VAIBHAV Fellowships for Indian Diaspora abroad to mark the National Science Day

- The fellowship offers Non-Resident Indian (NRI) researchers an opportunity to work for a **minimum of one month to a maximum of two months a year** with a research institution or an academic institution in India.
- **Duration:** Three years with the government offering the researchers an amount of up to Rs 37 lakh for the entire period.
- **Aim:** Improving the research ecosystem of India's Higher Educational Institutions by facilitating academic and research collaborations between Indian Institutions and the best institutions in the world.
- This is done through the mobility of faculty/researchers from overseas institutions to India.
- **Eligibility:** Researchers from institutions featuring in the top **500 QS World University Rankings** will be eligible for the fellowship.
- The applicant should be a Non-Resident Indian (NRI), Person of Indian Origin (PIO) or Overseas Citizen of India (OCI) and she or he must have obtained Ph.D/M.D/M.S degree from a recognized University.
- **Significance:** The best of Diaspora minds will collaborate with domestic Minds to deliver world-class projects and products.

Shri Goyal Conference of Food Ministers of all States/UTs

- The Department of Food and Public Distribution (DFPD) is envisaging a new and unified scheme to strengthen the PDS technology components by standardization of its operation and implementing data-driven decision-making through data analytics.
- **Full-Form:** Scheme for Modernization and Reforms through Technology in Public

Distribution System.

- This scheme aims to transform the entire PDS IT ecosystem by **leveraging the usage of Cloud and new-age technology.**

SMART-PDS.

- **Smart Ration Card:** SMART-PDS is a system where smart ration cards are issued to beneficiaries of the public distribution system, and ration is given through fair price shops on the production of the smart ration card by any member of the beneficiary family.
- **Fingerprint Template:** The fingerprint template of the beneficiary is recorded in these smart ration cards, which record all transactions.
- **Nodal Ministry:** Ministry of Consumer Affairs, Food and Public Distribution

The unique and flagship initiative “Dhara: Ode to Indian

- During its yearlong activities, it has been successful in creating public awareness, and stakeholder participation and helped to devise a framework for the **promotion and revival of multiple domains of Indian Knowledge Systems.**
- The programme was conceptualized as a series of lectures and discussions dedicated to specific areas of inquiry highlighting India’s civilizational achievements.
- The Indian Knowledge Systems (IKS) Division of the Ministry of Education located at AICTE, New Delhi is the key execution partner for Dhara events.
- Many conferences have taken place on diverse and distinct themes titled: Indian contribution to Mathematics, Indian National Calendar, Dhara Astronomy and Astrophysics etc.
- The next conferences planned in the series are based on the **metallurgical, agricultural and ancient economic thoughts and traditions of India.**
- **Nodal Ministry: Ministry of Culture**

6.9 magnitude earthquake strikes Kermadec Islands in New Zealand

- They are **volcanic island group** in the **South Pacific Ocean**, 600 mi (1,000 km**) northeast of Auckland, New Zealand.**
- They are a **dependency of New Zealand.**
- The islands are a **volcanic island arc**, formed at the **convergent boundary** where the **Pacific Plate subducts under the Indo-Australian Plate.**
- They are the **tiny emergent part of a chain of submarine volcanoes** that define the **Kermadec ridge.**
- **They are uninhabited, except for Raoul Island** where a team of Department of Conservation staff carry out weed control work and make meteorological observations.
- **The climate** of the islands **is subtropical.**
- The islands are **seismically active.**

India rejects OIC's 'unwarranted references' on Jammu & Kashmir

- It is the **second-largest intergovernmental organization** in the world after the United Nations, with a **collective population reaching over 1.8 billion**.
- It has a **membership of 57 states** spread over **four continents**.
- **Objective:** It aims to **preserve Islamic values**, safeguard and defend the national sovereignty and independence of member states, and contribute to international peace and security.
- The OIC is the **collective voice of the Muslim** world to ensure and safeguard their interest in economic, socio, and political areas.
- It was established in **September 1969**.
- **Headquarters: Jeddah, Saudi Arabia.**
- Its **official languages are Arabic, English, and French.**
- The OIC partners with international mechanisms (including every specialized UN agency), governments, and civil society organizations (CSOs) to address issues of concern to its member states and Muslims worldwide.

Demand for J&K, Himachal apples rises as Turkey quake hits supply

- In India apple is primarily cultivated in **Jammu & Kashmir; Himachal Pradesh; the hills of Uttar Pradesh and Uttaranchal.**
- It is also cultivated to a small extent in Arunachal Pradesh; Nagaland; Punjab and Sikkim.
- **Climatic conditions required**
 - The apple is a **temperate fruit crop**.
 - However, in India, the apple-growing areas do not fall in the temperate zone but the prevailing temperate climate of the region is due to the Himalayan ranges and high altitudes.
 - **Temperature:** The average summer temperature should be around **21-24 degrees C during the active growth period.**
 - It can be grown at an altitude of 1500- 2700 m above sea level.
 - **Rainfall:** Well-distributed **rainfall of 1000-1250 mm** throughout the growing season is most favourable for the optimum growth and fruitfulness of apple trees.
 - **Soil:** Apples grow best on **well-drained, loamy soils.**

Recent faunal survey conducted in the Parambikulam Tiger Reserve has recorded over 500 species, many of which were hitherto unseen in the protected area.

- Parambikulam is one of the premier Tiger Reserves of India and is endowed by nature in terms of species, habitat and ecosystem diversity.
- It is located in the **Palakkad District of Kerala** and lies in between the Anamalai hills and Nelliampathy hills of the Southern Western Ghats.
- **Flora:** It supports diverse habitat types namely; evergreen forests, moist and dry deciduous forests and grasslands.

- **Fauna:** Lion-tailed macaques, Malabar giant squirrel and Flying squirrel, Tarantula (large-bodied spiders) etc.
- There are several endemic, rare, endangered and threatened (RET) species of flora and fauna adding to the diversity of the Reserve. To name a few,
 - *Coscinium fenestratum* and *Utreria salicifolia* (the IUCN 'red listed' **medicinal plants endemic to Anamalais**)
 - *Tomopterna parambikulamana* (an **endemic frog of Parambikulam**)
 - *Garra surendranathanii* (an **endemic sucker fish**)

Terrestrial bird species population see increase in Point Calimere Wildlife Sanctuary

Point Calimere Wildlife Sanctuary:

- Point Calimere Wildlife Sanctuary was established in the year of 1967 and is situated in **the state of Tamil Nadu**.
- It houses the famous bird sanctuary of Vedaranyam and the Talaigayar forests.
- It is flanked by **the Bay of Bengal in the east**, and **Palk Strait in the south**.
- It primarily focuses on the protection and conservation of the black antelopes, an endangered and endemic species that are found in this region.
- It is designated as a **Ramsar site**.
- **Flora:** It has **mangroves, tropical evergreen forests**, and grassland ecosystems.
- **Fauna:** Wild boar, macaque, black buck, chital, **Great flamingo, Painted Stork**, Little Stint, Seagull and Brown-headed gull are normally found in the sanctuary.

Prime Minister Shri Narendra Modi to inaugurate 3rd Session of the National Platform for Disaster Risk Reduction (NPDRR) at Vigyan Bhawan, New Delhi on 10th March, 2023

National Platform for Disaster Risk Reduction (NPDRR):

- It was **established by the Indian government in 2013** to bring together all segments of the disaster risk community in India, including government officials, parliamentarians, mayors, the media, international agencies, non-governmental organisations, representatives from local communities, scientific and academic institutions, and corporate businesses, among others.
- **The theme of this year's session:** "Building Local Resilience in a Changing Climate"
- **Functions:** It facilitates the exchange of experiences, views, and ideas, presents the results of research and action, and explores the possibility of cooperating across continents.
- As a result of this platform, National Action Plans on Disaster Risk Reduction will have a strategic direction and an action plan.
- **Organisational Structure:** The Union Home Minister chairs the NPDRR, which is also headed by the Minister of State in charge of Disaster Management in the Ministry of Home Affairs and Vice-Chairman of, the National Disaster Management Authority.
- In the Ministry of Home Affairs, the Special Secretary/Additional Secretary/Joint Secretary responsible for the Disaster Management Division acts as the convener of

NPDRR

Indian Railways ties up with ISRO for real-time train tracking

Real Time Train Information System (RTIS) project:

- **RTIS devices** that use **satellite imagery** are being **installed on the trains to automatically acquire its "movement timing** at the stations, including that of arrival and departure or run-through".
- These timings **get automatically plotted** on the control chart of those trains in the **Control Office Application (COA) system**.
- The project is **executed by the Centre for Railway Information Systems (CRIS)**.
- RTIS is **developed in collaboration with ISRO**. ISRO has launched **GSAT satellites that have GAGAN payloads for tracking the movement of trains**.
- **Applications of RTIS:**
 - RTIS **gives mid-section updates** with a **periodicity of 30 seconds**.
 - The Train Control can now **track the location and speed of RTIS-enabled locomotives/train more closely**, without any manual intervention.
 - It **allows passengers to get the real-time location** or train running status of a train **on their smartphone**.

Adani Group pays Rs7,374 crore worth loans ahead of maturity

Securities-Based Lending:

- It is the practice of **raising a loan by offering your existing investments** in stocks/mutual funds/ Exchange-traded funds (ETFs) **as collaterals**.
- These kinds of loans are **generally offered to high-net-worth individuals by large financial institutions** and private banks.
- The loan **amount depends on the security the borrower is offering**.
- The loan can then be used for making purchases like real estate or personal items.
- This loan **cannot be used for making further security purchases**.
- **Due to the inherent volatility** in the nature of stocks/mutual funds, **the risk of forced liquidation tends to be very high for these loans**.
- **Borrowers benefit** from **easy access to capital, lower interest rates, and greater repayment flexibility** and also **avoid having to sell their securities**.

India is 'dangerously close' to Hindu rate of growth, says Raghuram Rajan

- It is a **term describing low Indian economic growth rates from the 1950s to the 1980s, which averaged around 4%**.
- The term was **coined by the late economist Raj Krishna in 1978** to describe the slow growth in the country.

Gross Domestic Product (GDP)

- GDP is the **final value of the goods and services produced within the geographic boundaries** of a country **during a specified period of time**, normally a year.
- The GDP growth rate is an **important indicator of the economic performance** of a country.
- It can be **measured by three methods**, namely, **Output Method, Expenditure Method, and Income Method**

PM Hasina & PM Modi to virtually inaugurate first Bangladesh-India cross-border oil pipeline on March 18

India-Bangladesh Friendship Pipeline (IBFPL):

- IBFPL will carry **diesel from Assam-based Numaligarh Refinery Ltd's (NRL) marketing terminal at Siliguri in West Bengal to the Parbatipur depot of Bangladesh Petroleum Corporation (BPC).**
- IBFPL is **5 Kilometers long**, out of which **126.5 kilometer pipeline is in Bangladesh and 5 kilometers in India.**
- The pipeline has a **capacity of one million metric tonnes per annum (MMTPA).**
- The total project cost for the construction of the IBFPL is **Rs 377.08 crore.**
- The project is built **under grant assistance from the government of India.**

New gecko species from MM Hills named after scientist Ganेशaiah

- Researchers named the new species as '**Cnemaspis ganेशaiahi**' Or **Ganेशaiah's dwarf gecko.**
- Previously, a **grass species (Centotheca ganेशaiahiana)** at the **Saddle Peak National Park**, North Andaman, a small cryptic ant species (*Parasyscia ganेशaiahi*) in decaying log or under rocks and a **cycas species (Cycas uma-ganेशaiahi)** were named after KN Ganेशaiah.

Male Mahadeshwara Hills Wildlife Sanctuary

- The MM Hills wildlife sanctuary is **located in the state of Karnataka.**
- It was declared a Wildlife Sanctuary in 2013.
- It is contiguous to **BRT Tiger Reserve, Sathyamangalam Tiger Reserve and the Cauvery Wildlife Sanctuary.**
- **Flora:** The forests of MM Hills wildlife sanctuary are principally of dry deciduous type degrading to scrub forest in the fringe areas, and are interspersed with patches of moist deciduous, semi-evergreen, evergreen and shola forests occurring at varying altitudes.
- **Fauna:** Animals including tiger, elephant, leopard, wild dog, bison, sambar, spotted deer, barking deer

CPI in terror group list: IEP corrects report, uploads revised list

Global Terrorism Index:

- It is **published annually by the Institute for Economics and Peace (IEP)**, a global think tank **headquartered in Sydney, Australia**
- The index provides a **comprehensive summary of the key global trends and patterns in terrorism** over the past 15 years.
- The report **ranks 163 countries** (99.7% of the world's population) on the impact of terrorism.
- **Indicators:** Include the number of **terrorist incidents, fatalities, injuries, and hostages.**
- The index is produced **using data from TerrorismTracker of Dragonfly-** which provides event records on terrorist attacks since January 1, 2007 -- and other sources.
- **Highlights of Global Terrorism Index 2023:**
 - **Afghanistan retains the top spot** on the list of the country impacted by terrorism. **Afghanistan has topped for the fourth consecutive year.**
 - **India ranked 13th on the index**, marking **only a marginal** decrease from the previous year.
 - **Pakistan saw the second-largest increase in terror-related fatalities globally** last year, with a total of 643 dead.
 - **Military people made up at least 55% of all casualties** of terrorism.

Raccoon dogs linked to coronavirus pandemic

- Raccoon dogs belong to the canid family and are **closely related to foxes.**
- They are the only canids that hibernate during the winter.
- As per Slate, there are two species of raccoon dogs: "**Nyctereutes procyonoides**, the common raccoon dog (the species that was in the Wuhan market) and **Nyctereutes p. viverrinus, the Japanese raccoon dog.**"
- They are **omnivores** and relish food sources such as rodents and berries.
- Raccoon dogs are **originally from East Asia** and are commonly found in parts of China, Korea and Japan, where they are known as tanuki.

Tomar directs NAFED to promote millets at international level

NAFED

- NAFED is an apex organization of **marketing cooperatives for agricultural produce** in India.
- It was founded on 2 October 1958 to promote the trade of agricultural produce and forest resources across the nation.
- It is registered under **Multi State Co-operative Societies Act.**
- With its headquarters in New Delhi, NAFED has four regional offices in Delhi, Mumbai, Chennai and Kolkata, apart from 28 zonal offices in capitals of states and important

cities.

Functions

- It is the nodal agency to implement price stabilization measures under "**Operation Greens**" which aims to double the farmers' income by 2022.
- Along with FCI the NAFED is involved in the procurement of oilseeds, pulses and copra under the Price Support Scheme (PSS).

Operation Greens

- In the budget 2018-19, a new Scheme "Operation Greens" was announced on the line of "Operation Flood", with an outlay of Rs.500 crore.
- **Objective:** To stabilize the supply of **Tomato, Onion and Potato (TOP) crops** and to ensure the availability of TOP crops throughout the country around the year without price volatility.

PM inaugurates ITU Area Office & Innovation Center

International Telecommunication Union (ITU):

- It is the **United Nations specialized agency** for information and communication technologies.
- It is an **intergovernmental organization** that **coordinates between governments and private sector bodies** with respect to **global telecommunication and information communication technology (ICT) services**.
- It was **established in 1865** as International Telegraph Union.
- **In 1947** the ITU **became a specialized agency** of the United Nations.
- **Headquarters: Geneva, Switzerland.**
- **Membership:** It has a membership of **193 countries** and nearly **800 private sector entities** and academic institutions.
- **Functions:**
 - **allocate global radio spectrum and satellite orbits;**
 - **coordination and setting of technical standards** related to telecommunication/ICT;
 - strive to **improve access to ICTs in underserved communities** worldwide;
- **India and ITU:** India has been an **active member** of the ITU **since 1869** and has been a **regular member of the ITU Council since 1952.**

ITU Area office and Innovation Centre:

- The Area Office, which is **fully funded by India**, is **located on** the second floor of the **Centre for Development of Telematics (C-DoT) building** at Mehrauli in **New Delhi**.
- It will **serve India, Nepal, Bhutan, Bangladesh, Sri Lanka, Maldives, Afghanistan, and Iran.**
- It will **enhance coordination among nations** and foster mutually beneficial economic cooperation in the region.

PM inaugurates ITU Area Office & Innovation Center

Call Before u Dig (CBuD) app:

- **Aim:** To prevent damage to underlying assets like optical fibre cables that occurs because of uncoordinated digging and excavation, leading to losses of about Rs 3,000 crore every year.
- The CBuD app will **connect excavators and asset owners through SMS/Email notifications** and click-to-call so that there are planned excavations in the country while ensuring the safety of underground assets.
- It aims to give excavating companies a point of contact, where they can inquire about existing subsurface utilities before starting excavation work.
- Utility owners can also find out about impending work at the location.
- It is an initiative of **the Department of Telecommunications, Ministry of Communications.**
- It will save potential business loss and minimise discomfort to the citizens due to reduced disruption in essential services like road, telecom, water, gas and electricity.

Was 'Oumuamua, the First Known Interstellar Object, Less Weird Than We Thought?

- It is the **first confirmed object from another star (interstellar object) to visit the solar system.**
- The object was **discovered on 19, 2017**, by the NASA-funded **Pan-STARRS1 telescope.**
- Astronomers **named the object 1I/2017 U1 ('Oumuamua)**, **Hawaiian** for "a messenger from afar arriving first."
- **Size and Shape:** The object is believed to be at **least a quarter-mile (400 meters) long** and **cigar-shaped**, with a **length roughly ten times longer than the width.**
- **What was the Mystery?**
 - **It had no bright coma or dust tail**, like most comets, and a **peculiar shape.**
 - It was **accelerating away from the sun** in a way that astronomers **could not explain.**
 - **Recent Finding:** Researchers say the answer might be the **release of hydrogen from trapped reserves inside water-rich ice** as the comet warmed up in the sunlight.

'Seekho Aur Kamao' scheme

- Seekho Aur Kamao is a skill development scheme for **the youth of the 14 - 35 years age group.**
- It aims at providing employment and employment opportunities, improving the employability of existing workers, school dropouts etc.
- The scheme ensures 75% placement, out of which 50% should be in the organized sector.
- As per scheme guidelines, the implementing organizations will be required to establish

- linkages with placement services.
- For the candidates interested in self-employment after availing the training, the organization shall arrange easy microfinance/ loans for them through financial institutions, National Minority Development Finance Corporation (NMDFC), banks etc.
 - Post-placement **support of Rs. 2000/- per month** is provided to placed trainees for two months as placement assistance.

India aims at becoming 'Global Hub for Green Ship' building by 2030 with launch of Green Tug Transition Programme(GTTP)

- India's first National Centre of Excellence in Green Port & Shipping (NCoEGPS) was inaugurated in Gurugram, Haryana.
- In the event 'Green Tugs Transition Programme (GTTP)' was launched for operating green tugs in all major ports by 2025.
- **Nodal Entity:** NCoEGPS will act as the nodal entity for this programme.
- India aims at becoming a 'Global Hub for Green Ship' building by 2030 with the launch of the Green Tug Transition Programme (GTTP).
- 'Green Hybrid Tugs' will be powered by Green Hybrid Propulsion systems. These Green hybrid tugs will subsequently adopt non-fossil fuel solutions like (Methanol, Ammonia, and Hydrogen).
- At least, 50% of all the Tugs are likely to be converted into Green Tugs by 2030.

Tugs

- A tug boat or tugs are marine vessels that manoeuvre ships by pushing or pulling them, mostly using tow lines. They tug ships in circumstances where the ships cannot or do not move using their power like in narrow harbours, canals, etc.

Parole days cannot be counted as part of sentence period

- Parole is a system of releasing a prisoner with a **suspension of the sentence**.
- The release is conditional, usually subject to behaviour, and requires periodic reporting to the authorities for a set period of time.
- It is **not a right of a prisoner** and may be denied to a prisoner even when he makes out a sufficient case.

Furlough

- A broadly similar but subtly different concept is a furlough, which is given in the case of **long-term imprisonment**.
- While furlough is seen **as a matter of right**, to be granted periodically irrespective of any reason and merely to enable the prisoner to retain family and social ties,
- Furlough is given by the state, but its **decision can be challenged before a court of law**.

Amit Shah inaugurated Vedic Heritage portal in New Delhi

- It is developed by the **Indira Gandhi National Centre for the Arts**
- The portal will be a one-stop solution for the user, who would like to search for any information regarding the Vedic heritage.
- The audio-visual recording of four Vedas has been uploaded on the Vedic Heritage portal. The portal has over 18 thousand mantras of the four Vedas with a duration of over 550 hours.
- **The objective of the portal:** To secure knowledge from ancient scriptures and manuscripts for future generations through technology.

Indira Gandhi National Centre for the Arts

- It was established in 1987 as an autonomous institution **under the Ministry of Culture**, as a centre for research, academic pursuit, and dissemination in the field of the arts.
- It has a trust (Board of Trustees), which meets regularly to give general direction about the Centre's work. The Executive Committee, drawn from among the Trustees, functions under a Chairman.

Almost half of school children get free meals, report shows, but most vulnerable still miss out amid global food crisis

World Food Programme

- World Food Programme is a branch of the **United Nations** that deals with hunger eradication and promotes food security in the world.
- It is a **member of the United Nations Development Programme (UNDP)**.
- It is operating in more than 120 countries, which provides food assistance during emergencies and works with communities to enhance nutrition and generate resilience.
- It has been functioning in India since 1963.
- **Funding:** WFP is funded by **voluntary donations from governments**, corporates and private donors.
- **Report** released by **the WFP is Global Report on Food Crisis**
 - The Global Report on Food Crises describes the scale of acute hunger in the world.
 - It provides an analysis of the drivers that are contributing to food crises across the globe.
 - The report is produced by **the Global Network against Food Crises**, an international alliance working to address the root causes of extreme hunger.

A citizen science project documents unique sea slugs from Visakhapatnam coast

- Sea slugs belong to **Phylum Mollusca and Class Gastropoda**. They look like naked

snails, i.e., without shells.

- Sea slugs **are found in the sea** and some slugs live on land as well.
- A unique species of **nudibranch sea slugs** were documented on the Visakhapatnam shore.
- These sea slugs are found in places with abundant prey bases which may vary from sponges, hydroids and algae.
- The nudibranchs are **usually found in coral reefs** and their presence is a significant indicator of a strong coral ecosystem.
- They mainly feed on algae and are usually seen in large numbers when there is an algal bloom.
- Most nudibranchs **are active throughout the day**, but some species are also nocturnal.

'LaQshya' to improve quality of care in labour room, maternity OTs: Govt

- It aims to ensure Quality of Care during intrapartum and immediate post-partum periods in **Labour Room and Maternity Operation Theatre**.
- It covers all **Government Medical College Hospitals, District Hospitals &** equivalent health facilities, designated FRUs as well as high case load CHCs.
- **Goal:** To reduce preventable **maternal and newborn mortality, morbidity and stillbirths associated with the care** around delivery in the Labour room and Maternity OT and ensure respectful maternity care.
- Under the purview of LaQshya, one of the facility-level targets **is to achieve a 5% or less Surgical Site Infection Rate** in Maternity OT or at least a reduction of 30% from the baseline.
- At the time of LaQshya certification, compliance with the above-mentioned requirement is verified by the independent empanelled NQAS assessors.
- **Nodal Ministry:** Ministry of Health and Family Welfare

Gadkari: Srinagar-Leh's Z-Morh tunnel to be ready in April

- It is an under-construction **2-lane road tunnel between Gagangir and Sonamarg** on the **Srinagar-Leh Highway in Jammu and Kashmir**.
- It is **named for the Z-shaped stretch** of road between Sonamarg and Gagangir that **the tunnel will replace**.
- **Length: 6.5 km**
- **Elevation: 8,960 feet.**
- The tunnel is **designed for the flow of 1,000 vehicles an hour** at an approved maximum **speed of 80 km per hour**.
- **Importance:**
 - At 8,960 feet, tourist destination **Sonmarg is covered in snow during the winter** season, forcing locals to shift to Srinagar. **Z-Morh tunnel will ensure that Sonmarg town in Jammu & Kashmir remains connected** as well as supplies are maintained **all year round**.
 - It will ensure **all-weather connectivity between Srinagar** in Jammu and Kashmir **and Kargil** in Ladakh.

- **Strategic Importance:** Along with the 14.15 km Zojila Tunnel to its east, it aims to **enhance the Indian military's capabilities in Kashmir and Ladakh along** both the Line of Control (LOC) to the north and the Line of Actual Control (LAC) further east.

CAG finds 117 hectares of mangroves destroyed in Kutch; asks govt to save 'Kharai' breed of camels from extinction

Kharai Camel:

- They are a **rare breed** of camel found in the salt marshes of the Kutch district of Gujarat.
- Their **name is derived** from the local word khara, meaning saline.
- It is well **adapted to the saline desert environment** and is known for its **ability to swim** (hence also known as 'swimming camel').
- They **swim long distances in the sea** to reach their grazing areas, usually more than **3 km at a time**, even in deep waters.
- Kharai camels **mostly feed on mangroves**.
- They are considered a **unique Eco-tonal species** as they **survive in the dryland ecosystem as well as the coastal ecosystem**.
- **Conservation Status:**
 - **IUCN: Endangered**

European Commission grants GI tag for Himachal's Kangra tea

- It is a type of tea produced in the **Kangra district of Himachal Pradesh**.
- It is a **high-quality tea** that is known for its **unique flavour, aroma, and colour**.
- It is **made from the leaves, buds, and tender stems of the Camellia sinensis species** cultivated in the Kangra valley.
- **Black tea and green tea** have **both been cultivated** in the Kangra Valley.
- **In India**, Kangra tea received the **Geographical Indication (GI) designation in 2005**.
- **Features:**
 - Kangra tea **leaves are narrow** and have a **multi-stemmed frame**.
 - **Green tea has a subtle woody aroma**, while **black tea has a sweet, lasting aftertaste**.
 - It has a **light colour** and a **high body in liquor**.

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