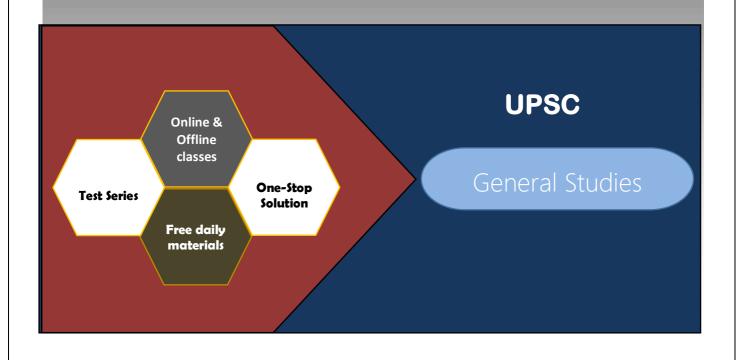**VISHNU IAS**

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GS 1 : Heritage, culture ,Geography of the World and Society

1. Rules that edge out women from jobs due to marriage illegal: SC

In a significant ruling, the Supreme Court of India has denounced regulations that terminate women employees' jobs upon marriage or on facing domestic issues, labelling them as "coarse gender discrimination" and blatantly unconstitutional.

Upholding Gender Equality:

- The court's observations came in response to a case involving a woman permanent commissioned officer in the Military Nursing Service who was discharged for getting married.
- The court emphasized that terminating employment based solely on a woman's marital status represents a clear case of gender bias and inequality.
- Such rules, rooted in patriarchal norms, not only undermine human dignity but also violate fundamental rights to non-discrimination and fair treatment.
- The ruling asserts the unconstitutionality of laws and regulations perpetuating gender-based biases in the workplace.

Arbitrary Regulations Condemned:

- The Supreme Court found the rule against marriage applicable only to women nursing officers to be "ex facie manifestly arbitrary." It noted the inconsistency of penalizing women employees for marital status or domestic involvement, deeming such regulations unconstitutional and contrary to the principles of equality and justice.
- The court's ruling also highlighted the withdrawal of an Army instruction related to the terms and conditions of service for permanent commissions in the Military Nursing Service in 1995. This underscores the evolving legal landscape and the imperative to uphold gender equality and non-discrimination in contemporary employment practices.

2. A global alliance to bridge the gender equity gap

The article highlights India's commitment to gender equity and equality, emphasizing initiatives taken by both the government and industry to advance women's empowerment. It discusses key achievements, challenges, and the launch of the 'Alliance for Global Good – Gender Equity and Equality' to drive inclusive development globally.

Key Highlights:

- India's dedication to equality and inclusion as pillars of development, evidenced by initiatives like the New Delhi Leaders' Declaration and the Women's Reservation Bill.
- Increase in female participation in various sectors, including politics, education, and entrepreneurship.
- Launch of the 'Alliance for Global Good – Gender Equity and Equality' at the World Economic Forum, aiming to accelerate socio-economic progress on a global scale.
- India's leadership in areas such as ed-tech, healthcare, and entrepreneurship, reflected in the Alliance's goals.
- The Alliance's partnership with stakeholders like the CII, Ministry of Women and Child Development, and the Bill and Melinda Gates Foundation, along with support from the World Economic Forum.

Key Challenges:

- Addressing persistent gender disparities in various sectors despite progress.
- Ensuring effective implementation of policies and initiatives to promote gender equity.
- Overcoming societal and cultural barriers that hinder women's advancement.
- Mobilizing resources and sustaining momentum for inclusive development efforts.
- Encouraging broader global participation and collaboration to drive meaningful change.

Important Phrases:

- "Women-led development": Development initiatives driven by and focused on women's empowerment.
- "Mainstreaming gender equality": Integrating gender considerations into all aspects of policymaking and development efforts.

- "Shared direction": Collaborative approach towards addressing gender-related challenges and promoting inclusion.
- "Vasudhaiva Kutumbakam": Indian philosophy emphasizing the interconnectedness of all beings and the world.
- "Sabka Saath, Sabka Prayaas, Sabka Vikaas": Indian motto promoting inclusive development for all.

Useful Statements:

- "The Alliance for Global Good – Gender Equity and Equality aims to drive collective actions to augment women empowerment."
- "India's leadership in areas such as ed-tech and healthcare makes it a key contributor to global development efforts."
- "Industry has an opportunity to invest in proven programs and initiatives to advance gender inclusion in the workspace."

Examples and References:

- Passage of the Women's Reservation Bill and increased female labor force participation rates.
- Participation of over nine crore women in self-help groups in rural India.
- India's digital prowess and leadership in healthcare, highlighted through initiatives like the Alliance for Global Good.

Facts and Data:

- Increase in India's female labor force participation rate from 23.3% in 2017-18 to 37% in 2022-23.
- Allocation of nearly $27 billion under the gender budget in 2023-24.
- Female enrollment in STEM courses at 43%.
- Participation of over nine crore women in self-help groups in rural India.

Critical Analysis:

- The article showcases India's progress in promoting gender equity but also acknowledges ongoing challenges.
- It emphasizes the importance of collaboration between government, industry, and other stakeholders to drive meaningful change.
- While highlighting achievements, it also recognizes the need for sustained efforts to address persistent gender disparities.

Way Forward:

- Strengthening implementation of policies and initiatives aimed at promoting gender equity and inclusion.
- Continued investment in programs and initiatives to support women's empowerment across various sectors.
- Enhancing global collaboration and partnerships to drive inclusive development efforts.
- Addressing societal and cultural barriers through awareness campaigns and education.
- Monitoring and evaluation of progress to ensure accountability and sustainability in gender-related initiatives.

3. Early Bloom of Jacaranda sparks Climate Debate in Mexico

- Mexico City's iconic jacaranda trees, known for their stunning purple blooms in spring, are experiencing an unusual phenomenon this year, with some trees blooming as early as January instead of their typical spring awakening.

Jacaranda Trees

- Jacaranda is a genus of **flowering plants** belonging to the family Bignoniaceae.
- Native to **tropical and subtropical regions of Central and South America**, with some species found in the Caribbean and Africa.
- Known for its stunning **clusters of trumpet-shaped flowers** in shades of **purple, blue, or white**, Jacaranda trees are prized as ornamental plants in parks, gardens, and urban landscapes worldwide.
- Jacaranda trees hold cultural significance in various regions, such as Brazil, where their **blooming heralds the arrival of spring, and South Africa**, where they are commonly planted in urban areas.
- Some species of Jacaranda **produce valuable timber, prized for its lightweight nature**, durability, and attractive grain pattern, suitable for furniture and decorative woodworking.
- While generally **not invasive**, Jacaranda trees can become weedy in introduced regions, though their ornamental value often outweighs any negative impacts, making them well-tolerated in urban landscapes.

4. Theyyam Performance Art of Kerala

- This newscard is an excerpt from an image published in today's edition of TH.

Theyyam

- Theyyam is a traditional **ritualistic performance art** form native to the **northern region of Kerala**.
- It is believed to have evolved over centuries, combining elements of **music, dance, and drama** to honor various Hindu deities, especially **Goddess Kali**.

Key Features

- **Unique format:** Theyyam performances take place at **village shrines or in joint-family homes** rather than on stages.
- **Lengthy duration:** Performances can span from **12 to 24 hours**, reflecting their importance within the community.
- **Ritual:** The chief dancers live near the shrine during the entire event and **do not eat after sunset**.
- **Masks and costumes:** Various types of masks and face paints are used, characterized by **vibrant colors**.
- **Musical accompaniment:** Traditional Kerala instruments like **chenda (drum), tuti (flute), kuzhal (wind instrument), and veekni (percussion instrument)** support the dancers.
- **Dance steps:** Specific dance steps called "**Kalaasams**" follow a structured sequence.
- **Religious influence:** Certain aspects of Theyyam, such as abstaining from eating after sunset, indicate religious influences from **Jainism and Buddhism**.

5. 200 Years of Kittur Uprising: Commemorating Rani Chennamma

- In 1824, a fleet of 20,000 British soldiers attempted to invade the former princely state of Karnataka, positioning themselves at the foothills of the Kittur fort.
- However, Rani Chennamma, the Queen of Kittur, led a valiant resistance, marking one of the earliest woman-led anti-colonial struggles in India.

Kittur Uprising: Historical Context

- **Background**: Rani Chennamma's rebellion against the British East India Company in 1824 is celebrated as a significant event in Karnataka's political history.
- **Revolt Catalyst**: The Company's refusal to recognize Shivalingappa, adopted as the successor of Kittur under the 'doctrine of lapse', triggered the conflict.

Military Confrontation: Rani Chennamma led the Kittur army in a fierce battle against the British forces, resulting in the death of British official John Thackery.

Legacy of Rani Chennamma

- **Political Leadership**: Rani Chennamma's role as an astute administrator and seasoned stateswoman is highlighted in historical records.
- **Popular Perception**: Despite her contributions, Rani Chennamma's significance in national consciousness emerged later, as Karnataka became a state much later than other regions.
- **Historical Interpretation**: Folklore and local traditions fondly remember Rani Chennamma's bravery and resilience, portraying her as a protector and guardian in Kannada lavanis or folk songs.

Post-Rebellion Period

- **Imprisonment and Death**: Following the British capture of Kittur Fort in 1824, Rani Chennamma and her family were imprisoned. She passed away in captivity in 1829.
- **Historical Records**: Historians emphasize Rani Chennamma's commitment to serving her people, even during her imprisonment, as evidenced by her efforts to support her family and people.

Commemoration and Contemporary Relevance

- **Naanoo Rani Chennamma Campaign**: Social groups across India are organizing a national campaign on February 21, commemorating Rani Chennamma's rebellion.
- **Campaign Objectives**: The campaign aims to mobilize women against patriarchal, anti-democratic, and casteist forces, invoking Rani Chennamma's memory as a symbol of resistance and empowerment.
- **Political Significance**: The campaign underscores the need for gender equality, representation, and social justice, drawing inspiration from Rani Chennamma's legacy of courage and leadership.

6. 'Super Pollutants'

Recently, the annual meeting of the **Climate and Clean Air Coalition (CCAC)** which took place from 21 to 23 February 2024 in Nairobi, Kenya on the margins of the **Sixth session of the United Nations Environment Assembly (UNEA-6)** highlighted the critical importance of international collaboration in combating short-lived climate pollutants, commonly known as "**Super Pollutants.**"

Super Pollutants

- Super pollutants, or short-lived climate pollutants (SLCPs), have a shorter atmospheric lifespan compared to CO_2 but significantly impact climate change and air quality. Methane (CH_4), black carbon (soot), hydrofluorocarbons (HFCs), and tropospheric ozone (O_3) are some of the major superpollutants.

Impacts of Super Pollutants

- **Methane (CH_4):**
  - **Characteristics**: Potent greenhouse gas emitted from various sources such as livestock and fossil fuel production.
  - **Its Impact**: Traps heat in the atmosphere, exacerbating climate change.

- **Black Carbon (Soot):**
  - **Characteristics**: Fine particulate matter from incomplete combustion of fuels.
  - **Its Impact**: Absorbs sunlight, heats the atmosphere, and accelerates the melting of snow and ice.

- **Hydrofluorocarbons (HFCs):**
  - **Characteristics**: Synthetic greenhouse gases used in refrigeration.
  - **Its Impact**: High global warming potential despite short atmospheric lifespan.

- **Tropospheric Ozone (O_3):**
  - **Characteristics**: Secondary pollutants formed from VOCs and NOx.
  - **Its Impact**: Contributes to smog, has adverse health effects, and acts as a greenhouse gas.

Climate and Clean Air Conference 2024

- **What is the aim and objective?**
  - The CCAC 2024 moved the dialogue forward, focusing on the cost of inaction, highlighting ways to further scale up implementation of the

Global Methane Pledge, **Clean Air Flagship** and **Kigali Amendment**, and collectively charting the course to **2025 and beyond**.

- **What did the CCAC 2024 Feature for?**
    - **National policy and planning:** High-level plenary sessions on global, regional and national efforts to reduce methane, black carbon, and HFCs, including the benefits of fast action, and financing for implementation.
    - **Science and Technology:** Science Policy Dialogue sessions on latest emerging science and how new information can inform policy development. Technical sessions among CCAC Sector Hub members to showcase best practices in key emitting sectors: agriculture, cooling, fossil fuels, heavy-duty vehicles and engines, household energy, and waste.
    - **Focus on Implementation:** Practical sessions to further refine work plans among CCAC National Consultants; Non-State Partners and Scientific Advisory Panel Members.
- **What are the Functions?**
    - The CCAC works at the nexus of **climate and air quality**, to deliver multiple benefits from the fast mitigation of short-lived climate pollutants.
    - **Driven by policy-relevant** science and pragmatism, CCAC works from the ground up, equitably and inclusively, empowering our partners to achieve their respective National Goals and catalyzing action — as well as from the top down, bringing together ministers and leaders to drive high-level ambition.
- **About the previous Conference:**
    - The **CCAC 2023** was held in **Bangkok**.
    - As an outcome of this conference, CCAC 2023 integrated planning on climate and clean air is essential to identify priority actions in key emitting sectors to **scale up mitigation**, and action at the **national and regional level** is motivating collaboration at the global scale.

GS 2 : Polity, Governance, International Relations

1. India-France Ties

The French President was the chief guest at India's Republic Day 2024, making it his third visit to India, after his 2018 state visit and G-20 2023 summit hosted by India.

History of India France bilateral relations

- **Diplomatic relation**- In 1947 both countries established diplomatic relation which upgraded to strategic partnership in 1998.
- **Strategic partnership, 1988**- Defence & security, civil nuclear matters and space constitute the principal pillars of this strategic cooperation and now includes a strong Indo-Pacific component.

France is the first western country with which India signed a strategic partnership agreement

- **Horizon 2047: Charting the future of India-France Strategic Partnership**- It was signed in 2023 to mark the 25th anniversary of the Indo-French partnership, both countries agree to adopt a roadmap to set the course for the bilateral relationship up to 2047.
- **Three pillars**- The roadmap for bilateral relations has three pillars focusing on 'security, planet and people' guiding the bilateral ties for the next 25 years.
- **International support**- It was the **first P-5 country** to support India's claim for a permanent seat in an expanded and reformed UN Security Council. Both have resolved to work together for adoption of the Comprehensive Convention on International Terrorism (CCIT) in the UN.
- France's support was vital in India's accession to the Missile Technology Control Regime (MTCR), Wassenaar Arrangement (WA) and Australia Group (AG).
- France continues to support India's bid for accession to the Nuclear Suppliers Group (NSG).

- **Economic relation**- Bilateral trade reaching an impressive 13.4 billion dollars in 2022-23, marking a significant 7.72% increase from the previous year.

France has emerged as the 11th largest investor in India

- **Defence cooperation**- Major ongoing defence-related projects include the purchase of Rafale aircrafts and the P-75 Scorpene Project..
    - Annual Defence Dialogue (Defence Minister level) and
    - High Committee on Defence Cooperation (Secretary level).

- **India France Defence Industrial Roadmap**- It supports India's goal of self-reliance in the defence sector and it's a part of broader strategic partnership between two countries.
- **Trilateral cooperation**- India-France-UAE Trilateral Focal Points meeting was held and the first track 1.5 dialogue comprising parliamentarians, officials, former diplomats and think-tanks was also held.
- **Space cooperation**- Cooperation in the space domain began in the 1960s with French assistance to set up the Indian launch facility at Sriharikota.
- The first India-France Strategic Space Dialogue was held and both concluded a joint declaration for cooperation in future launch vehicle technologies.
- **Smart cities collaboration**- France collaborated with India's Smart City projects by leveraging its expertise in urban planning and architecture with examples of Chandigarh, Puducherry and Nagpur.
- **Blue Economy -** A roadmap on Blue Economy and Ocean Governance was adopted by France and India in 2022.
- **Green hydrogen** - Indo-French roadmap for decarbonised hydrogen was adopted in 2022.
- **Renewable energy**- As part of their joint efforts on climate change, India and France launched **'International Solar Alliance'** in 2015.
- **Cyber cooperation**- India and France have Cyber Dialogue mechanism to discuss cyber cooperation and related matters.
- **Cooperation on counter terrorism**- India and France have robust cooperation on topics related to countering terrorism in all its forms and manifestation, including under the UN forums.
- **Digital cooperation**- France have developed 14 puters for India to date including the fastest supercomputer Param Siddhi at 4.6 petaflops per second.
- **Unified Payments Interface (UPI)**- It was launched from the Eiffel Tower, offering secure and convenient transactions for Indian visitors and NRIs.
- **Civil Nuclear Cooperation**- The cooperation on Jaitapur Nuclear Power Project and exploration of Small Modular Reactors and Advanced Modular Reactors signifies a shared vision for sustainable and efficient nuclear energy solutions.
- Education- An **Agreement on mutual recognition of degrees** was signed in 2018 to facilitate pursuit of higher education by Indian students in France and French students in India and increase their employability.
- **Indo French Campus for Health**- It was also launched in 2022 to offer double degrees from Indian French Institutes.
- **Migration Mobility Partnership Agreement** was operationalized and **APS-VIE Scheme** (it allows Indian students to stay in France up to 2 yrs. after finishing Masters to look for jobs) was renewed, in 2022.
- **Cultural relation**- Namaste France 2023 was organised in Paris with the support of Ministry of Culture, to celebrate 25 years of strategic partnership.

- **Tourism**- Rajasthan continues to lead among all Indian destinations for French tourists. Foreign tourist arrivals into Rajasthan are growing at a double digit since 2016.
- **People to people relation-** The mainland France has an estimated 1,19,000 Indian community (including NRIs) largely originating from erstwhile French colonies of Puducherry, Karaikal, Yanam, Mahe and Chandernagore and the States of Tamil Nadu, Gujarat and Punjab.
- **India France Consular Dialogue** was held and regular cooperation is undertaken between the two countries.

What lies ahead?

- India and France have been 'Strategic Partners' since 1998, when they signed a joint declaration to enhance their bilateral ties in various fields, such as nuclear, space, and counter-terrorism.
- Since then, they have consistently supported each other on various international issues, such as UN reforms, climate change, and Indo-Pacific.
- The India-France 'Strategic Partnership' reflects the maturity and resilience of the two countries, which have nurtured their ties over the last quarter century, and have adapted to the changing global and regional scenarios.
- The partnership is now moving from government domains to commercial and civil spaces, and is expected to grow further in the future

2. 'Vaibhav' Fellowship Scheme

The Department of Science and Technology announced the first batch of 'Vaibhav' fellows.

'Vaibhav' Fellowship Scheme:

- Vaishvik Bharatiya Vaigyanik (VAIBHAV) Fellowship, initiated by the Department of Science and Technology, is designed to attract **Indian-origin scientists** from overseas for short-term collaboration in India.

Key Details of the Fellowship:

- The first batch consists of **22 scientists**, primarily from institutes in **North America** and **Europe**, including prestigious universities like the **California Institute of Technology**, the **University of Oxford, and the University of Michigan**.

- Fellows will spend one to **two months annually**, for up to three years, at host Indian institutions such as the Indian Institute of Science, various Indian Institutes of Technology, and the Tata Institute of Fundamental Research.
- Each fellow will receive a **stipend of ₹4 lakh per month**, accommodation, and their host institution will receive a research grant.
- Fellows are expected to initiate projects or technology startups, build long-term research connections, and introduce new ideas in their fields within Indian universities and research settings.

'Vaibhav' Fellowship Scheme vs Vajra Scheme:

- The 'Vaibhav' Fellowship shares similarities with the **Visiting Advanced Joint Research Faculty (Vajra) scheme of 2018**, also by the **DST**.
- While Vajra was open to all foreign scientists, 'Vaibhav' is **exclusive to the Indian diaspora**.

3. Pradhanmantri Suryodaya Yojana (PSY): A Solar roof-top scheme

The Prime Minister recently announced the **'Pradhanmantri Suryodaya Yojana'** after the consecration of the Ram idol in Ayodhya.

Pradhanmantri Suryodaya Yojana (PSY):

- The PSY aims to electrify **1 crore households** in Lok Kalyan Marg of Delhi, with **installations** of **rooftop solar**, emphasizing **self-reliance** in **energy** and **reducing** the **electricity bills** of the **poor** and **middle class**.
- The scheme will help generate additional income for **poor** and **middle class** in lieu of **surplus electricity generation**.
- **Government's target** since **2010** was to produce **100 GW** by **2022** (60 GW utility projects and 40 GW rooftop solar).
- The move aligns with the government's vision of promoting **clean** and **sustainable energy** sources.

Other Government schemes for Installation of Solar plant:

- **Grid Connected Solar Rooftop Programme**: It will be implemented till **2026**, and aims to achieve a cumulative **installed capacity** of **40,000 MW** from Grid Connected Rooftop Solar (**RTS**) projects.
- **Rooftop Solar Programme**: It aimed to achieve a cumulative installed capacity of **40,000** MW of electricity by **2022**.
- **National Solar Mission**: Its objective is to establish India as a **global leader** in the solar sector by creating the appropriate policy conditions and to produce

20,000 MW by **2022** through mandatory use of **Renewable Purchase Obligation (RPO)**.

   o   RPO mandates that all electricity distribution **licensees** should **purchase** or produce a **minimum** specified quantity of their requirements from Renewable Energy Sources.

- **Solar Park Scheme**: Its objective is to facilitate the **solar project developers** to set up projects expeditiously till **2026**, by providing **central financial assistance** (CFA) of up to ₹25 lakh per solar park.
- **UDAY (Ujwal DISCOM Assurance Yojana) Scheme**: Launched in **2015**, the scheme aims to develop renewable energy, with reduction of cost of power generation.

Status of Solar Installation in India:

- As of July 2023, about **56 GW** were installed in **utility projects**, and **12 GW** in **rooftops**.
- Nearly **87%** of the approximately **12 GW** rooftop solar installations are **non-residential**.
- As of July 31, 2023, only **2.2 GW** of **rooftop installations** were reported, far below the target of **40 GW** by **2022**.
- In terms of total solar capacity generation, **Rajasthan** is at the top with **18.7 GW**, and **Gujarat** is at the **second** position with **10.5 GW.**
- In terms of installation of rooftop solar capacity, **Gujarat** tops the list, followed by **Maharashtra**.
- India usually adds less than **2 GW annually**, with most installations being in **offices** and **buildings**.

4. The Menace of Maritime Piracy

The Indian Navy swiftly responded and stopped two pirate attacks off the Somali coast in a span of less than two days.

Maritime piracy

- Any robbery or other violent action, for private ends and without authorization by public authority, committed on the seas or in the air outside the normal jurisdiction of any state.
- The term 'piracy' is used to describe a range of crimes from petty theft from ships at sea or anchorage to armed robbery and hijacking of a ship for ransom.
- **Types**-Maritime piracy can take various forms, each requiring different prevention strategies.

- **Hijacking**-It is a greatest concern, since it causes panic in maritime business and leads to the establishment of high-risk areas, and a resultant increase in maritime insurance premiums.
- **Disrupt trade activities**- It also affects the safety of ships and seafarers, and disrupts global supply chain

Why the areas in recent attacks are most affected by piracy?

In recent years, waters off the west coast of Africa, Gulf of Aden, Horn of Africa, Bangladesh, and the Strait of Malacca have seen attacks by pirates.

- **Poor policy-** The seas are very vulnerable to piracy as they lack effective law enforcement.
- **Lack of capacity building**- The countries that borders these waters do not have strong or sufficient naval capabilities to patrol and protect them.
- **Political instability-** Some of these countries are facing internal instability, which further hampers their ability to secure their maritime domain.
- **High shipping traffic-** These areas have high volume of merchant vessels passing through them as they connect major sea lanes such as **Strait of Hormuz or the Bab el Mandeb Strait**.
- **Narrow passages**- The ships while sailing through these areas, sail close to each other and reduce their speed making them easier target for pirates.
- **Anchored ships-** In Gulf of Aden or the Gulf of Guinea the ships have to wait for days before entering the port, they are often anchored or drifted which exposes them to the risk of being boarded by pirates.
- **Socio-economic issues**- The coastal communities suffer from unemployment, poverty and civil unrest, they rely on piracy as a means to survival or profit.
- **Lack of coordination**- These areas are mostly international waters, international straits, or archipelagic waters that fall within the maritime jurisdiction of several countries, this leads to legal complexities and difficulties in coordination.
- **Lack of legal framework**- The captured pirates escape from prosecution and punishment as there is no effective international legal mechanism for their trial and disposal.

How to prevent maritime piracy?

- **Maritime security training**-Proper training for seafarers and the crew assists in raising awareness about piracy risks and ensures they are equipped to handle potential attacks.
- **Maritime surveillance and Intelligence**-Effective surveillance systems, such as AIS (Automatic Identification System) and radar technologies, can enhance situational awareness, enabling prompt actions against pirates.

- **Technology solutions**- Utilizing advanced technology solutions, such as alarms, CCTV cameras, and access control systems, can deter pirates and provide vital evidence for investigations.
- **Rapid response capability**- A ship with an armed helicopter is the most effective in dealing with the piracy situation, it can direct fire and vector tge nearest ship that can render assistance.
- **Marine commandos**- Indian Navy has been practising Maritime Intervention Operations (MIO) for decades, and has developed extremely high expertise in this niche area of naval operations.
- **Collaborative efforts-**Cooperation among governments, international organizations, and naval forces is crucial for sharing intelligence, coordinating patrols, and conducting joint counter-piracy operations.
- **Piracy risk assessment-** Conducting thorough risk assessments allows ship owners to identify vulnerabilities, strengthen security measures, and develop contingency plans.
- **Adopt best practices-** Adhering to industry best practices, such as Best Management Practices (BMP) guidelines and implementing effective security measures, significantly reduces the risk of piracy incidents.

5. Digital technology initiatives launched during Diamond Jubilee celebration of Supreme Court

During the Diamond Jubilee celebration of the Supreme Court of India, the Prime Minister introduced citizen-centric information and technology initiatives.

- These initiatives include the **Digital Supreme Court Reports (Digi SCR), Digital Courts 2.0**, and a **new website for the Supreme Court**.

Digital technology initiatives of Supreme Court:

- These initiatives aim to **enhance accessibility, transparency, and efficiency in legal processes**.

Digital Supreme Court Reports (Digi SCR):

- Provides **free and electronic access** to **Supreme Court judgments**.
- **All 519 volumes of Supreme Court reports** since 1950, covering 36,308 cases, will be available in a digital format.
- Features include **bookmarking, user-friendliness, and open access for citizens**.

Digital Courts 2.0:

- Part of the **e-Courts project.**
- Facilitates **electronic access to court records for district court judges**.
- **Incorporates artificial intelligence** for **real-time speech-to-text transcription**.

New Website of the Supreme Court:

- Bilingual (English and Hindi).
- Redesigned with a user-friendly interface.

About e-Courts project:

- The eCourts project is a mission mode project that aims to improve access to justice through technology.
- The Project was conceptualized on the basis of the **National Policy and Action Plan for Implementation of Information and Communication Technology (ICT) in the Indian Judiciary-2005**.
  - It was submitted by eCommittee, Supreme Court of India with a vision to transform the Indian Judiciary by **ICT enablement of Courts**.

Importance of ICT in judiciary:

- It will Provide an **efficient & time-bound citizen centric services** delivery.
- It will help develop, install & implement **decision support systems** in courts.
- It will automate the processes to **provide transparency in accessibility of information** to its stakeholders.
- It will **enhance judicial productivity,** both **qualitatively & quantitatively**, to make the justice delivery system affordable, accessible, cost effective, predictable, reliable and transparent.

Other Digital technology initiatives by Supreme court:

- **National Judicial Data Grid (NJDG):** An **online repository** of case (pending and disposed) statistics from the country's high courts and district and subordinate courts.
- **Virtual courts:** It is aimed at **reducing footfalls** in the courts by **eliminating the physical presence** of **violator or advocate** in the court.
  - Neither litigant need to come to court nor judge will have to physically preside over the court.
- **Tele-Law:** It is an e-interface connecting **marginalized individuals** seeking **legal advice** with Panel Lawyers via video conferencing/telephonic facilities at Common Service Centres (CSCs) on the Panchayat level.
- **National Service and Tracking of Electronic Processes (NSTEP):** NSTEP is a centralized process service tracking app with a web and mobile component.

- o It enables bailiffs and process servers to **transparently track notice** and **summons** services in real-time.
- **AI driven technology**:
  - o **Supreme Court Vidhik Anuvaad Software (SUVAS):** It is a machine assisted translation tool trained by Artificial Intelligence.
  - o **Supreme Court Portal for Assistance in Court's Efficiency (SUPACE)**: An Artificial Intelligence (AI) portal designed to make **research easier for judges**, thereby **easing their workload.**

6. Competition Commission of India

As India marks 75 years of independence, Competition Commission of India reaffirms its commitment to steering India's economic journey towards a future that is competitive, inclusive, and resilient.

Competition Commission of India (CCI)

It is the chief national competition regulator in India

- **Established** - 2003
- **Ministry**- Ministry of Corporate Affairs
- **Statutory body**- CCI has been established to enforce the competition law under **Competition Act 2002**.
- **Aim**- To establish a competitive environment in the Indian economy by engaging with all stakeholders, the government, and international jurisdiction
- **Raghavan committee**- Based on the recommendations the Monopolies and Restrictive Trade Practices Act, 1969 (MRTP Act) was repealed and replaced by the Competition Act, 2002.
- **Competition (Amendment) Act 2009**- The Competition Appellate Tribunal have been established.
- **Competition Appellate Tribunal**- It is the judicial body that hears and decides appeals against the orders of the CCI.
- **Appellate mechanism**- The government of India replaced Competition Appellate Tribunal (COMPAT) with the National Company Law Appellate Tribunal (NCLAT) in 2017.
- **Composition**- CCI consists of a Chairperson and not more than 6 Members.
- **Appointment-** It is made by the Central Government.

Role of Competition Commission of India

Competition is the best means of ensuring that the 'Common Man' or 'Aam Aadmi' has access to the broadest range of goods and services at the most competitive prices

- **Vision-** To promote and sustain an enabling competition culture through engagement and enforcement that would inspire businesses to be fair, competitive and innovative; enhance consumer welfare; and support economic growth.
- **Mission-** CCI aims to establish a robust competitive environment through
  - Proactive engagement with all stakeholders, including consumers, industry, government and international jurisdictions.
  - Being a knowledge intensive organization with high competence level.
  - Professionalism, transparency, resolve and wisdom in enforcement.
- **Enforcement actions**- They are taken to address potential anti-competitive practices by issuing suitable punitive and remedial solutions.
- **Advocacy measures**- They are undertaken with the stakeholders to foster a culture of competition in the markets and to nudge market participants towards competition compliance.
- **Quasi-judicial body**- It has been entrusted with implementation of law, has always believed in complementing robust enforcement with facilitative advocacy.
- **Promote market freedom**- CCI ensures that no business exploits its 'dominant position' in a market by controlling supply, manipulating purchasing prices, or engaging in tactics preventing other businesses from entering the market.
- **Competition regulator**- CCI is an antitrust watchdog for smaller companies that cannot protect themselves against major enterprises.
- **Business facilitator**-To encourage market participants to engage in fair and constructive competition.
- **Issue warnings**- CCI has the right to issue warnings to companies that export to India if it believes they are distorting competition in India's home market.
- **Provide opinion**- CCI gives opinion on competition concerns in response to a referral from a statutory authority formed under any law and to engage in competition advocacy, raise public awareness, and provide competition training.
- **Collaboration**- CCI ensure communication and collaboration with other economic and regulatory bodies, ensuring that sectoral regulatory legislation and competition laws are in sync.

What are the landmark judgements?

- **Google Inc. vs CCI-** Google has been accused of abusing its dominant position in the internet advertising industry by promoting its vertical search services such as Youtube, Google News, Google Maps etc.,
- Delhi High Court ruled that CCI can recall or review its order to investigate Google, but only under specific conditions and not in every case.
- **Steel manufacturers case**- Steel manufacturers faced a complaint from the Engineering Export Promotion Council of India for increasing the steel prices in India more than the rest of the world.
- The CCI had to decide whether to apply the Competition Act or the previous Monopolies and Restrictive Trade Practices Act, which was replaced by the Competition Act in 2002.
- **Faridabad Industries Association vs M/s Adani Gas Limited (AGL)** - The CCI found that AGL was violating the Competition Act and ordered it to stop unfair practices and modify the Gas Supply Agreements.

7. Places of Worship (Special Provisions) Act 1991

Civil suits challenging the religious character of mosques in Varanasi and Mathura is advancing rapidly.

Provisions of Places of Worship (Special Provisions) Act 1991

- **Aim-** To protect the religious character of all houses of worship as it stood on August 15, 1947 and forbid any changes that would compromise that character.
- **Places of worship-** It is defined as any structure used for public religious worship, such as a temple, mosque, gurudwara, church, monastery, or congregation.
- **Restricts conversion-** The Act limits converting a house of worship of one religious group into a house of worship of another religious group, or even a different sect within the same religious group.
- **Establish religious character**- The religious nature of a house of worship must continue to be the same as it existed on August 15, 1947.
- **Bar on jurisdiction of court**- No new suit or legal process shall be instituted if there is already a suit or legal proceeding currently before any court regarding the conversion of the religious character of any place of worship existing on August 15, 1947.
- **Penalty**- If any one violates the terms of the Act, such a person could face up to 3 years in prison and shall also be liable to fine.

What are the exemptions provided under the Places of Worship (Special Provisions) Act 1991?

- Ram Janmabhoomi-Babri Masjid case and any appeal or procedure arising out of it are exempt from its coverage.
- Any religious structure protected as an ancient and historical monument or archaeological site or remains under the Ancient Monuments and Archaeological Sites and Remains Act of 1958.
- Any action, appeal, or procedure that was determined, settled, or disposed of by a court, tribunal, or other body prior to the effective date of this Act.
- Any disagreement over related aspects that has been resolved amicably between the parties before the start of the proceeding.
- Any prior conversion to religious or secular use of such a location that was allowed to take place with the owner's approval.

8. Women's Empowerment in Tackling Malnutrition

- Uttar Pradesh's approach to combating malnutrition emphasizes women's empowerment through community-based micro-enterprises.
- These enterprises, led by self-help groups, produce fortified and nutritious foods for pregnant/breastfeeding mothers and children, distributed via the Integrated Child Development Services (ICDS) programme.

Establishment of Decentralized Production Units:

- In 2020, the Department of Women and Child Development collaborated with the Uttar Pradesh State Rural Livelihood Mission to establish decentralized production units.
- These units, operated by 20-member women groups, utilize automated equipment to produce various fortified food variants for ICDS beneficiaries.
- Piloted in Unnao and Fatehpur in 2021, the model demonstrated feasibility and efficacy.

Impact and Expansion:

- Following positive outcomes, the project expanded to 202 production units across 43 districts within two years.
- This initiative has provided livelihood opportunities for 4,080 women and reached 12 million ICDS beneficiaries.

Women's Empowerment for Nutrition:

- Over 4,000 women have organized into 204 self-help group micro-enterprises across 43 districts, receiving machinery and raw materials at subsidized rates.

- The shift from a centralized to a decentralized model empowers women to prepare specific caloric value rations, aiming to generate an additional monthly income of ₹8,000 per woman.

Innovation and Sustainability:

- The Department of Women and Child Development has re-formulated take-home rations to include high-quality ingredients like milk powder, oil, vitamins, and minerals.
- An app-based solution is being developed to train women in producing nutritious products for local markets, enhancing income and sustainability.
- A pilot project aims to strengthen the supply chain and track home rations using QR codes, supported by the World Food Programme (WFP).

9. Delimitation commission

The delimitation of constituencies for the Lok Sabha and State Legislative Assemblies is to be carried out on the basis of the first Census after 2026.

Delimitation

It is the act of redrawing boundaries of Lok Sabha and state Assembly seats to represent changes in population.

- Delimitation means the process of fixing the number of seats and boundaries of territorial constituencies in each State for the Lok Sabha and Legislative assemblies.
- **Objective-** To provide equal representation to equal segments of a population.
- **Constitutional provisions- Article 82 and 170** of the Constitution provide that the number of seats in the Lok Sabha and State Legislative assemblies as well as its division into territorial constituencies shall be readjusted after each Census.
- **Delimitation Commission-** It is set up under an act of Parliament which performs the 'delimitation process'.Such an exercise was carried out after the 1951, 1961 and 1971 Census.
- **Exemption-** Several States such as Assam, Arunachal Pradesh, Nagaland and Manipur are left out from the exercise due to "security risks."

What is delimitation commission?

Article 81 of the Constitution defines the composition of the Lok Sabha and it mandates that the composition should represent changes in population.

- **Delimitation exercise**- It is carried out by an independent Delimitation Commission, appointed by the Government of India under provisions of the Delimitation Commission Act.
- **Article 82**- It provides for Parliament to readjust, after completion of each census, seats allocated to the House of the People to the States and division of each State into territorial constituencies.
- **Appointment-** By the President of India.
- **Election Commission**- Delimitation Commission works in collaboration with the Election Commission of India.
- **Composition**-It is composed of
  - o A retired Supreme Court judge,
  - o Chief Election Commissioner of India and
  - o Respective State Election Commissioners.
- **Independence**- Delimitation Commission is to work without any executive influence.
- **Bar on court**- The Constitution mandates that the Commission's orders are final and cannot be questioned before any court as it would hold up an election indefinitely.
- **Role**- It determines the number and boundaries of constituencies in a way that the population of all seats, so far as practicable, is the same.
- **Reserved seats**- The Commission is also tasked with identifying seats reserved for Scheduled Castes and Scheduled Tribes.
- **Public feedback**- The draft proposals are published for public opinions by holding public sittings, after hearing the public it considers objections and suggestions and carries out changes.
- **Final order**- It is published in the Gazette of India and the concerned State Gazette, it comes into force on a date specifies by the President.

Why is Delimitation pending since 1976?

- **1971 Census**- The seats are frozen as per the 1971 Census in order to encourage population control measures so that States with higher population growth do not end up having higher number of seats.
- **42nd Amendment Act, 1976**- It froze the number of Lok Sabha seats and put off delimitation for 25 years until the 2001 Census under Article 82.
- **84th Amendment Act, 2001-** It extended the deadline for delimitation to 2026, hence the population based on which the number of seats is allocated refers to the population as per 1971 Census.
- **Uniformity-** This was justified on the ground that a uniform population growth rate would be achieved throughout the country by 2026.
- **Readjustment**-The boundaries of territorial constituencies were readjusted (without changing the number of seats) and seats for SC and ST were determined as per the 2001 Census and will again be carried out after 2026.

The first Census after 2026 will be the Census in 2031, but due to delays in 2021 Census the central government is on the process to conduct delimitation exercise.

What are the issues?

- **Population explosion**- During the last five decades the population has been high in some States like Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan.
- **Population control measure**- States like Kerala, Tamil Nadu, Karnataka and Andhra Pradesh have shown positive population control measure.
- **Lack of representation**- Smaller northern States such as Punjab, Himachal Pradesh and Uttarakhand and north-eastern States may be at disadvantage compared to large northern States like Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan in terms of representation.
- **Concern of federal principles**- It contradicts the federal principles of the country, which emphasizes equitable representation across regions.
- **Contradicts freezing seats philosophy**- The seats were frozen to stabilize population, States that have been more successful in controlling their population may lose out on their political significance due to this approach.

What lies ahead?

- **Fix Lok Sabha seats**- The role of Member of Parliament (MP) is to legislate on Union List like defence, railways etc., and hold the Central government accountable.
- Majority of the schemes of the Centre are implemented only by the State government, hence the number of MPs in Lok Sabha may be capped at the present 543 which would ensure no disruption in the present representation from various States. This will maintain and uphold the federal principle.
- **Balance democratic represenation**- The number of MLAs in each State may be increased in line with the current population without changing the number of Rajya Sabha seats to address the democratic representational requirement.
- **Empower local bodies**- It is the most important reform for strengthening democracy is to empower local bodies of panchayats and municipalities who engage with the citizens on a day-to-day basis.
- The devolution of power and finances to these bodies must be significantly increased to strengthen democracy at grass root levels.

10. GHAR - GO Home and Re-Unite Portal

Recently, **GHAR – GO Home and Re-Unite Portal** have been launched .

- National Commission for Protection of Child Rights (NCPCR), has developed and launched a portal namely GHAR – GO Home and Re-Unite (Portal for Restoration and Repatriation of Child).

GHAR – GO Home and Re-Unite Portal:-

- It is a portal to digitally monitorand track the restoration and repatriation of children according to the protocols under the **Juvenile Justice (Care and Protection of Children) Act, 2015, and Rules thereof.(The Juvenile Justice (Care and Protection of Children) Amendment Bill, 2021)**
- **Objective:** to digitally monitor and track the restoration and repatriation of children according to the protocol.
- **Ministry: Ministry of Women and Child Development.**

Important Features:-

- **Digital tracking and monitoring of children** who are in the Juvenile Justice system and have to be repatriated to another Country/State/District.
- **Digital transfer of cases of children** to the concerned Juvenile Justice Board/Child Welfare Committee of the State.
- It will help in **speedy repatriation of children.**
- Where there is a requirement for a translator/interpreter/expert, a **request will be made to the concerned State Government.**
- Child Welfare Committees and District Child Protection Officers can ensure proper **restoration and rehabilitation of children by digitally monitoring the progress of the case of the child.**
- A checklist format will be provided in the forms so that the children who are being hard to repatriate or children who are not getting their entitled compensation or other monetary benefits can be identified.
- A list of government-implemented schemes will be provided so that at the time of restoration the **Child Welfare Committees** can link the child with the schemes to strengthen the family and ensure that the child remains with his/her family.

11. India-UAE Bilateral Investment Treaty (BIT)

The **Union Cabinet** recently approved an investment treaty with the **United Arab Emirates (UAE)** to boost **bilateral economic engagement** between the two nations.

India-UAE Bilateral Investment Treaty:

- The treaty would significantly **enhance investor confidence** and pave way for **increased Foreign Direct Investments (FDI)** and **Overseas Direct Investment (ODI)** opportunities.
- It aims to **strengthen economic ties** between the two nations, fostering a conducive environment for **mutual investment and collaboration.**
- The focus is to bolster **economic growth and create a robust framework** that encourages businesses from both countries to explore and expand their ventures.

Significance of the agreement:

- UAE became the **only country with which India** has both **Comprehensive Economic Partnership Agreement (CEPA)** and BIT.
- Even countries like **South Korea, Japan, and Singapore** have a CEPA with India but no BIT.
- UAE is the **third largest source of FDI** into India and **seventh largest trade partner** of India.
- The two nations have also implemented a **free trade agreement** (FTA) in 2022.
- **India received an FDI** of USD 16.7 billion between **2000 to 2023.**

Location of United Arab Emirates (UAE):

- United Arab Emirates is a federation of seven emirates along the **eastern coast of the Arabian Peninsula**, called the Middle East.
- **Seven emirate states include** Abu Dhabi, Dubai, Sharjah, Ras Al Khaimah, Ajman, Umm Al Quwain, and Fujairah.
- It is bordered by **Saudi Arabia** to the west and south and by **Oman** to the east and northeast.
- UAE shares water boundaries with the **Persian Gulf** (Arabian Gulf) to the east and **Gulf of Oman** and **Strait of Hormuz** to the west and north.

12. India's Demographic Dividend

Interim budget announced the formation of "high-powered committee to study India's population growth.

What is population growth committee?

- **Mandate**- To study India's population growth to ensure that the nation is on target to meet the Viksit Bharat goal by 2047.

The term 'Viksit Bharat' means 'Developed India'. Viksit Bharat 2047 represents the government's vision to transform the county into a developed entity by its 100th independence in 2047.

- **Role-** To examine the "challenges arising from fast population growth and demographic changes.
- **Address issues**- It will focus on issues such as family planning, maternal and child health, education, employment, and socio-economic development.
- **Interdisciplinary approach**- The committee will draw expertise from fields such as demography, public health, economics, sociology, and governance.

What the population committee should consider?

- **Modernise data infrastructure**- It includes establishing robust systems for data collection, management and analysis, need to upgrade data collection methods to ensure data security and privacy.
- **Data reliability**- Independent audits, data validation exercises, and peer review processes can help identify and rectify data errors and inconsistencies.
- **Open data initiatives**- It can facilitate access to population data for researchers, policymakers, and the public, making population data freely available in standardised formats promotes data reuse, transparency, and accountability.
- **Multi-stakeholder approach**- It should collaborate with various stakeholders, including government agencies, non-governmental organisations, civil society groups etc., to fostering partnerships and enable collective action to carry out population-related policies and programmes at the national and grass-root levels.
- **Awareness generation**- The committee should empower individuals and communities with accurate information and resources, this would promote responsible family planning practices and improve health outcomes.
- **International cooperation**- The population committee should also facilitate international collaboration with UN Population Division, World Bank etc., for the exchange of best practices in population management.

How India can leverage its demographic dividend?

- **Invest in human capital**- To maximise the benefits of a favourable age distribution, India must invest in greater development of its human capital.

Human capital is the intangible collective resources possessed by individuals and groups within a given population.

- **Increase fund in health**- India requires concerted efforts to ensure access to essential commodities, nutrition programmes targeting vulnerable populations, and interventions to improve water availability and sanitation.
- **Employment generation-** It is essential to absorb India's large and young workforce, this would reduce poverty and inequality.
- **Formalisation of workforce**- India needs to integrate the informal sector which accounts for about 90% of India's employment with formal sector, this would improve productivity, wages and social protection for millions of workforce.
- **Skill upgradation**- To ensure that the growing proportion of middle-aged workers can keep up with the changing demands of an increasingly technologically driven economy, we must invest in continued skill upgradation and on-the-job training above and beyond formal education.
- **Focus on dependency burden**- Rising retirement age, enhanced old age pension schemes, and increased ability to sell land or homes this will increase the ability of older population to be self-sustaining.

Dependency burden is defined as the number of individuals ages 15-59 supporting children under 15 and older population above 60, will vary dramatically between states.

- **Gender equality-** Female labour force should be empowered as they face issues such as social norms, discrimination and lack of education and skills.
- **Address gender disparity-** Improve access to education, health and promote family planning practices are crucial in ensuring inclusive and sustainable development.

What lies ahead?

- India can realise its demographic potential by adopting a holistic approach to population management, prioritising investments in health, education, employment and statistical systems.
- India can navigate its demographic transition to emerge as a global leader in inclusive and sustainable development with strategic planning, effective implementation and international collaboration

13. **Free Movement Regime (FMR) with Myanmar suspended by India**

- Union Home Minister has announced to finally scrap the Free Movement Regime (FMR) along the Myanmar border.

Free Movement Regime

- **Initiated in the 1970s**, the FMR allowed people living within **16 km of the India-Myanmar border** to travel up to 16 km into the other country **without a visa**.
- India shares a **1,643 km-long border** with Myanmar, which passes through the States of Arunachal Pradesh (520 km), Nagaland (215 km), Manipur (398 km), and Mizoram (510 km).
- This regime **recognized the deep-rooted familial and ethnic connections** between communities on either side of the **unfenced border**.
- The FMR was **last revised in 2016**, aligning with India's Act East policy. However, it was suspended in Manipur since 2020 due to the COVID-19 pandemic.

Historical Context of India-Myanmar Relations

India's relationship with Myanmar has evolved over time, shaped by historical events and geopolitical shifts:

- **Pre-1937**: Deep-rooted cultural and religious ties, marked by ancient Buddhist exchanges.
- **1937 Separation**: Burma's separation from British India, leading to distinct political trajectories.
- **Post-1962 Coup**: Strained relations due to Myanmar's military rule and alignment with China.
- **1990s Shift**: India's re-engagement with Myanmar under its Look East Policy, emphasizing economic and strategic cooperation.
- **2015 Democracy**: Improved bilateral ties following Myanmar's transition to democracy.
- **2021 Coup**: Renewed challenges in relations due to Myanmar's military takeover and ensuing instability.

Why is Myanmar important to India?

[A] Geopolitical Perspective

- **Border sharing:** India and Myanmar share a significant land border of over 1600 km and a maritime boundary in the Bay of Bengal, emphasizing the importance of stability in Myanmar for India.
- **Geostrategic Location:** Myanmar's location is pivotal for India's "Act East" policy and the development of the Northeast region, acting as a vital link between South Asia and Southeast Asia.
- **Multilateral support:** Myanmar's unique position as the only ASEAN nation bordering India makes it crucial for regional cooperation. It is a member of

BIMSTEC, SAARC observer, and part of the Mekong Ganga Cooperation, facilitating India's multilateral engagement.

- **Security Imperatives:** Myanmar's territory serves as a base for insurgent groups like NSCN-K, necessitating collaboration for counter-insurgency efforts. Additionally, addressing the drug trade originating from the Golden Triangle region is a shared security concern.
- **Chinese Influence:** India sees Myanmar as a strategic partner to counterbalance China's expanding influence in the region, emphasizing the need for enhanced bilateral engagement.

[B] Socioeconomic Perspective

- **Cultural Affinities:** Beyond geographical proximity, India and Myanmar share ethnic, religious, and linguistic commonalities, fostering cultural bonds.
- **Indian Diaspora:** Myanmar is home to a sizable population of Indian origin, estimated at around 2.5 million, strengthening people-to-people ties between the two nations.
- **Investment in Infrastructure:** Infrastructure projects, such as the Kaladan Multi-Modal Transit Transport Project and the Sittwe Port, IMT Highway aim to boost connectivity, trade, and investment.
- **Bilateral Trade:** India ranks as Myanmar's fifth-largest trading partner, registering bilateral trade at USD 1.03 billion in 2021-22.
- **Energy Cooperation:** Myanmar holds significance for India's energy security. With an energy portfolio of over USD 1.2 billion, Myanmar is the largest recipient of India's investment in the oil and gas sector in Southeast Asia.

Reasons for the Policy Shift

- **Drug Trafficking and Insurgency:** Myanmar's status as an opium producer fuels drug trafficking and supports insurgent groups in India's northeastern states.
- **Refugee Influx Post-Coup**: Following Myanmar's military coup in February 2021, over 40,000 refugees entered Mizoram, and around 4,000 entered Manipur, exacerbating security concerns.
- **Local Government Stance**: Manipur's Chief Minister urged the Ministry of Home Affairs to cancel the FMR and complete border fencing, linking ethnic violence in the state to the free movement across the border.

Way forward

- **Border Fencing**: The government plans to fence about 300 km of the border, with a tender expected soon.

- **Regulatory Revisions**: Experts suggest refining the FMR to better regulate movement while maintaining cross-border ties.
- **Infrastructure and Trade**: Enhancing infrastructure and formalizing trade at designated entry points could mitigate some negative impacts.
- **Community Engagement**: Involving border communities in decision-making is crucial for effective and sensitive border management.

14. India-UAE Relations

Prime Minister Narendra Modi is scheduled to pay an official visit to the United Arab Emirates (UAE) from February 13-14, 2024.

History of India-UAE relations

- **Historical relation**-Both including its precursor emirates, had close relations with ancient trade networks. Sumerians traded with Meluhha (Indus Valley), Magan (UAE and Oman), and Dilmun (Bahrain), connecting through the UAE.
- Maritime routes facilitated Arab trade with India for silk, spices, gold, and porcelain.
- **Diplomatic relations**- It was established in 1972 with UAE opening its embassy in India in 1972 and the Indian Embassy was opened in UAE in 1973.
- **Economic relations**-Bilateral trade grew to 85 billion dollars in 2022-23, making the UAE India's 3rd -largest trading partner and India's 2nd -largest export destination.

- **Multilateral cooperation**- Both countries are currently part of several plurilateral platforms such as BRICS, I2U2 (India-Israel-UAE-USA) and UFI (UAE-France-India) Trilateral, etc.,
- UAE was invited as a Guest Country to the G-20 Summit held under India's Presidency in 2023.
- **India-Middle East-Europe Economic Corridor (IMEEC)-** It was signed during the G-20 summit, 2023 which aims to connect India to Europe across the Arabian peninsula, and is a potential rival to China's Belt and Road Initiative.
- **India-UAE Comprehensive Economic Partnership Agreement**- It was signed in 2022 which aims to increase trade in services to 115 billion dollars in five years.
- **Bilateral investment treaty**- It was approved in 2024 which would significantly boost bilateral economic engagement, especially manufacturing and foreign direct investment.

UAE is also the 4th-largest overall investor in India.

- **NRI remittance**- As per 2020 data, the annual remittances made by the large Indian community in UAE is estimated to be around 3.5 million, which is one of the highest in the world and is 18% of the total remittances to India.
- **Fintech relations-** RuPay card, a key component of India's Digital Public Infrastructure (DPI), is accepted in the UAE since 2019, while from 2023, the rupee was being accepted for transactions at Dubai's airports.
- **Local Currency Settlement Systems-** Rupee-dirham settlement system was launched in 2023 where the Indian Oil Corporation made a rupee payment to the Abu Dhabi National Oil Company for crude oil imports.
- **Energy security**- UAE being the only nation from the region which has strategic oil reserves stored in India.
- An agreement was signed to invest in the strategic crude oil storage facility in Mangaluru with an initial investment of 400 million dollars.

UAE is the 4th largest source for crude oil and 2nd largest source for LNG and LPG for India.

- **Defence relations**- The 1st edition of India-UAE joint military exercise "Desert Cyclone" recently held in Rajasthan, it signifies further strengthening of bonds of friendship and trust between India and the UAE.
- **Air connectivity**- During the Covid-19 pandemic, an air-bubble agreement between India and the UAE was signed which continued throughout the pandemic period.
- **Education**- The IIT Delhi-Abu Dhabi Campus will offer its first program from 2024. Manipal, BITS Pilani and Amity University also have set up their campuses in the UAE.
- **Cultural relations**- In 2018, India was the 'Guest of Honour' country at the Abu Dhabi Festival (ADF), the UAE's annual cultural festival.
- In 2019, Prime Minister of India was conferred the UAE's top civilian honour, the Order of Zayed during his official visit.
- **Louvre Museum in Abu Dhabi**- It is the only branch of Louvre Museum outside Paris that has a number of artefacts from India as well, including Mughal painting **'The Huntress'** painted in one of the Mughal courts in South India.
- **BAPS Mandir**- Bochasanwasi Shri Akshar Purushottam Swaminarayan Sanstha temple to be inaugurated by PM Modi in Abu Dhabi in 2024.

It will be the 2nd big Hindu temple to be inaugurated in the UAE, the first being the Hindu Temple in Dubai, opened in 2022.

- **People to people relations**- The Indian expatriate community of approximately 3.5 million is the largest ethnic community in UAE constituting roughly about 35% of the country's population.
- **Climate change**-Both India and the UAE co-launched the Global Green Credit Initiative at COP 28 climate summit which held at UAE.

What lies ahead?

- UAE Centennial Plan 2071 intends to arm the youth of the country with the skills and knowledge needed to succeed and fulfil the country's goal of becoming the best country in the world by 2071.
- This vision coincides very closely with the Vision 2047 of India, which too has set high and ambitious goals for India to achieve in its quest to become a modern and prosperous nation by its centenary of independence in 2047 and cement its place as a vishwa guru (global leader).
- India and the UAE have a forward-looking and dynamic partnership that is ready to face the challenges and opportunities of the future.

15. 7th Edition of Indian Ocean Conference (IOC)

- The 7th Edition of Indian Ocean Conference (IOC) is being held in Perth, Australia.

Indian Ocean Conference (IOC)

- IOC **started in 2016**, serving as the premier consultative forum for countries in the Indian Ocean region on regional affairs.
- The first edition of the Conference was held in Singapore in 2016.
- It is organised by **India Foundation** in partnership with other organizations in the region.
- It aims to bring together critical states and maritime partners to discuss regional cooperation under the concept of **Security and Growth for All in the Region (SAGAR)**.

SAGAR

- SAGAR stands for 'Security and Growth for All in the Region' and was **initiated by PM Narendra Modi** in 2015 at Mauritius.
- It aims to leverage the blue economy and maintain strategic partnerships with littoral states in Asia and Africa.
- It seeks to provide leadership in capacity building and capability enhancement programs transparently, aligning with other maritime initiatives like Act East Policy, Project Mausam, and Blue Economy.

Key Statements by Dignitaries this Year

- **Challenges to International Rule of Law**: EAM S. Jaishankar highlighted challenges to international rule of law from the Red Sea to the Indo-Pacific, implicitly targeting China's actions.
- **Call for Conflict Reduction**: Australian Foreign Minister emphasized the necessity of reducing conflict in the region amid growing tensions.
- **Veiled References to China's Actions**: Jaishankar made indirect references to China's troop buildup at the Line of Actual Control and actions in the South China Sea, stressing the importance of adhering to internationally negotiated regimes.

16. Mental Health of Military Personnel

Recently a task force submitted its final draft to Ministry of Home Affairs which was established to investigate the causes of suicides and fratricides within the Central Armed Police Forces (CAPFs).

CAPF

- Central Armed Police Forces (CAPF) is the collective name of central police organisations under the Ministry of Home Affairs.
- These are technically paramilitary forces formerly known as the Central Para-Military Forces.
- Since 2011, India adopted the term "central armed police forces" to drop the word "paramilitary".

What are the key findings of the final draft report?

- **Study**- It covered 642 suicide cases and 51 fratricidal deaths over five years.

Fratricide in military refers to a soldier or security personnel killing their own colleagues.

- **Major factors**- It identified working conditions, service conditions, and personal/individual issues as the major factors contributing to suicides and fratricides in the CAPFs.
- **Working conditions**- Prolonged deployment in high-risk areas, long separation from families, forced bachelorship, and tough duty hours in inhospitable conditions.

- **Service conditions**- Trauma of being abused, bullying at the workplace, leave-related problems, extended working hours, and inadequate time for rest were cited as significant reasons for service-related stress
- **Personal/individual issues**-
- **Gender difference**- The report noted that suicide attempts and committed cases by women personnel were fewer compared to male personnel.
- Male personnel were more hesitant to share their problems due to the fear of being mocked by their peers.
- **Mental health taboos**- It was considered as a taboos in security force, personnel hesitated to share their problems due to fear of being mocked or taunted by colleagues for appearing weak.
- **Suicides after returning from leave-** Over 80% of suicides occurred when personnel returned to work after availing leave, with a majority happening between 7 to 15 days after returning from home.

The trigger for suicides could be either family or duty-related issues.

What are the recommendations by the final draft report?

- The recommendations aim to address systemic issues and improve the mental health and well-being of CAPF personnel, acknowledging the importance of both working and service conditions in their overall welfare.
- **Sensitization of immediate bosses**- They should treat newly recruited jawans with dignity, hear their grievances and recognize their services.
- **Treat decently**- Senior officers were advised to refrain from using abusive language and to behave decently with their juniors.
- **Mental health screening-** It should be done for all CAPF personnel returning from leave or other long-term duties through a questionnaire.
- This screening would address common challenges associated with combat zones, such as insomnia, agitation, and nightmares.
- **Address mental health taboos**- The report acknowledged the stigma around mental health issues in both the forces and society.
- It emphasized the need to address this stigma to encourage personnel to open up about their problems without fear of mockery or job loss.

17. States do not violate Constitution in appointment of Deputy CM: Supreme Court

- The Supreme Court recently dismissed a petition challenging the appointment of Deputy Chief Ministers in States, stating that the position does not breach the Constitution.

- Despite lacking constitutional backing, Deputy CM play significant roles in state governments, raising questions about their powers, significance, and concerns.

Deputy CM Position

- **Constitutional Status**: Unlike the Vice President of India, the Deputy CM post is **political rather than constitutional.**
- **Origin**: The post traces back to the **Deputy PM position established in 1947** post-independence, leading to the evolution of Deputy CM roles in states.
- **Appointment and Tenure**: Deputy CMs are **appointed and removed at the discretion of the Chief Minister**, who may appoint multiple Deputy CMs.
- **Historical Context**: Anugrah Narayan Sinha of **Bihar** was the first Deputy CM post-Independence, with 12 states in India having Deputy CMs as of July 2023.

Powers and Responsibilities

- **Rank and Pay**: Deputy CMs hold a rank **equivalent to cabinet ministers**, receiving similar pays and perks.
- **Portfolio Allocation**: They are entrusted with portfolios, although typically **smaller in scale compared to the Chief Minister.**
- **Financial Powers**: Deputy CMs hold **no specific financial authority**, requiring approval from the Chief Minister for expenditures exceeding allocated budgets.
- **Administrative Role**: They facilitate governance and administration, acting as a **bridge between the ruling party and its allies.**

Significance of Deputy CMs

- **Political Stability**: Deputy CMs contribute to coalition government stability by bridging gaps between ruling parties and allies, reducing incidents of anti-defection.
- **Representation and Trust**: Their presence ensures better representation of communities, fostering public trust in governance.
- **Succession and Accountability**: Deputy CMs serve as potential successors to the Chief Minister, promoting transparency and accountability in government.

Concerns and Suggestions

- **Lack of Constitutional Backing**: Raises concerns about role ambiguity and potential exploitation by Chief Ministers.

- **Multiplicity of Appointments**: No limit on the number of Deputy CMs can lead to appeasement and governance complexities.
- **Complexity in Governance**: Overlapping roles with cabinet ministers may complicate governance and administration.

Future Perspectives

- **Clarity and Limitations**: Need for a defined role and limitations for Deputy CMs to simplify governance structures.
- **Political Literacy**: Enhancing awareness among citizens about the role and function of Deputy CMs is essential for informed governance.

18. Corruption Perceptions Index

The Corruption Perceptions Index (CPI) 2023 has been released by Transparency International showing that most countries have made little to no progress in tackling public sector corruption.

- Public Sector corruption has been difficult to tackle especially in the global south with various anti corruption measures falling short of expectations.

About Corruption Perceptions Index (CPI):

- The CPI ranks 180 countries and territories around the globe by their perceived levels of public sector corruption, scoring on a scale of 0 (highly corrupt) to 100 (very clean).

Key highlights of the Corruption Perception Index (CPI) 2023:

- Over two-thirds of countries score below 50 out of 100, which strongly indicates that they have serious corruption
- The global average score is stuck at only 43, while the vast majority of countries have made no progress or declined in the last decade.
- Denmark with a score of 90 tops the index for the sixth consecutive year, with Finland and New Zealand following closely with scores of 87 and 85, respectively.
- Somalia, Venezuela, Syria, South Sudan, and Yemen, with their scores of 11, 13, 13, and 13 respectively, take the bottom spots in the
- India was ranked 93 out of 180 countries on the CPI 2023. In 2022, India was ranked 85. The overall score for India in 2023 was 39, a slight decrease from 40 in 2022.

- According to theRule of Law Index, the world is experiencing a decline in the functioning of justice systems. Countries with the lowest scores in the Rule of Law index are also scoring very low on the CPI, highlighting a clear connection between access to justice and corruption.
- Both authoritarian and democratic leaders are undermining justice. This is increasingimpunity for corruption, and even encouraging it by eliminating consequences for criminals. Where corruption is the norm, vulnerable people have restricted access to justice while the rich and powerful capture whole justice systems, at the expense of the common good.

Transparency International:

- It is an international non- governmental organisation founded in 1993 based in Berlin, Germany to take action to combat global corruption with civil societal anti- corruption measures and to prevent criminal activities arising from corruption.
- Its publications include theGlobal Corruption Barometer and the Corruption Perception Index.

19. Deficiencies in Epidemic Diseases Act, 1897

Recently 286th Law Commission Report recommended creation of an epidemic plan and Standard Operation Procedure (SOP) to address future epidemics.

Issues of EDA highlighted by the Law Commission Report

- **Lack of coordination**- There is no clear demarcation between the powers of the Centre, state, and local authorities during an epidemic, which leads to uncoordinated responses.
- **Outdated law-** The management, control and prevention of epidemic diseases cannot be restricted to a century-old law.
- **Inadequate law-** The Act was not designed to combat modern issues with the spread of infectious diseases.

Globalisation and increased connectivity can result in infectious diseases rapidly turning into epidemics or pandemics.

- **Post Covid-19**- The Law Commission suo motto decided to extensively examine the existing legal framework to tackle what it calls "significant deficiencies in addressing the containment and management of future epidemics in the country.

What are the key recommendations proposed by Law Commission?

- **Recommends amendments-** The report points out limitations of the EDA and recommends amendments or introduction of a new law to address modern challenges in managing infectious diseases.
- **Creation of epidemic plan-** It aims to clearly demarcate the powers and obligations of different levels of government to ensure a coordinated response during public health emergencies.
- **Authority to create epidemic plan-**The Central government is recommended to take the lead in creating the Epidemic Plan in collaboration with state governments, relevant ministries, private health institutions, expert bodies, and other stakeholders.
- **Preventive measures-** The Standard Operating Procedure defines 3 stages of the spread of infectious diseases and corresponding responses.

- **Coverage of epidemic plan-** It should cover various aspects, including quarantine, isolation, lockdowns, privacy-friendly disease surveillance, regulation of medical supplies, information dissemination, medical testing, research for vaccinations and medicines, and safe disposal of infectious waste.
- **Regular updates-**The report suggests provisions in the EDA to ensure the Epidemic Plan is prepared, enforced, and regularly revised.

20. Elections in Pakistan

In the recent Pakistan general elections, the Pakistan Muslim League-Nawaz (PML-N) and Bilawal Bhutto's Pakistan People's Party (PPP) is set to discuss power sharing formula due to absence of a clear winner.

History of India Pakistan relations

- **Neighbourhood First Policy-** India desires normal neighbourly relations with Pakistan. India's consistent position is that issues, if any, between India and Pakistan should be resolved bilaterally and peacefully, in an atmosphere free of terror and violence.

The neighbourhood-first policy focuses on a diplomatic approach, top priority should be given to the relations of India with its neighbouring countries.

- **Promise of a new beginning-** PM Modi's swearing-in ceremony had been attended by Pakistan's then Prime Minister Nawaz Sharif in May 2014 along with the leaders of other SAARC nations.

- The meeting between the two Prime Ministers had held the promise of a new beginning for the bilateral relationship that had suffered a severe setback after the 26/11 terrorist attacks in Mumbai in 2008.
- **Terrorist attacks**- Pathankot Airbase attack (2016), Uri Attack (2016), Pulwama attack (2020) deteriorated ties between both countries.
- **Trade relation**- As per data trade with Pakistan stood at USD 329.26 million in 2020-21 and USD 830.58 million in 2019-20.
- **Issue with Jammu and Kashmir**- Pakistan banned bilateral trade with India in 2019 when India abolished Jammu and Kashmir's special status.
- **Tariff issues** - In 2012, India announced reduction of 30% in its SAFTA Sensitive List for non-Least Developed Countries of SAFTA [including Pakistan] but Pakistan continued to follow restrictive trade policy towards India.
- **Most Favoured Nation**- India had accorded MFN status to Pakistan in 1996.
- Pakistan's MFN designation was removed in the aftermath of the Pulwama terrorist incident.

MFN status means the country which is the recipient of this treatment must nominally receive equal trade advantages as the "most favoured nation" by the country granting such treatment

- **Indus water treaty**- It was signed in 1960 between India and Pakistan brokered by World Bank

- **Kartarpur corridor**- Track 2 diplomacy between the neighbours had seen the opening of the Kartarpur corridor in 2019 that allows visa free access for Indian pilgrims to Gurudwara Darbar Sahib in Pakistan.
- **People to people relations**- India has been successful in securing the release and repatriation of 2133 Indians, including fishermen, from Pakistan's custody since 2014.

Why the Pakistan election is crucial for India?

- **Neighbourhood country**-India would be closely monitoring all activities in its neighbouring country ahead of the elections particularly focusing on the Pakistan Army's involvement in selecting the next prime minister.
- **Terrorism-** It is crucial for India as Pakistan's support of terrorism has been a concern for India and its national security.
- **Pakistan's stand on Article 370**- Nawaz Sharif, the former Prime Minister of Pakistan has shown openness towards India but also conditioned the peace process on India's reversal of its decision to abrogate Article 370 in Jammu and Kashmir.

- **Influence of China-** Pakistan's economic independence on China has increases in recent years, the growing partnership with China in infrastructure projects such as Belt and Road Initiative, China Pakistan Economic Corridor is a hurdle to bilateral ties between India and Pakistn.
- **Pakistan's economic crisis-** Pakistan's economy is in dire straits with very high inflation, very low foreign exchange reserves, and global lenders like the International Monetary Fund (IMF) refusing to disperse further funds.
- **Nuclear armed country-** Pakistan is India's neighbour and it's perennial rival, the political landscape will have impact on the diplomatic relations between the two countries.
- **Regional stability-** The outcome of the election holds significant implications for regional stability, particularly concerning security cooperation, economic relations, and efforts to combat terrorism.

21. Micro-credentials in Higher Education

Higher education institutes in India can be the catalysts in integrating micro-credentials with existing academic programmes.

Why there is a need of micro-credentials in higher education?

Microcredentials are short-duration learning activities with proof of specific learning outcomes that are validated through a standard and reliable assessment process.

- **Reduce skill gap-** It offers a targeted and efficient way to bridge the significant gap between the skills acquired through traditional higher education and the skills demanded by the job market by providing relevant, up-to-date skills that align with industry needs.
- **Flexibility-** They are offered in online, physical, or hybrid modes at various levels, such as beginning, intermediate, or advanced.
- **Adaptability-** Micro credentials allow individuals to acquire specific skills quickly, enabling them to adapt to evolving job requirements and stay competitive in the workforce.
- **Simplify course-** They can be described as condensed, competency-based certifications which involves smaller learning modules delivered over shorter periods than traditional education.

- **Compatibility-** The credit in micro-credentials is based on hours spent in achieving a specific skill or competency hence they are compatible with those in conventional higher education and can be widely accepted and recognized.

In macro-credential programmes, credit is based on the time spent in learning activities, such as lectures, labs, etc.,

- **Lifelong learning**- They are well suited for working professionals and individuals who may not have the time or resources to commit to lengthy degree programs.
- **Diverse learning paths**- It acknowledges that learning happens through various means, allowing learners to gain recognition for specific competencies acquired outside of traditional academic settings.
- **Align with NEP 2020**- Micro credentials align with this focus on skill development and support the policy's goal of fostering a more flexible and inclusive education system.

The National Education Policy 2020 emphasizes the importance of providing skill-based education from school to higher levels.

- **Upskilling-** It encourages the culture of continuous learning and upskilling fostering the development of a workforce that can readily adapt to changes in the job market.
- **Enhance employability-** It provide a tangible way for individuals to demonstrate their competencies to potential employers, enhancing their employability.
- **Integrate with National Credit Framework (NCrF)-** Micro credentials can be integrated into this framework which provides a structured framework for learning outcomes and credits, allowing learners to accumulate credits that contribute to their overall educational profile.
- **Industry- Academia collaboration**- It provide an avenue for higher education institutions to collaborate with industries in designing and offering programs that are directly aligned with the needs of employers.
- **Global recognition-**Offering and earning micro credentials in India can facilitate global recognition of skills, contributing to the mobility and competitiveness of Indian professionals on the international stage.

What lies ahead?

- There should be a clear quality benchmarking and a regulation of these micro-credentials to prevent significant divergences in learning outcomes.
- There is a need of universal validation and recognition of micro-credential credits to facilitate their easy endorsement in the workplace and Higher Education Institutes (HEIs).
- Indian HEIs must serve as agents of transformation and consider introducing micro-credentials a vital element of their strategic institutional objectives.

22. Gender Disparities: Big Blindspot in India's Health Policy

- Despite comprising nearly half of India's health workforce, women face significant barriers in reaching leadership positions within the healthcare sector, highlighting deep-rooted gender disparities in health policy and decision-making.

Understanding the Gender Gap

- **Data revelations**: Official data reveals that while women make up almost 50% of health workers in India, only 18% occupy leadership roles across various health panels, committees, hospitals, and ministries.
- **Impact of Gender Disparity**: The over-representation of men at the top of the health pyramid perpetuates inequalities in decision-making and policymaking, leading to skewed health systems that fail to address the diverse needs of the population.

Insights from Research

- **Diversity Gaps**: Recent research highlights the prevalence of diversity gaps in India's National Health Committees, with an "over-concentration" of men, doctors, individuals from urban areas, and bureaucrats. This centralization of power risks excluding diverse perspectives and experiences, hindering the development of inclusive health policies.
- **Impact on Policy Formulation**: The lack of gender diversity in health committees affects policy outcomes, as decisions are often made from a narrow lens, overlooking the nuanced needs of marginalized groups. For instance, the absence of women in decision-making bodies may lead to inadequate consideration of gender-specific health issues such as access to nutritious food for women.

Challenges Faced by Women

- **Professional Barriers**: Women encounter various obstacles in advancing their careers in the health sector, including limited opportunities for promotion, unequal pay, and cultural expectations regarding gender roles.
- **Underrepresentation in Leadership**: Women are significantly underrepresented in medical leadership positions, both within health committees and healthcare institutions, further perpetuating gender disparities in decision-making and policy formulation.

Recommendations for Change

- **Policy Interventions**: Affirmative policies, such as reserving seats for women and marginalized groups in health committees, can help address gender disparities and promote inclusive decision-making.
- **Structural Reforms**: Structural changes within healthcare institutions, such as promoting flexible working arrangements and providing dedicated resources for women leaders, are essential to breaking down barriers to gender equality in leadership.
- **Community Engagement**: Involving directly affected communities in policy-making processes can ensure that health policies are responsive to the needs and priorities of the population, fostering greater inclusivity and accountability.

Conclusion

- Achieving gender equality in health leadership requires concerted efforts to address systemic barriers and promote inclusive decision-making.
- By prioritizing diversity and inclusivity in health policy, India can build more responsive and equitable health systems that serve the needs of all its citizens.

23. A ruling that gives primary school teaching a new slate

The central idea of the article revolves around the recent Supreme Court ruling in India, which upheld the necessity of specialized qualifications for primary school teaching, emphasizing the significance of Diploma in Education (DEd), Diploma in Elementary Education (DElEd), or Bachelor of Elementary Education (BElEd) degrees over Bachelor of Education (B.Ed). The article highlights the implications of this decision on recruitment policies and the quality of primary education in the country.

Key Highlights:

- **Different Requirements for Primary Teaching:** Teaching young children in primary grades requires specialized skills in foundational literacy and numeracy, which cannot be adequately addressed by the B.Ed degree, designed for teaching older students. The Right to Education Act underscores the importance of appropriate qualifications for primary school teachers.
- **Discrepancies in Qualifications:** Despite regulations, there are discrepancies in the qualifications of primary school teachers, with a significant portion holding B.Ed degrees instead of the required DEd, DElEd, or BElEd qualifications.

- **Challenges in Quality:** The quality of teacher education programs varies, with government-funded institutions generally performing better than self-financed ones. Concerns exist regarding low mean scores, especially in mathematics, indicating a need for improvement in pedagogical content knowledge.
- **Government Support and Innovation:** There is a call for government support and innovation in primary teacher education, including the expansion of successful programs like BElEd and the Integrated Teacher Education Programme (ITEP).

Key Challenges:

- **Discrepancies in Qualifications:** The prevalence of B.Ed holders in primary teaching roles highlights the challenge of aligning qualifications with the specific requirements of primary education.
- **Quality Disparities:** Disparities in the quality of teacher education programs, particularly between government-funded and self-financed institutions, pose a challenge to ensuring consistently high standards of teacher preparation.
- **Limited Government Focus:** The article criticizes the government's focus on higher education faculty development rather than primary teacher preparation, potentially neglecting the crucial foundation of education.

Main Terms:

- Bachelor of Education (B.Ed)
- Diploma in Education (DEd)
- Diploma in Elementary Education (DElEd)
- Bachelor of Elementary Education (BElEd)
- Right to Education Act
- Teacher Eligibility Test (TET)
- District Institutes of Education and Training (DIETs)
- Integrated Teacher Education Programme (ITEP)

Examples and References:

- The State of Teachers, Teaching and Teacher Education Report.
- Analysis of Teachers Eligibility Test (TET) data from a particular state.
- The success of programs like BElEd offered by Delhi University.
- The announcement of the Integrated Teacher Education Programme (ITEP) and the Scheme of Pandit Madan Mohan Malaviya National Mission on Teachers & Teaching.

Facts and Data:

- 90% of teachers have some form of professional qualification.
- Only 46% of teachers teaching primary grades have the DElEd (or equivalent) qualification.
- 22% of primary school teachers in private schools have B.Ed degrees.
- 4% of students enrolled in DElEd already have a B.Ed.
- Only 14% of qualifying candidates in TET had a mean score of 60% or above.

Critical Analysis:

The article effectively critiques the discrepancy between qualifications and the requirements of primary education, highlighting the need for specialized training in foundational literacy and numeracy. It addresses disparities in teacher education quality and government focus, advocating for greater attention to primary teacher preparation. However, it could delve further into the socio-economic factors influencing qualification choices and explore potential solutions in more detail.

Way Forward:

- Strengthening government support for primary teacher education programs.
- Expanding successful models like BElEd and ITEP.
- Addressing quality disparities between institutions.
- Implementing section-wise qualifying cut-off marks in TET.
- Providing pathways for professional development for B.Ed holders aiming for primary teaching roles.

24. Ties across the sea

- Prime Minister Narendra Modi's recent visit to the UAE, his seventh since 2014, underscores the growing importance of the Emirates in India's foreign policy.
- The visit coincided with PM Modi's participation in the 'World Governments Summit' in Dubai and the inauguration of Abu Dhabi's first Hindu temple, highlighting the multifaceted nature of bilateral relations.

Strengthening Economic Ties:

- The swift conclusion of the Comprehensive Economic Partnership Agreement (CEPA) in 2022 and the recent Bilateral Investment Treaty (BIT) demonstrate the deepening economic cooperation between India and the UAE.
- The UAE now stands as India's third-largest trading partner, second-largest export destination, and fourth-largest source of Foreign Direct Investment (FDI), emphasizing the significance of their economic partnership.

- Initiatives such as the inauguration of Bharat Mart for Indian Micro, Small, and Medium Enterprises (MSMEs) further solidify trade ties between the two nations.

Technological Collaboration:

- Both countries have embarked on technological collaborations aimed at enhancing digital infrastructure, research and development (R&D) for energy security, and exploring avenues such as green hydrogen and energy storage.
- Agreements on digital cross-payments signify a commitment to leveraging technology for mutual benefit and progress.

Strategic Cooperation and Multilateral Engagement:

- The Agreement for an Intergovernmental Framework on the India-Middle East Economic Corridor sets the stage for broader multilateral cooperation between India and the UAE.
- Collaboration over initiatives like I2U2 with the U.S. and Israel, along with the UAE's recent membership in BRICS, further strengthens the strategic partnership.
- Discussions on regional security issues, such as the Israel-Gaza operations and Red Sea attacks, highlight the UAE's role as a stable interlocutor in a turbulent region.

Cultural and Historical Ties:

- India-UAE relations are deeply rooted in centuries-old maritime trade and cultural engagement, with a significant Indian diaspora contributing to about 18% of India's global remittances.
- While economic and strategic interests align, differences in governance systems and societal dynamics pose potential challenges, requiring both nations to navigate carefully.
- PM Modi's emphasis on shared values of tolerance, pluralism, and a "shared heritage of humanity" underscores the enduring bonds between the two countries across the Arabian Sea.

25. Strategic relationship between Greece and India

The article discusses the growing strategic relationship between Greece and India, emphasizing the importance of deepening bilateral ties across various sectors. It highlights the mutual benefits of collaboration, the significance of security and stability in their respective regions, and the potential for economic cooperation through initiatives like the India-Middle East-Europe Economic Corridor (IMEEC).

Key Highlights:

- The visit of Greek Prime Minister Kyriakos Mitsotakis to India signifies the momentum in strengthening bilateral relations initiated by Indian Prime Minister Narendra Modi's visit to Greece.
- Both countries recognize the strategic importance of their geographical locations and the need for cooperation to ensure security, stability, and prosperity.
- Collaboration extends across strategic, military, and business sectors, with examples such as joint military exercises and investment partnerships.
- Economic reforms in Greece under the Mitsotakis government aim to boost sustainable growth and position the country as a reliable partner in the Eastern Mediterranean.
- The concept of the India-Middle East-Europe Economic Corridor (IMEEC) emerges as a promising avenue for enhancing economic ties between India and Greece.
- Emphasis is placed on fostering people-to-people ties through cultural exchanges, education programs, and media cooperation.

Key Challenges:

- The pace of bilateral cooperation has been slow, indicating a need for greater momentum.
- Despite existing collaborations, there is room for further expansion and diversification of partnerships.
- Ensuring sustained commitment from both governments and businesses to deepen ties amidst global uncertainties.

Useful Statements:

- Collaboration between Greece and India is essential for ensuring security, stability, and prosperity in their respective regions.
- Economic reforms in Greece aim to position the country as a reliable partner in the Eastern Mediterranean.
- Initiatives like the India-Middle East-Europe Economic Corridor (IMEEC) offer significant potential for enhancing bilateral economic ties.

Examples and References:

- Joint military exercises between the Indian Navy and Greek armed forces.
- Investment partnerships between Indian and Greek businesses, such as the construction of a new airport on the island of Crete.
- The involvement of Indian-Canadian billionaire Prem Watsa in Greek investments, advocating for Greek-Indian business cooperation.

Facts and Data:

- Historic visit of Indian Prime Minister Narendra Modi to Greece in August 2023.
- Collaboration between Indian and Greek businesses in various sectors, including construction, shipping, and finance.

Critical Analysis:

- The article underscores the significance of deeper collaboration between Greece and India in light of geopolitical challenges and economic opportunities.
- It highlights the need for accelerated efforts to overcome historical inertia and realize the full potential of the bilateral relationship.
- Emphasis on people-to-people ties reflects a holistic approach to strengthening cultural and educational exchanges alongside economic and strategic cooperation.

Way Forward:

- Both governments should prioritize the implementation of existing agreements and explore new avenues for cooperation.
- Continued engagement between businesses from both countries is crucial for diversifying and expanding partnerships.
- Investing in educational and cultural exchanges can foster mutual understanding and long-term cooperation.
- Regular high-level visits and dialogue mechanisms should be maintained to sustain momentum and address emerging challenges.

26. Review of National Ayush Mission (NAM)

The recent **Review of National Ayush Mission (NAM) in India** by a parliamentary committee aims to bolster the **AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-Rigpa, and Homoeopathy)** systems.

National Ayush Mission (NAM):

- The National Ayush Mission (NAM) is a Centrally Sponsored Scheme that aims to facilitate **medical pluralism** by integrating AYUSH facilities into **PHCs** (Primary Health Centres), **CHCs** (Community Health Centres), and **DHs** (District Hospitals) level, emphasizing **cost-effective services, quality education, drug control, and raw material availability.**

- It was initiated in **2014** under the **Ministry of Ayush**.
- The funding model differs, offers a **60:40 Centre:State** split for North Eastern, Himalayan States, and UTs (excluding Jammu & Kashmir), and **90:10 for other states**.

Challenges faced by NAM:

- **69%** of **integrated Ayush hospitals** are **incomplete**.
- Delays in **State Annual Action Plan (SAAP)** finalization, multifaceted roles of the **NAM Directorate**, reliance on **National Health Mission** funds for salaries.
- There are issues with **raw material quality and supply**, and the **inefficient distribution of resources and workforce**.
- The slower healing nature of AYUSH treatments compared to allopathic medicine also hampers its adoption.

Key recommendations by the report:

- Government shall foster collaboration between the **Ayush Ministry and the Union Ministry of Health**, integrating **AYUSH into school curricula**, emphasizing research on AYUSH's efficacy for chronic conditions.
- Government shall promote shared knowledge in **medical colleges**, implementing **strict GMP and GAP** for Ayush products, encouraging **private insurance coverage** for AYUSH treatments like **Panchakarma.**
- Government shall extend the scheme's duration **beyond 2026** for at least another 5 years.

27. Panchayats as Self-governing Institutions

Three decades have passed since the 73rd and 74th Constitutional Amendments Acts came into effect, which envisaged that local bodies in India would function as institutions of local self-government.

How panchayat raj generate revenues?

- **Article 280-** Grants from the Union Government based on recommendations of the Central Finance Commission as Article 280 of the Constitution.
- **Article 243-I-** Devolution from the State Government based on recommendations of the State Finance Commission.
- Loans and grants from the State Government.

- Programme-specific allocation under Centrally Sponsored Schemes and Additional Central Assistance.
- Internal resource generation such as tax and non-tax collection.

What are the challenges associated with devolution of finances?

- **Lack of fiscal empowerment**- States have not given adequate attention to fiscal empowerment of the panchayats, as they have own tight fiscal position.
- **Lack of adequate devolution**- Many States have not taken adequate steps to devolve 3Fs (i.e., functions, funds and functionaries) to the PRIs to enable them to discharge their constitutionally stipulated function.
- **Fiscal disparity**-There is a disparities in the tax collection and revenue sharing among the three tiers of panchayats (gram, intermediate and district)
- **Poor internal resource generation**- It is weak due to thin tax domain due to panchayat's own reluctance in collecting revenue.
- **Heavy dependency**- -As per a data panchayat earns only 1% of revenue with 80% of revenue from Centre and 15% from States.
- **Limited power**- A major portion of the grants both from Centre and State is scheme specific, hence panchayat have limited discretion and flexibility in incurring expenditure.
- **Limited implementation**- State government is responsible for implementation of programs in the most of the critical 11th Schedule matters like primary education, healthcare, water supply etc.,
- **Lack of authority**- The gram panchayats lack the authority to collect taxes, while in numerous others, intermediate and district panchayats are not delegated the responsibility of tax collection.
- **Lack of incentivisation**- Panchayats do not have a strong incentive or mechanism to collect revenue from the defaulters, who fail to pay their taxes or dues to the panchayats.

What lies ahead?

- There is a need to demarcate the own source of revenue for the entire three-tier panchayats and minimise the dependency on grants to ensure equitable sharing.
- There is a need to educate elected representatives and the public on the significance of raising revenue to develop panchayats as self-governing institutions
- Ministry of Panchayati Raj has recommended to cover income from rural business hubs, innovative commercial ventures, renewable energy projects, carbon credits.

28. Challenges with Interpol Notices

Recently concerns have been raised about the misuse of Interpol's notice system, especially the issuance of blue corner notices, which are less scrutinised than their red corner notices.

Interpol notice system

- **Interpol Notices**- They are international requests for cooperation or alerts allowing police in member countries to share critical crime-related information.
- **Issue-** The notices are generally issued by the General Secretariat at the request of a member country's INTERPOL National Central Bureau and are made available for all our member countries to consult in our Notices database.

- Notices can also be issued at the request of International Criminal Tribunals and the International Criminal Court to seek persons wanted for committing crimes within their jurisdiction, notably genocide, war crimes, and crimes against humanity.
- **Request**- They can also be issued at the request of the United Nations in relation to the implementation of sanctions imposed by the Security Council.
- **Availability**- Most Notices are for police use only and are not available to the public. However, an extract of the Notice can be published on this site if the requesting country wishes to alert the public or seek their help.

All United Nations Special Notices are public.

- **Misuse-** The notice system especially blue notice is susceptible to misuse by targeting political refugees and dissidents.
- **Political character**- Allegations of misuse directed at countries like Russia, China, Iran, Turkey, and Tunisia for targeting political dissidents and opponents.
- **Limited publication** - Turkey criticized Interpol for not publishing certain red notices which hampers police cooperation.
- **Issue with blue notice**- It is less likely to be reviewed before publication which doubled the number over the past decade.

29. 4 Portals for Modernized Media Landscape

- Minister of Information and Broadcasting unveiled four groundbreaking portals poised to reshape India's media landscape, promising efficiency, transparency, and accessibility.

[1] Press Sewa Portal:

- **Objective**: The Press Sewa Portal is designed to streamline the process of newspaper registration and related **activities under the Press and Registration of Periodicals Act, 2023 (PRP Act, 2023)**.
- **Key Features**:
  - o **Online Application**: Publishers can submit applications for title registration online, utilizing Aadhar-based e-signatures for authentication.
  - o **Probability Meter**: Indicates the likelihood of title availability, offering publishers insight into the registration process.
  - o **Real-time Tracking**: Allows users to track the status of their applications through an intuitive dashboard, facilitating transparency and efficiency.
  - o **District Magistrate Module**: Enables District Magistrates to manage applications received from publishers in a centralized dashboard.
- **Benefits of Automation**: The portal offers online services for title registration, paperless processes with e-sign facilities, integration of a direct payment gateway, issuance of QR code-based digital certificates, and a module for Press Keepers/owners to provide online intimation about printing press activities.
- **Impact**: Simplifies the cumbersome registration procedures prevalent under the colonial PRB Act, 1867, and modernizes the registration landscape for publishers, enhancing efficiency and transparency.

[2] Transparent Empanelment Media Planning and eBilling System:

- **Objective**: This system aims to revolutionize media planning processes, enhance transparency, and provide an end-to-end ERP solution for the media industry, particularly for the Central Bureau of Communication (CBC).
- **Key Features**:
  - o **Streamlined Empanelment Process**: Offers an online system for empanelment of various media channels (newspapers, periodicals, TV, radio, and digital media), ensuring transparency and efficiency.
  - o **Automated Media Planning**: Enhances tools and features for online generation of media plans, reducing manual intervention and preparation time.
  - o **Automated Billing**: Integration of an eBilling processing system for seamless and transparent bill submission, verification, and payment.
  - o **Mobile App**: Provides a comprehensive mobile app for partners with timestamp and geo-tagging functionality for organized monitoring.
- **Promoting Ease of Doing Business**: Facilitates faster empanelment, a hassle-free business environment, automated compliance, and swifter payment

processing, thereby enhancing the ease of doing business in the media industry.

- **Reliable Solution**: The portal is integrated with the latest technology to generate real-time analytical reports, enabling data-driven decisions and efficient media planning.

[3] NaViGate Bharat Portal:

- **Objective**: The NaViGate Bharat portal serves as the **National Video Gateway of Bharat**, offering a unified bilingual platform for hosting videos on government's development initiatives and welfare-oriented measures.
- **Key Features**:
  o **Dedicated Pages**: Offers dedicated pages for ministries, sectors, schemes, and campaigns, providing detailed descriptions and advanced search functionalities.
  o **Easy Navigation & Search**: Provides easy access for users to find relevant videos through categorization, tagging, and advanced search functionalities.
  o **Seamless Video Playback & Streaming**: Enables seamless video playback and streaming for a user-friendly viewing experience.
  o **Download & Sharing Options**: Allows users to download and share videos through social media platforms, promoting widespread dissemination of information.
- **Empowering Citizens**: Empowers citizens by providing a single platform for accessing authentic government videos, fostering transparency, and promoting awareness about government initiatives.
- **Comprehensive Coverage**: Offers comprehensive coverage of government schemes, initiatives, and campaigns, ensuring that no one is left behind in understanding the initiatives shaping the nation's future.

[4] National Register for LCOs:

- **Objective**: The National Register for Local Cable Operators (LCOs) aims to centralize the registration process for LCOs, bringing them under a centralized registration system.
- **Key Features**:
  o **Web Form**: A web form is designed to collect information from local cable operators for the purpose of the National Register.
  o **Online Publication**: The National Register for LCOs is published online and regularly updated, offering a more organized approach to cable sector registration.

- **Impact**: Promises a more organized cable sector with a National Registration Number for LCOs, facilitating the formulation of new policies for responsible service and convenience for cable operators.
- **Aligning with Vision**: The initiative aligns with India's vision of a developed and organized cable sector, contributing to the countries overall development and welfare.

30. Are INTERPOL Blue Corner Notices being Politically Exploited?

- Interpol facilitates global law enforcement cooperation against transnational crimes.
- Concerns arise over the misuse of Interpol notices, especially blue corner notices, raising issues about balancing police cooperation and preventing abuse of power.

Blue Corner Notice

- **Types of Notices**: Interpol issues seven types of notices, including Blue Notice.
- **Purpose**: Blue corner notice, also known as an "enquiry notice," facilitates sharing critical crime-related information, including criminal records verification and locating individuals.
- **Example**: In January 2020, Interpol issued a blue corner notice to locate fugitive Nithyananda, a self-styled godman.

Distinguishing Blue from Red Corner Notice

- **Red Corner Notice**: It is issued by a member state for the arrest of a wanted criminal, often following criminal convictions, allowing arrests in any member state.
- **Difference**: Blue notices precede criminal charges, while red notices typically follow convictions. Red notices enable arrests and other consequences like bank account closures, while blue notices facilitate information exchange.

Examples of Notice Issuance

- **Red Corner Notice**: In 2018, a red corner notice was issued against Nirav Modi for the Punjab National Bank scam.
- **Interpol's Decision**: However, in October 2022, Interpol rejected India's request for a red notice against Gurpatwant Singh Pannun, citing insufficient information and political dimensions.

Concerns of Misuse

- **Political Misuse**: Despite Interpol's prohibition on political activities, concerns persist regarding its enforcement.
- **Instances**: Russia, China, Iran, Turkey, and Tunisia face accusations of abusing Interpol notices for political purposes.
- **Criticism**: While Interpol tightened oversight of red notices, vulnerabilities remain, especially with blue notices, which experts suggest are less scrutinized before publication.

Debates on Notice Issuance

- **Turkey's Argument**: Countries like Turkey argue against excessive restraint in notice issuance, citing hampered police cooperation and sovereignty concerns.
- **Global Response**: International human rights groups call for stricter enforcement of Interpol's rules to prevent authoritarian exploitation.

31. Provisions of the surrogacy act

The Union government has amended the Surrogacy (Regulation) Rules, 2022, allowing couples facing medical conditions to use donor gametes in surrogacy procedures. Additionally, single women (widow or divorcee) undergoing surrogacy are now permitted to use self-eggs and donor sperm. This amendment follows petitions and scrutiny from the Supreme Court regarding the restrictions on donor gametes in surrogacy.

Issues

- Restrictions on Donor Gametes: Previous rules mandated that both gametes in surrogacy procedures must come from the intending couple, posing challenges for couples facing medical conditions.
- Supreme Court Scrutiny: The Supreme Court received petitions questioning the restrictions on donor gametes and urged the Centre to reconsider its stance on surrogacy regulations.
- Patient Rights: Concerns were raised about the impact of restrictive regulations on the fundamental rights of patients undergoing surrogacy and their access to assisted reproductive technologies.

Significance

- Medical Flexibility: The amendment allows couples facing medical conditions to use donor gametes, providing them with more options for surrogacy and addressing their specific medical needs.

- Gender Inclusivity: Single women, including widows and divorcees, can now undergo surrogacy procedures using self-eggs and donor sperm, promoting gender inclusivity in assisted reproductive technologies.
- Legal Clarity: The amendment clarifies surrogacy regulations and aligns them with evolving medical practices and patient rights, providing a legal framework that safeguards the interests of all parties involved.

Solutions

- Flexibility in Surrogacy Regulations: Continuously review and update surrogacy regulations to accommodate advancements in medical technology and address the diverse needs of intending parents.
- Consultation and Stakeholder Engagement: Engage with medical professionals, legal experts, and stakeholders to ensure that surrogacy regulations strike a balance between patient rights, ethical considerations, and legal requirements.
- Awareness and Education: Promote awareness about surrogacy regulations, rights of intending parents, and ethical considerations among the public, healthcare providers, and legal professionals to facilitate informed decision-making.

32. Importance of the NB8 visit to India

The visit of the Nordic-Baltic (NB8) delegation to India underscores the importance of cooperation and trust amidst global turmoil and conflict. Representing eight countries, the delegation emphasizes the need for dialogue, cooperation, and adherence to international law to defend peace, stability, and the rules-based world order.

Issues

- Global Cooperation: Amidst geopolitical shifts and challenges, cooperation among nations is essential for addressing shared concerns.
- Security Interdependence: The security of the Nordic-Baltic region and the Indo-Pacific are interconnected, necessitating collaborative efforts to tackle traditional and non-traditional security threats.
- Impact of Conflict: Russia's war against Ukraine has significant repercussions on global food and energy security, supply chains, stability, and growth, underscoring the need for collective action.

Significance

- Common Values: The NB8 countries share a commitment to democracy, human rights, and multilateralism, fostering a productive partnership with India based on shared values.
- Diverse Cooperation: Collaboration between India and the NB8 spans various fields including innovation, green transition, maritime, health, technology, culture, and trade, contributing to common goals.
- Global Leadership: India's increasing role in international politics, exemplified by its G-20 presidency, is crucial for addressing global challenges and promoting security and prosperity.

Solutions

- Enhanced Cooperation: Strengthening cooperation between India and the NB8 on positive agendas such as development, health, green transition, and peace can yield tangible benefits for both regions.
- Upholding International Law: Upholding international law and principles such as territorial integrity and sovereignty is imperative in addressing conflicts and promoting stability.
- Support for Peace Efforts: Supporting Ukraine's diplomatic efforts for peace, based on international law and justice, is essential for resolving conflicts and restoring stability in the region.

33. 2 years of Russia-Ukraine War

February 24, 2024 marks second year of Russia-Ukraine war which started in 2022.

How the war evolved in 2 years?

- **Russia invasion-** It attacked Ukraine from 3 direction the **south** (from Crimea and the Black Sea), the **east** (from the Donbass region and the border), and the **north** (from Belarus and the border).
- **Ukraine resistance-** Ukraine fought back against the Russian invasion, but faced a huge disadvantage in terms of military strength, resources, and allies.
- **Russian advance-** It captured key cities and ports such as Mariupol, Kherson, and Zaporizhzhia and imposed naval blockade on Ukraine cutting off its access to the Black Sea and the global market.
- **Black sea Grain initiative-** It is a UN brokered deal signed by Russia, Ukraine and Turkey to allow allow the safe transportation of grain and foodstuffs from Ukrainian ports to the rest of the world
- **Zaporizhzhia nuclear plant-** It is situated in Ukraine, both Russia and Ukraine have accused each other of shelling Europe's largest nuclear power plant.

Ukraine launched its first counter-offensive attack against Russian invasion focusing on Kharkiv region

- **Sabotage of Nord Stream pipeline-** It is a network of offshore natural gas pipelines that run under the Baltic Sea from Russia to Germany. The sabotage was widely blamed on Ukrainian nationalists, who claimed responsibility for the attack.
- **Kerch Strait bridge-** It was seen as a symbol of Russia's control over Crimea, it was damaged by a large explosion which caused parts of road bridge to collapse but Ukraine denied any involvement.
- **Ukraine gains-** Ukraine managed to regain some grounds in Kharkiv and recaptured Kerson , a startegic city in Black Sea coast.
- **The Battle of Bakhmut-** It is a city in the Donetsk region, it resulted in more number of casualties on both sides.
- **Wagner group rebellion-** In 2023, Ukraine launched a counteroffensive operation but faced a challenge from Wagner group, a Russian-backed private military company that had been fighting in Ukraine since 2014.
- **Adviivka-** Recently Russia captured the town Avdiivka, near Donetsk which was the largest territorial gain for Russia.

What are the impacts of the war?

- **Humanitarian crisis-** As per UN 6.5 million civilians are internally displaced and 4 million have forced to flee to neighbouring countries.
- **Geopolitical change-** The war has challenged the transatlantic system, UN and it also challenged the security and stability of Europe.
- **Impact on bilateral relations-** It has affected the relations between Russia and other countries such as China, India, Turkey and Iran.
- **Impact on economy-** The war has disrupted the global supply chains of energy, agriculture, and manufacturing, leading to higher prices and shortages in some regions.
- **Strengthening of NATO-** Due to Russia's actions, new countries like Finland and Sweden have joined NATO.

What lies ahead?

- Russia does not aim to conquer all of Ukraine, but rather to achieve its strategic and political objectives, such as weakening Ukraine's sovereignty, securing its military and economic interests, and challenging the US and NATO influence in the region.
- Ukraine has defended its territory and sovereignty, but has faced difficulties and uncertainties in securing sufficient and continued support from the West.

- Ukraine wants to restore its borders and integrity, while Russia wants to keep its occupied territories and ensure Ukraine's neutrality.
- The incompatible peace talks between Russia and Ukraine would only further escalate the issue in ongoing war between the two countries.

34. Can the IMEC address the Red Sea crisis?

IMEC as an alternative route of the Red Sea in the backdrop of the Red Sea crisis

- The Red Sea crisis has persisted for four months, disrupting global supply chains.
- Issues include inflated freights, delayed vessel schedules, and product shortages.
- The crisis underscores the vulnerability of global supply chains and the need to explore alternate trade routes.

Importance of the Red Sea Route:

- The Bab el-Mandab Strait, located between Yemen and Djibouti, is crucial for global trade.
- Nearly 12% of international merchandise trade passes through this route.
- The conflict has forced the re-routing of shipments via the Cape of Good Hope, leading to increased costs and delays.
- Higher shipping costs will likely result in increased commodity prices for consumers.

Impact on India:

- India's trade with Europe and North Africa heavily relies on the Red Sea route, constituting 24% of exports and 14% of imports.
- Rising threats have caused Indian exporters to withhold around 25% of cargo ships transitioning through the Red Sea.
- Fear among traders has led to a drop in Indian shipments, affecting bilateral trade with Europe and North Africa.

Alternative Routes and China's Involvement:

- China is promoting its China-Europe freight trains, part of the Belt and Road Initiative, as an alternative route.
- The India-Middle East-Europe Economic Corridor (IMEC) offers another alternative but lacks attention and investment.
- Challenges include the Israel-Palestine conflict, the vulnerability of the Strait of Hormuz, and the need for development in Oman to bypass Iran's control.

Making IMEC Viable:

- Conduct empirical studies to quantify the economic benefits of the corridor, such as reduced journey time and transit costs.
- Establish a robust financial framework to attract investments from governments, international organizations, and the private sector.
- Develop a comprehensive multi-national operational framework to navigate trade across different legal systems.
- Formulate a forum dedicated to the IMEC to coordinate activities and address challenges.

35. Mission Basundhara 4.0

Assam Chief Minister recently unveiled **Mission Basundhara 4.0**, aiming to revolutionize land management and address issues in **char areas**.

Mission Basundhara 4.0:

- The Mission Basundhara aims at transforming land management in Assam through systematic **surveys** and **settlements**.

Previous Missions:

- **Basundhara 1.0:** Initiated in 2022, it provided **10** land-related services and resolved **8 lakh** cases.
- **Basundhara 2.0:** Launched in 2022, it focussed on indigenous land rights, and settled over **13 lakh** applications.
- **Basundhara 3.0**: It was a comprehensive land management approach that has reserved revenue villages with **100% ST** and **SC** population and addressing the issue of land rights of tea garden communities and Adivasis.
  - It provided land rights to **organizations** and **cooperative societies** that meets certain criteria.

Features of Mission Basundhara 4.0:

- It aims to combat **motobhari rule** and ensure **proper habitation**.
- It focuses on surveying land within **char areas**.
  - **Char** is a tract of **land** surrounded by the waters of an ocean, sea, lake, or stream.
- It will help establishing a modern land revenue system within **5 years**.
- It will implement **National Generic Document Registration System (NGDRS)** in selected districts, which is a new service for digital geospatial maps.

GS 3 : Economy, Science and Technology, Environment

1. Hybrid Vehicle vs Electric Vehicle

The HSBC Global Research report suggests that hybrid vehicles are a practical medium-term solution for India's decarbonisation drive as the country moves toward eventual electrification.

Major findings of the report

- **Less polluting**- The total carbon emission from Well to Wheel from an EV is currently 158 g/km and 133 g/km for hybrid. Hybrid vehicles are 16% less polluting than EVs.

Total emissions include both vehicle emissions- tank to wheel (TTW) and crude mining/refining emissions and power generation emissions -- well to tank.

- **Emissions-** In the case of EVs, only the power generation emissions have been incorporated and not coal production emissions, which would have skewed the equation further in favour of hybrids.
- By 2030, even if India's share of non-fossil fuel is 40%, hybrids will release 8% fewer emissions than EVs, down from 16% today.
- It may take **7-10 years** for EV and hybrid emissions to converge hence India needs to embrace hybrids over the next 5-10 years as a credible and practical roadmap to full electrification.

What are the issues with battery electric vehicles?

- **Upfront subsidy**- India's subsidies and tax breaks are targeted at the high-end EV segment, which is dominated by affluent buyers who can afford the upfront cost of EVs without much financial support
- **Charging network**- Norway and China have invested heavily in public charging stations, while India lags behind with only 2,000 stations for over 1 million EVs.

World Bank analysis shows that charging infrastructure is more effective than purchase subsidies in boosting EV demand.

- **Unique challenge**- India requires different charging standards and voltages for two, three and four wheelers.

- **Electricity source**- Norway has 99% hydroelectric power but in India, the grid is still fed largely by coal-fired thermal plants.
- **Value chain**- India's demand for Li-ion batteries is expected to grow rapidly, but the country lacks domestic sources of lithium and other critical metals.

2. Biofuel Demand to surge 30% in 5 years

A recent report released by the **International Energy Agency (IEA)** projects a 30% increase in global biofuel demand by 2028, driven by emerging economies.

Key Highlights of the IEA Report:

- The **International Energy Agency (IEA)** projects a 30% increase in global **biofuel** demand over the next five years, totaling an additional 38 billion liters **by 2028.**
- This significant shift in this market underscores the **evolving patterns of energy consumption** and the increasing importance of renewable energy sources.

Emerging economies:

- The **total biofuel demand** is set to rise by 23% to 200 billion liters by 2028, especially for emerging economies like India, Indonesia, and Brazil.
- **Renewable diesel and ethanol** account for two-thirds of this growth, while biodiesel and **bio-jet fuel** make up the remaining one-third.
- This is due to robust biofuel **policies, growing transport fuel demand,** and significant **feedstock potential** in these economies.
- **Key contributors** include Brazil's goal to increase **ethanol blending** and India's support for ethanol expansion through blending targets.
- Over **60% of the global biofuel demand** and production growth is expected to occur in **Brazil, Indonesia, India, and Malaysia.**
- Despite the promising growth prospects, **challenges** like higher costs of biofuels compared to fossil fuels are a concern.
- **Indonesia, Malaysia, and India** have implemented **direct fuel subsidies** to reduce the cost impact on consumers and businesses.

Advanced Economies:

- Economies in the European Union, the United States, Canada, and Japan, face **constraints in volume growth** due to various factors.

- These include the increasing adoption of **electric vehicles**, improvements in **vehicle efficiency**, and the **high costs** and **technical limitations** associated with biofuels.
- Key drivers in the US include the **Inflation Reduction Act (IRA),** state-level low-carbon fuel standards, and **Renewable Fuel Standard (RFS)** blending obligations.
- Europe has approved the **Renewable Energy Directive (RED III),** aiming to double renewable energy shares by 2030.
- If the existing policies are strengthened and biofuel demand expands in new markets, the **demand growth could nearly triple.**
- Renewable diesel and bio-jet fuel consumption can be increased by 18 billion liters, with the United States and Europe accounting **for nearly 80%.**

Electric vehicles:

- The report emphasizes the growing role of electric vehicles in reducing oil demand, especially in the **United States, Europe, and China.**
- By 2028, electric vehicles using renewable electricity could **avoid 1.3 million barrels of oil** equivalent per day of oil consumption, equivalent to the **impact of biofuels.**

About Biofuels:

- Biofuels are **renewable energy sources** derived from organic materials, offering an alternative to traditional fossil fuels.
- They are **biodegradable and inexhaustible fuels**, considered pure and the most readily available fuels on Earth.
- They play a crucial role in mitigating climate change by reducing **greenhouse gas (GHG) emissions.**

Types of Biofuels:

- **First-generation:** Derived from food crops like corn, sugarcane, and vegetable oils, these include bioethanol and biodiesel.
- **Second-generation**: Made from non-food crops, agricultural residues, and waste, are more sustainable. Example- cellulosic ethanol and biomass-based diesel.
- **Third-Generation:** Focus on algae and other feedstocks with high oil content, for improved efficiency and reduced environmental impact.
- **Fourth generation:** They are the amalgamation of genomically prepared microorganisms and genetically engineered feedstock. Example- Biohydrogen

Important Biofuels:

- **Bioethanol:** Produced from fermenting sugars in crops like corn or sugarcane, bioethanol is a widely used and environmentally friendly alternative to gasoline.
- **Biodiesel:** Made from vegetable oils or animal fats through a process called transesterification, biodiesel is a renewable substitute for traditional diesel.
- **Bio jet Fuel:** Derived from biomass, algae, or waste oils, biojet fuels offer a sustainable alternative for aviation, reducing carbon emissions.

3. Nano DAP Fertilizers

During Interim Budget 2024 the Central government announced the expansion of the application of Nano DAP on various crops in all agro climatic zones.

Significance of Nano DAP

- **Alternative-** In 2021 IFCCO, launched Nano urea in liquid form as an alternative to conventional urea.

In 2023 IFFCO launched liquid nano di-ammonia phosphate (DAP), the first in the world.

- **Sustainable solution-** In the agriculture sector, Nano DAP is a sustainable option for farmers towards smart agriculture and to combat climate change.
- **Efficiency-** Nano tiny particle enables fertiliser to enter easily inside the seed surface or through stomata and other plant openings.
- **Better assimilation-** Nano clusters are functionalized with bio-polymers and other excipients which leads to higher seed vigour, more chlorophyll, and photosynthetic efficiency.
- **Increase in quality-** Nano DAP will provide much better quality, reduces input cost and increase in crop yields.
- **Precision farming-** Nano DAP through targeted application can help fulfill the nutritional requirement of crops without harming the environment.
- **Impact on soil-** It has reduced impact on soil and improve the fertility of the land, the farmers can increase the number of earthworms on the land.
- **Reduce subsidy burden-** It will lead to a reduction in imports as well as the government's fertiliser subsidy bill.

4. Interim Budget mentions Blue Economy 2.0

- The Interim Budget presented by Finance Minister underscores the importance of promoting an environment-friendly 'blue economy' for sustainable development.

Understanding Blue Economy

- **Definition**: The blue economy encompasses economic activities related to oceans, seas, and coastal regions, with a strong emphasis on sustainability.
- **Global Perspective**: The European Commission defines it as a wide range of established and emerging sectors linked to ocean resources, while the World Bank emphasizes the sustainable use of ocean resources for economic growth and livelihoods.

Significance for India

- **India's Coastal Abundance**: With its extensive coastline, diverse marine resources, and tourism potential, India stands to benefit significantly from the blue economy.
- **Balancing Growth**: The blue economy seeks to achieve economic growth while preserving the health of ocean ecosystems.

Budget Proposals

- **Restoration and Adaptation**: A scheme focusing on climate-resilient activities, restoration, adaptation measures, and integrated coastal aquaculture and mariculture will be launched.
- **Integrated Aquaparks**: The budget outlines plans for setting up five integrated aquaparks to boost aquaculture productivity.
- **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**: PMMSY will be intensified to double exports to Rs 1 lakh crore and generate 55 lakh employment opportunities.

India's Blue Economy Policy

- **Blue Economy 2.0**: The budget introduces the concept of Blue Economy 2.0, building upon a draft policy framework released in July 2022.
- **Policy Framework**: The framework encompasses various aspects such as marine resources, coastal planning, tourism, fisheries, aquaculture, trade, technology, infrastructure, and international engagement.

Global Engagement

- **G20 Summit**: India, as the host of the G20 summit, prioritized blue economy discussions, emphasizing its significance on the global stage.
- **Responsibility and Collaboration**: India recognizes the importance of responsible artificial intelligence and sustainable ocean governance in the context of the blue economy.

Conclusion

- India's commitment to promoting the blue economy aligns with global efforts for sustainable development.
- The Interim Budget's proposals aim to harness the potential of India's coastal resources while preserving the marine ecosystem, fostering economic growth, and creating employment opportunities.
- This strategic shift underscores India's dedication to responsible and inclusive development.

5. KYC issues, money laundering concerns said to have led to RBI order on Paytm's bank

The Reserve Bank of India's (RBI) recent directive to Paytm Payments Bank Ltd. (PPBL) to cease new business transactions and settle pipeline transactions by specific dates has been linked to significant irregularities in the bank's compliance with Know Your Customer (KYC) norms. The revelation of missing KYC details, PAN validation failures, and potential money laundering concerns has raised alarm among regulators and stakeholders.

Issues

- **Missing KYC Details:** Supervisors and auditors discovered a large number of customers with missing KYC details, posing a serious risk to customer security and regulatory compliance.
- **PAN Validation Failures:** Lakhs of accounts faced PAN validation failures, with instances of a single PAN linked to multiple customers, indicating lapses in identity verification processes.
- **Money Laundering Concerns:** The bank was found facilitating transactions beyond regulatory limits in prepaid instruments with minimal KYC requirements, raising significant concerns related to money laundering.
- **Use of Dormant Accounts:** Unusually high numbers of dormant accounts were allegedly utilized as 'mule accounts' to facilitate transactions, adding another layer of regulatory concern.
- **Non-Compliance with 'Arm's Length Policy':** Accusations point to the bank not adhering to the 'arm's length policy' while dealing with Promoter Group

Entities, resulting in co-mingling of financial and non-financial business in violation of licensing conditions and RBI directions.

- **Operational Segregation Issues:** Auditors found a lack of operational segregation, with the bank heavily relying on the IT infrastructure of One97 Communications Ltd. (OCL), the listed parent entity, leading to concerns about data privacy and sharing.
- **False Compliance Details:** Instances were reported where compliance details submitted by the bank were found to be false upon verification by RBI supervisors, indicating a breach of regulatory standards.

Way Forward

- **Swift KYC Rectification:** Initiate a comprehensive and expedited process to rectify missing KYC details, ensuring regulatory compliance and customer security.
- **Enhanced PAN Validation Processes:** Strengthen PAN validation processes to prevent failures and ensure accurate identity verification for all customers.
- **Robust Anti-Money Laundering Measures:** Implement stringent anti-money laundering measures to address concerns regarding transactions beyond regulatory limits.
- **Operational Segregation:** Establish clear operational segregation, reducing reliance on the IT infrastructure of OCL and ensuring independent and secure operations.
- **Transparent Compliance Reporting:** Enhance transparency in compliance reporting, avoiding false submissions and ensuring accuracy in regulatory disclosures.

6. A sunshine initiative

- Finance Minister Nirmala Sitharaman announced a plan to provide power to one crore households through rooftop solar panels in the interim Budget.
- The goal is to help households save ₹15,000 annually, particularly targeting those with a monthly electricity consumption of less than 300 units.

Subsidy and Financing Structure:

- Households meeting the criteria can install a mid-sized solar system (1-2 kilowatt) with the government covering the expenses.
- The current subsidy for rooftop solar systems is 40%, and under the proposed policy, it will increase to 60%. The remaining cost will be financed by a

private developer affiliated with a public sector enterprise linked to the Power Ministry.

Mechanism for Quality Assurance and Service Reliability:

- The proposed policy aims to ensure quality installation and reliable service by involving private developers connected to the Power Ministry.
- The introduction of 'net-metering' allows households to sell surplus electricity back to the grid, helping to offset the loan.

Central Government's Role vs. State Discoms:

- A significant shift from previous policies is that the central government, rather than State power distribution companies (discoms), will be leading the solarization initiative.
- The move is crucial as many discoms, facing financial challenges, have shown little incentive to transition high-consumption customers to decentralized solutions like rooftop solar.

Conclusion and Considerations for Success:

- It is being emphasized the importance of involving households in the move towards decarbonized power.
- Despite the positive initiative, there's a need to ensure flexibility and accommodation to States to address challenges and increase the success rate of the program.

7. Panchayats earn only 1% of their revenue through taxes

Introduction: Revenue Composition of Panchayats

- Only 1% of panchayats' revenue is generated through taxes, with the majority sourced from grants provided by the Centre and States.
- Specifically, 80% of the revenue comes from Central government grants, while 15% is derived from State government grants.
- Panchayats operate at three levels: gram sabhas, panchayat samithis, and zila parishads, with responsibilities ranging from agriculture to healthcare.

Challenges and Interference:

- Due to heavy reliance on external funding, panchayats often face interference from higher tiers of the government system.

- Instances of protests by panchayat heads, use of private funds, and delays in fund disbursement by State governments highlight the challenges faced by these local bodies.

RBI's Recommendations for Decentralization:

- The Reserve Bank of India's 2022-23 report on Panchayati Raj Institutions suggests promoting greater decentralization to empower local leaders and officials.
- The report emphasizes the need for reducing dependence on Central and State funds to enhance the autonomy of panchayats.

Revenue Breakdown for 2022-23:

- In the fiscal year 2022-23, panchayats recorded a total revenue of ₹35,354 crore.
- Only 737 crore was generated through taxes, while ₹1,494 crore came from non-tax revenue. The bulk of the revenue (₹32,847 crore) was obtained through grants from the Central and State governments.

Regional Disparities and State-wise Analysis:

- Wide variations exist among states in terms of average revenue earned per panchayat.
- Kerala and West Bengal lead with over ₹60 lakh and ₹57 lakh average revenue per panchayat, respectively.
- Some states, like Andhra Pradesh and Haryana, show low average revenues, forming only a minuscule share of the respective State's revenue.

8. C-bot

The **C-bot** was recently launched by the Goa-based **CSIR-National Institute of Oceanography (NIO)**.

C-bot:

- The C-bot is an **autonomous underwater vehicle** that will aid in monitoring **coral reefs**, and will provide insights into **coral bleaching** causes related to climate change.

Key Features of C-bot:

- It can reach a depth of **200 meters**, with plans for further development to explore **thousands of meters** into the sea.

- It is equipped with **various sensors** and **cameras** to measure underwater parameters and conditions.
- It will assist in **bathymetry studies** for the Indian Navy, and will aid in plotting navigation channel and exploration of **hydrothermal vents**.
  - **Bathymetry** is the study of the "**beds**" or "**floors**" of water bodies, including the ocean, rivers, streams, and lakes.
  - **Hydrothermal vents** are **fissures** on the **seabed** from which **geothermally heated** water discharges.
- It will explore active hydrothermal vents, which release significant elements into the ocean and support unique biological ecosystems in extreme temperatures up to **400-500⁰C**.
- It is capable of sending **real-time data** and **photographs** to support ongoing research efforts.

9. Organoid neural network

Recently, researchers connected a brain organoid to microelectrodes to create an '**organoid neural network'**.

- Their invention extends neuromorphic computing – the practice of modelling computers after the human brain to a new level by directly including brain tissue in a computer.

Organoid neural network:-

- It is an innovative **computing system that melds brain-like tissue with electronics.**
- It is also called
- Brainoware **integrates brain organoids with microelectrodes**, forming an 'organoid neural network (ONN)' that **directly incorporates living brain tissue into the computing process.**
- Brain organoids are **similar to the brain's cell composition and structure**, and can reflect the brain's developmental process.

Advantages:-

- It has ability to **predict complex mathematical functions** like the Henon map.
- The system could **identify Japanese vowels** pronounced by individuals with a 78% accuracy rate.
- It achieved **comparable accuracy to artificial neural networks** with minimal training requirements.

Challenges:-

- It **necessitates technical expertise and infrastructure.**
- The fusion of organoids and AI raises **ethical questions** about consciousness and dignity.

Applications:-

- To **learn faster and be more energy-efficient** than traditional silicon-based machines.
- To **address current limitations in Artificial intelligence**
- To enable advances in fields such as **medical science and treatment.**

10. Plastic Credit Bond (PCB)

The **World Bank and Citi** recently launched a **$100mn Plastic Credit Bond (PCB)** to fund plastics collection and recycling projects in **Ghana and Indonesia**.

Plastic Credit Bond (PCB):

- The bond is an **innovative financial fund** issued wherein the proceeds will fund plastics collection and recycling projects.
- It is also called **Principal-Protected Plastic Waste Reduction-Linked Bond** as it will fund plastic investors to **receive the principal back** at the end of the 7-year maturity.
- It is **guaranteed by the World Bank** alongside a minimum interest payment of 1.75%.
- The primary goal of this bond is to **mobilize private capital for projects** that yield financial returns and generate positive climate and development impacts.
- The repayments on the notes are partly determined by the **sale of plastic and carbon offset credits.**
- The success of the bond is **measured by** Plastic Waste Collection Credits, Plastic Waste Recycling Credits, and Verified Carbon Units.

Outcomes and Impacts of the Bonds:

- The funds generated through the bond would **enhance existing facilities**, establish new collection and recycling sites, and install state-of-the-art **food-grade recycling equipment.**
- The infusion of about $14 million in **up-front financing** would increase the capacity of these projects, ensuring a more robust infrastructure for effective **plastic waste management.**

- o **Up-front financing** refers to the provision of capital at the initial stages of a project, typically provided in advance to support immediate funding needs.
- The projects can **decrease plastic pollution**, and improve local pollution, and air quality.
- This creates **employment opportunities** in marginalized communities, fostering socio-economic development.
- It provides investors with a **promising financial return** and contributes to global efforts to **curb plastic leakage** into nature and oceans.

About the World Bank:

- World Bank is an **international financial organization** created in **1944**, as a global development cooperative owned by **189 nations.**
- It provides **loans, guarantees, risk management products, and advisory services** to middle-income and creditworthy countries for achieving **Sustainable Development Goals (SDGs).**
- It strives to end **extreme poverty, promote shared prosperity,** and provide leadership to coordinate regional and global responses to development challenges.
- The World Bank group consists of five institutions including International Development Association **(IDA)** and the International Bank for Reconstruction and Development **(IBRD).**

11. Wages of inequality: The income-growth gap

The article analyzes the recent interim Union budget in India, focusing on its macroeconomic policy objectives and the challenges facing the Indian economy. It discusses the government's efforts to reduce the debt-to-GDP ratio and stimulate GDP growth, particularly by prioritizing capital expenditure over revenue expenditure. However, it questions the effectiveness of these objectives in addressing India's developmental challenges, especially regarding employment generation and structural transformation.

Key Highlights:

- The budget presents a fiscally conservative approach with minimal increases in total expenditure, emphasizing capital expenditure over revenue expenditure.
- The government aims to reduce the debt-to-GDP ratio, primarily by limiting expenditure growth rates and increasing capital expenditure.

- The article raises concerns about the adequacy of these objectives in addressing India's developmental challenges, particularly the need for employment generation and structural transformation.
- It highlights the stagnation in regular wages and the dominance of self-employment, indicating a worsening income distribution and weak improvements in welfare.

Key Challenges:

- Balancing fiscal consolidation with the need for increased government expenditure to address developmental challenges.
- Promoting structural transformation to shift workers from self-employment to modern sectors.
- Achieving inclusive growth that benefits all sections of society, especially marginalized groups.
- Enhancing the effectiveness of government spending to stimulate economic growth and employment generation.

Key Terms:

- Debt-to-GDP ratio: The ratio of a country's total debt to its gross domestic product, indicating its ability to repay debt.
- Capital expenditure: Spending on acquiring or maintaining physical assets such as infrastructure, machinery, and buildings.
- Revenue expenditure: Day-to-day spending on government operations and services, including salaries, pensions, and subsidies.
- Primary deficit: The fiscal deficit excluding interest payments on government debt.
- Structural transformation: The process of shifting resources, including labor, from traditional sectors like agriculture to modern sectors such as manufacturing and services.

Key Phrases:

- Fiscally conservative approach
- Debt stability
- Structural change
- Employment generation
- Inclusive growth

Key Quotes:

- "The budget reflects a fiscally conservative approach with minimal increases in total expenditure."

- "The government aims to reduce the debt-to-GDP ratio, primarily by limiting expenditure growth rates and increasing capital expenditure."
- "The dominance of self-employment indicates a worsening income distribution and weak improvements in welfare."

Key Examples and References:

- Comparison of expenditure growth rates and GDP growth rates to illustrate the government's strategy in reducing the debt-to-GDP ratio.
- Analysis of employment data to highlight the challenges of structural transformation and income distribution.

Key Facts and Data:

- Total budgeted expenditure, with minimal increase over the previous year.
- Debt-to-GDP ratio currently at a certain level, targeted to be reduced to another level.
- Stagnation in regular wages and dominance of self-employment in the workforce.
- GDP growth rates and expenditure growth rates used to analyze the effectiveness of fiscal policies.

Critical Analysis:

The article provides a critical assessment of the interim Union budget's macroeconomic policy objectives, highlighting potential shortcomings in addressing India's developmental challenges. It questions the effectiveness of targeting a specific debt-to-GDP ratio and emphasizes the need for broader strategies to promote inclusive growth and structural transformation.

Way Forward:

- Reevaluate fiscal policies to ensure a balance between debt reduction and addressing developmental challenges.
- Prioritize investments in infrastructure and human capital to stimulate economic growth and employment generation.
- Implement targeted interventions to support marginalized groups and promote equitable income distribution.
- Enhance monitoring and evaluation mechanisms to assess the impact of government spending on welfare and economic development.

12. <mark>**Tax-to-GDP ratio to hit all-time high of 11.7% of GDP in FY25**</mark>

- India's tax landscape is anticipated to witness significant growth in the coming fiscal year, with the tax-to-GDP ratio expected to reach a historic high of 11.7%.
- Revenue Secretary Sanjay Malhotra highlights the role of direct taxes in driving this uptick and emphasizes the government's commitment to streamlining the tax regime for enhanced efficiency and reduced disputes.

Why 'Tax-to-GDP' Ratio matters?

- The tax-to-GDP ratio measures a nation's tax revenue relative to the size of its economy.
- This ratio is used with other metrics to determine how well a nation's government directs its economic resources via taxation.
- Developed nations typically have higher tax-to-GDP ratios than developing nations.
- Higher tax revenues mean a country can spend more on improving infrastructure, health, and education—keys to the long-term prospects for a country's economy and people.
- According to the World Bank, tax revenues above 15% of a country's gross domestic product (GDP) are a key ingredient for economic growth and poverty reduction.

Forecasted Rise in Tax-to-GDP Ratio

- **Expected Surge**: India's tax-to-GDP ratio is projected to hit 11.7% in 2024-25, showcasing a steady increase from 11.6% in the preceding year and 11.2% in 2022-23.
- **Dominance of Direct Taxes**: The surge in the tax ratio is primarily attributed to the growth of direct taxes, which are deemed more equitable.

What led to this growth?

[A] Direct Tax Collection

- **Optimistic Outlook**: Revenue Secretary anticipates a rise in the adoption of the new tax regime, characterized by simplified tax structures and a higher tax-free income threshold.
- **Growth in Personal Income Tax**: Personal income tax collections have witnessed a substantial 28% growth, with a projected moderation to 20%-22% by the fiscal year-end.

[B] Rationalizing GST Rates

- **Ongoing Review**: A Group of Ministers (GoM) appointed by the GST Council is reviewing the rate structure, aiming to rationalize GST rates on various items.
- **Quarterly Meetings**: The GST Council is expected to convene regularly to address rate rationalization, although no fixed date has been announced yet.

[C] Projected Revenue Growth

- **Modest Projections**: Despite a buoyant revenue growth of 1.4% this year, projections for the following fiscal year aim for a 1.1% buoyancy, aligning with an anticipated nominal GDP growth of 10.5%.
- **Corporate Tax Dynamics**: The deadline for availing the reduced corporate tax rate ends in March 2023, with a significant proportion of companies already benefitting from it.
- **Enforcement Measures**: While the Department of Revenue focuses on tax administration, the Enforcement Directorate intervenes in cases related to money laundering, ensuring comprehensive enforcement mechanisms.

13. Five more Indian wetlands added to Ramsar list

India has recently expanded its list of **Ramsar Sites**, by adding 5 more wetlands on the eve of **World Wetlands Day 2024**, which brings the total number of Ramsar sites in India to **80**.

New Ramsar Sites:

Ankasamudra Bird Conservation Reserve (Karnataka):

- It is a human-made Village Irrigation Tank that supports over **30,000** waterbirds.
- It is rich in **biodiversity**, housing over **240** bird species, including **Painted Stork** and **Black-headed Ibis**.

Aghanashini Estuary (Karnataka):

- It spreads over **4801 ha** at the confluence of **Aghanashini River** and the **Arabian Sea.**
- It provides diverse ecosystem services, and supports fishing, agriculture, and livelihoods.
- It regularly hosts over **43,000** counts of **66** waterbird species.

Magadi Kere Conservation Reserve (Karnataka):

- It is a **human-made wetland** constructed for rainwater storage (**50 hectares**).

- It is home to **166** bird species, including vulnerable and near-threatened species.
- It is designated as an **Important Bird Area** and a priority area for conservation.

Karaivetti Bird Sanctuary (Tamil Nadu):

- It is a significant inland wetland for groundwater recharge.
- It supports agricultural activities in the region.
- It recorded **198** bird species, including **Bar-headed Goose** and **Common Pochard**.

Longwood Shola Reserve Forest (Tamil Nadu):

- It is a tropical rain forests found in the upper reaches of Tamil Nadu.
- It is habitat for globally endangered and vulnerable bird species.
- **14** out of **26** endemic bird species of the Western Ghats are found here.

Other key facts:

- The **Ramsar Convention** is an international treaty for the conservation and wise use of wetlands, signed in Ramsar, Iran, in **1971**.
- India has seen a significant increase in Ramsar sites from **26 to 80** in the last ten years, with **38** added in the last **3 years** alone.
- **Uttar Pradesh** and **Tamil Nadu** have the **second** and **highest** number of Ramsar sites, respectively.
- World Wetlands Day 2024 was celebrated on 2nd February with the theme- '**Wetlands and Human Wellbeing.**'

14. Rebate of State and Central Taxes and Levies

The Union Cabinet approves the continuation of the Scheme for Rebate of State and Central Taxes and Levies (RoSCTL) for the export of Apparel/Garments and Made-ups until March 31, 2026.

Rebate of State and Central Taxes and Levies (RoSCTL):

- The Rebate of State and Central Taxes and Levies (RoSCTL) scheme is an initiative by the **Ministry of Textiles for exports** falling under Chapters 61, 62, and 63 of the Customs Tariff.
    - It is implemented by **Department of Revenue (DoR)**

- This scheme provides rebates for various **Central, State, and local duties, taxes**, and levies that were not refunded through other duty remission schemes.
- It is a **budgeted scheme** designed to support and **promote the textile industry**.
- It aims to **reimburse all embedded State and Central Taxes/Levies** for exports of manufactured goods and garments.
- It is based on an internationally acceptable principle that **taxes and duties should not be exported**, to enable a **level playing field** in the international market for exports.
- It involves rebating or reimbursing not only **indirect taxes on inputs** but also other **un-refunded State and Central taxes and levies**.

Objectives of RoSCTL Scheme

- **Compensation for Taxes and Levies:**
    - To compensate for the **State and Central Taxes and Levies** in addition to the Duty Drawback Scheme on export of apparel/ garments and Made-ups by way of **rebate**.
    - Focus on **exports of manufactured goods**, especially garments.
- **Importance of IECs:**
    - **Importer-Exporter Codes (IECs)** necessary for **RoSCTL application**.
- **Successor to RoSL Scheme:**
    - Established as a successor to the old "**Rebate of State Levies (RoSL) Scheme**".

Eligibility:

- **All exporters** of garments/apparels and made-ups manufactured in India.
- **Exceptions**: Entities/IECs under the Denied Entity List of the DGFT.
- RoSCTL benefits available if the exporter has **not claimed RoDTEP benefits.**
- Applicable to both merchant and manufacturer exporters.

Details of Rebate Components:

Rebate of State Taxes and Levies:

- **Includes VAT on fuel**, captive power, farm sector, mandi tax, duty of electricity, stamp duty on export documents.
- Covers embedded SGST on inputs like pesticides, fertilizers, etc. used in **production of raw cotton** & purchases from **unregistered dealers**.
- Encompasses **coal used in electricity production** and **inputs for the transport sector**.

Rebate of Central Taxes and Levies

- Includes central excise duty on **fuel used in transportation**.
- **Embedded CGST** and Compensation Cess on inputs like pesticides, fertilizer, etc.
- **Covers embedded CGST** and **Compensation Cess** on coal used in electricity production.

Benefits of the scheme:

- RoSCTL **enhances competitiveness** in apparel and made-ups, vital segments in the Textile Value Chain.
- Facilitates a **zero-rated export principle**, aligning with global trade dynamics.

Apparel/Garments (Textile) Sectors in India:

- India ranks among the world's largest producers of textiles and apparel.
- The **domestic industry** contributes approximately **2.3% to the country's GDP**, 13% to industrial production, and 12% to exports.
- Holds a **4% share in global trade** for textiles and apparel.
- Textiles and apparel represent 10.33% of India's overall export basket in 2021-22.

Leadership:

- India is the 5th largest producer of **technical textiles** in the whole world with a market size of nearly $22 Bn.

- It is one of the largest global producers of **cotton and jute**.
- It is **second-largest producer of silk**, accounting for 95% of the world's hand-woven fabric.
    - **Eri and Muga silk** production witnessed growth of 6% and 6.7%, respectively, in 2021-22.

Growth Projections

- Total textile exports expected to reach $65 Bn by FY26.
- Anticipated 10% CAGR from 2019-20 to achieve $190 Bn by 2025-26.

Employment Impact

- The textiles and apparel sector is the **second-largest employer in India**.
- Direct employment for 45 million people, with an additional 100 million in allied industries.

PPE Manufacturing Success

- India secures its position as the **second-largest Personal protective equipment (PPE)** manufacturer globally.
- Over 600 certified companies, contributing to the expected global market worth of over $92.5 Bn by 2025.

Other Important initiatives:

- **Production Linked Incentive (PLI) Scheme:** Aims to increase the production of technical textiles, Man-Made Fibre (MMF) apparel, and MMF fabrics**.**
- **Scheme for Capacity Building in Textile Sector (SAMARTH):** This scheme is for **capacity building** in the textile sector and has a total outlay of Rs. 1300 crores.
- **Amended Technology Up-gradation Fund Scheme (ATUFS):** Launched in January 2016 to promote ease of doing business.
- **PM-MITRA (PM Mega Integrated Textile Region and Apparel Parks):** Launched to attract investment for the "**Make In India**" initiative.
- **Sectoral Schemes for Traditional Textile Sectors:** Various schemes supporting handlooms, handicrafts, silk, and jute.
- **National Technical Textile Mission:** Aims to develop the usage of technical textiles in flagship missions and strategic sectors.

15. Elon Musk's Neuralink is a minefield of scientific and ethical concerns

Neuralink, founded by tech mogul Elon Musk, achieved a significant milestone by successfully implanting their device, Telepathy, in a human being, aiming to restore autonomy to quadriplegic individuals through thought control of digital devices. However, amidst the excitement, there are significant ethical and technical challenges that need to be addressed, particularly regarding transparency, data ownership, and long-term safety.

Key Highlights:

- Neuralink's ambitious goals, founded by Elon Musk, include restoring functionality to those with neurological disabilities and enhancing human cognition.
- The lack of transparency and data sharing raises concerns about the safety and efficacy of the Neuralink device.
- Ethical considerations around data ownership and potential misuse of recorded intentions.
- The exclusion of individuals with certain medical conditions from the trial raises questions about safety and long-term effects.

- The importance of replicability, transparency, and oversight in scientific research and development.

Key Challenges:

- Lack of transparency and data sharing.
- Ethical concerns regarding data ownership and privacy.
- Ensuring the safety and efficacy of the Neuralink device over the long term.
- Addressing potential health risks associated with brain implantation and electrode insertion.
- Establishing replicability and reliability in scientific research.

Main Terms:

- Neuralink: A tech startup founded by Elon Musk, developing implantable brain-computer interface devices.
- Telepathy: Neuralink's proprietary chip designed for recording and transmitting neural data.
- Quadriplegia: Paralysis or loss of function in all four limbs.
- ALS (Amyotrophic Lateral Sclerosis): A progressive neurodegenerative disease that affects nerve cells in the brain and spinal cord.
- FDA (Food and Drug Administration): A federal agency responsible for regulating and overseeing the safety and efficacy of medical devices and drugs.

Important Phrases:

- "Restore autonomy to those with unmet medical needs."
- "Opaque development and pre-clinical testing results."
- "Ethical breaches and lack of transparency."
- "Concerns about data ownership and privacy."
- "Long-term safety and efficacy."

Quotes:

- "Neuralink's ambition and vision extend beyond clinical use to enhance human cognition and possibilities."
- "Secrecy does not instill confidence, and trust is something scientists have learned not to bestow on corporate entities too generously."

Useful Statements:

- "The lack of transparency and data sharing raises concerns about the safety and efficacy of the Neuralink device."

- "Ethical considerations around data ownership and potential misuse of recorded intentions are paramount."
- "The exclusion of certain individuals from the trial raises questions about safety and long-term effects."

Examples and References:

- Mention of Elon Musk as the founder of Neuralink.
- Features of the Neuralink device, such as the Telepathy chip.
- References to reports of monkeys using the Neuralink device and experiencing adverse events.

Facts and Data:

- Mention of the FDA approval for the Neuralink device.
- Discussion of the 18-month primary observation period in the trial.
- Reference to the lack of registration of the trial on clinical trial repositories like clinicaltrials.gov.

Critical Analysis:

- The article highlights the importance of transparency and data sharing in scientific research and development.
- Raises ethical concerns regarding data ownership and privacy in the context of brain-computer interface technology.
- Criticizes Neuralink for its lack of transparency and opaque development process.

Way Forward:

- Emphasize the importance of transparency and data sharing in scientific research and development.
- Advocate for clear guidelines on data ownership and privacy in the context of brain-computer interface technology.
- Call for increased oversight and regulation to ensure the safety and efficacy of emerging medical technologies like Neuralink's Telepathy device.

16. Blue Economy

The Interim Budget presented by Finance Minister Nirmala Sitharaman recently, stressed on environment-friendly development through the promotion of 'blue economy'.

Blue Economy 2.0:

- Blue Economy 2.0 is a blueprint to make further progress on India's existing initiatives to explore the potential of the **Indian maritime blue economy**.
- It aims to boost **aquaculture**, or **aquafarming**, by cultivating aquatic organisms in controlled environments for commercial purposes.
- It signifies further progress on India's existing initiatives related to the **maritime blue economy**.

What is blue economy?

- The term "blue economy" refers to **economic activities** related to oceans, seas, and coasts.
- It emphasizes **sustainable use of ocean resources** for **economic growth**, improved livelihoods, and job creation while preserving the health of ocean ecosystems.
- It encompasses various sectors, both **established and emerging**, that are **linked to maritime activities.**

Significance for India:

- India boasts a vast maritime ecosystem with a coastline spanning nearly 7.**5 thousand kilometers.**
- The country's geography includes 1,382 islands, and **nine coastal states**, hosting 12 major ports that handle substantial cargo annually.
- India's **Exclusive Economic Zone** covers over 2 million square kilometers, rich in key resources such as crude oil and natural gas.
- For a country like India with a **long coastline**, rich marine biodiversity, and diverse opportunities in fisheries and tourism, the blue economy is highly significant.
- It offers the **potential for economic development** and **job creation** while ensuring the sustainable use of marine resources.
- The advancement of the blue economy is anticipated to catalyze the development of over **4 million fisherfolk** and **coastal communities**, enhancing their socio-economic well-being.

Factors limiting the development of the Blue Economy:

- **Climate change**: Rising sea levels, ocean acidification, and extreme weather events can affect coastal regions and industries. Climate change can also decrease the productivity of fisheries.
- **Illegal fishing**: Illegal, unreported, and unregulated (IUU) fishing is a critical issue that needs to be addressed.
- **Pollution**: Pollution and marine plastic pollution can affect the Blue Economy.
- **Habitat destruction**: Habitat destruction is a challenge in implementing the Blue Economy concept.
- **Other factors**: Other factors that can affect the Blue Economy include **terrorism**, robbery, **piracy**, trafficking of **drugs** and humans, illegal arms trade, and illegal trade of crude oil.

Interim Budget Proposals:

Restoration and Adaptation Measures:

- The budget proposes a **scheme for restoration and adaptation measures**.
- This implies efforts to ensure that economic activities related to the blue economy do not harm the health of oceans and marine ecosystems.

Coastal Aquaculture and Mariculture:

- The budget emphasizes a multi-sectoral approach to coastal **aquaculture and mariculture**.
- **Aquaculture** involves **farming aquatic plants and animals**, while **mariculture** focuses on **rearing** and **harvesting marine creatures in saltwater**.

Integrated Aquaparks:

- The establishment of **five integrated aquaparks** is announced.
- These parks are likely to **serve as hubs** for various aquaculture and marine-related activities, promoting integration and collaboration in the sector.

Pradhan Mantri Matsya Sampada Yojana (PMMSY):

- The PMMSY will be intensified to **enhance aquaculture productivity**, double exports to Rs 1 lakh crore, and **generate employment** opportunities in the fisheries sector.

India's Blue Economy Policy:

- The Budget document refers to Blue Economy 2.0, indicating a continued and evolved focus on the blue economy.
- A **draft policy framework** on **India's Blue Economy** was released in 2022, covering key recommendations on various aspects such as **National Accounting Framework**, **Ocean Governance**, **Fisheries**, Aquaculture, **Tourism**, Technology, and **International Engagement**.
- India's presidency at the G20 summit highlighted blue economy as a key priority.
  - The engagement group for Supreme Audit Institutions (SAIs) during the summit identified blue economy and responsible Artificial Intelligence as focal areas.

Other steps take to boost blue economy:

- **3rd Global Maritime India Summit 2023**: PM Modi laid the foundation stone for projects worth over Rs 23,000 crore dedicated to the Indian maritime blue economy.
  - Projects aligned with India's vision for a developed nation by 2047, including over 300 MoUs for partnerships in the maritime sector.
- **Deep Ocean Mission:** India's Deep Ocean Mission, initiated in October 2021 by the Ministry of Earth Sciences, aims to enhance maritime infrastructure.
- **Blue Economy Vision 2025:** India's 'Blue Economy Vision 2025,' published by FICCI, highlights the broader impacts of the blue economy on poverty, climate change, employment, food security, and maritime cooperation.

17. Celebrating Darwin Day: Understanding Evolution

- February 12 is celebrated globally as Darwin Day to honor the birth of naturalist Charles Darwin and his contributions to evolutionary theory.
- Darwin's seminal work, 'On the Origin of Species by Means of Natural Selection,' published in 1859, revolutionized our understanding of evolution.

Evolutionary Insights

- **Contributions of Darwin and Wallace**: Darwin and Alfred Russell Wallace independently proposed the theory of evolution by natural selection, sparking a paradigm shift in biology.
- **Scientific Advancements**: Darwin Day serves as an occasion to highlight recent scientific advancements in evolutionary biology and promote public engagement with science.

- **Impact on Modern Biology**: Darwin's ideas continue to shape modern biology, providing a framework for understanding the diversity of life on Earth.

Key Propositions by Darwin

[A] Understanding Genetic Variations

- **Role in Adaptation**: Genetic diversity within populations facilitates adaptation to changing environments, as observed in the process of natural selection.
- **Example**: Genetic variants conferring heat tolerance in a population become advantageous in warmer climates, leading to their increased prevalence through natural selection.
- **Mechanisms of Variation**: Mutation, recombination, and gene flow contribute to the generation and maintenance of genetic diversity within populations.

[B] Mechanisms of Evolution

- **Natural Selection**: Darwin and Wallace's theory of natural selection explains how advantageous traits become more common in populations over successive generations.
- **Genetic Drift**: Random fluctuations in allele frequencies, known as genetic drift, can lead to significant changes in small populations.
- **Gene Flow**: Migration and gene flow between populations can introduce new genetic variations and prevent genetic divergence.

Universal Principles of Evolution

- **Biodiversity and Evolution**: Evolutionary processes have shaped the rich biodiversity observed on Earth, spanning billions of years.
- **Conservation Implications**: Understanding evolution informs conservation efforts aimed at preserving species and ecosystems.
- **Ecological Interactions**: Evolutionary dynamics influence ecological interactions, including predator-prey relationships, competition, and mutualism.

Human Evolution and Genetic Diversity

- **Human Origins**: Humans share a common ancestry with other great apes and have undergone genetic divergence over millennia.
- **Genetic Variation**: Every individual carries unique genetic variations, contributing to the diversity within human populations.

- **Cultural Evolution**: Human societies have evolved culturally and genetically, contributing to the global pool of knowledge and skills.

Promoting Equality and Diversity

- **Inclusive Society**: Recognizing genetic diversity underscores the importance of equality and inclusion across all aspects of society.
- **Cultural Diversity**: Embracing cultural diversity enriches human experience and promotes mutual understanding and cooperation.
- **Addressing Biases**: Understanding the genetic basis of traits can help address biases and stereotypes related to race, ethnicity, and identity.

Challenges and Conservation

- **Habitat Degradation**: Human activities pose threats to biodiversity, necessitating conservation efforts to preserve genetic diversity.
- **Climate Change**: Rapid environmental changes, such as climate change, can impact the adaptive potential of species, highlighting the importance of evolutionary resilience.
- **Community Engagement**: Collaborative conservation efforts involving local communities and stakeholders are essential for biodiversity conservation and sustainable development.

Conclusion

- **Continued Learning**: Advancements in evolutionary biology deepen our understanding of life's complexities and guide efforts towards a sustainable future.
- **Celebrating Diversity**: Embracing genetic, cultural, and ecological diversity enriches human experience and promotes harmony in a rapidly changing world.

18. EPFO set to hike interest on PF deposits to 8.25%

The Central Board of Trustees (CBT) of the Employees Provident Fund Organisation (EPFO) has recommended an increase in the interest rate on provident fund (PF) deposits from 8.15% to 8.25% for the financial year 2023-24. This move is aimed at enhancing social security for India's workforce, aligning with Prime Minister Modi's vision of bolstering welfare measures.

Issues:

- The EPFO's decision to hike the interest rate raises questions about the sustainability of such adjustments and their impact on the organization's financial health.
- Concerns may arise regarding the equitable distribution of historic income among EPF members, especially considering the growing size of the fund.

Significance:

- The proposed interest rate hike reflects the government's commitment to prioritizing the welfare of workers and ensuring their financial security, particularly in the face of economic challenges.
- The EPFO's recommendation to distribute a significant portion of historic income to EPF members signals a proactive approach towards enhancing member benefits and promoting savings culture.

Solutions:

- Implement measures to ensure the long-term financial sustainability of the EPFO while balancing the interests of both subscribers and the organization.
- Enhance transparency and accountability in the management of EPF funds, including the equitable distribution of income among members.
- Explore avenues for diversifying investment portfolios and optimizing returns to support future interest rate adjustments without compromising the EPFO's financial stability.

19. Hygiene and Sanitation Rating System for the hospitality sector yet to take off

The implementation of a government-backed rating system for hygiene and sanitation in the hospitality sector faces hurdles as most states have not shown interest except for Jammu and Kashmir.

About:

- The Swachhata Green Leaf Rating, introduced by the Union Tourism Ministry in collaboration with the Department of Drinking Water and Sanitation, aims to ensure world-class standards in hotels, resorts, and homestays.
- Despite multiple communications from the ministry, response from states and union territories remains low. The program emphasizes the adoption of

good practices such as proper waste management and reduction of single-use plastic to promote safe sanitation.
- With its focus on preventing pollution and encouraging sustainable tourism, the rating system relies on public participation for success.
- The government plans to incentivize participation and extend support to rural areas, aiding small hospitality units with low-cost technologies.
- Implementation involves a structured committee system to oversee verification and compliance at various administrative levels.

Significance: The Swachhata Green Leaf Rating system holds significant potential in raising hygiene and sanitation standards across the hospitality sector, ensuring a safer and healthier environment for travellers. Its emphasis on public participation and incentivization reflects a proactive approach towards promoting sustainable tourism practices and environmental conservation nationwide.

20. Invasive Species: Cuscuta Dodder

- An invasive weed, Cuscuta dodder, is gradually strangling the Chengalpet forests and Vedanthangal Bird Sanctuary, posing a severe threat to local vegetation, ecology, and the habitat of migratory birds.

Cuscuta Dodder

- **Parasitic Nature**: It is a parasitic vine devoid of roots, already infesting acres of trees in reserve forests and beginning to spread within India's oldest bird sanctuary.
- **Origin**: Native to North America.
- **Modus Operandi**: As a **holoparasitic plant**, it forms a canopy on the host plant and extends thousands of tendrils, eventually forming a dense spectacle before strangling and killing the host.

Persistence and Germination

- **Seed Characteristics**: Cuscuta seeds are spheroid with a hard coat, enabling them to survive up to 50 years in dry storage and at least 10 years in the field.
- **Germination**: Unlike root parasites, Cuscuta seeds do not require a specific stimulant to induce germination, enhancing their ability to spread rapidly.

Impact and Spread

- **India**: According to a technical paper by the National Research Centre for Weed Science, Cuscuta poses a significant problem in oilseeds, pulses, and fodder crops across various states, including Andhra Pradesh, Chhattisgarh,

Gujarat, Orissa, West Bengal, and parts of Madhya Pradesh under both rain-fed and irrigated conditions.

- **Global Legislation**: It is listed as a **'declared noxious weed'** in 25 countries, with seeds and plant material restricted from entry. In the United States, it is the only weed seed whose movement is prohibited in every state.

21. Farming consensus

- Thousands of farmers from Punjab are protesting at border points with Haryana, demanding various concessions.
- Demands include legally guaranteed Minimum Support Price (MSP), debt waiver, cancellation of certain international agreements affecting agriculture, and a minimum pension for farmers.
- The protest is led by SKM (non-political), a splinter group from the earlier protest, indicating internal divisions within interest groups across several states.

Expansion of Protests Across Regions:

- Protests are not limited to Punjab; farmers in western U.P., Haryana's Sonipat, and other areas are also demonstrating.
- Grievances range from land acquisition for infrastructure projects to labour issues, reflecting diverse challenges faced by farmers nationwide.
- A national rural and industrial strike has been planned for February 16 by the original SKM and trade unions, with additional demands including the repeal of four labour codes.

Government Response and Challenges:

- The government engaging in talks with Punjab farmers, but the MSP guarantee seems unlikely.
- Police interventions in Haryana and Delhi preventing farmers from reaching the capital, reminiscent of the 2021-22 siege.
- MSP-based procurement by FCI has been crucial for food security, but calls for reform due to uneven geographical spread and unsustainable farming practices.
- Political implications noted, especially given the proximity to the Lok Sabha elections.

Need for Reform and Public Consensus:

- There's a pressing need for political consensus and dialogue to revamp public support for agriculture.

- Diversification of production and increased productivity should be encouraged among beneficiaries of existing support systems.
- The government's proactive role is crucial in fostering a new model of public support for the agricultural sector, considering its significance for national food security.

22. India's Refinery Sector

India can become a global refining hub by turning its disadvantage of inadequate oil and gas production into an advantage.

History of India's refinery sector

- **Pre-Independence-**The first oil refinery in India was established in Digboi, Assam, in 1901.
- **Focus-** It was primarily on meeting local demand for kerosene and lubricants.
- **Post-Independence**- In 1947, the government took steps to establish more refineries to meet the growing demand for petroleum products.
- **Indian Oil Corporation-** It was formed in 1958 marking the nationalization of refining sector.
- **Additional refineries**- It was established in Mumbai, Barauni and Visakhapatnam.
- **Oil crisis-** The oil crisis of 1970's prompted India to focus on achieving self-sufficiency in the oil and gas sector.

Oil and Natural Gas Company (ONGC), a Maharatna company, is the biggest crude oil and natural gas name in India, contributing around 75% to Indian domestic production.

- **New Economic Policy, 1991-** It opened up the refining sector to private investment and foreign collaborations.
- **Energy demand-** It is expected to grow at about 3% per annum by 2040, compared to the global rate of 1%. Further, 25% of the global energy growth between 2020 and 2040 is envisaged to come from India due to the fast-growing economy and demographic dividend

What is the significance of refinery sector?

- **Energy security**- Refineries play a crucial role in ensuring energy security by processing crude oil to produce various petroleum products such as petrol, diesel, kerosene, and LPG, it helps to meet the growing energy demands of the country.

- **Employment generation**- Refinery sector generates employment opportunities, both directly and indirectly, through the entire value chain, from exploration and production to refining, distribution, and retail.
- **Infrastructure development**- The establishment of refineries involves significant infrastructure development, including pipelines, storage facilities, and transportation networks. It contributes to the overall economic development of the regions where refineries are located.
- **Reduce import bill**- It will reduce India's dependence on importing refined petroleum products, helping to save foreign exchange.It allows the country to process crude oil domestically, meeting a substantial portion of its demand for refined products.
- **Industrial growth-** The refinery sector serves as a foundation for the growth of downstream industries, such as petrochemicals, fertilizers, and various manufacturing sectors.
- **Technological advancements**- Continuous improvements and investments in technology contribute to the production of cleaner fuels, compliance with environmental regulations, and the adoption of sustainable practices.

The production of Bharat Stage VI (BS-VI) fuels to reduce vehicular emissions, it is based on Europe emission norms

- **Strategic importance**- A diverse and well-distributed refinery network helps mitigate risks associated with supply chain disruptions, ensuring a stable and secure energy supply.
- **Improve exports**- It allows the country to produce high-quality fuels, comply with international standards, and participate in the global energy market.

What are the challenges present in the refinery sector?

- **Crude oil price volatility**- The sector is highly sensitive to fluctuations in global crude oil prices, sudden and unpredictable changes in prices can affect the profitability of refineries and their ability to offer competitive prices for refined products.
- **Infrastructure deficit**- Inadequate infrastructure, such as pipelines, storage facilities, and transportation networks, can lead to logistical challenges in the supply chain.
- **Environmental compliance**- Stringent environmental regulations require refineries to invest in advanced technologies to reduce greenhouse gas emissions and produce cleaner fuels.
- **Geopolitical risks**- Global issues like COVID-19, Russia-Ukraine war has affected the global oil market and the refining industry, by creating supply shortages, price volatility, and capacity reductions.

- **Capital-intensive**- Obtaining funding for new projects, expansions, and modernization can be challenging, especially for smaller players in the industry.
- **Policy paralysis**- Frequent changes in government policies and regulations can create uncertainty for the refinery sector. Regulatory stability is crucial for long-term planning and investments, and uncertainties can affect decision-making and project implementation.
- **Demand fluctuations**- Economic uncertainties, global events, and changes in consumer behaviour can lead to fluctuations in the demand for refined products.
- **Supply chain disruption**- The private refineries in particular have benefitted from high global product prices and increase in prices and increased their exports while curtailing supplies to lower priced domestic market.

Indian government has imposed a windfall tax on fuel exports to prevent domestic refiners from selling their products abroad at higher prices, instead of meeting the local demand.

What lies ahead?

- India should continue to pursue the path of not only being a refining but a refining - petrochemical hub.
- There is a need to set up integrated projects that can produce both fuels and petrochemicals, and adjust the output according to the market demand1
- India should built large-scale projects that can compete in the global market and generate export revenues.
- India should leverage its geopolitical relationships with major oil producers to secure long-term crude oil supply.

23. Discussions to lower CRR on Green Deposits

- State Bank of India (SBI) is in talks with the Reserve Bank of India (RBI) to reduce the cash reserve ratio (CRR) requirement on green deposits.

Green Deposits

- **Definition**: Green deposits are fixed-term investments tailored for individuals and entities seeking to support environmentally friendly initiatives.

- **ESG Investing**: These deposits align with the principles of Environmental, Social, and Governance (ESG) investing, reflecting a growing trend towards sustainable finance.
- **Utilization**: Funds from green deposits are directed towards projects promoting renewable energy, clean transportation, pollution control, green infrastructure, and sustainable water management.

RBI Framework for Green Deposits

- **Preventing Greenwashing**: The RBI's framework ensures transparency in environmental claims associated with green deposits.
- **Deposit Options**: Banks offer green deposits denominated in rupees, with choices between cumulative or non-cumulative options.
- **Applicability**: Scheduled commercial banks, small finance banks, non-banking financial companies (NBFCs), and housing finance companies (HFCs) must comply with this framework.
- **Eligibility**: Both corporate entities and individual customers can invest in green deposits, contributing to environmentally sustainable initiatives.
- **Allocation**: Funds mobilized through green deposits are directed towards sectors such as renewable energy, waste management, and afforestation.
- **Restrictions**: Lenders are prohibited from channelling green deposit funds into sectors like fossil fuels, nuclear power, or tobacco.
- **Verification**: Independent Third-Party Verification is conducted annually to assess the allocation and impact of funds raised through green deposits.
- **Oversight**: Lenders are required to review the impact of funds lent for green finance activities on an annual basis.
- **Penalties**: There are no penalties for underutilization of funds raised through green deposits, providing flexibility to financial institutions.

Distinguishing Green Deposits from Normal Deposits

- **Project Allocation**: Green deposits allocate funds to specific environmentally friendly projects, unlike regular deposits.
- **Interest Rates**: Interest rates on green deposits are determined by lenders and are currently comparable to those offered on conventional deposits.

24. CMS COP 14

The 14th Meeting of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS) was held in the historic city of Samarkand, Uzbekistan.

CMS is the only global convention specializing in the conservation of migratory species, their habitats and migration routes.

What is the organizational structure of CMS?

- **Conference of the Parties (COP)** - It is the decision-making body of the Convention which meets at **three-yearly intervals**.
- **Standing Committee**- It gives policy and administrative guidance between meetings.
- **Scientific Council**- It meets between COP sessions to offer scientific advice and identify research and conservation priorities.
- **Secretariat**- It develops and promotes Agreements, service meetings and supervises research and conservation projects and co-operates with governments and partner organizations.

CMS COP 13- The COP was held in India for the 1st time at Gandhinagar in 2020

What are the key takeaways of CMS COP14?

This is the first COP of any global environmental treaty to take place in Central Asia, a region home to many migratory species including the Saiga Antelope, the Snow Leopard, and many species of migratory birds.

- **Slogan-** Nature Knows No Border.
- **Samarkand Strategic Plan (2024-2032) -** It is a framework for the conservation and sustainable use of migratory species and their habitats based on the Kunming-Montreal Global Biodiversity Framework (GBF) adopted in 2022.
- **The State of the World's Migratory Species**- It is the first ever report that provides a comprehensive overview and analysis of the conservation status of migratory species.

- **Atlas of Animal Migration**- It is a publication that maps the distribution, movement, and threats of migratory animals across different regions and habitats
- **Agreement on an Initiative for the Central Asian Flyway**- It spans 30 Range States, after nearly two decades of inconclusive negotiations, the adopted initiative includes the establishment of a **coordinating unit in India with financial support** from the Indian Government.
- **Action Plan for African-Eurasian Migratory Landbirds Action Plan (AEMLAP)-** It aims to improve the conservation status of migratory landbird species along the African-Eurasian flyway region by coordinating actions at the international and national levels.

- **Action Plan for Great Bustard in Asia**- It provides for current status and threats of Asian population of the Great Bustard, a large migratory bird that is endangered by habitat loss, poaching, infrastructure and climate change.
- **Transboundary Jaguar initiative**- It is launched to establish a new regional conservation initiative for the Jaguar, a species listed in CMS Appendices I and II.
- **Central Asian Mammals Initiative (CAMI)-** It is a framework for the conservation of 15 migratory mammal species and their habitats in the Central Asian region adopted by CMS in 2014.

As part of CAMI, Uzbekistan announced a new programme to introduce the Cheetah in the country.

- **Global Partnership on Ecological Connectivity**-The objective is to ensure that ecological connectivity is maintained, enhanced, and restored in places of importance for migratory species of wild animals.

- **Insect Decline and its Threat to Migratory Insectivorous Animal Populations-** As insect biodiversity plays a vital role in the proper functioning of many of the world's ecosystems and their services their decline can have a significant impact on a range of migratory insectivorous species, especially bird and bat species.
- **Global guidelines on light pollution-** Light pollution contributes to the death of millions of birds, internationally agreed guidelines on light pollution covering marine turtles, seabirds and migratory shorebirds already exist and have been endorsed by COP 13.
- New international guidelines focusing on migratory land birds and bats are currently being developed under CMS.
- **Migratory Aquatic species**- A new mandate on addressing the impacts of deep-seabed mineral exploitation on migratory species, their prey, and their ecosystem.
  - Three new Action Plans for aquatic species, the Atlantic Humpback Dolphin, the Hawksbill Turtle and the Angelshark.
- **Wildlife health**- CMS Parties are encouraged to implement the recommendations of the scientific report 'Migratory Species and Health: A Review of Migration and Wildlife Disease Dynamics, and the Health of Migratory Species, within the context of 'One Health'.
- **Vessel strike**- A new resolution on reducing the risk of vessel strikes for marine megafauna, based on a new scientific report presented which focusses on the Appendix I & II-listed Whale Shark.
- **Marine debris** - Along with bycatch and ship strikes, this is one of the major threats to marine fauna, with animals becoming entangled in discarded fishing gear and ingesting plastics.

- **Amend Convention's Appendices**- The proposals for amendment of CMS Appendices I and II were discussed and recommended by the Committee of the Whole (COW) or countries for adoption.
- **Inclusion of 14 migratory species**- They are Eurasian lynx, Peruvian pelican, Pallas's cat, guanaco, Laulao catfish, Balkan lynx, Lahille's bottlenose dolphin, harbour porpoise, Magellanic plover, bearded vulture, Blackchin guitarfish, Bull ray, Lusitanian cownose ray and Gilded catfish.

25. MnBi2S4: Multiferroic Material for Energy-Efficient Data Storage

- Researchers have identified a unique mechanism of electric polarization via magnetic ordering in a novel mineral named "MnBi2S4", which can be useful for energy-efficient data storage.

Magnetoelectric Multiferroics

- This special class of materials is renowned for their rarity and unique properties, capable of exhibiting both magnetism and ferroelectricity simultaneously.
- They find applications in advanced technology like spintronics, electronic memory devices, actuators, and switches.

MnBi2S4

- Also known as **mineral gratianite**, it belongs to the ternary manganese chalcogenide family.
- It showcases **distinct magnetic structures**, including a spin density wave, cycloidal, and helical spin structures.
- Notably, the latter two spin structures induce **ferro-electricity** in the material.
- MnBi2S4 is **centro-symmetric** and undergoes magnetic ordering at low temperatures (27, 23, and 21.5 Kelvins).

Significance of the Study

- This finding highlights the strong coupling between magnetism and electric polarization.
- The unique mechanism, driven by magnetic frustration, represents a breakthrough in magnetoelectric coupling.
- If the material can exhibit the same phenomena at room temperature, it could revolutionize data storage by reducing energy consumption during writing processes.

- Additionally, these findings could aid in the development of a four-state logic memory system, providing additional degrees of freedom for device performance compared to current binary logic systems.

26. Anti-Satellite Weapon

Recently US accused Russia of developing a space based nuclear weapon that could destroy or damage other satellites in the orbit.

Key provisions of Outer Space Treaty (OST), 1967

Outer Space Treaty, 1967 is often called as the magna carta of space law.

- It is formally known as the "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies."
- **Adoption**- By United Nations General Assembly in 1967.

The provisions of the treaty are binding on the signatories

- **India**- It signed the treaty in 1967 and ratified in 1982.
- **Peaceful use of outer space**- Outer space shall be used for peaceful purposes, and the exploration of outer space shall be carried out for the benefit of all countries.
- **Prohibition of sovereignty-** Outer space including the Moon and other celestial bodies, is not subject to national appropriation by any means.
- **International cooperation-** States are encouraged to conduct international cooperation in the exploration and use of outer space, including the exchange of information and assistance in case of emergencies.
- **Prohibition of weapons of mass destruction**- The Moon and other celestial bodies shall be used exclusively for peaceful purposes. The stationing of weapons of mass destruction and military bases on celestial bodies is prohibited.
- **Freedom of exploration**- The exploration and use of outer space shall be carried out for the benefit of all countries, and there shall be free access to all areas of celestial bodies.
- **Liability for space activities**- States are internationally liable for any damage caused by their space activities to other states or their space objects.
- **Limit non-governmental activities**-The private entities and other non-government organizations are required to avoid harmful contamination of outer space and celestial bodies.

- **Registration of space objects**- States are obligated to register space objects launched into outer space with the UN Registry of Objects Launched into Outer Space.
- **Protect astronauts**- States are obligated to render assistance to astronauts in distress and to return them safely to Earth.
- **Avoidance of harmful contamination**-States shall avoid harmful contamination of space and celestial bodies, it emphasizes environmental protection and the prevention of the spread of harmful substances in outer space.

The Act is against nuclear weapons, it does not prohibit nuclear-powered satellites in space.

- **Notify harmful activities**- States are encouraged to inform the international community in advance about any space activities that could cause harmful interference with the activities of other states.
- **Coordination-** States are encouraged to consult with each other and coordinate their activities in outer space to prevent harmful interference.

How will nuclear weapon impact satellites?

- **Electromagnetic pulse**- A burst of electromagnetic radiation will be created which would damage or disrupt electronic devices and systems.
- **Creation of radiation belt**- A nuclear explosion in space can create or enhance these belts, which can harm satellites and astronauts. Starfish Prime by US caused the formation of radiation belts around the Earth.

Radiation belt is the zone of energetic charged particles trapped by the earth's magnetic field.

- **Kessler syndrome-** A scenario where the density of space debris in low-earth orbit is high enough to cause frequent collisions, which in turn create more debris and make space activities and exploration more difficult or impossible.
- **Space-based laser-** A weapon that uses a laser beam to target and destroy other satellites, it could also be powered by a nuclear reactor or a nuclear explosion.

27. Engineering graduates are steering the service industry

Central Idea:

- Article discusses the growing significance of the services sector in India's economy and the demand for skilled manpower. Proposes the introduction of

a generic "service engineering" course to address the need for professionals adept at navigating modern service-oriented industries.

Key Highlights:

- Services sector contributes significantly to India's Gross Value Added and employment.
- Engineering graduates increasingly employed in non-technical roles within the services sector due to adaptable skills.
- Lack of generic courses tailored to service sector needs, leading engineers to fill entry-level service jobs.
- Proposal for "service engineering" course blending technical proficiency, soft skills, and industry-specific knowledge.
- Integration of AI and IoT to enhance employability.
- Emphasis on diverse curriculum covering service delivery fundamentals, process improvement, and client management.

Key Challenges:

- Resistance from traditional education systems and institutions.
- Development and implementation of comprehensive curriculum.
- Ensuring affordability and accessibility, especially in tier 2 and 3 cities.
- Overcoming societal biases and stereotypes about career paths.
- Adapting to rapid technological advancements and industry changes.

Useful Statements:

- "The rising prominence of the services sector has opened avenues for engineers to be gainfully employed in white-collar jobs."
- "Such a course can offer a holistic blend of technical proficiency, soft skills, and industry-specific knowledge essential for success in service-centric roles."

Examples and References:

- Data on employability of engineering graduates.
- Commissioned report on engineering seat enrollment.
- Periodic Labour Force Survey (PLFS) data on women's participation in the workforce.

Critical Analysis:

- The article effectively highlights the mismatch between engineering graduates' skills and service sector demands, proposing a "service engineering" course as a solution. However, it lacks in-depth analysis of

challenges and implementation strategies, especially regarding soft skills integration.

Way Forward:

- Collaborate with industry experts for curriculum design.
- Offer scholarships for affordability and accessibility.
- Conduct awareness campaigns to challenge biases.
- Establish partnerships for practical training.
- Continuously update the curriculum to match industry changes.

28. Money Bill

A seven judge bench of the Supreme Court has been tasked with the authoritative ruling on the scope of money bill.

Money bill

- **Article 110-** It deals with the definition of money bills,
- **Provisions-** A bill is deemed to be a money bill if it contains 'only' provisions dealing with all or any of the following matters.
  - Imposition, abolition, remission, alteration or regulation of any tax
  - The regulation of the borrowing of money by the Union government
  - The custody of the Consolidated Fund of India or the contingency fund of India, the payment of moneys into or the withdrawal of money from any such fund
  - The appropriation of money out of the Consolidated Fund of India
  - Declaration of any expenditure charged on the Consolidated Fund of India or increasing the amount of any such expenditure
  - Receipt of money on account of the Consolidated Fund of India or the public account of India or the custody or issue of such money, or the audit of the accounts of the Union or of a state or
  - Any matter incidental to any of the matters specified above.
- **Rules**- A bill is not to be deemed to be a money bill by reason only that it provides for
  - The imposition of fines or other pecuniary penalties, or
  - The demand or payment of fees for licenses or fees for services rendered or
  - The imposition, abolition, remission, alteration or regulation of any tax by any local authority or body for local purposes.

- **Role of Speaker-** He takes the final call if a bill is a money bill or not, his decision cannot be challenged in any court of the country.

What are the legal challenges present before the Supreme Court over Money Bill?

- Several Bills passed as money Bills, such as the Aadhaar Act, the Finance Act, 2017, and the Finance Act, 2018, have been challenged in the Supreme Court for violating Article 110.
- Verdict on Aadhaar- The petitioners had claimed that parts of the Aadhaar Act were passed as a money Bill, despite containing provisions that were unrelated to the subjects listed under Article 110, the apex court upheld the Act as constitutional
- **Appelate tribunal rules**- The Finance Act, 2017 has certain provisions that gave the Centre additional control over the service conditions of tribunal members.
- They were challenged in the Supreme Court for violating the independence and autonomy of the tribunals and for being passed as a money bill, the Court struck down the rules as unconstitutional and arbitrary.
- It also held that the Speaker's decision on certifying a Bill as a money Bill is subject to judicial review and referred the question of what constitutes a money Bill to a larger seven-judge bench.
- **Finance Act, 2018-** It contained several provisions that were not related to the fiscal matters specified in Article 110, such as the amendment of the Prevention of Money Laundering Act, 2002 (PMLA), the introduction of the Electoral Bond Scheme, and the amendment of the Foreign Contribution (Regulation) Act, 2010.
- The Court did not address the money Bill issue on account of the pending case before the seven-judge bench, its decision will have impact on the Acts that have been challenged in the Court for violating Article 110.

29. Calm assessment

Conservation Act and its Success

- The Forest (Conservation) Act, 1980, aimed to curb rampant deforestation for non-forestry purposes.
- Approximately four million hectares of forest land were diverted from 1951-75 before the Act was enacted.
- The Act mandated a regulatory mechanism by the Centre for forest diversion, resulting in a significant reduction in annual forest diversion post-1981.

Expansion of Protection: T.N. Godavarman Thirumulpad Judgment

- The T.N. Godavarman Thirumulpad judgment broadened the definition of forest tracts worthy of protection.

- It introduced the concept of 'deemed forests,' which encompassed areas not officially classified as forests in government records.
- States were directed to form expert committees to identify and delineate such 'deemed forests.'

Centre's Attempt to Amend the Act and Concerns:

- The Centre proposed amendments to the Forest (Conservation) Act to provide clarity, especially regarding large tracts of recorded forest land already used for non-forestry purposes with state permissions.
- Private citizens expressed reluctance to engage in activities like cultivating private plantations due to fears of their land being classified as forests, potentially jeopardizing ownership rights.
- The amendments aimed to exclude 'deemed forests,' not officially recognized as such, from protection to facilitate private initiatives for afforestation and carbon sink creation.

Public Concerns and Pending Judgment:

- Public interest petitions were filed against the proposed amendments, viewing them as undermining the Act's goal of forest protection.
- The Supreme Court directed the Centre to compile and disclose States' efforts in identifying deemed forests by April '24.
- The debate surrounding the amendments requires a dispassionate assessment of ground realities to determine their impact on India's carbon sink creation and overall environmental goals.

30. Spinoff technologies

The space exploration spinoff technologies have significant impact on various industries and sectors.

What are the NASA's spin off technologies in space exploration?

Spinoff technologies refer to the unintended or unexpected benefits and applications that arise from the development of a particular technology or innovation.

- **CMOS image sensor**- Complementary Metal-Oxide-Semiconductor (CMOS) technology enables digital cameras to be small, high-quality and low power, which is used in mobile phones and GoPro cameras.

- **Aquaspace filter-** Aerospace compound developed by NASA removes chlorine and other contaminants from drinking water, it is used in industrial, commercial, residential and recreational applications across the globe.
- **Memory foam**- It was created by NASA to absorb shock and provide comfort on airplane seats which is now widely used in mattresses, pillows, insoles, and medical applications.
- **Smoke detector-** It uses a sensor developed by NASA to detect combustion particles in the air, it can reduce false alarms by distinguishing between smoke and dust.
- **Wireless headset**- It is based on the headset used by astronauts to communicate with mission control, it is lightweight, comfortable and hands-free.
- **Solar cells**- It is used to develop an unmanned aircraft capable of flying at high altitudes for extended durations, harnessing solar energy for power. This is widely now used in buildings, calculators etc.,
- **Medical imaging technology**- NASA's space borne imaging devices has contributed to the development of medical imaging devices, such as the digital mammography system.
- **Microencapsulation**- It delivers cancer-fighting drugs within a patient's body more safely than before, it also provides means to remove oil pollution from water.

Microencapsulation" is the process of enclosing liquids or small particles with a coating to create tiny capsules on a micro metric scale (smaller than millimeters).

What are the spinoff technologies made by ISRO?

- **Low-cost artificial heart pump** - A lightweight Left Ventricular Assist Device that can help a weak heart to pump blood it is made from a biocompatible titanium alloy, it is used in rockets.
- **Artificial foot-** It is made of a composite material used in rocket motors, this poly-urethane foot is lighter and more durable than traditional prosthetics like the Jaipur Foot.
- **Microprocessor controlled smart knee**- Intelligent artificial limbs with sensor data capabilities which is more affordable and comfortable than passive limbs.
- **Non-invasive ventilator SVASTA-**ISRO has developed a gas powered ventilator Space Ventilator Aided System for Trauma Assistance (SVASTA) designed for emergency and first line treatments, its simple design allows for easy mass production, particularly useful in pandemic-like situations.
- **Artificial denture material (ACRAMID)-** It is a polyamide reinforced plastic used in launch vehicles, also applicable as a cost-effective denture implant material for orthodontic restoration.

- **Fire-extinguishing powder**- OLFEX can extinguish various types of fires, including flammable, liquid, and gas fires, while TEC (Ternary Eutectic Chloride) is designed specifically for metal fires.
- **Endoscopic catheter mounted impedance probe**- It aids in identifying inflammation or malignancy in the gut mucosa, it is more cost effective than traditional biopsies.
- **Flame retardant coating**- A chemical with flame-retardant, waterproofing, and thermal-control properties, based on technology used for spacecraft thermal protection. It can be applied to various surfaces and materials.
- **Hydrophobic silica aerogel**- It is a type of porous material that is water-resistant and has wider applications in construction materials, personal care products, drug delivery etc.,
- **Adhesives-** ISRO has developed various structural (Epoxy resins, phenol based and rubber based adhesives) and non-structural (silicon based, polyurethane elastomers and acrylic based adhesives) adhesives which can be used in automobiles and engineering industries.

31. Eradicated of Guinea Worm Disease

- The imminent eradication of Guinea worm disease marks a major win for public health, showcasing the effectiveness of simple strategies in fighting diseases.

Guinea Worm Disease

- **Causes**: Guinea worm disease, known since ancient times as the "fiery serpent," is caused by the **Guinea worm (Dracunculus medinensis)**, bringing painful blisters and severe symptoms to those affected.
- **How It Spreads**: People develop painful blisters, and when they come into contact with water, adult worms emerge, contaminating water sources and continuing the cycle of infection.

Symptoms and Impact

- **Pain and Suffering**: The disease causes intense pain, swelling, and ulcers, making it hard for people to go about their daily lives.
- **Effects**: Mostly affecting the legs and feet, Guinea worm disease worsens poverty and illness in areas where clean water and healthcare are scarce.

Success Story in India

- **Beating the Disease**: India successfully got rid of Guinea worm disease in the late 1990s by focusing on simple things like clean water and educating communities about health.
- **Team Effort**: India's government, local health workers, and international partners worked together to achieve this victory.

Global Progress and Challenges

- **Making Strides**: Progress has been made globally, but challenges remain in places like Chad and the Central African Republic, where the disease is still a problem.
- **New Hurdles**: Finding Guinea worms in animals like dogs shows that the disease is tough and needs continued attention.

32. Scientists carry out Laser Cooling of Positronium

- An international team of physicists from the Anti-hydrogen Experiment: Gravity, Interferometry, Spectroscopy (AEgIS) collaboration has achieved a groundbreaking milestone by demonstrating the laser cooling of Positronium.

AEgIS Initiative

- **Timeline**: The AEgIS experiment was formally accepted by CERN in 2008, with construction and commissioning continuing through 2012-2016.
- **Team**: Physicists representing 19 European and one Indian research group from the AEgIS collaboration announced this scientific breakthrough.
- **Experiment Location**: The experiment was conducted at the European Organization for Nuclear Research (CERN) in Geneva, Switzerland.
- **Significance**: This experiment serves as a crucial precursor to the formation of anti-hydrogen and the measurement of Earth's gravitational acceleration on antihydrogen in the AEgIS experiment.

Positronium

- **Composition**: Positronium consists of a bound electron (e-) and a positron (e+), forming a fundamental atomic system.
- **Properties**: With a very short life, it annihilates with a half-life of 142 nanoseconds. Its mass is twice the electron mass, and it is considered a **pure leptonic atom**.
- **Unique Characteristics**: Its hydrogen-like system, with halved frequencies for excitation, makes it an ideal candidate for attempting laser cooling and performing tests of fundamental physics theories.

Key Outcomes

- **Temperature Reduction**: Laser cooling initially brought Positronium atoms from ~380 Kelvin to ~170 Kelvin.
- **Laser System**: A 70-nanosecond pulse of the alexandrite-based laser system was used to demonstrate cooling in one dimension.
- **Frequency Bands**: Lasers deployed were either in the deep ultraviolet or infrared frequency bands.

Future Implications

- **Spectroscopic Comparisons**: Physicists expect this experiment to pave the way for performing spectroscopic comparisons required for Quantum Electrodynamics (QED).
- **Potential Applications**: The experiment allows for high-precision measurements of properties and gravitational behavior of Positronium, offering insights into newer physics and the production of a positronium Bose–Einstein condensate.

33. FOREIGN EXCHANGE MANAGEMENT ACT (FEMA)

The Enforcement Directorate (ED) issued showcause notices to Byju's, a leading edtech startup, and its founder and CEO Byju Raveendran for allegedly violating Foreign Exchange Management Act (FEMA) provisions to the tune of over Rs 9,362 crore.

- According to the ED, Byju's and its founder violated FEMA by transferring funds to foreign entities without obtaining prior approval from the Reserve Bank of India (RBI) or submitting the required documents. The ED also alleged that Byju's did not disclose the source and purpose of the funds, and did not maintain proper records of the transactions.

Foreign Exchange Management Act (FEMA)

- The Foreign Exchange Management Act (FEMA) is a law that regulates the transactions involving foreign exchange in India.
- It was enacted in 1999 to replace the Foreign Exchange Regulation Act (FERA) of 1973.
- The new Act is in consonance with the frameworks of the World Trade Organisation (WTO).

- FEMA aims to facilitate external trade and payments, promote orderly development and maintenance of foreign exchange market, and prevent money laundering and other illegal activities.
- Main Features of FEMA
- It gives powers to the Central Government to regulate the flow of payments to and from a person situated outside the country.
- It requires all transactions involving foreign exchange or foreign securities to be carried out through authorized persons, such as banks, dealers, or agents.
- It allows the Reserve Bank of India (RBI) to impose restrictions on transactions from current account or capital account, depending on the foreign exchange situation in the country.
- It permits Indians residing in India to hold or own foreign exchange, foreign securities, or immovable property abroad, subject to certain conditions and limits.
- It provides for penalties and enforcement actions for contravention of the provisions of the Act or the rules and regulations made under it.
- FEMA works in coordination with other laws and agencies, such as the Prevention of Money Laundering Act (PMLA), the Income Tax Act, the Enforcement Directorate (ED), and the Financial Intelligence Unit (FIU), to combat money laundering and related crimes.

34. Hike in FRP for Sugarcane

Recently the Centre announced a hike in the Fair and Remunerative Price (FRP) of sugarcane to Rs 340 per quintal for Sugar Season 2024-25 (October-September) from the existing Rs 315 per quintal.

Fair and Remunerative Price (FRP)

- FRP is the price declared by the government, which mills are legally bound to pay to farmers for the cane procured from them.
- **Regulation-** It is governed The Sugarcane Control order, 1966 which mandates payment within 14 days of the date of delivery of the cane.
- **Agreement-** Mills have the option of signing an agreement with farmers, which would allow them to pay the FRP in installments.
- **Delays in payment-** It can attract an interest up to 15% per annum, and the sugar commissioner can recover unpaid FRP as dues in revenue recovery by attaching properties of the mills.
- **Sugar recovery-**The FRP is based on the recovery of sugar from the cane, it is the ratio between sugar produced versus cane crushed expressed as a percentage.
- The higher the recovery, the higher is the FRP, and higher is the sugar produced.

- **CACP-** The cane price announced by the central government is decided on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP) in consultation with the state governments and after taking feedback from associations of sugar industry.

What are the challenges with the hike in FRP?

- **Mismatch**- The Centre has repeatedly hiked FRP from Rs 255/quintal of sugarcane in 2017-18 to Rs 340/quintal, it has not changed MSP from Rs 3100/quintal of sugar fixed in 2018-19.
- **Outstanding dues**- The mills claim that the MSP being stagnant despite food inflation has exposed the industry to 'cash losses', raising challenges to pay FRP to farmers.
- **Delhi chalo protest**- The farmers have been protesting for high FRP, clearance of dues from sugar mills and revision of MSP which has been stagnant since 2018-19.
- **Concurrent list**- Agriculture is a concurrent subject in the Constitution, both state and central governments have a say in agricultural policies and pricing, leading to occasional conflicts.
- **Burden on States**- State governments, facing pressure from farmers seeking higher prices, have sometimes fixed procurement prices (State Advised Price) above the FRP fixed by the central government.

Punjab, Haryana, Uttar Pradesh and Uttarakhand announces SAP which is normally higher than FRP.

- This places a financial burden on state-owned or private sugar mills, as they are obligated to pay higher prices for sugarcane, while the Minimum Support Price (MSP) for domestic sugar consumers is kept at a lower rate.

35. Challenges of GMO

Hybrid Bt cotton, the only commercialised Genetically Modified crop in India has shown evidence of impact on human and animal health.

Challenges present in GM crops

- **Unnatural-** GMOs does not use traditional breeding and selection, they may produce unintended effects as the impacts are not immediately visible.

- **Against Rules of 1989**- It describes GMOs as hazardous.

Rules of 1989 is the Rules for the Manufacture/Use/Import/Export and Storage of Hazardous Microorganisms/ Genetically Engineered Organisms or Cells, 1989" under the Environment (Protection) Act, 1986

- **Environmental contamination**- It is caused by cross-transfer of pollen by bees to wild or other domestic crop varieties.
- **Impact on biological diversity-** India is one of the 17 listed international hotspots of diversity which includes mustard, brinjal and rice, with commercialised GM crop contamination is unavoidable.

Convention on Biological Diversity underscores the need to consider the impacts on biological diversity, and this concern is particularly relevant for India as a signatory.

Concerns of Bt Cotton

- **Value capture mechanism**- It prevents farmers from saving seeds and increases their costs of buying seeds and paying royalties to the developers.
- **High cost**- There was also a phenomenal three-fold increase in labour costs in hybrid cotton cultivation, there are adverse effects on farmer revenues leading to increased distress and suicides among farming community.
- **Ecological impact**- It requires more water, fertiliser, and insecticide, and is vulnerable to pests and diseases.
- **Low yield**- It also has a long season and low density that reduces yield potential and increases pest pressure.
- **Monopoly-** Bt Cotton seeds have become unaffordable to farmers due to high royalties charged by Monsanto company which has a near monopoly on Bt cotton seeds which led to market failure.
- **Hinders research**- It has hindered the development of non-GM high-density short-season varieties that could perform better in rainfed conditions.
- **Ineffective-** Hybrid Bt cotton has lost its effectiveness against the pink bollworm, the main target pest leading to increased usage, induced secondary pests and crop failure.
- **Introduction of other GM crops**- The regulators have ignored the failure of hybrid Bt cotton and tried to introduce other GM crops, such as hybrid Bt brinjal and hybrid HT mustard, which pose similar risks to the environment, health, and biodiversity.

Concerns with Bt Brinjal

- **Toxicity**- Bt Brinjal contains a toxic gene from a soil bacterium, which has been confirmed by several experts.
- **Regulatory issues-** GEAC and the developer did not follow the proper safety protocols and transparency norms, as ordered by the Supreme Court in 2007.

- **Lack of surveillance**-Bt brinjal was the first GM vegetable food crop in the world to be approved for commercialisation, without adequate oversight and scrutiny by the international scientific community.
- **Outdated studies mechanism**- Bt Brinjal was found to have serious flaws and deficiencies in its safety studies, testing methods and environmental risk assessment.
- **Narrow scope of risk assessment**- Bt Brinjal has a narrow scope set by GEAC, leading to an inadequate evaluation of potential environmental risks.

India is the centre of the world's biological diversity in brinjal, with over 2,500 varieties grown in the country and as many as 29 wild species.

Concerns with DMH-11 Mustard

- **Unproven yield enhancement**- Both HT and Bt crops account for most of the GM crops planted worldwide, but neither has a trait for yield enhancement.
- **Lack of transparency**-The details of DMH-11 mustard has not been made public, raising concerns about transparency and compliance with Supreme Court orders.
- **Invalid field trials-** The field trials for non-GMO mustard were not conducted in accordance with norms, and DMH 11 was out-yielded by non-GMO varieties and hybrids by more than the specified norm of 10%.
- **Harmful chemical**- Gulfosinate ammonium is a harmful chemical that causes birth defects, damages plants and aquatic life and contaminates water and food.

As per National Bureau of Plant Genetic Resources India is a secondary centre of origin of rape-seed mustard with over 9,000 accessions in our gene bank.

- **Experts recommendation**- The Technical Expert Committee (TEC) recommends a double bar on GM Mustard, citing its status as an HT crop and its presence in a center of mustard diversification and/or origin.