RNA : Real News Analysis

MONTHLY CURRENT AFFAIRS

Very Important for UPSC, State PCS, SSC, Railway, Banking, Defence & All Other Government Exams

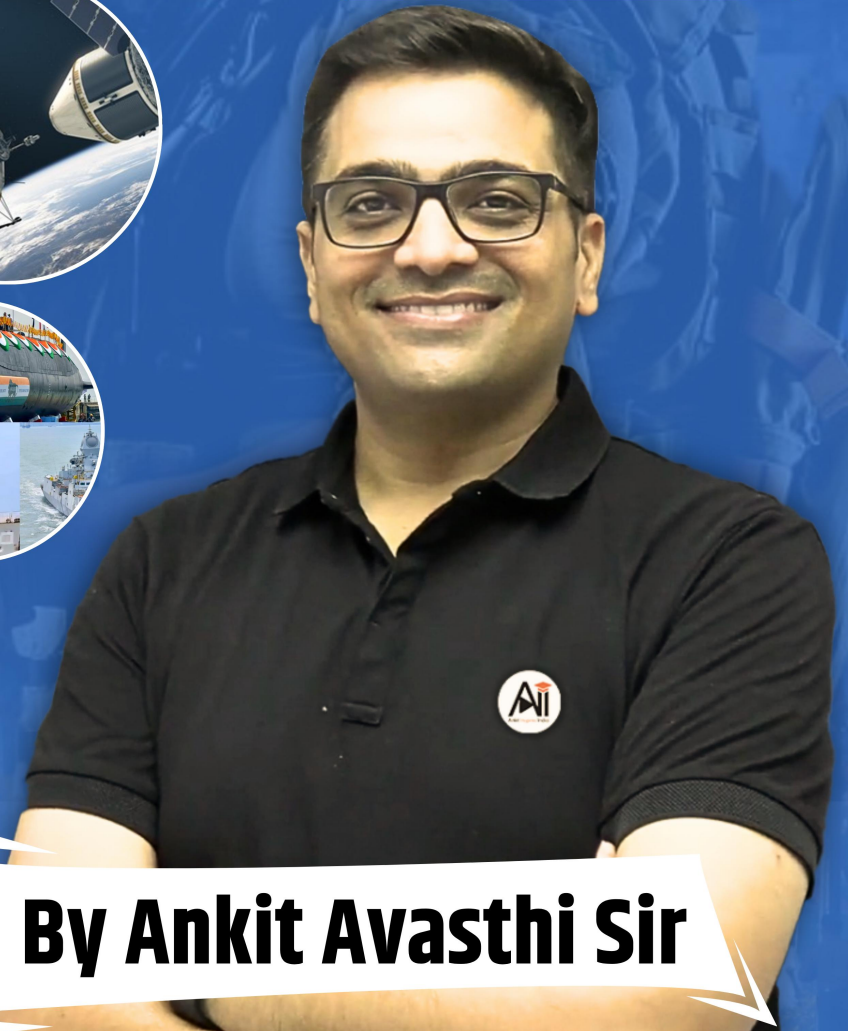**MONTH**
JANUARY, 2025

ENGLISH EDITION

PRACTICE QUETIONS

Key Point

1. International Relations
2. Polity and Governance
3. Indian Economy
4. Society & Social Justice
5. Internal Security
6. Environment
7. Science and Tech
8. Indian Art and Culture
9. Geography & Dis. Man.
10. Ethics
11. Famous Personalities
12. Practice Questions

By Ankit Avasthi Sir

Table of Contents

Table of Contents

Table of Contents

Table of Contents

GS FOUNDATION *For*

UPSC & STATE PSC

- ECONOMY - POLITY
- HISTORY - GEOGRPHY

1500X4
₹~~6000/-~~ ₹4500/-

- ✓ DAILY LIVE CLASSES
- ✓ WEEKLY TEST
- ✓ CLASSES PDF (HINDI+ENGLISH)
- ✓ LIVE DOUBT SESSIONS
- ✓ DAILY PRACTICE PROBLEM

COURSE VALIDITY 1 YEAR

GS FOUNDATION *For*

UPSC & STATE PSC

IF ANYONE INTRESTED IN ONLY

ECONOMY

FEE ₹ ~~2000/~~ ₹1499/-

- ✓ DAILY LIVE CLASSES
- ✓ WEEKLY TEST
- ✓ CLASSES PDF (HINDI+ENGLISH)
- ✓ LIVE DOUBT SESSIONS
- ✓ DAILY PRACTICE PROBLEM

COURSE VALIDITY
1 YEAR

1 International Relations

1.1. Quad completes 20 years of cooperation

Context:

The Quad foreign ministers celebrated the 20th anniversary of Quad cooperation and reaffirmed their commitment to a free, open, and peaceful Indo-Pacific amid China's growing aggression.

Key points about the Quad:

- **Quad**: The US, Japan, India, and Australia are a strategic forum that aims to promote regional security and economic cooperation in the Indo-Pacific region.
- **Objective**: Its main objective is to challenge China's growing influence, support democracy, human rights, and the rule of law, and promote an open and free Indo-Pacific region.

Formation of the Quad
• **2004 Tsunami:** The genesis of this group is associated with relief operations after the 2004 tsunami, in which the US, Japan, Australia and India jointly carried out relief operations.
• **It** was formally formed in the year 2007 on the suggestion of Japanese Prime Minister Shinzo Abe.
• **Australia's exit in 2008**: Australia dropped out in 2008 due to Chinese pressure and regional tensions.
• **Revival in 2017**: Australia rejoined the first formal Quad talks in 2017 after improving military ties.
• **Malabar Exercise**: The exercise started between India and the US in 1992, and involved Japan in 2015 and Australia in 2020.
• **Nature of the Quad:** It is not a formal alliance, but works through regular meetings and military exercises.

Key Initiatives of the Quad:

- **IPMDA for Maritime Area Awareness**: To enhance monitoring of illegal fisheries transmission and marine activities.
- **Quad Cancer Moonshot**: For measures against cervical cancer.
- **Open Radio Access Network (O-RAN): To make** the 5G ecosystem safer.
- **AI-ENGAGE**: To increase the use of artificial intelligence (AI) in the agriculture sector.
- **Quad Fellowships**: Promoting STEM education and arranging scholarships for graduate students.

Significance of Quad for India:

- **Maritime Security**: It safeguards India's maritime interests, and helps control piracy and illegal fishing.
- **Strategic Significance**: It is an important platform to counter China's aggressive policies in the Indo-Pacific region.
- **Economic Opportunities**: India is benefiting from programmes such as the Blue Dot Network and the Supply Chain Resilience Initiative.
- **Scientific Collaboration**: India is getting a boost through the Quad Fellowship in STEM education.

Relevance of Quad in Contemporary Global Context:

- **Strategic Significance**: The forum remains important to balance China's growing influence in the Indo-Pacific region.
- **Diverse Agenda**: The Quad focuses on everything from security to health, climate change, and other global issues.
- **Institutional Strengthening**: The Forum has stabilised through Summits and Ministerial Dialogues.

Challenges:

- **Lack of Formal Structure**: The Quad lacks a secretariat or a permanent decision-making body, which may limit some coordinated action.
- **Differing Priorities**: The national interests of the member countries differ, which has an impact on strategic cohesion.

- **China's Growing Influence**: China's influence continues to grow in the region through the BRI and other investments.

Way Forward

- **Institutionalization**: Formalizing decision-making and implementation mechanisms.
- **Quad Plus**: Including South Korea, New Zealand, and other countries will increase inclusivity.
- **Enhanced Resource Commitment**: Strengthening financing, especially for infrastructure, digital connectivity, and renewable energy projects.

The Quad, through its diverse programs and strategic initiatives, plays an important role to promote stability and cooperation in the Indo-Pacific region, but it needs more institutional support and coordination in the future.

1.2. Canadian Prime Minister Justin Trudeau resigns

Context:

Canadian Prime Minister Justin Trudeau has resigned as Prime Minister and leader of the Liberal Party. Trudeau will take office until a new leader is elected. After his resignation, preparations for the upcoming elections have started.

Why did Trudeau resign?

Pressure was mounting on Canadian Prime Minister Justin Trudeau to resign from his post, and this pressure continued for several months. His leadership became more isolated over time, and discontent within the party began to grow. Along with this, questions were also raised on Trudeau's policies in solving the country's economic problems, which eventually led to his resignation.

- In October, **24 Liberal MPs** publicly demanded Trudeau's resignation, making the situation more serious. With no strong successor within the party, the party is now facing a leadership crisis.
- **Inflation and the economic impact of the COVID-19** pandemic also increased dissatisfaction with Trudeau's leadership. Only 28% of people in Canada wanted him to run for re-election, and their approval rating had dropped to 30%.

After Justin Trudeau's resignation as Prime Minister, the Liberal Party has begun its search for a new leader. Melanie Jolie, **Kirsty Clark and Mark Carney** are among the potential candidates for the post. Canada is set to begin its Parliament session on January 27 and is likely to hold a vote of confidence and elections soon.

About Justin Trudeau:

Justin Pierre James Trudeau was born on December 25, 1971, in Ottawa, Canada. He is the second-youngest prime minister in Canadian history and is renowned for his charismatic leadership style. He was sworn in as Prime Minister in 2015 and remained in office till January 2024.

- **Education:** Justin Trudeau is the son of former Canadian Prime Minister Pierre Trudeau. Even though his family was active in politics, he chose education and teaching as a career. He attended Jean-de-Brébeuf College in Montreal and later received degrees in environmental geography from McGill University and the University of British Columbia.
- **Family:** Trudeau's family is very famous in Canadian politics. His father had served as the Prime Minister of Canada. He also had a brother, Alexander Trudeau, and a brother, Michelle Trudeau. In 2005 he married Sophie Grégoire, and they have three children – Xavier James Trudeau, Ella-Grace Margaret Trudeau, and Hadrian Gregégoire Trudeau.

- **Career:** Before entering politics Justin Trudeau worked as a high school teacher in Vancouver, where he taught French, math, and drama. In 2008 he won election as MP from Papineau, Quebec. In 2013 he became leader of the Liberal Party and aimed to improve the state of the party.

Justin Trudeau's Prime Minister's Tenure (2015-2024):

Justin Trudeau was sworn in as Prime Minister of Canada on 4 November 2015 and formed a Liberal Party majority government.

- He **cut taxes for middle-income Canadians and** raised taxes on those with the **top 1% of incomes**.
- He reintroduced the mandatory **long-form census** that was discontinued in **2010**.
- In 2021, he launched a **children's benefit program**, claiming that it lifted 400,000 children out of poverty.
- He **implemented** a carbon pricing policy, aiming for net-zero emissions by 2050 and a reduction of 30% greenhouse gas emissions by 2030.
- **To prevent housing price** increases, he set up a housing accelerator fund and restrictions on foreign buyers.
- In 2019, Trudeau's Liberal Party won the most seats in **the Canadian federal election** and formed a minority government.
- In the same year, he **initiated financial assistance programs to combat the COVID-19** pandemic, including CERB (Canada Emergency Response Benefit) and CEWS (Canada Emergency Wage Subsidy).
- He deployed the Canadian Armed Forces to long-term care homes in Quebec and Ontario, part of **Operation Laser**.
- In the 2021 election, his party won a **third term with** 160 **seats** and formed a second **minority government**.
- In 2022, he signed a **confidence and supply agreement** with the NDP, under which the NDP supported the Liberal government for the remainder of the 44th Parliament.
- He improved trade relations with the U.S. through the **CUSMA** agreement. The agreement included concessions to allow U.S. milk imports and to address tariffs on steel and aluminum.
- In 2024, the use of food banks **in Canada** reached an all-time high, which was a result of the global food crisis.

Justin Trudeau's Honors:

- On 6 February 2012, Justin Trudeau was awarded the Queen Elizabeth II Diamond Jubilee Medal **as a member of Canada's House of Commons**.
- On 16 May 2018, he received an honorary Doctor of Laws (**LL.D) degree from New York University** and also delivered the convocation address.
- On 19 June 2019, Justin Trudeau received the **Grand Cross** of the Order of La Played.
- On 23 August 2024, President of Ukraine Volodymyr Zelensky awarded the **Order of Liberty (Ukraine)** honor to Justin Trudeau for his contribution to strengthening Ukrainian-Canadian relations.

Changes in power in Canada affect India
• **Changes in visa policy:** If the Conservative Party comes to power in Canada, the current strict visa policies may be relaxed. This can make it easier for citizens of India to get work or study opportunities in Canada.
• **Improving diplomatic relations:** Under the leadership of Justin Trudeau, Canada had extended support to Khalistan supporters, which had strained relations with India. After a change of leadership, there may be a change in policy and there may be an improvement in relations.
• **Increase in Indian Immigration: There** was a slight decrease in the number of Indians moving to Canada in recent years, but Indian immigration may have increased after the change of leadership. Canada's immigration policies may be more favourable to citizens of India, leading to expansion of the Indian community.
• **Increased Economic Cooperation:** The change of government could give a fresh impetus to economic cooperation between Canada and India. Growth can be seen by new leadership in the areas of trade, technology and investment.
• **Geopolitical Affiliations:** Under the new government, Canada's foreign policy may be more aligned with India's interests. This can increase India's support on global issues, such as climate change, security, and economic reform.

1.3. India-Maldives Defence Cooperation

Context:

Defence cooperation between India and Maldives plays an important role in the bilateral relations between the two countries. Recently, India's Defence Minister Rajnath Singh, during his meeting with his Maldivian counterpart ensured that India remains committed to providing defence equipment and platforms to enhance the defence capabilities of the Maldives. The move reflects India's "neighbourhood first" policy and India's proactive approach to promoting regional security.

History of India-Maldives Defence Cooperation:

- **Historical Cooperation**: The history of defence ties between India and Maldives has been quite strong. India has always stood with the Maldives in times of crisis. In 1988, under Operation Cactus, India prevented a coup in the Maldives, and during the tsunami in 2004, India helped the Maldives.

- **Neighbourhood First Policy**: India's proactive effort to promote regional security is seen under India's "Neighbourhood First" policy and "Sagar" approach.

Major Projects of Defence Cooperation:

- **Infrastructure Projects for Maldives**: India built the Composite Training Centre (CTC) for the Maldivian National Defence Force (MNDF) and the Sifavaru port and repair facilities at Uthuru Thila Phalhu (UTF) Atoll.

- **Coast Guard Cooperation**: In October 2023, India announced the free repair of the Maldivian Coast Guard ship Hurawi.

- **System support**: India has handed over a coastal radar system built with an Indian grant of USD 15.8 million to the Maldives. It includes 10 radar stations.

- **Training and Capacity Building**: India has met the training needs of nearly 70% of MNDFs, and has trained more than 1,500 MNDF personnel at various Indian defence academies.

India-Maldives Bilateral Relations

Political Relations:

- India recognised the Maldives after independence in 1965 and established its diplomatic mission in Male in 1972.

- Both countries are founding members of the South Asian Association for Regional Cooperation (SAARC) and signatories to the South Asian Free Trade Area (SAFTA).

Business and Economy:

- A trade agreement was signed in 1981 to promote bilateral trade between India and Maldives.

- In 2024, India extended USD 400 million in aid to the Maldives and bilateral currency exchange of Rs 3,000 crore.

- State Bank of India issued treasury bills worth 100 million US dollars for Maldives.

- India remained the second largest trading partner of the Maldives in 2022, while in 2023 it became the largest trading partner.

- Indian imports mainly consist of scrap metals, while exports include engineering goods, pharmaceuticals, cement, and agricultural products.

- Visa-free entry for Indian business travellers in 2022 further enhanced commercial ties.

- In 2024, India and Maldives finalised a framework to promote the use of local currencies for cross-border trade.

Tourism:

- Tourism is extremely important to the Maldivian economy, contributing about a quarter to the gross domestic product (GDP) and about 70% to total employment (direct and indirect).
- India has become the largest source of tourists in the Maldives and Indians have been the leading in tourism contribution for three consecutive years (2020, 2021, and 2022).
- In March 2022, India and Maldives agreed on an Open Sky Arrangement to enhance connectivity between the two countries.

Significance of India-Maldives Defence Cooperation:

- **Geographical Significance**: The strategic location of the Maldives lies in the Indian Ocean, near major international shipping routes. It is an important maritime partner for India as the Maldivian waterways are vital for India's trade and energy imports.
- **Economic and Social Benefits**: India is a major supplier of essential commodities such as rice, medicines, and infrastructure materials to the Maldives. In the 2014 Male water crisis, India helped under Operation Neer.
- **Countervailing from External Influence**: China's growing influence in the Maldives is becoming a matter of concern for India. Investments in the Maldives through China's Belt and Road Initiative and the 'String of Pearls' could challenge India's strategic dominance.

Challenges of India-Maldives Defence Cooperation:

- **Geopolitical Rivalry**: China's growing influence in the Maldives is worrisome for India. Chinese investments, such as the Sinamale Bridge and military deals, are challenging India's strategic dominance.
- **Internal Political Changes**: Anti-India sentiments have also increased in the Maldives, which may pose some challenges in bilateral defence cooperation. The "India Out" **campaign in 2023** exposed the anti-India trend.
- **Security Crisis**: The growing presence of Pakistan-backed jihadi groups and radical forces such as ISIS can pose security threats to India, as these organizations can use the Maldives to target Indian interests.

Way Forward

- **Multilateral Cooperation**: Encourage Maldives' participation in regional frameworks such as the Indian Ocean Rim Association (IORA).
- **Maritime Security**: Strengthen trilateral cooperation between India, Maldives and Sri Lanka.
- **Infrastructure Projects**: India should prioritise projects like the Great Male Connectivity Project as an alternative to China's investment.
- **People-centric initiatives**: Focus on civil-military projects such as medical assistance and community infrastructure development.

1.4.   18th Pravasi Bharatiya Divas

Context:

The 18th Pravasi Bharatiya Divas (PBD), was celebrated on 9th January 2025 as part of the three-day event. The event emphasized the significant contribution of the Indian diaspora to the development and progress of the country.

18th Pravasi Bharatiya Divas (PBD) Conference 2025: Key Points

- **The 18th Pravasi Bharatiya Divas convention** was held in Bhubaneswar, Odisha between 8 and **10 January 2025**.
- It was formally inaugurated by Prime Minister Narendra Modi on 9 January **2025**.
- This year's **chief guest was the President of Trinidad and Tobago, Christine Carla Kangalu** .
- The Youth Pravasi Bharatiya Divas held on 8th January **2025** was felicitated by the CEO of Newsweek, **Dr. Dev Pragad**.

- The theme of the conference was **"Contribution of Overseas Indians in building a developed India"**, highlighting the role of Indian diaspora in India's development.
- **Five sessions** were held to discuss the contribution of Indian diaspora and their impact.
- **30 prominent overseas Indians were honoured with the** Pravasi Bharatiya Samman Award **2025 for their exceptional contributions**.

Introduction to Pravasi Bharatiya Divas:

Pravasi Bharatiya Divas (PBD) is celebrated every two years on **9th January**. This day **is dedicated to honouring the contribution of the Indian diaspora (NRIs** and PIOs) who have played their role in various fields in India and around the world.

- The event is organized by the Ministry of External Affairs and is celebrated as an important occasion.
- On this day, the **Pravasi Bharatiya Samman Awards** are given to NRIs, PIOs and organizations who have made outstanding contributions to India's development, supported India's causes, and played a role in improving India's image abroad.
- The event provides a platform for the Indian diaspora to interact and engage with the Government of India and the countrymen . It promotes **bonding and unity** among the Indian diaspora settled around the world.
- During the conference, the Indian diaspora **will share their** experiences and views, which encourage India's **development** and cooperation in various fields.

Overseas Indians Abroad	
Country	**Overseas Indians**
America	5,409,062
UK	1,864,318
United Arab Emirates	3,568,848
South Africa	1,700,000
Saudi Arabia	2,463,509
Myanmar	2,002,660
Malaysia	2,914,127
Kuwait	995,528
Oman	686,635
Canada	2,875,954

History of Pravasi Bharatiya Divas:

The suggestion to celebrate Pravasi Bharatiya Divas **was made by the** High Level Committee on Indian Diaspora constituted by the Government of India, which was headed **by L.M. Singhvi**. Based on the recommendations of this Committee, it was decided to celebrate Pravasi Bharatiya Divas on 8th January, 2002.

- Under this, the then Prime Minister **Shri Atal Bihari Vajpayee** announced to celebrate Pravasi Bharatiya Divas on 9 January **2002**.
- The day was chosen to commemorate the return of Mahatma Gandhi **to India from South Africa on 9 January 1915**. This return of Gandhiji is considered to be the beginning of **India's freedom struggle**.
- Mahatma Gandhi **is regarded** as the greatest Pravasi as he played a key role in changing the direction and future of India.
- After this, Pravasi Bharatiya Divas was officially celebrated for the first time in **the year 2003**.
- The event was initially held every year. It was sponsored by **the Ministry of External Affairs** and **the Confederation of Indian Industry (CII).**
- **In 2015** it was decided to celebrate the event every two years.
- It **is now organized as a** theme-based conference, in which issues related to overseas Indians and their **contribution to India**'s development are discussed.

Significance of Pravasi Bharatiya Divas Conference:

- **Contribution of Overseas Indians in the Development of India:** The main objective of Pravasi Bharatiya Divas is to recognize and honour the contribution made by the Indian diaspora to the development of India. It **includes their contributions in economic, technical, educational and social areas** such as welfare.
- **Strengthening Ties between India and the Diaspora:** The programme provides an opportunity to strengthen the bonds between India and its diaspora community. It **serves as a platform for promoting trade,** business and cultural exchanges, thereby improving cooperation between India and other countries.

- **Enhancing India's Global Identity:** The PBD event showcases India's cultural heritage, values, and achievements at the global level. It helps in improving India's **capacity** and international image.
- **Collective Efforts for "Developed India"**: Every year the theme of PBD is based on collaboration with overseas Indians to make India a "Developed India". The conference discusses how the Indian community can support the government's efforts in areas such as infrastructure, sustainability and technological innovation.
- **Engagement of Young Overseas Indians:** Special attention is given to youth participation in Pravasi Bharatiya Divas, in which events such as **Youth Pravasi Bharatiya Divas** are organized. It aims to connect the young diaspora to India and inspire them **to contribute to the development of the country through entrepreneurship, technology and social innovation**.

Government of India Initiatives for NRIs and OCIs
The Government of India has launched several important schemes to connect Overseas Indians (NRIs) and Foreigners of Indian Origin (OCIs) to India and meet their needs. The major initiatives are as follows:
• **Overseas Citizenship of India (OCI) Scheme:** Under this scheme, People of Indian Origin (PIOs) can visit India without a visa. At the same time, they are also given economic, educational and cultural benefits.
• **Know India Programme (KIP):** The programme has been launched to connect the overseas Indian youth with the land of their ancestors and to give them information about the history, culture and development of India.
• **Vajra Yojana (VAJRA): This initiative inspires** leading NRI experts such as scientists, engineers, and doctors to make short-term services in India's public organizations, enabling them to leverage their experience to India.
• **Scholarship Program for Migrant Children:** This scheme provides financial assistance to Indian migrant children to pursue higher education.
• **E-Migrate System:** This system handles data of foreign employers and ensures the safety of Indian migrant workers, so that their exploitation can be prevented.
• **Pravasi Teerth Darshan Scheme:** This scheme has been launched to make it easier for the diaspora to visit religious and spiritual sites.
• **Indian Community Welfare Fund (ICWF):** This fund is designed to help Indian citizens settled abroad in emergency situations and other needs.
• **Pravasi Kaushal Vikas Yojana (PKVY):** The scheme focuses on skill development of Indian workers working abroad, enabling them to succeed in the global markets.

1.5. Indo-US nuclear deal

Context:

The United States has removed three Indian nuclear entities — Bhabha Atomic Research Centre (BARC), Indira Gandhi Atomic Research Centre, and Indian Rear Earths Limited — **from the US Entity List**. The decision is an important step towards advancing the Indo-US nuclear deal and strengthening bilateral strategic relations.

Nuclear Deal and U.S. Sanctions:

Nuclear agreements serve as a framework for cooperation in peaceful nuclear energy development between two or more countries, while addressing concerns related to nuclear proliferation.

- **The main elements of nuclear agreements**
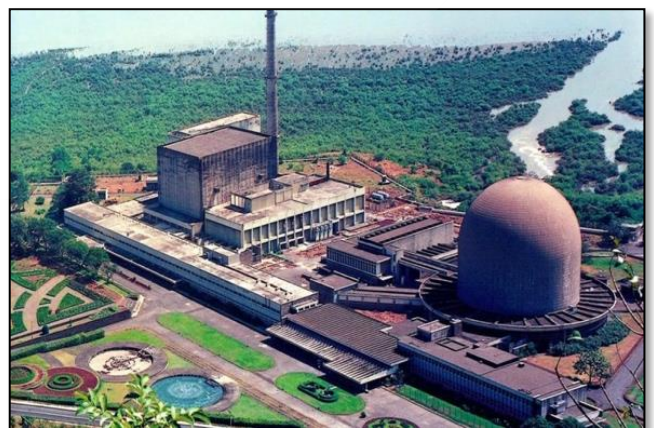
- **Civil Nuclear Cooperation**: These agreements allow for the exchange of technology, fuel, and expertise for the peaceful uses of nuclear energy, such as power generation and medical applications.
- **Non-Proliferation Goal**: This is an important aspect that ensures that nuclear technology and materials are not used for weapons development. This is in line with international treaties such as the **Nuclear Non-Proliferation Treaty (NPT).**
- **Nature of US Sanctions**: To maintain compliance with **global frameworks such as** the NPT, the United States prohibits the transfer of nuclear materials and technology. These restrictions are meant to prevent misuse of nuclear resources.
- **U.S. Entity List**: This is a list that includes foreign individuals, businesses, research institutions, and organizations that are identified as threats to U.S. national security or foreign policy.
  - **Right to Decision**: The **End-User Review Committee (ERC) decides to add**, remove, or modify these entities. ERC
  - It **consists of representatives of the ministries of commerce, state, defense, energy,** and sometimes **finance**.
  - **Compiler**: This list **is compiled by the Bureau of Industry and Security** (BIS) under the **US Department of Commerce**.
  - **Purpose of the list**
    - **Preventing Unauthorized Trade**: Prevents the export of technologies and services that could harm U.S. interests.
    - **National Security**: Limits access to sensitive elements that may be used in support of terrorism or **destructive weapons (WMD)** programs.
    - **Protects Foreign Policy**: Sanctions entities that are involved in activities against U.S. foreign policy objectives.

Importance of Easing of US Sanctions:

The move to ease US sanctions points to a broader agenda, aimed at achieving strategic, geopolitical and economic goals. This decision strengthens partnerships and addresses global concerns. Let's understand why this is important:

Indo-US Civil Nuclear Agreement

- The Indo-US Civil Nuclear Agreement (also known as the 123 Agreement), **signed in** 2008, marked a significant shift in relations between India and the US.
- The agreement provided India access to **civilian nuclear technology** and fuel, which strengthened the strategic ties between the two countries.

Key Aspects of the Agreement

- **Nuclear Fuels and Technology**: India got access to nuclear reactors, fuel, and civilian nuclear technology.
- **Safeguards**: India pledged to separate its civil and military nuclear programmes and place several reactors **under IAEA** (International Atomic Energy Agency) safeguards.
- **Nuclear trade**: The United States **lifted the** moratorium on nuclear trade with India, enabling cooperation in nuclear energy.
- **Nuclear Cooperation**: The agreement gave the US an opportunity to help develop India's civil nuclear energy programme.
- **Energy security and stability**: Under the agreement, India will meet its growing energy needs and **reduce dependence on fossil fuels**.

Challenges

- **Cost and Responsibility**: High costs, responsibility concerns, and delays in negotiations posed major challenges in the implementation of the agreement.
- **Safety Concerns**: Concerns related to nuclear safety, especially **after the** Fukushima accident (2011), led to protests and retardation in reactor development in India.

Regulatory Restrictions: **Under Section 810** of the **US** Atomic Energy Act, US prohibits nuclear vendors from carrying out construction or nuclear design work in India.

- **Strengthening Strategic Partnerships:** This step has been taken to promote mutual trust and shared goals with allies and partner countries. India-US cooperation plays a critical role in ensuring the security of critical technologies and robust supply chains, especially **in areas such as semiconductors** and **clean energy**.
- **Countering Global Rivals:** The move is to limit the influence of countries such as China and Russia, which play a significant role in global nuclear trade. The move ensures that **advanced technologies** are not misused, such as Russia's **S-400 air defence system**.
- **Safeguarding Critical Supply Chains:** One of its key objectives is to enhance critical minerals and **clean energy** supply chains, as both countries **are faced with** a growing demand for renewable energy technologies.
- **Promoting Energy Security:** Nuclear energy **is considered a clean and reliable alternative to** fossil fuels, which is essential for reducing carbon emissions. This partnership **helps countries move towards** a carbon-less economy, thereby tackling climate change.
- **Economic Opportunities:** India's growing role in global manufacturing, with over **25%** of iPhones being produced in India, highlights the economic potential of this partnership. This decision **promotes job creation and** export growth **in high-tech industries**. The objective of the US is to promote close cooperation with India in the areas of **joint research and development** and exchange of science and technology.

Implications for India of easing US nuclear sanctions:

The easing of nuclear sanctions by the US has significant implications for India in several strategic, energy, and geopolitical spheres.

- **Increased Civil Nuclear Cooperation**: The India-US Civil Nuclear Agreement (2008) laid the foundation for India to gain access to nuclear technology and fuel. The change is expected to further strengthen cooperation in the construction of nuclear reactors and fuel supply.
- **Progress in Energy Security**: The easing of sanctions could significantly increase India's nuclear power capacity, which will help meet the country's growing energy needs. **Keeping in mind India's target of net-zero emissions by** 2070, this collaboration can help ensure a stable and **sustainable energy** future for India.
- **Promoting Strategic Independence**: Better access to nuclear technology will help India reduce its dependence on certain countries. By strengthening partnerships with the US, France, Japan and other nuclear technology leaders, India can enhance its strategic autonomy and gain greater control over its energy security.
- **Geopolitical Benefits for Regional Stability**: India's growing partnership with the US establishes it as a major player in South Asia. This cooperation helps balance China's growing nuclear partnership with Pakistan, thereby contributing to regional stability.

Challenges Associated with Easing of US Nuclear Sanctions:

The easing of nuclear sanctions by the US can bring many benefits to India, but there are some challenges and criticisms associated with it:

- **Concerns about Nuclear Proliferation**: One of the major criticisms of this waiver is that it could increase the risk of nuclear proliferation. While India has abided by the nuclear non-proliferation rules, increased access to nuclear technology could increase the risk of development of nuclear weapons in the region, especially in the context of neighbouring countries such as Pakistan.
- **Regional Geopolitical Imbalance**: The strengthening of the Indo-US nuclear relationship may lead to tensions with other regional powers. Countries like China and Russia may feel this move as a shift in the balance of power, which could affect the regional power equation.
- **Domestic Political Resistance**: There may be concerns about safety and environmental impacts of the expansion of nuclear power in India. Political parties and groups may question the benefits of nuclear power, especially in the context of alternative renewable energy sources (such as solar and wind power) that are currently being debated.

1.6. Kampala Declaration for Africa Agrarian Reform

Context:

Recently, a special summit of the African Union was held in Kampala, Uganda. The conference was based on **the Comprehensive African Agricultural Development Programme (CAADP).** During this summit, African leaders announced the adoption of the Kampala Declaration for the transformation of Africa's agri-food systems.

Highlights of the African Union Summit 2025:

- The Kampala Declaration **was adopted for the transformation of Africa's agri-food systems from 2026** to **2035**.
- The CAADP **Kriyavali Plan for the next decade** aims to build sustainable and resilient agri-food systems.
- This summit replaced the **Malabo Declaration**.
- African leaders approve climate-smart innovations **to address food security amid climate change**.
- The African Union has **set ambitious targets to end hunger and malnutrition by 2030**.
- The new strategy aims to tackle challenges such as food security, climate change and economic problem.
- The summit emphasized the need to ensure coordination **of policies in agriculture, nutrition and economic growth**.
- The summit was attended by leaders of various countries including Kenya, Ethiopia, Angola, Burundi and Somalia.

Overview of the Kampala Declaration:

The Kampala Declaration includes a number of key agreements addressing important issues related to Africa . This is **in line with the overarching objective of the** 2063 Agenda, which envisages a prosperous, integrated and peaceful Africa. It presents a roadmap for change, with clear implementation and monitoring strategies that will guide Africa's progress.

Key elements of the Kampala Declaration:

- **Changes in Agri-Food Systems:** To address food security and agricultural challenges, this declaration emphasizes the need to create resilient **food systems** that can withstand climate change and economic shocks.
- **Climate Change and Migration:** The Kampala Ministerial Declaration, which is based on migration, environment and climate change, emphasizes the need for urgent action to mitigate the effects of climate change.
- **Human Development and Social Change:** The Kampala Declaration also draws attention to political, economic, and human development. It reaffirms the commitment to end poverty, education and disease while promoting social equity and sustainable development.
- **Support of the International Criminal Court (ICC):** In addition to socio-economic issues, the declaration advocates continued cooperation with the International Criminal Court (ICC) to ensure justice and accountability in Africa.

Comprehensive Africa Agricultural Development Programme (CAADP):

The Comprehensive Africa Agricultural Development Programme (CAADP) was launched by **the African Union (AU) in 2003**. It is part of the New Africa Development Partnership (NEPAD).

- It aims to increase food security, nutrition and income in Africa by addressing the challenges faced in the agriculture sector.
- The program is based on principles such as ownership, participation, and evidence-based decision-making.
- This program works to coordinate policies among African countries.

Aim:

- **Increasing Agricultural Productivity:** The main objective of the CAADP is to increase agricultural productivity in Africa.

- **Increased Public Investment in Agriculture:** The CAADP advocates governments to increase significant investment in the agriculture sector, so as to promote agricultural growth.
- **Stimulating Economic Growth:** The CAADP strives to promote economic growth by focusing on the agricultural sector, especially through the increase in agricultural production.
- **Budget and Growth Targets:** The CAADP has set ambitious targets to achieve a 6% annual increase in agricultural productivity.

Development of CAADP
The Comprehensive Africa Agricultural Development Program (CAADP) was established in 2003, and has undergone significant changes since then. The program has been shaped through a series of announcements to set clear targets for agricultural transformation in Africa.
• **Maputo Declaration (2003):** The Maputo Declaration on Agriculture and Food Security in Africa in 2003 officially introduced the CAADP. The declaration demanded African governments to allocate at least **10%** of their national budgets to the agricultural sector.
• **Malabo Declaration (2014): In** 2014 African presidents adopted the Malabo Declaration, which set more ambitious targets for the agricultural sector. The Malabo Declaration set goals that were consistent with the **Sustainable Development Goals (SDGs).** It emphasized poverty alleviation and sustainable agricultural growth. The Malabo Declaration presented a comprehensive vision for Africa's agricultural future, which was concluded in **2025**.
• **Post-Malabo Agenda (2025):** The Post-Malabo Agenda was adopted in January 2025, ushering in a new phase of agrarian transformation in Africa. The agenda aims to increase **the continent's agri-food production by** 45% by **2035**. A key goal is to boost regional trade, and for this, free cross-border movement of agricultural textiles and services will be ensured by leveraging the African Continental Free Trade Area (AfCFTA).

Significance of Kampala Declaration in Africa:

- **Climate Change:** Africa is one of the continents most affected by climate change, which has a direct impact on migration patterns. The Kampala Declaration has emphasized adaptation strategies and better human mobility management to address these challenges.
- **Food Security for the Growing Population:** Africa's population is projected to reach 2.5 **billion by 2050**. The declaration sets out a roadmap to ensure food security for this rapidly growing population.
- **Internal Displacement:** According to the 2023 report **of the** Internal Displacement Monitoring Centre, more than 7.5 **million new internal displacement cases were recorded in just one year**. If timely intervention is not done, the number of displaced people in Africa could reach 105 million. The Kampala Declaration focuses on strengthening tolerance-building initiatives across the continent to address issues of internal migration and displacement.
- **Persistent Hunger and Malnutrition:** Hunger rates in Africa are still high, and **20.4%** of the population faces food insecurity according to the **FAO**. The Kampala Declaration emphasizes on tackling malnutrition and improving nutritional security.
- **Not on track for tolerance: As of** 2023, only two countries were on track to meet **the tolerance building targets**. The declaration has stressed the need to intensify efforts to strengthen resilience to climate and socio-economic challenges.
- **Commitment to Achieving Important Goals: The** 2024 Biennial Review report indicated that Africa is still lagging behind in meeting important commitments, such as ending hunger by 2025. The Kampala Declaration calls for new efforts and focus to achieve these ambitious goals by **2035**.

1.7.   Donald Trump, the 47th President of the United States.

Context:

Donald Trump was sworn in as the 47th President of the United States on 20 **January 2025**. Soon after becoming president, he issued a number of important **executive orders** and **directives**, indicating a decisive shift in the direction of policy.

- The swearing-in ceremony **took place at the Capitol Rotunda**.
- Donald Trump (78-years) was sworn in as the 47th President of the United States for his **second term**.
- **J.D. Vance** (40-year) was sworn in as the 50th Vice President **of the United States**.

Executive Orders issued in Donald Trump's second term:

- **End of birthright citizenship**: Trump signed an order that aims to end birthright citizenship guaranteed by the **14th Amendment**. The order calls for a ban on the issuance of citizenship documents to U.S.-born individuals within 30 days.
- **Pulling out of the World Health Organization (WHO):** The US has decided **to withdraw from** the WHO in 12 months and stop all financial contributions, which will lead to significant changes in the relationship between the US and the global health body.
- **Pulling out of the Paris Climate Agreement**: Trump reaffirmed his commitment to withdraw from the Paris Climate Agreement, reiterating his 2017 decision. His focus will be on national climate policies, not on the global climate framework.
- **Renaming the Gulf of Mexico**: Trump issued an order to change the name of the Gulf of Mexico **to Gulf of America**.
- **Control of the Panama Canal**: Trump proposed that the Panama Canal be brought back under US control. An official order has been issued for this.
- **Declaration of National Border Emergency**: Trump declared a national border emergency to prepare the way for deploying troops to the US southern border to strengthen immigration policies.
- **Cancelling Electric Vehicle Targets**: Trump rescinded Biden's mandate, which spoke of ensuring that **50%** of all newly sold vehicles are electric by **2030**. He emphasized the intention to normalize auto pollution standards.
- **Declaration of National Energy Emergency**: Trump **declared a national energy emergency to boost** fossil fuel production, which will accelerate the approval of drilling permits in Alaska and lift restrictions on gas exports.
- **Pardon of January 6 Convicts**: Trump ordered pardons for individuals involved in the January 6 Capitol attack and directed the Justice Department to dismiss the related legal cases.
- **Banning Gender Ideology in Federal Policies**: Trump ordered the elimination of gender ideology in federal policies. He confirmed that only two genders—male and female—would be officially identified in government documents.
- **Commerce and External Revenue Service Reform**: Trump announced significant reforms to the business system and planned to set up an External Revenue Service to collect revenue from foreign sources . He proposed imposing **10% tariffs on global imports,** 60% on Chinese products, and 25% **on goods coming from Canada and Mexico**.
- **Harsh Immigration Policies**: Trump declared a national emergency to stop illegal immigration at the **U.S.-Mexico border** and implement a plan to send immigrants to their home countries. He also promised to re-implement the "**Wait in Mexico**" policy and strengthen border security.

What are Executive Orders?

- **Executive orders** are orders that allow the President of the United States **to manage the actions of** the federal government, direct ministries, or address specific national issues without requiring approval from Congress.

- These orders **derive their power from Article II** of the Constitution, which empowers the President to exercise executive power over various government functions.
- An American president can issue any number of executive orders during his term, as the number of these has not been determined.
- Prior to the order being issued, these are reviewed **by** the Office of Legal Counsel, to ensure that they comply with U.S. laws.
- **In** 2017, during President Trump's tenure, he made decisions on **oil pipeline** projects and ordered the rapid closure of government departments.

Global Impact of Trump's Executive Orders:

- **Immigration and Border Controls**: Trump's executive orders will have a profound impact on immigration, such as the **"stay in Mexico" policy**, which may have global consequences in the future.
- **Trade Policy and Tariffs**: Trump's decision to impose tariffs on Chinese goods (60% on China products) and against other trade partners such as **Canada and Mexico** have reshaped global trade standoffs. Their **"America First"** approach could lead to a trade war.
- **Environmental Policies**: Trump's decision to pull out of the **Paris Climate Agreement** undermined efforts to fight global climate change. The exit of the US, which is the **second largest emitter** of greenhouse gases, could have a significant impact on global climate change policies. This will also weaken the **Green Climate Fund**.
- **Middle East diplomacy**: Trump's executive order could affect the geopolitical balance of the Middle East in response to his earlier decisions such as recognition of Jerusalem as Israel's capital and the withdrawal of US troops from Syria. These decisions are likely to create tensions with the Palestinian leadership and lead to changes in the regional coalition.
- **Renegotiation of Trade Agreement**: Trump renegotiated key international trade agreements, such as the **USMCA (United States-Mexico-Canada Agreement),** which would replace NAFTA. This could have a major impact on the economy of North America. His decision has affected global trade policies.

Paris Agreement
• **Acquisition**: The Paris Agreement **was adopted in 2015**.
• **Objective**: It is a global environmental agreement, which aims to tackle climate change.
• **The goal**: to keep global temperature rise below 2°C above pre-industrial levels, and limit it to 1.5°C.
• **Greenhouse Gas Emissions**: All countries need to reduce their emissions, and each country sets its own targets.
• **Climate Finance**: Developed countries are expected to provide financial assistance to developing countries in combating climate change.
• **Review mechanism**: Every five years, countries have to review and improve their climate actions.
• **Global Collaboration**: It inspires local governments, businesses, and other sectors to contribute towards climate goals.
• **India's Commitment**: India signed **the Paris Agreement in** 2016 and has promised to reduce its carbon intensity by 33-35% against 2005 levels by **2030** and increase forest cover to absorb excess carbon dioxide.
Panama Canal
• The Panama Canal is **an 82-kilometer-long** artificial waterway located in Panama, connecting the Atlantic and Pacific Oceans.

- It divides North and South America, and forms an isthmus **(narrow land strip)** between the two continents.

- Ships use the Panama Canal **to avoid dangerous journeys around Cap** Horn, saving time and distance.

- This canal is operated by the **Panama Canal Authority**.

- This canal lifts ships through the lock **to Lake Gatoon** and then lowers them down to continue their journey.

- This waterway is different from natural narrow waterways, such as the Strait of Gibraltar, which connect large water bodies.

Gulf of Mexico

- The Gulf of Mexico is a **vast water area**, surrounded by the southeastern United States, Mexico, and Cuba.

- It is **the largest gulf in the world** and a marginal ocean of the Atlantic Ocean.

- The Gulf of Mexico was formed **300 million** years ago, when the sea floor was submerged due to tectonic activities.

- Two important rivers, the **Mississippi River** and **the Rio Grande**, contribute water to the bay.

- This bay is connected to the Atlantic Ocean **through the Florida Strait**.

- The average depth of the bay **is 1,615** meters, which includes both deep water and surface continental shelf areas.

- The region **has** a tropical **to** subtropical climate, and is frequently hit by hurricanes, tornadoes, and typhoons.

Impact of Trump's Executive Orders on India:

- **Trade relations and tariffs**: Under Trump's **"America First"** trade policy, India could face high tariffs on goods exported to the US market. This could affect India's **trade surplus** ($118.8 billion), and India in turn face tough retaliatory moves in areas such as technology and agriculture.

- **Impact on H-1B Visa Holders**: Trump's tightening of **H-1B visa** rules will affect Indian IT professionals. The increase in the minimum wage limit may reduce the number of Indian working professionals, who can apply for this visa.

- **Foreign Direct Investment (FDI) and Economic Impact**: Trump's policies could lead to an increase in the value of the US dollar, making it costlier for India to invest in the US. This **could lead to Indian businesses being less interested in investing in the US**, which could reduce India's **FDI** (which was $3.7 billion in 2022).

1.8. Preliminary Examination

1.8.1. India-Australia Economic Cooperation and Trade Agreement

The **India-Australia Economic Cooperation and Trade Agreement (Ind-Aus ECTA)** has completed two years. The agreement has **created new prospects for MSMEs,** businesses and employment in both countries, thereby strengthening bilateral ties.

Key points on Ind-Aus ECTA:

1. **Production and import utilization:** On the completion of two years of the agreement, **export utilization reached 79%** and **import utilization 84%.**
2. **Goal of Developed Nation:** The agreement is in line with India**'s vision of becoming a developed nation by 2047**.
3. **Increased Trade:** The agreement strengthened economic and trade cooperation between the two countries.

India-Australia Economic Cooperation and Trade Agreement (Ind-Aus ECTA):

1. **Start and Objectives:**
   o The agreement **entered into force on 29 December 2022**.
   o Provides an institutional mechanism **to promote and improve business**.
2. **Highlights:**
   o **Australia's Contribution:**
     ▪ Provides 100% primary market access **on tariff lines**.
     ▪ Benefits to India's **labour-intensive export sectors such as textiles, leather and jewellery**.
   o **India's Contribution:**
     ▪ More than 70% of tariffs provide primary access on lines.
     ▪ This includes raw materials and intermediates of Australia's interest, such as **coal, mineral ores and wine**.

India-Australia Business Services:

1. **Australia's Commitments:**
   o Provides 135 **sub-sectors for India's services exports**.
   o Provides **best-favoured nation (MFN) status across 120 sub-regions**.
2. **India's Commitments: Provides access to** 103 **sub-sectors for Australia**'s services.
3. **Strategic Partnership:** Australia is an important strategic partner for India and is part of the **Quad**, **the Tri-Regional Supply Chain Initiative**, and **the Indo-Pacific Economic Forum (IPEF).**

India-Australia Economic Cooperation

Strategic Partnership

- Australia is an important **trade and strategic partner** of India.
- Both countries **are part of the Indo-Pacific** Economic Forum **(IPEF) and the Tri-Regional** Supply Chain Resilience Initiative (SCRI), which aim to strengthen supply chain resilience in the region.

Foreign Direct Investment (FDI)

- **FDI from Australia stood at $307.2 million** in January-September **2023**, a seven-fold increase from $42.43 million **in the full year of 2022**.
- **FDI in consulting services stood at $248** million, up from $0.15 **million in 2022**.

Trading Conditions

- In FY23, **India was Australia's 9th largest trading partner**, and **Australia was India's 13th largest trading partner**.

Future trading

- Trade between India and Australia is projected to reach **$45-50 billion by 2035**.

Way Forward

1. **Strengthening the Indo-Pacific Approach:**
   - India and Australia are committed to building a **resilient, inclusive and open Indo-Pacific region**.
   - Both countries **are active members of the QUAD, the Indo-Pacific** Economic Framework (IPEF), **and** the Supply Chain Resilience Initiative (SCRI), which also includes Japan.

2. **Comprehensive Economic Cooperation Agreement (CECA):** Negotiations are underway on **CECA** to further the outcomes of the ECTA, which aims to enhance **cooperation in economic integration** and **strategic areas**.

3. **Future Trade Ambitions:** The two countries **are aiming to reach bilateral trade to AUD 100 billion by 2030**.

1.8.2. India's Rohingya refugee policy

India's Rohingya refugee policy has again come under the spotlight due to a report that highlighted the plight of Rohingya refugees living in detention centres across the country.

Key Points of the Rohingya Refugee Policy Report (Report on Rohingya Refugees):

1. **Joint Report:** This report has been prepared jointly by The Azadi Project (an American non-profit) and Refugees International.

2. **Violation of Human Rights:**
   - The report highlighted "serious violations" of the Constitution and human rights.
   - India has been criticized for failing to live up to its obligations under international human rights treaties.

3. **Detention despite the crime:**
   - Many Rohingya refugees are still in detention after completing their sentences.
   - This was revealed in interviews with detainee individuals, their families and legal representatives.

4. **Pathetic Situation:** The living conditions of Rohingya refugees in detention centers are extremely poor and inhumane.

5. **Need:** The need for reform in India's policy and practice has been underlined.

Rohingya: An Introduction

Background:

- **Ethnic Group:** The Rohingya are a Muslim-majority ethnic group who mainly live in the western province of Rakhine in Myanmar.
- **Language:** They speak a dialect of Bengali, which is different from Burmese, the common language of Myanmar.

Citizenship and Rights:

- **Denial of citizenship:** The Myanmar government does not grant full citizenship to the Rohingya. They are considered to be migrants of colonial times, while they have been residing in the country for a long time.
- **Livelihood and Rights Violations:**
  - The Rohingya community is denied participation in government services.
  - There is a strict ban on their movement outside Rakhine state.

Issues related to Rohingya refugees
1. **Absence of Refugee Policy in India:** There is no standardized refugee policy in India, which leads to discriminatory treatment of refugees.
2. **Arbitrary Arrest and Detention:** Rohingya refugees, who are registered under the UNHCR (United Nations High Commissioner for Refugees), are arbitrarily detained and implicated in criminal cases, unlike other groups (such as Tibetan and Sri Lankan refugees).
3. **Impact of Citizenship Amendment Act, 2019:** The CAA, 2019 excludes Muslims from benefits, marginalising communities such as the Rohingya.
o The Act grants citizenship to non-Muslim religious minorities, but the Rohingya are not covered under it.
4. **Lack of Legal Representation:** Due to lack of funds and the cancellation of FCRA licenses of civil society organizations, Rohingya refugees have difficulty in accessing legal aid.
5. **Repressive Detention Conditions:**
o The condition of the detention centres is very pathetic.
o Overcrowded and inhumane living conditions.
o Lack of basic amenities and a dignified standard of living.

India's Stand and International Obligations:

1. **India's Position**
   - India is not a signatory to the 1951 Refugee Convention.
   - Rohingya refugees are considered "illegal migrants" under the Foreigners Act, 1946 and the Passport Act, 1967.

2. **International Obligations:**
   - India is a member of the ICCPR, which is expected to follow the principle of non-refoulement.
   - India has also ratified the Convention on the Rights of the Child and the Convention on the Elimination of Racial Discrimination.
   - The Convention Against Torture has been signed but not ratified.

3. **Principle of Non-Refoulment:** Prohibits deportation of one to a place where torture or inhuman treatment can take place.

1.8.3. Suez Canal Expansion

Egypt has tested a new 10-kilometer-long extension of the Suez Canal. The expansion is aimed at reducing the impact of water and air currents on shipping as well as increasing the overall capacity of the canal.

Background: Suez Canal Extension

Objective of the Project:
- The project began after an $8 billion expansion in 2015
- Its main objective is to improve the efficiency of the canal.

Significance of Suez Canal:
- This canal is a major source of foreign exchange for Egypt.
- Recent years saw revenues fall by up to 70%, which was caused by attacks on shipping by Houthi rebels in the Red Sea.

Capacity to work:
- The expansion will improve navigational safety.
- The impact of high winds and sandstorms will be reduced.
   - **Example:** In 2021 the Ever Given ship was stuck in the Suez Canal, disrupting trade for a week.

About Suez Canal

- The Suez Canal connects Port Said (Mediterranean Sea) to the Indian Ocean through the city of Suez (Red Sea).
- It is an important international shipping route, which allows ships to travel between Europe and Asia without having to cross the African continent.

Geographical Location

- This canal is located in the northeast of Egypt and passes through the Isthmus of Suez.
- The length of the canal is about 193 km, extending from Port Said in the north to the city of Suez in the south.
- This canal separates the African continent from the Sinai Peninsula.

History of Suez Canal:

1. **Initial Thought:** The idea of building a canal through the Isthmus of Suez dates back to ancient times.
2. **Work:**
   - In 1858 the Universal Suez Ship Canal Company was entrusted with the task of canal construction.
   - In 1869, the 193 km long canal was opened for international shipping.
3. **Nationalization:** Egypt nationalized the canal during the Suez crisis in 1956.
   - It was reopened to international shipping in 1957.

Significance of Suez Canal:

- It is one of the world's most used shipping routes, handling about 10 percent of world trade volume every year.
- On an average, 50 ships pass through the canal every day, carrying goods worth about USD 9.5 billion.
- Goods going through this route range from crude oil to perishable products.
- Goods made in China that are shipped to Europe also pass through the Suez Canal, leaving the long route around Africa.

For Energy Security:

- The canal is an important route for the shipping of crude oil and other hydrocarbons from the Gulf

countries (such as Saudi Arabia) to Europe and North America.

For Egypt:
- Before the pandemic, it contributed 2% to Egypt 's GDP.
- In 2022, the canal generated $8 billion in revenue.
- In 2022, 23,851 ships passed through this canal.

For India:
- India' s $200 billion trade with North America, South America and Europe passes through this route.
- The canal is crucial for India's energy security, especially for imports of ethane and crude oil.
- It allows the Indian Navy to maintain a presence in the region and participate in global naval operations.

1.8.4. Russian gas exports to Europe halted

Russia's oldest route to supply gas to Europe, which operated for more than 40 years, closed on 1 January 2025. The move came after Ukraine's Naftogaz refused to renew a five-year transit agreement with Gazprom.

Key points for the closure of Russian gas exports:
- **End of Transit Agreement:**
  - The five-year gas transit agreement **between Russia and Ukraine expired on 1 January 2025**.
  - **Ukraine refused to renew the agreement due to national security concerns amid the war.**
- **Impact on Gas Transit:**
  - Ukraine's pipelines accounted for **nearly half of Russia's gas exports to Europe**.
  - As part of this move, Europe has stepped up efforts to reduce dependence on Russian energy.

Wider Impact:
- **Financial Loss:**
  - Ukraine could suffer an estimated **$800 million annual loss in transit fees**.
  - Gazprom is likely to suffer **an annual gas sales loss of about $5 billion**.
- **Europe's Energy Transition:**
  - **Since 2022, Europe has** made efforts to diversify energy sources.
  - Supplies continue to flow to Turkey, Hungary and Serbia through alternative pipelines such as Turkstream.

- **Affected Areas:**
  - Moldova, which is highly dependent on Russian gas, could cut its gas consumption by one-third.
  - Countries such as Slovakia and Austria have managed alternative supplies.
- **Strategic blow to Russia:**
  - Russia's dominance in the European gas market **dropped significantly after 2022 to 35%.**
  - **The closure of pipelines such as Yamal-Europe and Nord Stream** has further affected Russia's energy exports.

About Ukraine Gas Route:
- **Soviet-era pipeline network:**
  - **The Urengoye-Pomari-Uzhgorod pipeline** is a major Soviet-era gas pipeline carrying gas from Siberia.
  - The pipeline passes through the city of Sudhja, located in the Kursk region of Russia, which is now under the control of Ukrainian military forces.
- **Gas Flow:**
  - This pipeline **carries gas from Ukraine** to Slovakia.
  - In Slovakia, this gas pipeline splits into different branches, which go to the Czech Republic and Austria.
- **Alternative Supply Sources for Europe:**
  - **Diversification:** The EU has drastically reduced Russia's dependence on gas, and has used various alternative sources in its place:
  - **Liquefied natural gas (LNG) obtained from the United States, Qatar and other countries**
  - Pipeline imports from Norway and North Africa
- **Surviving routes:**
  - Other major **Russian gas routes, such as Yamal-Europe (through Belarus) and Nord Stream (through the Baltic Sea), are no longer in operation**.
  - The Turkstream pipeline remains as an option, supplying gas to Turkey and parts of Central Europe, but its capacity is limited.
- **Strategic Adjustment in Europe:**
  - **Slovakia may receive gas supplies from Hungary, Austria, the Czech Republic, and Poland**.
  - The Czech Republic is ready to provide transit and storage capacity to Slovakia.

1.8.5. Indonesia becomes full member of BRICS

Recently**, Indonesia** has become the latest country to officially join the BRICS group.

Key Points:

- At the 2023 **BRICS Summit held in** Johannesburg, South Africa, the BRICS member states unanimously approved Indonesia's membership.
- Indonesia became the tenth full member of the **BRICS** grouping.
- However, Indonesia accepted its membership only after the formation of its new government following the presidential election in 2024.

About BRICS

1. Definition: BRICS is an acronym that represents the five major emerging economies **Brazil, Russia, India, China**, and **South Africa**.

2. **Global Impact:** These countries **account for more than 40% of the world's population** and **about 30% of the global GDP**.

3. **Aim:**

   o BRICS aims to enhance cooperation between these countries in various fields, such as **trade, finance, agriculture**, and **technology**.

   o The grouping provides a platform for these countries **to coordinate and discuss their policies on economic development, political issues**, and **regional and global security**.

4. **Countering the Western Economy:** BRICS cooperation is seen as a **counterbalance against** the dominance of Western countries **in the global economic system**.

History of BRICS:

1. **Origin of BRICS:** The idea of BRICS **came from** a 2001 report by Goldman Sachs, which **used the term** BRIC to highlight the economic prospects of **Brazil, Russia, India**, and **China**.

2. **First Formal Summit:** The first formal summit of BRICS **was held in Yekaterinburg**, Russia in **2009**.

3. **Entry of South Africa:** In 2010**, South Africa** joined BRICS and made it **BRICS**.

4. **Annual Summits:** The annual summits have since become an important part of BRICS cooperation, where leaders **discuss shared challenges** and **strategies for sustainable development**.

5. **Growth of BRICS:**

   o BRICS has evolved over **time from an** economic concept **to a political entity**.

   o It **focuses on issues such as global governance reform**, sustainable development**, and inclusive growth**.

Functioning of BRICS:

1. **Working Methodology:**

   o BRICS works through annual summits, ministerial meetings, and various working groups.

   o The BRICS presidency **rotates among** the member states annually, giving each country the opportunity to **set the agenda for the year** and host the summit.

2. **Among the main cooperation areas:**

   o **Economic and Financial Cooperation: Initiatives such as the New Development Bank** (NDB) **and the Contingent Reserve Arrangement** (CRA) aim to provide **economic support** and **stability** to member countries.

   o **Political and Security Cooperation:** The group **focuses on issues such as** global governance reform**, counterterrorism efforts**, and **cybersecurity**.

   o **People-to-People Exchanges:** Cultural, educational, and youth exchanges are encouraged, so as to strengthen the relationship and understanding **among the populations of the member countries**.

   o **Health, Science, and Technology: Cooperation in vaccine development, addressing climate change**, and **technology innovation** are key areas.

1.8.6. India-Taliban First High-Level Talks

The meeting in Dubai marked the highest-level dialogue between India and the Taliban since the Taliban's takeover of Afghanistan in 2021. Although India has not given formal recognition to the Taliban administration, it operates a small mission in Kabul, which continues to provide trade, aid, and medical support, as well as humanitarian aid.

India's first high-level talks with Taliban: Foreign Secretary Vikram Misri met Afghanistan's acting Foreign Minister Amir Khan Muttaqi in Dubai.

- This is India's first high-level bilateral engagement with the Taliban regime.
- Earlier, India was approaching the Taliban only at the Joint Secretary level.

Key Discussion Areas of India-Taliban First High-Level Dialogue:

1. **Security Concerns:**
   - India emphasized the need to stop anti-India terrorist groups on Afghan soil.
   - Concerns were expressed on Pakistan-based terrorist groups such as Lashkar-e-Taiba (LeT) and Jaish-e-Mohammed (JeM).
   - The Afghan side assured support and understanding of India's security concerns.

2. **Development and Humanitarian Assistance:**
   - India promises reassessment of ongoing humanitarian aid and development projects in Afghanistan.
   - India has already sent a large amount of assistance including food, medicines, vaccines and earthquake relief material.
   - Additional support for health services and refugee resettlement was agreed.

3. **Use of Chabahar Port:**
   - It was agreed to promote the use of Iran's Chabahar port for trade and humanitarian aid to Afghanistan.
   - India has been exempted from US sanctions for the use of this port.

4. **Strengthening Sports Ties:**
   - Discussions were held on enhancing cooperation in cricket.

- India supported the training and facilities provided to Afghan sportspersons in Noida.

India–Afghanistan Relations

- **Friendship Treaty Agreement of 1950:** India and Afghanistan maintained close and friendly relations.

- **Return of Taliban:** India did not officially recognise the Taliban, but contacts continued.

- **Deployment of Technical Team at the Indian Embassy:** To ensure humanitarian assistance and continued engagement with the Afghan people.

- **Official meeting (November 2024):** In Kabul, the first official meeting between the Taliban's defense leadership and an Indian diplomat.

Significance of Afghanistan for India:

- **Location:**
  - Afghanistan's place as the **'Heart of Asia'** is historically and strategically significant.
  - It has been providing a route to India through the Khyber and Bolan passes since ancient times.
- **Stability and Security:**
  - Afghanistan has been used as a safe haven by terrorist groups.
  - Constructive engagement can ensure resolution of problems of terrorism, extremism and separatism," he said.
- **Connectivity with Central Asia:** Afghanistan is located at the crossroads of Central Asia and South Asia, which is important for regional trade and connectivity.
- **Strengthening India's Soft Power:** Humanitarian aid, such as the supply of wheat to drought-affected people in Afghanistan in 2021, helps improve India's image.
- **Indian Projects:**
  - Afghan-India Friendship Dam (Salma Dam),
  - Major development projects such as the Zaranj-Delaram highway, reflect India's participation.
- **Growing Role of China:**

- China has initiated urban development projects in Kabul and intensified exchanges between ambassadors.
- This creates a strategic pressure for India to maintain its presence in the region.

1.8.7. Chagos Islands

The UK and Mauritius have confirmed "good progress" in talks over sovereignty over the Chagos archipelago . In a joint statement, the two countries expressed their commitment to reaching an agreement that would give Mauritius sovereignty over the Chagos archipelago.

Chagos Islands:

1. **Geographical Location:**
   - The Chagos archipelago **is located in the** central Indian Ocean,   about **500** km **south of the Maldives** and about **1,600** km **southwest of India**.
   - It consists **of a total of 58** islands, of which **Diego** Garcia is the largest and most important.
2. **Colonial History:**
   - The Chagos Islands were discovered in the **16th century by Portuguese navigators**, who inscribed and named some of the islands on maps.
   - The **Dutch** then explored these islands but made no attempt to settle here.
   - Later, these islands **came under** French control, as well as **Mauritius** and **Réunion**, and France gave additional names to these islands.
   - France brought slave workers from **Madagascar and Mozambique** to work in coconut plantations. This was followed by bringing in workers from South India.
   - After Napoleon's defeat, Britain took control of Chagos and Mauritius.

- **In 1814** France ceded the islands to **Britain**.

Major Agreements and Agreements Related to the Chagos Archipelago:

1. **British Indian Ocean Territory (BIOT) Formation (1965):**
   - UK establishes BIOT, separating Chagos archipelago from Mauritius.
   - Mauritius received a compensation of £3 million in return.
2. **UK-US Agreement, Diego Garcia (1966):**
   - The UK and the US entered into a defence pact making the BIOT available for military purposes.
   - Diego Garcia became an important military base.
   - The Chagosians were raped, and resettled in Mauritius and the UK.
3. **Involvement of the United Nations and ICJ:**
   - **2017**: The UN General Assembly asked the ICJ for an opinion on the legal status of the islands.
   - **2019**: The ICJ   declared the UK's administration of the islands illegal and ordered to withdraw within six months.
4. **UK-Mauritius Agreement (2023):**
   - Mauritius and the UK signed an agreement on the sovereignty of the Chagos archipelago.
   - The UK renounced its claims, allowing Mauritius to implement a resettlement program on the islands (except for Diego Garcia).
   - The UK will retain sovereignty over Diego Garcia for 99 years, and a new trust fund will be created for the Chagosians.

Importance of Chagos Archipelago
- **Geo-strategic location**: It is located in the central Indian Ocean, helps in monitoring major shipping routes and regional security, and is crucial for the projection of military power.
- **UK-US Military Base:** Located in Diego Garcia, this military base plays a key role in logistics, surveillance, and intelligence operations for both countries, especially in the Middle East, Africa, and South Asia.
- **Environment and Biodiversity: The rich marine** life and pristine environment **of the Chagos archipelago** are important for scientific research and conservation.

1.8.8. Big Data and Data Science Committee

India has recently proved its increasing effectiveness in the global statistical community by becoming a member of the United Nations' "Big Data and Data Science Committee" (UN-CEBD). This step will give India an opportunity to play an important role in the field of data science and statistics.

Significance for India:

- **Strategic Opportunities:** Aligning domestic progress with international goals and learning from global best practices.
- **Improving Statistics Production: Promoting Innovation in** Data Collection, Processing, and Analysis.
- **Improving Decision-Making:** To provide real-time information to policymakers, enabling evidence-based decisions to be made and critical socio-economic challenges to be addressed.

United Nations Expert Committee: Official Statistics of Big Data and Data Science

Installing as of an idol

- **Founded in** 2014, its president **was** Australia.
- It aims to examine the benefits and challenges of Big Data, particularly its ability to monitor and report on Sustainable Development Goals.

Operating Structure

- **Advisory Board**:
  - It is the management body of UN-CEBD.
  - It meets around 4 times every year, where it reviews the work of UN-CEBD and provides strategic direction.
- **UN Bureau**: The Bureau handles the ongoing operations of UN-CEBD.

Liabilities:

- Provide a **strategic vision, direction and coordination** for a global programme that uses Big Data for official statistics, including indicators of the 2030 Sustainable Development Goals.

- Increasing the practical use of Big Data sources, including cross-border data, and finding solutions to existing problems.
- Capacity building, training and experience sharing.
- Promote dialogue and support about the use of Big Data for policy applications, particularly in monitoring the **2030 Sustainable Development** Goals.
- Creating Public Trust in the Use of Big Data for Official Statistics.

Applications of Big Data Analytics:

- **Governance:**
  - Improving utility management, law enforcement, and education.
  - Helpful in risk mitigation, cyber attacks prevention, and disaster impact reduction.
- **Economy:**
  - Applications in insurance, banking, taxation and money laundering prevention.
  - Customer service, financial analysis, and tax evasion detection.
- **Health:**
  - Personalized treatment, management of disease, and predicting epidemics.
  - Improvement in clinical trials and hospital management.
- **Agriculture:**
  - Improve crop yield and predict plant diseases.
  - Helpful in supply chain, animal husbandry and climate change adaptation.
- **Digital Sector:**
  - Telecommunication and compatibility of personal content.
  - Improvements in AI-driven tools and wearable technology.
- **Defence:** Strengthening cybersecurity and improving mission planning.

1.8.9. New U.S. AI Export Law

The Biden administration has introduced a new framework for the export of advanced computer chips used in Artificial Intelligence (AI) development. The resolution aims to address national security concerns, while balancing the economic interests of chip producers and international partners.

Key Features of AI Export Law:

Objective of AI Export Law:

- Maintaining its competitive edge in emerging technologies.
- Preventing rival countries from using advanced AI capabilities for military or other harmful purposes.

Three-tier classification of nations

Tier-1 Nations

- Covers the 18 closest allies, such as **Australia, Belgium, Canada, France.**
- Provides unrestricted access **to advanced technologies**.

Tier-2 Nations

- These countries face **moderate restrictions** under controlled exports.
- Issues of concern: Infringement of intellectual property rights and potential misuse of technology.
- **India** is included in this list.

Tier-3 Nations

- This includes **rival nations such as Russia, China and North Korea**.
- The strictest restrictions **are imposed on advanced technologies**.

Special Provisions: General Validated End User (GVEU):

1. **India:**
   - **Permission for the use of equipment for both military and civilian purposes**.
   - **Ban on Nuclear Use.**
2. **China:**
   - Only **civilian use** permitted.
   - **Restrictions on both military and nuclear use.**

Impact of AI Export Law on India:

- **Immediate Impact:**
  - **IndiaAI Mission:**
    - The plan to buy 10,000 GPUs under the ₹10,000 crore IndiaAI mission will not be affected.

- Subsidised GPUs will be made available to startups, academics, and researchers for AI model training.
- **Long-Term Concerns:**
  - **Licensing and trade negotiations:** Licensing uncertainties and trade negotiations can hinder large-scale AI deployment.
  - **AI Compute Infrastructure:** Plans by companies like Reliance and Yota to build AI Compute Infrastructure may **be delayed**.
  - **Data center expansion:** Expanding an AI data center that requires hundreds of thousands **of GPUs** can be tough.

Reasons for the Sanctions Imposed by the US:

1. **Control over Rivals:** To prevent adversary countries such as China, Iran, and Russia from accessing advanced AI technologies.
2. **Secure Technological Infrastructure:** To create a trustworthy technological ecosystem and mitigate threats to national security.
3. **Protecting Technological Leadership:** Aimed at maintaining America's technological leadership as well as not inhibiting innovation.

1.8.10. India-Bangladesh border dispute

India summons acting High Commissioner of Bangladesh to discuss concerns related to border security and fencing. The move underscores the escalating tension between alleged violations by the BSF and emerging controversies over barbed wire fencing in border management.

Indo-Bangladesh Border:

1. **Length and Extent of Range:**
   - The India-Bangladesh border is the longest border in India, with a total length of 7 km.
   - It passes through West Bengal (7 km), Assam (263 km), Meghalaya (443 km), Tripura (856 km) and Mizoram (318 km).
2. **Geographical Features:**
   - The range passes through plains, hills, riverine areas, and forests.
   - There are almost no natural barriers at this range, making it relatively easy to overcome.

3. **Hub of Illegal Activities:** The border is highly porous and is a hotbed of illegal migration, cattle smuggling, human trafficking, and other illegal activities.

Causes of Indo-Bangladesh Border Dispute

Construction disputes on the border

- As per the Indo-Bangladesh Border Authority Joint Guidelines of 1975, no defence structure can be built within 150 yards from zero line of the border.
- India does not consider fencing as a defence structure, while Bangladesh and Pakistan consider it a defence structure.

Impact on border dwellers

- The erection of fencing in densely populated border areas has caused many practical problems to the local people.

CCTV and electronic surveillance

- India has implemented advanced technological surveillance systems like CCTV cameras and electronic gadgets to monitor the border.
- Bangladesh sees it as a violation of its sovereignty and a blow to its territorial integrity.

What is the Status of Fencing on the Indo-Bangladesh Border?

- **Total Fencing Coverage:**
  - Out of 7 km long Indo-Bangladesh border, 3141 km has been fenced.
  - All the eastern states, like West Bengal, have been included in this fencing.
- **Fencing in West Bengal:**
  - West Bengal shares a 7 km long border with Bangladesh.
  - By 2023, 5% of this extent had been fenced.
  - Barriers to Fencing in Remaining Areas:
    - **Objections of the villagers.**
    - **Difficult terrain.**
    - **Ongoing negotiations with Bangladesh.**
- **Challenges of Completing the Fencing:**
  - The Ministry of Home Affairs underlined the delay due to the following reasons:

- Lack of support from the West Bengal government.
- Pending land acquisition in the State.
- **Riverine Boundaries:**
  - The erection of border is impossible due to riverine terrain of more than 900 km.
  - The security of these areas is ensured by the BSF's water unit.

Need for Managing Boundaries:

1. **Security Concerns:**
   - India's open borders give rise to illegal infiltrate, smuggling, and terrorism.
   - Terrorist groups, particularly operating from Pakistan, pose serious security threats.
2. **Demographic Changes:** Uncontrolled migration from Bangladesh has affected the demographic composition in the border states.
3. **Infrastructure Development:**
   - Many of India's border areas lack basic facilities like roads, communication networks, and border posts.
   - This hinders efforts for effective management of borders.

1.8.11. U.S. sanctions on Russia's 'Shadow Fleet'

The US has imposed sanctions targeting Russia's **'Shadow Fleet'** with the aim of halting oil trade with Russia. The move could increase freight costs, impacting India's oil suppliers in West Asia.

What is Russia's 'Shadow Fleet'?

The Shadow Fleet is a tanker network that helps secretly transport Russian oil to international markets.

Key features of Shadow Fleet:

1. **Lack of Transparency in Ownership of Ships:** The ownership of ships is hidden through complex corporate structures and shell companies.
2. **Ship-to-Ship Transfer (Transfer of Oil at Sea):**
   - Oil is transferred from one ship to another at sea.
   - Its purpose is to hide the origin of the oil and deliver it to the final destination.
3. **Use of Flags of Convenience: Oil ships operate under the flags of countries** that have weak regulatory oversight.

4. **Fleet of old ships:** The Shadow fleet consists of older tankers, which are considered less suitable for mainstream operations due to higher maintenance costs and lower efficiency.

5. **Deceptive Activities and Frauds:**
   - **Turning off AIS tracking: The Automatic Identification System (**AIS) is turned off to hide the location of the vessels.
   - **Manipulation of documents:** Documents of origin of cargo are misrepresented.
   - **Incorrect reporting:** The information on the source of the cargo is misrepresented, to avoid identifying it.

Impact on India:

1. **Dependence on Oil Supplies from Russia:** Russia was India's largest crude oil supplier in 2024, accounting for about 38% **of India's total imports**.

2. **Trade Interruption by Sanctions:**
   - Indian refiners can complete existing contracts by March 12.
   - Subsequent sanctions could disrupt India-Russia oil trade.

3. **Managing Alternate Supplies:** India's total oil supply will remain stable as alternative supplies from West Asia are readily available.

Accused of India Supporting the Shadow Fleet:

1. **Increase in Russian oil shipments:** Accusing Indian companies and Dubai-based entities with Indian ties of being involved in the transportation of Russian oil, raising suspicions of circumventing sanctions.

2. **Certification by the Indian Shipping Register (IRS):** Following the sanctions, the **Indian Shipping Register (IRS)** certified more vessels that were associated with Russian oil, making it considered an endorsement of the "Shadow Fleet" operation.

3. **Use of Flag of Convenience:** Vessels associated with India were often registered under foreign flags, which led to fears of evading sanctions by concealing their ownership and source of cargo.

Russia's dilemma and price range:

1. **Pressure on the Shadow Fleet:** The sanctions have put additional pressure on Russia's Shadow Fleet, which operates outside Western sanctions.

2. **Selling Oil at Less Than $60 Per Barrel:** To continue exporting, Russia may have to sell oil at less than $60 **per barrel, following Western price limits**.
   - This will help Russia to use Western shipping and insurance facilities.

3. **Revenue reduction:** The move will reduce Russia's income, but will help India and China continue to export oil.

1.8.12. India's 6-point plan for the EU

Commerce and Industry Minister Piyush Goyal presented **six broad principles** for building a mutually beneficial partnership between **India and the European Union** at a high-level meeting. The meeting took place with European Trade and Economic Security Commissioner Maros Sefakovic.

About India' s 6 Point Plan:

1. **Technical Support:**
   - To jointly develop **state-of-the-art** technologies and strengthen critical **raw material supply chains**.
   - Increasing resilience to hedge against non-market economies and promoting fair practices in technology sharing.

2. **Equitable Trade Agenda:**
   - **Making Free Trade Agreements (FTAs)** mutually beneficial, thereby reducing **tariff and non-tariff barriers**.
   - To promote similar business practices by benefiting small enterprises, **farmers and fishermen**.

3. **Sustainable Development:**
   - **Aligning business in line with the Sustainable Development Goals (**SDGs) under **the Common But Differentiated Responsibility** Principle.
   - To cooperate in renewable energy, green technologies and environmental protection.

4. **Trusted Partnerships:**
   - Creating unprecedented opportunities for a combined population of **2 billion by strengthening economic ties**.
   - Develop foundational trust **for long-term cooperation**.

5. **High Quality Production:**
   - **Harmonize standards by adopting European Union (EU)** best practices and achieve "zero defect, zero impact" construction.
   - Focusing on quality and consistency.

6. **Reciprocal Development:**
   - To use it as a "living bridge" by leveraging India's talent pool.
   - Enhancing innovation and shared prosperity by fostering cultural and economic exchanges.

India-European Union (EU) Relations: A Brief Description:

Political Cooperation:
- The relationship began in the 1960s, strengthened by the 1994 Cooperation Agreement.
- **Key Stops:**
  - 2000: First India-EU Summit.
  - 2004: Upgraded to Strategic Partnership at the 5th India-EU Summit (The Hague).

Economic Cooperation:
- **Bilateral Trade:**
  - Trade worth USD 137.41 billion in 2023-24, making the EU India's largest trading partner.
  - Bilateral trade in services is USD 51.45 billion (2023).
- **Water Management:** Establishment of the India-EU **Water Partnership (IEWP) in** 2016, to strengthen the framework for water management.
- **Nuclear Energy:** Agreement on Cooperation in Research and Development of Nuclear Energy for Peaceful Purposes in 2020.
- **Trade and Technology Council (TTC):** Established in 2023, to promote cooperation on trade, technology and security.

Significance of the European Union (EU) for India:
- **Concerns about China:**
  - **China's global expansion through the Belt and Road Initiative**.
  - Military Aggression and Abuse of the Multilateral Trading System in Asia.
- **Economic De-risking:**
  - India has a huge trade deficit with China.

- Excessive dependence on China for strategically important inputs.
- **Important and Emerging Technologies:**
  - **Prospects of Cooperation in Emerging Regions of** the EU**:**
    - Cybersecurity.
    - Space Technology.
    - Quantum Technology.
    - Synthetic Biology.

1.8.13. Birthright Citizenship in the United States

Donald Trump issued a significant order on his very first day in office, in which he denied birthright citizenship to children whose parents are living in the US illegally or on temporary visas. A 30-day deadline has been given to implement the order.

Birthright Citizenship in the United States:
- **Definition:** Birth rights citizenship automatically grants citizenship at birth.
- **Types:**
  - **Jus Soli :** This citizenship is based on the place of birth. That is, if a child is born in the US, he or she automatically gets US citizenship.
  - **Jus Sanguinis:** This citizenship **is granted on the basis of ancestry**. If a U.S. citizen's child is born abroad, he or she is considered a U.S. citizen.
- **History:**
  - The 14th Amendment **was passed by the Congress in** 1866 and was implemented **in 1868 after getting approval from 3/4th of the states**.
  - This amendment was primarily **meant to give citizenship rights to former slaves** and their **descendants**.
- **Explanation:** Under this amendment, US-born children, even the children of **non-citizens** and **illegal immigrants**, have the right to US citizenship.
- **Exceptions:** There are two major exceptions to this right:
  - **Children of enemy foreign nationals**.
  - **Children of diplomats** who are employed in the US.

Categories outside of birthright citizenship:

1. **Unlawful Presence:**
   o When **the mother** was unlawfully present **in the U.S. at the time of birth**.
   o And the **father** was neither a U.S. citizen nor **a legal permanent resident**.

2. **Lawful but Temporary Presence:**
   o When **the mother** was legally **temporarily present in the U.S**. (e.g. under a visa or visa waiver program).
   o And the **father** was neither a U.S. citizen nor **a legal permanent resident**.

Challenge:

1. **Need for a Constitutional Amendment:**
   o Abolishing birthright citizenship would require an amendment to the Constitution. For this process:
     ▪ A two-thirds **majority in both the House of Representatives and the Senate** would be required.
     ▪ **Approval from three-quarters** of U.S. states must be obtained.

2. **Republican Majority :** Trump's **Republican Party** holds a majority in both the House of Representatives and the Senate, which can influence the legislative process.

Impact on Indian Community:

1. **H-1B Visa Holders and Green Card Backlog:** For Indian professionals working on H-1B visas and green card applicants, their American-born children will not get automatic citizenship, which will increase confusion.

2. **Indian students in the US:** Indian students studying in the US may find it difficult for their children to obtain citizenship.

3. **Hesitancy to move to US:** Indian professionals, students and families can now move to immigration-friendly countries like Canada and Australia instead of the US.

4. **Economic Impact:** The Indian community has contributed significantly to the technology, health, and education sectors of the United States. The termination of birthright citizenship may reduce contributions in these areas.

1.8.14. America First Trade Policy

Trump**'s 'America First Trade Policy'** will review the existing trade agreements and regional trade agreements of the US. This is particularly significant for India, which recorded a trade surplus of $50 **billion with the US in** 2023, up from $25 **billion in 2019**.

Objectives of Trump's 'America First' Policy and Impact on Global Trade

Objectives:

- **Boost Domestic Production:**
  - Encouraging the manufacturing sector in the US.
  - Imposition of higher duties on foreign goods to reduce imports from other countries including China.

- **Increasing Competitiveness:** Attempts to make U.S. producers competitive against cheaper foreign goods.

Impact on Global Trade:

1. **Threats to Multilateral Trading System:**
   - This policy challenges internationally recognized rules and institutions such as the World Trade Organization (WTO).
   - Trump's insistence on a direct trade deal undermines the rules-based global order.

2. **Unstable Trade Relations:**
   - This strategy of leveraging U.S. power could create instability with trading partners.
   - Retaliatory steps may be taken by other countries, which will have a negative impact on the global trade structure.

America First Trade Policy and Impact on India
Review of Trade Deficit
• The Trump administration decided to examine America's trade deficit and its economic and national security implications.
Tariff War
• Trump imposed a 25% tariff on steel and a 10% tariff on aluminum imported from many countries, including India, in his first term, citing national security.   • The US also ended the "General System of Preferences" (GSP) benefits given to India.

Impact on India
• **Tariff Threat:** India's major exports such as pharmaceuticals, gems and jewellery, and marine products are sensitive to US tariffs. • **Trade Surplus:** India's trade surplus with the US increased from $25 billion in 2019 to $50 billion in 2023. • **GSP Termination: The loss of** GSP benefits negatively impacted India's export competitiveness, as India was the major beneficiary.

India-US Bilateral Trade:

1. **Business Partnerships:**
   - The US is India's largest trading partner.
   - It is one of the few countries with which India has a trade surplus.

2. **Bilateral Trade Statistics:**
   - **FY 2023-24:** India-US bilateral trade stood at $118.2 billion, slightly lower than the $128.78 billion in FY 2021-22.
   - **Trade Surplus: India had a trade surplus of** $36.8 billion with the US in FY24.

3. **Investment:**
   - The US is the third largest investor in India.
   - From April 2000 to March 2024, there was a Foreign Direct Investment (FDI) of $65.19 billion from the US to India.

4. **India's Major Exports:**
   - Engineering goods, electronic goods, gems and jewellery.
   - Pharmaceutical products, light crude oil and petroleum products.
   - Electrical equipment and others.

5. **India's Imports:**
   - Mineral fuels and oils.
   - Pearls, precious and semi-precious stones.
   - Nuclear reactors, boilers and machinery.
   - Electrical machinery and other equipment.

1.8.15. The United States is out of the WHO.

Recently, the US, led by President Donald Trump, signed an executive order withdrawing from the World Health Organization (WHO).

Reasons for the US Withdrawing from the WHO:

1. **Allegations of Ineffectiveness:** Trump criticized the WHO as an ineffective institution, for example, the WHO failed to control the COVID-19 pandemic.

2. **Discriminatory Practices:** The US alleges that the functioning of the WHO is discriminatory, as it collects funds from developed countries and focuses more on developing countries.

3. **Allegations of being biased:** Trump says that the WHO is biased against the interests of the US, as it did not give the correct information about the outbreak of COVID-19 to the US authorities in a timely manner.

4. **China's Influence:** Trump alleges that the current directors of the WHO are under the influence of China in general, and that China is undermining the organization's credibility through public relations and backdoor funding.

5. **Additional Pressure on the Economy:** The US gives about 15% of annual funding to the WHO, making it the largest contributor. This puts an additional burden on the US economy, which is against national interests.

Impact of the US pulling out of the WHO
1. **Financial Crisis:** The US used to contribute about 15% of WHO's total annual funds, which would lead to a reduction in funding from its withdrawal.
2. **Impact on Work Operations:** Lack of funds and resources can affect WHO's plans, such as free vaccine distribution.
3. **Impact on Image:** While the global credibility and diplomatic influence of the US maintained the credibility of the WHO, the withdrawal of the US could damage the image of the WHO.
4. **Impact of Other Countries:** The withdrawal of the US may also lead to other countries pulling out of the WHO, which will further increase the funding burden.
5. **Risk of Future Pandemics:** WHO's schemes such as 'One Health' and 'GAVI Vaccine Alliance' may be weakened, reducing the capacity to deal with future pandemics.

2.1. Digital Personal Data Protection Act (DPDP), 2023

Context:

Recently, the Government of India has **drafted regulations under the Digital Personal Data Protection (DPDP) Act, 2023**. The draft has been prepared by the Ministry of Information Technology. According to this, it will now be necessary to take parental consent for the social media accounts of minors. This step is important to protect children's personal information.

Introduction to Digital Personal Data Protection (DPDP) Act, 2023:

The Digital Personal Data Protection (DPDP) Act, 2023 is India's first comprehensive data protection law, which protects the rights of individuals to their personal data, while also allowing it to be processed for legitimate purposes.

- The Act was passed by the Indian Parliament in **October 2023**. The law applies to personal data collected both online and offline, which is then digitized, and aims to provide stronger privacy protections in the digital age.
- The Act emerged out of the **2017** Puttaswamy judgment, in which the Supreme Court **recognised privacy** as a fundamental right under the Indian Constitution. Subsequently, the government **had set up the** Justice B.N. Srikrishna Committee, which was instrumental in drafting a robust data protection framework, which resulted in the creation of the **DPDP Act**.
- The Act lays down clear guidelines for data collection, storage and processing, which all organisations must follow.
- The Act not only aims to promote social media related data security in India, but **also to establish a robust and updated data protection framework, going a step ahead of** the Information Technology Act**, 2000 and the** Information Technology (Amendment) Act, 2011.

Highlights of the Digital Personal Data Protection Bill, 2023:

The Digital Personal Data Protection Bill, 2023 is an important legislation in India that ensures the security and protection of personal data of individuals. The Bill recognises the need to process personal data in a lawful and secure manner. The Bill lays down the responsibilities of **data fiduciaries** (called data-processing entities) and **data principals** (persons dealing with personal data) for the protection of digital personal data.

- The Bill lays down the responsibility and liability of data fiduciaries for data processing.
- **The rights of data principals** such as the right to access, rectify, and grievance redressal are made clear in this Act.
- **Salient Principles of the Bill**: The Bill has been laid down on seven key principles that ensure the safe and correct use of data.
  - **Consent, Legality and Transparency**: Personal social media or general data will only be used for agreed upon and lawful purposes, and will be processed in a transparent manner.
  - Purpose limitation: Personal data will only be used for a purpose to which the data principal (individual) has previously consented.
  - **Data Minimization**: Only as much data will be collected as is necessary for the fulfillment of the purpose.
  - **Data Accuracy**: It will be ensured that the data is correct, updated, and accurate, so that there are no problems due to incorrect information.
  - Storage limitation: The data will be stored only for as long as it is needed for a specified purpose, and thereafter it will be erased.
  - **Proper security measures**: All necessary and proper security measures will be implemented to protect the data, so that the data is not misused.

- o **Accountability**: Penalties will be applied for data breaches or violations of the provisions of the Bill, holding data fiduciaries accountable.
- **Protection of children's data in the Bill**: The Bill also protects the personal data of children, in which the data of children will be processed only with **the consent of the parents**. Harmful or improper processing for the welfare of children is prohibited.
- **Data Protection Board**: A Data Protection Board has been constituted under the Bill.
- **Transfer of Personal Data Outside India**: Under this Bill, personal data is allowed to be sent outside India, provided the data is not sent to countries that have been restricted by the central government through notification.
- **Penalties**: The Bill provides for penalties for various offences, the major ones being:
  - o **Penalty up to ₹200** crore for non-performance of duties related to children.
  - o Penalty up to ₹250 crore **for not taking safeguards** to prevent data breach.
- **Responsibilities of Data Fiduciaries**: Under this Bill, the following important obligations have been laid down on data fiduciaries (entities or individuals that process data):
  - o **Compliance with security measures**: Data fiduciaries must ensure appropriate safeguards to prevent personal data breaches. This ensures the security and privacy of the data.
  - o **Notice of data breach**: If a data breach occurs, the data fiduciaries must notify the affected individuals and **the Data Protection Board** within 72 hours, so that timely action can be taken.
  - o **Data Collection and Purpose Limitation**: Data fiduciaries must comply with the rules relating to data collection and keep the data only for the purpose for which it was previously consented. The data will be required to be deleted after the serving of the prescribed purpose.
- **Special Provisions and Exemptions**: The Bill also provides for certain provisions:
  - o **Government agencies** can process data in national security, public order, or emergency health situations.
  - o **Some discounts have been provided for small businesses** and **startups** so that they do not have difficulty in compliance.

Data Protection Board under the Digital Personal Data Protection (DPDP) Act, 2023:

A Data Protection Board has been constituted under the Digital Personal Data Protection (DPDP) Bill, 2023, which will investigate data breaches and related complaints. The major objective of this board is to protect the data rights of data principals (individuals) and to control the erroneous practices of data fiduciaries (who process data). The following are the major functions of the Data Protection Board:

- **Directing for Prevention or Mitigation of Data Breaches**: The Board is empowered to understand and redress the possible causes of data breaches. Under this, it will be ensured that the organization or institutions take immediate corrective measures in the event of a violation and avoid such incidents in the future.
- **Investigating data breaches and complaints and imposition of financial penalties**: If any data breach complaint is received, the Board will conduct a thorough investigation into the matter. After investigation, the board will impose **financial penalties** to the concerned data fiduciary, depending on the severity of the breach. This penalty is a way of holding entities accountable that violate data protection laws.
- **Making Alternative Dispute Resolution**: The Board may, if necessary, refer to the resolution of complaints under the Alternative Dispute Resolution (ADR). Also, if a data fiduciary wants to engage in the resolution of the problem, they can accept voluntary pledges from the board that they will not commit such breaches in the future.
- **Advising the government**: If there are repeated violations against a data fiduciary and it fails to implement corrective measures, the board may advise the government to **block the website,** app or other social media platform of that data fiduciary, so as to ensure the security of people's data.

Provisions related to children in the Digital Personal Data Protection (DPDP) Act, 2023

The Bill has some additional obligations regarding the processing of personal data of children. These obligations are intended to ensure the protection of children's data.

- Under this Bill, a child is a person who is below **18 years of age**. **The Srikrishna Committee (2018)** had recommended that the age of consent for children should be between 13 and 18 years. However, under the Indian Contract Act, the age of consent has been fixed at 18 years.

- Under the Bill, all data fiduciaries will have to obtain verified consent from a legal guardian before processing children's personal social media data . This process will help to avoid false information by children.

- The Bill provides that data fiduciaries shall not process data that is harmful to the well-being of children .

Issues with the Digital Personal Data Protection (DPDP) Act, 2023:

- **Exemption given to the state:** Under this bill, several exemptions have been given to the processing of personal data by the state, which can have a negative impact on the right to privacy. The Bill allows data processing by the state without any surveillance, which **may infringe upon the right to privacy**.

- **Consent Requirement:** The Bill also raises the question of whether the infringement of consent is justified for purposes such as benefits, subsidies, licenses**, and** certificates. The state should not require special consent for such processing, as this can often be done without the approval of citizens.

- **Loss from processing personal data: The Bill does not regulate** the loss **arising out of processing of personal data**. This issue is particularly important as improper use of data can have serious consequences, and there are no legal remedies for it.

- **Data Portability and Right to Forget**: The Bill does not provide for data portability and the right to be forgotten. These rights provide individuals with the opportunity to control and manage their data, which is absent under this Bill.

- **Impact on independence of the board:** The bill curtails the term of the board, which may affect its **independence**. If the tenure of a board member is too short, it may make it difficult for him to work independently in his functions.

2.2.   BharatPol Portal

Context:

Recently, Union Home Minister Amit Shah launched the 'Bharatpol' portal in New Delhi. The portal is considered to be a major step in India's fight against international crimes. The main objective of this portal is to trace criminals who, after committing crimes, flee to other states or countries.

Introduction to BharatPol Portal:

The Bharatpol portal **is a digital platform developed by the Central Bureau of Investigation (**CBI), whose main objective is to make the investigation of international crimes more effective.

- The portal **is designed to** further simplify the process of processing requests for international assistance through Interpol in an easy and expeditious manner.

- Bharatpol ensures better coordination between Indian law **enforcement agencies** and international organizations.

- This platform facilitates fast and smooth communication in the investigation of crimes, especially when international elements are involved in the case.

- This technological initiative not only strengthens India's ability to deal with global crimes but is also an important step towards increasing cooperation with international agencies.

About Central Bureau of Investigation (CBI)

- The Central Bureau of Investigation (CBI) is **India's premier** investigative agency, responsible for investigating corruption, economic offences, and major criminal cases.

- It was established **in** 1941 **as the "Special Police Establishment (**SPE)" with the objective of investigating cases of bribery and corruption during World War II.

- **In** 1963, it was officially established as the **"Central Bureau of Investigation"** (CBI) through a resolution of the Ministry of Home Affairs.

- The CBI derives its powers from the Delhi **Special Police Establishment Act, 1946 (DSPE Act).**

Organisational Structure

- **Director**: Heads the CBI, who heads the administration and also serves as the Inspector General of Police of the DSPE.
- **Special Directors, Additional Directors and Joint Directors**: Officers working at the top management level.
- **Other officers**: Deputy Inspector General, Superintendent of Police, Forensic Scientist, and Legal Adviser.
- The CBI Director is appointed **by a** high-level committee, comprising the Prime Minister, the Leader of the Opposition in the Lok Sabha, and the Chief Justice of India (or a judge nominated by him).
- The tenure of the Director **is 2** years, which can be extended up to a maximum of 5 years.

Functions of CBI

- Investigation of corruption and misconduct **of Central Government employees**.
- Investigation of financial and economic crimes, such as tax evasion and **customs fraud**.
- Investigation of serious crimes committed by organized crime groups at the national and international levels.
- Investigation of cases referred to by state governments or courts, such as murder and other cases.

Features of BharatPol Portal:

The BharatPol portal has been designed to enhance the efficiency and effectiveness of criminal investigations.

- **Focus Mechanism**: Bharatpol acts as an integrated platform, connecting Indian law enforcement agencies with international organizations such as Interpol. This centralized system facilitates better coordination and cooperation.

- **Real-Time Information Sharing**: One of the main features of the port

- al is that it is capable of sharing information in real-time among various law enforcement agencies. This allows important data to be exchanged quickly, allowing quick action against criminals.

- **Increased Global Cooperation**: The portal is designed to strengthen global cooperation between Indian authorities and international law enforcement agencies. This will help India to deal with trans-border crimes.

- **Issuance of Notices**: Bharatpol simplifies the process of issuing Red Notices and other Interpol notices in case criminals flee the country. This feature ensures that persons involved in international crimes can be caught across borders.

- **Focus on Major** Crimes: The portal specifically focuses on action against major crimes such as cybercrime, drug trafficking, financial frauds, and human trafficking. By targeting these high priority crimes, it is helpful in dealing with crimes effectively.

National Central Bureau (NCB-Delhi)

- **The National Central Bureau (NCB-Delhi)** works as the official liaison between Interpol and Indian law enforcement agencies.

- It is conducted by the **Central Bureau of Investigation (CBI).**

- NCB-Delhi ensures smooth cooperation in international criminal investigations and law enforcement operations.

- It simplifies the process of issuing Interpol notices such as **Red Notices** (for fugitives), Blue Notices (for gathering information), and Yellow Notices (for searching missing persons).

- **Interpol Liaison Officers** (ILOs) act as the main contact point in the law enforcement agencies of various Central, State and Union Territories so that there is no hindrance in coordination.

Functioning of International Criminal Cases in India:

The Central Bureau of Investigation (CBI) in India is responsible for cooperating in international crime cases, and it **establishes the country's liaison with Interpol through the National Central Bureau (NCB-Delhi)**.

- This coordination involves central, state and union territory agencies, which **act through Interpol Liaison Officers (ILOs).**
- These officers **work closely with** Unit Officers (UOs), who are usually senior officers, such as Superintendents of Police, Commissioners of Police or branch heads in their respective organizations.
- At present, communication between CBI, ILOs and UOs takes place through traditional methods such as letters, emails and faxes. This process may be delayed, which affects the timely action of international requests.

How will the BharatPol portal work?

- **Agency Access and Identification:** Law enforcement agencies of Central, State, and Union Territories will access the portal through secure login credentials. These agencies include the police department, central agencies such as the CBI, and state law enforcement agencies. When an agency identifies a case related to international criminal activity, it will enter the relevant details in the portal.
- **Request Submission and Tracking:** Once a case is registered, the portal allows law enforcement agencies to send real-time requests for international assistance from Interpol. These requests can be red notices (for fugitives), alerts, or notices related to other international crimes.
- Each agency has Interpol Liaison Officers (ILOs), who receive and manage these requests. The ILOs act as intermediaries between Indian agencies and Interpol.
- **Case Resolution and Action:** Once international assistance is provided and Interpol or the concerned foreign law enforcement agencies arrest the offender or solve the case, the portal is updated. The concerned agencies are informed and the case is closed or pursued as required.

Interpol (International Criminal Police Organization)
• Interpol is the world's **largest international police organization**. It was established **in 1923**.
• Interpol **is headquartered in** Lyon, France, and has regional offices all over the world.
• Its governing body **is the General** Assembly, and its daily operations are managed by the Secretary-General.
• Interpol's main objective **is to promote cooperation among its** 195 member countries to combat transnational crime and terrorism.
• This organization facilitates global cooperation **between police forces**.
• Interpol has detailed databases on criminals**,** stolen assets, and global crime trends, which law enforcement agencies use to obtain information.
• It also provides expertise**, equipment and personnel** to assist member countries in investigations or emergencies.
• As a neutral organization, Interpol maintains its actions politically unchallenged and respects the sovereignty of member states.

Challenges:

The Bharatpol portal is an important step in strengthening India's capabilities to combat transnational crime, but its success depends on a few key challenges:

- **Constant Updates and Improvements:** The portal will require constant updates and improvements so that it can work in tune with new crimes and changing circumstances.
- **Training of law enforcement personnel:** All concerned staff will have to undergo extensive training for the proper use of the portal. This will ensure that all agencies can use the portal in the right way.
- **Coordination with Global Systems:** It is necessary to fully integrate the portal with global systems like INTERPOL so that the exchange of information can take place without any interruption.
- **Regular Monitoring and Improvement:** Regular monitoring and improvement process will be required to enhance the effectiveness of the portal. This will ensure that the portal evolves with time and can combat new crime techniques.

2.3. PMAY-G and Rural Poverty Alleviation in India

Context:

The Ministry of Rural Development highlighted the progress of PMAY-G and emphasized t he efforts to create poverty free villages through timely implementation of rural development schemes. The objective of the Ministry is to implement these schemes in an effective manner to reduce poverty in rural areas.

Key facts about PMAY-G:

- **Start:** The scheme was launched in 2016 with an aim to provide affordable housing to the rural poor.
- **Selection of beneficiaries:** The beneficiaries are selected on the basis of SECC 2011, which is validated by the approval and geo-tagging of the Gram Sabha.
- **Financial Assistance:**
  - Rs 1.20 lakh is given in plain areas and Rs 1.30 lakh in Himalayan/North Eastern regions.
  - The expenditure is shared between the state and the Centre in the ratio of 60:40 and 90:10 .
- **Opportunity:**
  - Toilet Assistance (through SBM-G)
  - LPG connection for cooking (under Pradhan Mantri Ujjwala Yojana)
  - Employment Assistance (under MGNREGA)
- **Target:** A target of 60% housing was set for Scheduled Caste (SC) and Scheduled Tribe (ST) families.
- **Expansion:** The target of the scheme has been increased from 2.95 crore to 5.95 crore households.

Achievements of PMAY-G:

- As of November 2024, 3.21 crore houses have been approved and 2.67 crore houses have been completed.
- 71,000 houses completed under PM-JANMAN.
- Awaas Plus-2024 app and Awaas Sakhi app launched to increase transparency.

Introduction to Poverty:

- Poverty means lack of resources to meet basic needs.
- **Absolute Poverty:** In this, the person does not have the resources for basic needs such as food, shelter, and health care.
- **Relative Poverty:** The standard of living of an individual is measured in comparison to other people in the society.
- **Poverty in India:**
  - According to the National Family Health Survey-5 (2019-21), 14.96% of India's population is multidimensionally poor.
  - The Multidimensional Poverty Index (MPI) decreased by 17.89%.
  - Rural poverty has declined from 25.7% to 7.2%.

Other schemes contributing to poverty alleviation in villages
Infrastructure
o Pradhan Mantri Gram Sadak Yojana (PMGSY)
o Jal Jeevan Mission
Social Security Schemes
o National Social Assistance Programme (NSAP)
o Pradhan Mantri Jan Dhan Yojana
o Pradhan Mantri Jeevan Jyoti Bima Yojana
Livelihood Promotion Schemes
o MNREGA Scheme
o National Rural Livelihood Mission (NRLM)
o Pradhan Mantri Kaushal Vikas Yojana (PMKVY)
o Pradhan Mantri Mudra Yojana
Health
o Pradhan Mantri Jan Arogya Yojana (Ayushman Bharat)
o Mission Indradhanush

Challenges in Poverty Alleviation in Rural India:

1. **Dependence on Agriculture:** The majority of the rural population is dependent on agriculture, which is affected by climate change, erratic monsoons, and irrigation problems. This creates limited opportunities in income generation.
2. **Unemployment and Underemployment:** Employment opportunities in sectors other than agriculture are limited, leading to unemployment and underemployment. Lack of skills is also a major reason.
3. **Limited Access to Services:** The inadequacy of services such as education, health care, sanitation, and infrastructure further aggravates poverty in rural areas.
4. **Land Ownership:** Many rural households lack land ownership, making it difficult for them to build a steady source of income.
5. **Social Inequality:** Marginalized castes, especially women, Scheduled Castes and Tribes, face the problem of limited access to resources and opportunities, perpetuating the cycle of poverty.
6. **Migration:** Migration from rural areas to urban areas, especially for better opportunities for education and employment, creates the problem of "brain drain".
7. **Governance Challenges:** Poor implementation of policies, corruption, inadequate statistics, and limited public awareness hinder poverty alleviation.

Solutions for Poverty Alleviation in Rural India:

1. **Adherence to Sustainable Development Goals (SDGs): Policies can be formulated keeping in mind** SDG-1 (poverty alleviation), SDG-2 (food security), SDG-3 (health), and SDG-10 (reduction of inequalities).
2. **Social Security and Welfare:** Ensuring social security through old age, widow, and disability pensions, universal access to health services, and providing support for BPL families.
3. **Skill Augmentation:** Providing employment opportunities under MGNREGA, formulating schemes for skill enhancement through women and ward sabhas, and imparting training through skill centres.
4. **Empowerment of Self Help Groups (SHGs) and Farmer Producer Organizations (FPOs):** To integrate rural women and farmers into enterprise schemes, so as to improve their income levels.
5. **Digital Inclusion:** To ensure registration of farmers on online platforms such as the National Agriculture Market (ENAM), enabling them to get information and benefits of the schemes.
6. **Infrastructure development:** Construction of roads, schools, community centres, etc., so that better access to services is possible.
7. **Evolving Agricultural Practices and Climate Action:** Promoting sustainable agriculture and climate-friendly practices, such as through Krishi Vigyan Kendras (KVKs).
8. **Social and behavioural change: Encouraging** informal credit, substance abuse, and women's participation to bring about change in rural communities.

Conclusion:

Poverty alleviation in rural India requires a comprehensive approach, prioritizing housing, financial support, employment, and infrastructure development. These problems can be addressed through sustainable development, skill enhancement and financial inclusion to address challenges such as dependence on agriculture, unemployment and social inequality.

2.4. Supreme Court calls for legislative review

Context:

Recently, the Supreme Court, while hearing a petition related to the 45-day limit under Section 81 of the Representation of the People Act, 1951, stressed the need for legislative review to assess the effectiveness of the laws. It also underscored the need for an expert mechanism to evaluate laws and suggested a review every 20, 25 or 50 years.

Significance of the Representation of the People Act, 1951 (RPA)

- The Representation of the People Act (RPA), 1951 aims to regulate the electoral system at the national and state level.
- Its key provisions include the framework for the allocation of seats to the Lok Sabha, state legislatures and state legislative councils, the procedure for delimitation of constituencies, and specifying the qualifications and disqualifications of voters.

- Section 81 of the Act provides that an election petition challenging the result must be filed within 45 days of the declaration of the result, which can be filed on grounds such as corruption or violation of election laws. This petition is filed in the High Court, which falls under the jurisdiction of the concerned constituency.

Need for periodic review of laws by legislature

- **Identification of Shortcomings**: Laws may lose relevance due to changing circumstances over time, so periodic review is necessary to ensure that the objectives of the laws are being achieved. For example, the IT Act, 2000 was amended to deal with cyber crimes.
- **Maintaining Relevance of Law**: Periodic reviews ensure that laws are in line with the needs of society. It ensures that laws are not hasty or motivated by political motives, keeping in view the effectiveness of the law and public interest. In Bihar, for example, the anti-liquor law has led to a surge in bail applications, which in turn has put pressure on the state's judiciary.
- **Addressing Unintended Consequences**: Periodic reviews can highlight loopholes that can hamper the judicial process. For instance, Section 81 of the Representation of the People Act, 1951, which limits 45 days, may hamper election-related disputes.
- **Improved Accountability**: Regular reviews ensure that laws remain in line with their original objectives and democratic principles. The misuse of Section 498A of the Indian Penal Code is an example of this, which faced criticism as it was intended to protect women from harassment, but its misuse also increased.
- **Global Standards**: Many democratic nations conduct legislative review to ensure that their laws are in line with international best practices and human rights standards. For example, the American Patriot Act has been amended from time to time to address privacy and civil liberties concerns.

Challenges in Legislative Review

- **Lack of Political Will**: Legislative review can often be influenced by political agendas, leading to biased amendments that serve a political purpose rather than the public interest.
- **Judicial Encroachment**: Sometimes the judiciary is accused of overstepping its limits while reviewing laws, such as the NJAC Act struck down by the Supreme Court in the National Judicial Appointments Commission (NJAC) case.
- **Legal Complexity**: Many laws are interlinked, so that one amendment can clash with other laws and complicate the process. For example, there are inconsistencies in the legal provisions relating to child pornography in the POCSO Act and the IPC.
- **Limited Public Participation**: The public's understanding of legislative processes and legal aspects is limited, which can limit the effectiveness of the review process. For example, the consultation process of the Ranbir Singh Committee on Reforms in Criminal Laws had very little public participation.

Institutions Concerned with Legal Reforms in India

- **Administrative Reforms Commission (ARC)**
- **National Commission to Review the Working of the Constitution (NCRWC)**
- **Committee for Reforms in Criminal Laws under the leadership of Dr. Ranbir Singh (2020)**
- **Law Commission of India**: It researches and recommends legal reforms, and advises the government on legal matters.

Law Commission of India
The Law Commission of India is an important non-statutory advisory body which conducts research and makes recommendations on legal reforms. It aims to update and modernize the laws in India, making the justice system more efficient and effective.
Organization & Objectives
o **The Law Commission** is constituted **temporarily**, and its tenure is fixed.
o It provides recommendations to the Government **for improvement in legal and judicial matters**.
o The role of the commission includes **recommending the repeal of obsolete laws and proposing new laws** .

History
o **The first Law Commission** was constituted in 1834 **under the Charter Act**, 1833, and was headed by **Lord Macaulay**.
o It recommended the codification of the **Indian Penal Code (IPC) and the Code of Criminal Procedure (CrPC).**
o **The first Law Commission of independent India** was constituted in 1955, and its chairman **was M.C. Setalvad**.
Recent Developments
o The 23rd Law Commission was constituted in **September** 2024, with a tenure **from 1 September 2024 to 31 August 2027**.
o The Commission will make recommendations to the government on issues relating to proposing new laws to implement the Directive Principles of State Policy and improving judicial administration.
Main Scope
o **Identification of obsolete and obsolete methods** and recommendation for their repeal.
o **Proposes framing of new laws keeping in view social and economic issues**.
o • **Strengthening of the judicial system through legal and judicial reforms**.
o Research and review of legal policies in the public interest.

Way Forward

- **Strengthening the Law Commission**: India lacks bodies dedicated to periodic legislative review, so institutions like the Law Commission of India can be empowered with more independence and resources, so that the quality and consistency of legal reforms can be increased.
- **Use of Technology**: Technology can improve the legislative review process. For example, public consultation on platforms like MyGov and AI can increase citizen participation by evaluating the effectiveness of laws.
- **Resource allocation**: The government should allocate a budget for legal reforms, reviews, and capacity building programmes to improve implementation.
- **Adopting International Best Practices**: India should align its laws with international standards, such as the case of the National Green Tribunal (NGT), to increase effectiveness in environmental and technology governance.

Conclusion:

By institutionalizing the process of legislative review, India can promote a dynamic legal framework that will be able to meet societal needs, democratic ideals and global standards. Judicial pronouncements and international practices will provide guidance in this effort.

2.5. Delay in Appointment of Information Commissioners: Concerns

Context:

Recently, the Supreme Court has strongly criticised the delay by the Centre and the States in appointing **Information Commissioners (ICs) under the Right to Information Act**, 2005 (RTI Act). The delay in appointment of Information Commissioners is affecting the citizens' right to information and the pendency of cases is increasing.

Concerns Related to RTI Act:

- **Delay in Appointment:** As of 2024, 8 posts of information commissioners in the Central Information Commission (CIC) were vacant, and 23,000 appeals were pending. Many information commissions in state governments have also become defunct since 2020 and some have even stopped accepting RTI petitions.
- **Lack of Transparency:** Citizens dissatisfied with RTI replies received from PIOs often approach appellate authorities. The process becomes complicated due to the different rules of the states in the implementation of RTI.
- **Appointment of former bureaucrats:** Most information commissioners are former bureaucrats, which raises questions about objectivity and transparency.
- **Publicisation of Personal Data:** The RTI Act allowed personal data to be made public in the name of public interest, but the DPDP Act, 2023 banned it completely, which could reduce accountability.
- **Autonomy of Information Commissioners:** The RTI Amendment Act, 2019 has empowered the Central Government to determine the tenure and salaries of Information Commissioners, raising questions about their autonomy.

Key facts about the RTI Act, 2005
• **Objective:** The RTI Act aims to promote transparency, accountability, and good governance in government functioning.
• **History:** The RTI Act originated from the movement in Rajasthan in the 1980s, where villagers demanded accountability and access to records.
• **Key Provisions:**

o The Act applies to the Centre, State and local bodies.
   o Under Section 8(2), disclosure of information beyond confidentiality can be made if the public interest is more important.
   o Section 22 ensures that the RTI Act will stand above other laws.

• **Abatement:**
o The Official Secrets Act (OSA), 1923 empowers bureaucrats to withhold access to confidential documents.   o The Indian Evidence Act, 1872 and the Indian Services Conduct Rules, 1968 also allow withholding of information under RTI.

Major Amendments to the RTI Act, 2005:

- **Right to Information (Amendment) Act, 2019:**
  - The Act limited the tenure of Information Commissioners to 5 years or 65 years of age.
  - Now the salaries, allowances and conditions of service of CIC and IC are determined by the Central Government.

Central Information Commission:

- **Establishment and Composition:** The Central Information Commission was established as a statutory body under the RTI Act, 2005. It consists of the Chief Information Commissioner (CIC) and other Central Information Commissioners as required.
- **Appointment:** The CIC and IC are appointed by the President of India on the recommendation of a committee. The committee comprises the Prime Minister, the Leader of Opposition in the Lok Sabha, and a Union Minister nominated by the Prime Minister.
- **Functions and Powers:** The main function of the CIC is to monitor the implementation of the RTI Act, 2005. The CIC has the authority to summon witnesses, inspect documents and issue summons.

Way Forward

- **Resolution of Vacancies:** Appointments should be expedited to fill vacancies in Information Commissions at the earliest so that RTI petitions can be resolved in a timely manner.

- **Appointment of professionals:** As per the recommendation of the Supreme Court, professionals from various fields should be appointed, so that the impartiality and autonomy of the commission increases.
- **Digital Integration:** The post office system should allow accepting RTI applications, especially in rural areas.
- **Transparency and Accountability:** Public authorities should regularly report their activities under RTI and be more accountable.

Conclusion:

Several corrective steps should be taken to prevent delays in the appointment of information commissioners under the RTI Act 2005. This will safeguard the citizens' right to access information and ensure greater transparency and accountability in public authorities.

2.6.   Preliminary Examination

2.6.1.   State funerals and national mourning

Former Prime Minister Manmohan Singh was cremated with state honours. On his death, the government declared a seven-day national mourning from December 26 to January 1, during which the national flag was flown at half-mast across the country.

What is a funeral in state honor?

A state funeral is a formal ceremony held for an important person, usually a national leader, and includes all funeral ceremonies with state honours. There is also public participation.

State Funeral of Honour in India:

- Usually reserved for the President, Prime Minister, former Presidents and Governors.
- In some cases, the central government may also decide to give state honours to other prominent persons based on their national contributions, such as industrialist Ratan Tata and singer Lata Mangeshkar.

The main rules of funeral in state honor:

1. **Organization**: Funeral arrangements are made by the Ministry of Defence on the instructions of the Ministry of Home Affairs.
2. **Government Officers**: All gazetted officers are expected to attend the ceremony if they are available.
3. **Service personnel costumes**: Service personnel wear official attire for state ceremonies.
4. **Use of Flag**: The national flag is draped over the dead body in such a way that the saffron colour is towards the head.
5. **Disposal of the Flag**: The flag is not put into the grave nor burnt in the pyre.

About National Mourning:

1. **Declaration**: The central government may declare national mourning on the demise of leaders who made extraordinary contributions to the country.
   - The national flag is flown at half-mast.
2. **Exceptions**: Republic Day, Independence Day and Gandhi Jayanti are not marked by national mourning.
3. **Flag Management**: The flag of the building where the body of the deceased personality is located will be flown at half-mast.
4. **Official protocol**: Government entertainment programs are canceled when mourning is declared, the rest of the programs continue.
5. **At the state level**: It is mandatory for the state to mourn the demise of the Governor, the state government's choice on the demise of the Chief Minister.

Salient features of Flag Code of India
1. **Size and Dimensions**: The national flag is rectangular-shaped, with **a ratio of length and height (width) of 3:2**. The size of the flag for aircraft **is 450 x 300** mm, while the size for display on motor-cars is **225 x 150 mm**. The size of the table flag is **150 x 100 mm**.
2. **Ban on simultaneous hoisting of the flag**: The national flag cannot be flown simultaneously with another flag from one flagpole.
3. **Use of Flag on Vehicles**: The National Flag can be flown only on those vehicles which belong to the specified persons mentioned in Part III, Section IX of the Flag Code, such as the President, Vice-President, Prime Minister and Governors.
4. **Designation and Position:** No other flag or bunting shall be placed above, parallel to, or near the National Flag.

2.6.2. Linking Aadhaar Card and Identity Card

The Election Commission of India (ECI) has recommended linking voter ID cards with Aadhaar cards **to prevent voter fraud and increase transparency of the electoral process**. This step is considered to be important towards making the election system more credible and effective. Let us discuss its advantages and disadvantages.

Background of Linking of Aadhaar Card and Identity Card:

Initial Decision (2015):

- **Objective: To remove** bogus and duplicate entries **from the electoral rolls**.
- **Voluntary process:** Linking of Aadhaar and Voter ID was not mandatory.
- **Stay:** The process was stopped after the **Supreme Court's August 11, 2015** judgment.
  - The use of Aadhaar was limited to only 3 government schemes:
    - **PDS:** Distribution of food grains under the public distribution system.
    - **PMJDY:** Pradhan Mantri Jan Dhan Yojana.
    - **MGNREGA**: **Mahatma Gandhi National Rural Employment Guarantee Act, 2005.**

Supreme Court Judgment (2018):

- The legality of Aadhaar was upheld.
- **Right to Privacy:** The government can limit it with specific legislation and proper purpose.
  - **Case:** K.S. Puttaswamy v. Union of India.

Election Commission's (ECI) Stand after 2019:

- Proposal to link Aadhaar with Voter ID represented.
- **Proposed Amendments**:
  - Urges Government to Amend Election Laws.
  - In 2021, the **Election Laws (Amendment) Bill** was introduced.
    - The legal basis was provided for linking Aadhaar and Voter ID.

New Processes:

- **Form 6:** Provision of Aadhaar details for registration of new voters.
- **Form 6B:** New form for collecting Aadhaar number from existing voters.

Benefits of Linking Aadhaar Card and Identity Card:

1. **Elimination of duplicate entries:** Increasing the accuracy of electoral rolls by eliminating duplicate registration of voter IDs.
2. **Improve accuracy:** Identity verification will allow voters to register in the correct constituency.
3. **Simplification:** Online registration will be easier to update, which will lead to more citizens participating in the election.
4. **Security: Biometric Aadhaar** will prevent identity theft and bogus voting.
5. **Facility of government services:** Having Aadhaar and Voter ID linked will make **it easier to get government benefits**.
6. **Electoral reforms:** Aadhaar linking will help **in reforms such as remote and internet-based voting**.

Disadvantages of Linking Aadhaar Card and Identity Card:

1. **Privacy:** Questions about the security and confidentiality of personal information arise, such as political microtargeting and misuse of personal information.
2. **Risk of exclusion:** Those who do not have Aadhaar may have difficulty voting or access to related services, especially marginalized groups.
3. **Deprivation of Voters:** Data entry or deliberate deletion can deprive genuine voters of voting, as happened during the NERPAP in 2018.
4. **Misuse by authorities:** Despite Aadhaar linking, it is possible for administrative manipulation, such as wrongful deletion of names for political purposes.
5. **Voluntary nature:** Despite linking being voluntary, some people may feel pressured due to misinformation or not understanding its effects.

2.6.3. Right to Property is a Constitutional Right

The Supreme Court of India has made it clear that no person can be deprived of their property without proper compensation. This decision has been taken considering the ownership of property as part of the constitutional and human rights.

Key Points of the Decision:

1. **Constitutional Basis:**
   - **Article 300-A:**
     - "No person can be deprived of his property without the right conferred by law. "

▪ This provision ensures that the right to property will be protected even though it ceased to be a fundamental right after the 44th Constitutional Amendment, 1978.

2. **Human Rights Aspect:** The Court held that the right to property in a welfare state is tantamount to human rights, thereby ensuring that citizens are not unjustly deprived of their property.

3. **Background of the Case:**
   o The case arose out of land acquisition disputes for the Bengaluru-Mysore Infrastructure Corridor Project (BMICP).
   o The landowners were not compensated for more than 22 years, which happened because of government delays and bureaucratic practices.

4. **Supreme Court's Observations:**
   o The court criticised the "lazy attitude" of the state authorities and the Karnataka Industrial Areas Development Board (KIADB).
   o The court said the delay caused grave injustice to the land owners.

Constitutional Provisions: Right to Property

1. **Article 300-A:** The right to property is no longer a fundamental right, but a constitutional right (44th Constitutional Amendment, 1978).

2. **Impact of Withdrawal of Fundamental Right:** Earlier, individuals had the right to challenge the violation under Article 32 in the Supreme Court. It is now challenged under Article 226 in the High Court.

3. **Legal Authority:** Under Article 300-A, property can only be taken by the state under legal authority and due process.

4. **Scope:** The right to property under Article 300-A also applies to persons other than Indian citizens.

Historical Context of Property Rights:

1. **Initial Status:** Previously, the right to property was protected as a fundamental right under Article 19(1)(f), which gave citizens the right to acquire, hold and dispose of property, and Article 31 provided for compensation on property acquired by the state.

2. **Stress with Land Reform Laws:** Attempts to redistribute property under land reform laws led to

several amendments to these provisions, leading to a reduction in these rights.

3. **44th Constitutional Amendment (1978):** By the 44th Constitutional Amendment, the right to property was removed from the fundamental right and Article 300A was added to Part XII of the Constitution.

Significance of the Decision:

1. **Example of Timely Compensation:**
   o This judgment ensures that the delay in compensation does not undermine the constitutional guarantee, especially under Article 300-A.
   o It promotes accountability among state officials.

2. **Resolution of Inflation and Delays:** The judgment acknowledges the impact of inflation and time value of money, and emphasizes the importance of timely compensation.

3. **Use of Article 142:** The exercise of extraordinary powers in this judgment demonstrates the role of the judiciary, which is meant to deliver justice in pending cases.

2.6.4. Role of e-Shram

The Ministry of Labour and Employment (MoL&E) of India has recently declared the e-Shram portal as the largest database of unorganised workers globally, with more than 30 crore workers registered.

Background:

In view of the miserable condition and exodus of migrant workers during the pandemic, the Supreme Court of India directed the central government to create a national database of workers. As a result, the **e-Shram portal was launched** by **the Ministry of Labour and Employment (MoL&E) in May 2021**.

- It aims to create a national database of unorganized workers.

- The enrolment **is Aadhaar verified** and **linked to Aadhaar**.
- Any unorganized worker can register on the portal on the basis of self-declaration.
- This portal allows registration of under 400 businesses in 30 broad business areas.

Historical Context and Need for Databases:

The concept of maintaining databases for migrant and unorganised workers is not new.

- **Interstate Migrant Workers Act (1979):** Provided for contractors to maintain detailed records of workers.
- **National Commission for Enterprises in the Unorganised Sector (2007):** Recommended universal worker registration.
- **Unorganised Workers' Social Security Act (2008):** Proposed identity cards for workers.

However, these efforts did not work, leaving hundreds of millions of workers invisible to policymakers and the public.

- In the midst of this historical neglect, **the e-Shram portal** emerges as a transformative initiative.

Challenges of e-Shram Portal:

1. **Relaxation of eligibility:** Migrant workers do not have the necessary documents (such as Aadhaar, ration card), which causes problems in registration.
2. **Functionality of the e-Shram portal: The** portal pays attention to registration, but lacks access to benefits.
3. **Vulnerability of Migrant Workers:** Workers face deprivation, trafficking, and limited access to public services due to high migration rates.
4. **Gender Inequalities:** Women workers face additional challenges, which require gender-sensitive schemes.
5. **Data Segregation:** There is a lack of data separation based on gender, region, and migration patterns.

Significance of e-Shram Portal:

1. **Social security: Benefits of pension**, insurance, healthcare and other welfare schemes to unorganised workers.
2. **Data-driven schemes:** Targeting and effective policies by understanding the needs of workers.
3. **Empowerment:** Improving the quality of life of workers by providing them with unique identification and access to social security.

4. **Disaster Relief:** Help identify and assist affected workers in times of crisis.
5. **Policymaking:** The use of data for minimum wages, working conditions, and safety policies.
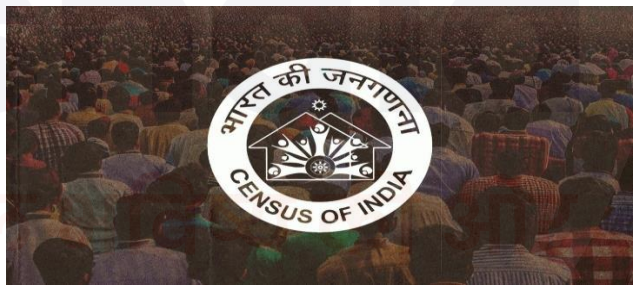
Recommendations:

1. **Document Solution:** Simple registration and assistance to workers without documents.
2. **Social Security:** Ensure benefits to all workers by going beyond registration.
3. **Data analysis:** Study of migrants' data based on gender, region and needs.
4. **Gender Sensitivity:** Special Policies for Women Workers.
5. **Human Development:** Focus on the development of migrants by considering them as a resource.

2.6.5.   Caste-based census

A caste-based census in India is necessary to understand the condition of the disadvantaged sections, especially the backward classes, and to remove their backwardness. The 2023 caste-based census of Bihar is an important initiative in this direction.

Census in India:

About Census
- The census **provides basic data related to human resources, demography, culture and economic structure**.
- The first census in India **was conducted non-synchronously** in 1872.
- The first synchronous census was conducted in **1881** during the British rule.**c. It was led by Plauden** (Census Commissioner of India).
- The **Census is conducted every 10** years by **the office of the Registrar General and Census Commissioner of India**, which comes under the Ministry of Home Affairs.

Legal/Constitutional Basis of Census in India:

1. **Constitutional Provisions:** The census is listed in **Entry** 69 **of the** Union List **of the Seventh Schedule** of the Constitution of India.

2. **Legal Provisions:** The census **is conducted under the Census Act, 1948**.

Caste Census:

1. **British Era Census (1881-1931):** During the British rule, castes were counted in the census.

2. **Census after Independence (1951-2023):**
   o **From the 1951** Census, the caste enumeration was discontinued, except for the Scheduled Castes (SCs) and Scheduled Tribes (STs).
   o **In 1961**, the central government recommended to the states to conduct their own surveys for state-specific OBC lists.
   o **Despite Census being a Union** subject, under the Statistics Act, 2008**,** states and local bodies can collect the necessary data.
     ▪ Example: **OBC survey by** Karnataka **(2015) and** Bihar (2023).

Need for Caste Census:

1. **Social Need:**
   o Caste is a dominant social structure in India, influencing marriage, residence, and political selection.
   o **As of** 2011-12, only **5% of marriages** were inter-caste.
   o Caste plays an important role in elections and cabinet formation.

2. **Legal Requirement:**
   o The Constitution mentions class, but caste is considered important for the identification of backward classes and reservation policies.
   o Caste data can lead to better implementation of social justice policies.

3. **Administrative Requirement:**
   o **From Caste Data:**
   o Improvement in inclusion/exclusion of wrong castes,
   o Ensuring equal sharing of benefits among reserved categories,
   o Subcategorization of castes, and
   o Helps in fixing the income/wealth limit of the creamy layer.

4. **Moral Need:** In the absence of caste data, the upper castes and dominant OBCs have taken greater control over national resources, income, and power.

Conclusion and Analysis: The Bihar Census 2023 highlights the deep socio-economic inequalities in the state.

Significance:

- This census proves the need for caste-based data.
- It can play an important role in giving effect to policies and equitable distribution of resources.

2.6.6. 10 years of NITI Aayog

NITI Aayog has completed 10 years of its existence. The National Institute for Transforming India (NITI Aayog) was established on 1 January 2015 through a Union Cabinet resolution, replacing the earlier Planning Commission.

About NITI Aayog
• **Establishment:** NITI Aayog (National Institute for Transforming India) **is a government think tank** established in **2015** .
• **Composition:** The NITI Aayog is chaired by the Prime Minister, while the Vice-Chairman and CEO head the executive functions.
Governing Council
o **Prime Minister of India**
o **Chief Ministers of States and Union Territories**
o **Lieutenant Governors of Union Territories (except Delhi and Puducherry)**
o **Vice Chairman of NITI Aayog**
o **Full-time Member of NITI Aayog**

Objectives of NITI Aayog:

1. **Promoting Inclusive Growth:** Formulation and implementation of strategies for inclusive growth, in collaboration with the central and state governments.
2. **Promoting Cooperative Federalism:** Formulating strategies to engage key stakeholders for cooperative governance.
3. **Focus on Weaker Sections:** Special attention to the weaker sections of society, who are not able to fully benefit from economic progress.
4. **Ensuring Credibility of the Scheme:** To ensure credible planning at the village level and to increase it gradually at higher government levels.
5. **Creating Long-Term Policies:** Creating strategic and long-term policy frameworks, monitoring progress, and implementing mid-way corrections as needed.
6. **Focusing on Innovation and Technology:** **Emphasizing** knowledge, innovation, entrepreneurship support systems, and technology upgradation.
7. **Establishment of Resource Centre:** Establish a research archive centre on effective governance and sustainable development.

Significance of NITI Aayog:

1. **Cooperative Federalism:** NITI Aayog enhances coordination between the central and state governments, thereby helping states address local problems.
2. **Competitive Federalism:** NITI Aayog motivates states to improve through transparent rankings, and promotes local empowerment.
3. **Strategic Policy Formulation:** NITI Aayog formulates long-term policies, incorporating the views of state governments and experts.
4. **SDG Monitoring:** It monitors the implementation of SDGs in India, and aligns government plans with global goals.
5. **Fostering Innovation:** NITI Aayog promotes an innovation-supporting ecosystem and supports startups.
6. **Capacity Building:** Provides training and technical assistance to state governments to enable them to implement policies effectively.
7. **Inclusive Growth:** It promotes policies for marginalized communities, thereby ensuring social equity.

8. **Transparency:** NITI Aayog makes government work transparent and increases public confidence.
9. **Inter-cadre Coordination**: Facilitates the implementation of policies by addressing problems in various sectors.

NITI Aayog's Vision Plans for India:

1. **The 2030 Agenda and Sustainable Development:** Eradicating poverty, promoting education, health, clean energy, and gender equality.
2. **15-Year Approach (2020-2035):**
   o Focusing on economic growth, social equality and environmental sustainability.
   o **Data and innovation:** Digitization, innovation, and evidence-based policy-making to improve growth and governance.

2.6.7.   Panchayat to Parliament 2.0

Lok Sabha Speaker Om Birla **will inaugurate the 'Panchayat Se Sansad** 2.0' programme, which will be held in the Central Hall of the Constituent House.

Key points of the 'Panchayat to Parliament 2.0' programme:

Programme Objectives:

1. **Understanding Constitutional Values and Democratic Principles:** Enhancing women's understanding of constitutional values and democratic principles.
2. **Empowering Elected Women Representatives: Empowering Elected Women Representatives in Panchayati Raj Institutions (PRIs)** and **Urban Local Bodies (ULBs).**
3. **Providing information on governance structures and parliamentary procedures:** To provide

information about governance structures and parliamentary procedures.

4. **Appreciating the contribution of women leaders:** Recognising the contribution of women, especially in promoting **education** and **rural development**.

5. **Promoting Leadership Skills:** Promoting leadership skills and motivating active participation in local governance.

Key Features of the Programme:

1. **Interactive Workshops and Sessions:** The program consists **of interactive workshops** and **sessions** conducted by **experts** and **parliamentarians**.

2. **Guided Tours:** The delegates will take guided tours of important places, such as **New Parliament House, Constitution House, Prime Minister's Museum**, and **Rashtrapati Bhavan**.

3. **Reading of the Preamble of the Constitution:** During this program, the **Speaker of the Lok Sabha will read out** the Preamble of the Constitution of India **to the delegates**.

4. **Success of Panchayat to Parliament 2024 Programme:** The initiative **builds on the success of the Panchayat to Parliament 2024** programme, which included 500 **women sarpanches from across India**.

National Commission for Women (NCW)
Installing as of an idol
• **The National Commission for Women** (NCW) **was constituted on 31** January **1992 under the National Commission for Women Act**, 1990, to address the issues of women.
• **First Chairperson: Jayanthi Patnaik** was the first Chairperson.
• **Constitutional provisions: Articles 15(3), 14**, and **21 provide** gender-neutral **protection for women**.
aim
• To represent the rights of women in India and to provide a platform for their issues.
• Publicized issues: **dowry**, **politics**, **labor exploitation**, **police brutality**, and **equal representation in jobs**.

Organizational Structure
• **Chairman:** Nominated by the Central Government.
• **Five members:** experts in fields such as law, education, health, and women's welfare.
• **Special Representation:** One member from Scheduled Castes and one from Scheduled Tribes.
right
• **Policy Consultancy:** Providing policy consultancy.
• **Issuance of summons:** Issuing summons and demanding public records.
• **Taking Evidence:** Obtaining evidence on affidavits and ensuring attendance.
work
• **Annual Report:** Submission of report on women's safety.
• **Investigation:** Examining laws and constitutional protections.
• **Review:** Reviewing laws and recommending amendments.
• **Grievance Redressal:** Dealing with complaints of violation of rights and welfare laws.
• **Sensitive Reform:** Identifying and improving problems in women's welfare systems.

2.6.8. Armed Forces Tribunal (AFT)

Recently, the Supreme Court has proposed the setting up **of benches of the Armed Forces Tribunal in Jammu and Kashmir and Himachal Pradesh**.

Armed Forces Tribunal (AFT):

1. **Establishment: The Armed Forces Tribunal (AFT) was established** in India **in** 2009 **under the Armed Forces Tribunal Act, 2007**.

2. **Functions:** The Tribunal disposes of disputes and complaints relating to:
   - **Commissions,** appointments**, recruitment**, and **service conditions under the** Army Act**, 1950, the Navy Act, 1957,** and the Air Force Act**, 1950**.
   - Appeals against orders, **decisions or sentences of court-martial** under these Acts.
   - This tribunal also handles problems related to or connected with these disputes.
   - The tribunal has the right to dismiss appeals if the findings of the court-martial are found to be justified.

3. **Main, Regional and Circuit Benches:** These different types of benches **assist the Armed Forces Tribunal** in managing the cases efficiently.

Composition of Armed Forces Tribunal (AFT):

1. **Judicial Member:** A judicial member **is a retired High Court judge**.

2. **Administrative Members:** Administrative members **are retired armed forces members** who have served for **three years** or more in the rank of Major General (or equivalent); or
   - **Judges are Advocates General (JAG)** who have at least **one year** of experience in this position

Powers/Jurisdiction:

- **Disposal of Appeals:** The Tribunal **is competent to dispose of appeals against any order, judgment**, finding or sentence given by the Court-Martial.

- **Power to grant bail:** The tribunal has the **power to grant bail** to an accused in **military custody**.

- **Power to change court-martial's findings: The tribunal has the right to change the court-martial'**s findings. Under it can:
  - **Waiving the whole or any part of the sentence, with or without conditions;**
  - **Reducing punishment;**
  - **Reducing the sentence to a lighter sentence or increasing the sentence awarded by a court-martial.**

- **Jurisdiction of the Tribunal: The** Armed Forces Tribunal has **both original** and **appellate** jurisdiction.

Jurisdiction of Other Courts:

- **Supreme Court's 2015 Judgment:**
  - **The Supreme Court** had ruled in 2015 that **decisions of the Armed Forces Tribunal (AFT)** cannot be challenged in **the High Courts**.
  - It also said that if any important public legal question is concerned, the AFT orders can be appealed to the **Supreme Court**.

- **Supreme Court's clarification in 2020:** In January 2020, the **Supreme Court** made it clear that **the decisions of the** AFT can be challenged in **the High Courts**.

- **Delhi High Court's 2022 Judgment:** In March 2022, **the Delhi High Court** held that **the administrative oversight of the High Court** under Article 227(4) **of the Constitution** under the Armed Forces Tribunal Act**, 2007** is excluded.

2.6.9. Bureau of Indian Standards celebrates its 78th Foundation Day

Recently, **the 78th** Foundation Day of **the Bureau of Indian Standards (BIS)** was celebrated in New Delhi. The day recognises the role of the Indian Standards System and underlines the importance of promoting quality standards in the country.

Key Points:

1. **Foundation Day:** The 78th Foundation Day of the Bureau of Indian Standards (BIS) was celebrated on 6th January 2024 in New Delhi.

2. **Ministers present:** Minister of Consumer Affairs, Food and Public Distribution, and New and Renewable Energy Shri Pralhad Joshi participated in the programme.

3. **Key Theme:** In his address, Mr. Joshi emphasized on quality and self-reliance.

4. **Objective:** The BIS aims to promote quality standards in Indian industries and provide safe and quality products to consumers.

About Bureau of Indian Standards (BIS)

Installing as of an idol

- o **BIS** (Bureau of Indian Standards) **has been established under the BIS Act**, 2016 for the harmonious development of the functions of standardization, marking and quality certification in India.
- o Its purpose is to work for standardization, marking and quality certification of goods and to resolve issues related to it.

Economic Benefits

The BIS has provided the benefits of **traceability** and **tangibility** to the national economy in several ways:

- o **Availability of safe and reliable quality goods** .
- o **Reducing health hazards to consumers**.
- o **Promotion of export** and **import substitution**.
- o **Control over the spread of diversity through standardization**, **certification and testing**.

Headquarters & Regional Offices

- o The headquarters **of BIS** is located in New Delhi.
- o Its **5 Regional Offices (ROs)** are located at the following locations:

▪ **Kolkata (Eastern)**
▪ **Chennai (Southern)**
▪ **Mumbai (Western)**
▪ **Chandigarh (North)**
▪ **Delhi (Central)**

Functioning of Bureau of Indian Standards (BIS):

1. **Providing Benefits of Standardization:**
   - o **The Indian Standards Institute (ISI**) started operating the **Certification Marks Scheme under the Indian Standards Institute (**Certification Marks) Act**, 1952**.
   - o The scheme was formally launched in 1955 and is popularly known as the **'ISI Symbol Scheme'**.
   - o BIS assigns the **ISI mark** to products, which is a third-party guarantee, when product quality, reliability and safety are ensured.
2. **Headquarters of BIS:** Located in New Delhi.

Major Activities of Bureau of Indian Standards (BIS):

1. **Standard Creation:** **Creating** standards **for various products and processes**.
2. **Product Certification Scheme:** Certifying products according to the standard and **providing the ISI mark**.
3. **Compulsory Registration Scheme: Implementing** a mandatory registration **system for certain products**.
4. **Certification of foreign manufacturers: Providing certification to foreign manufacturers** as well.
5. **Hallmarking Scheme:** **Operationalising** hallmarking scheme **for gold and silver jewellery and metals**.
6. **Laboratory Accreditation Scheme:**
   - o Obtaining accreditation of laboratories and certifying them.
   - o **Selling Indian Standards:** Selling and distributing Indian Standards.

2.6.10. Report on AI Governance Guidelines Development

A government panel has recommended the formation of an inter-ministerial committee to implement AI regulations under India's AI mission and ensure effective governance of India's fast-growing AI ecosystem.

AI Governance: AI governance refers to the processes, standards, and guidelines that ensure that artificial intelligence (AI) systems and tools are secure, ethical, and fair. This is necessary to ensure that human rights are respected.

Main Objectives:

1. **Security:** Design and deploy AI systems that pose no threat to users and society.
2. **Ethics:** The development and use of AI must conform to ethical standards.
3. **Fairness:** AI algorithms should be bias-free and ensure equal treatment for everyone.
4. **Human Rights: Protecting privacy**, freedom, and rights when using AI technology.

Key Points of the Report on AI Governance:

1. **Fundamentals of AI Governance:**
   - o **Transparency:** Relevant information on the development of AI systems and their capabilities should be provided.

- Accountability: Developers and users of AI systems should be held accountable for their impact.
- Security and reliability: AI systems must be robust, reliable, and secure designed.
- Privacy and Security: The privacy and security of data must be ensured.
- Justice and Non-Discrimination: AI should be non-discriminatory and promote equality.
- Human-Centered Values: AI should follow ethical principles and not cause any kind of harm.
- Inclusive innovation: The benefits of AI innovation should be distributed equitably.
- Digital Governance: Digital technologies should be used to implement these principles.

2. **Life Cycle Approach:**
- Policymakers must address the specific risks that arise at each stage of the development, use, and dissemination of AI systems.
- The "ecosystem approach" should include all stakeholders associated with AI.

3. Technology-Enabled Digital Governance: A mechanism for AI governance has been proposed that effectively implements these principles using digital technologies.

Key recommendations:

1. **Establishment of Inter-Ministerial AI Coordination Committee:**
- To coordinate AI governance between various ministries and regulators.
- It should include representatives from MeitY, NITI Aayog, RBI, SEBI, and other sectoral regulators.

2. **Formation of Technical Secretariat:** AI to act as a technical advisory body to the coordination committee.

3. **Use of techno-legal** measures: Use technological solutions such as watermarking and content provenance to combat deepfakes.

4. **Install the AI event database:**
- To document actual AI-related risks and losses.
- Encourage voluntary reporting from the public and private sectors.

Regulation of AI in India

1. **Digital Personal Data Protection Act, 2023:** The government passed this act in 2023, which can be helpful in addressing privacy concerns related to AI platforms.
2. **Global Partnership on Artificial Intelligence (GPAI):** India is a member of GPAI. The 2023 GPAI Summit held in New Delhi, where experts presented their views on responsible AI, data governance, the future of work, innovation, and commercialization.
3. **National Artificial Intelligence Strategy:** The strategy formulated by NITI Aayog includes research and development guidelines on healthcare, agriculture, education, "smart" cities and infrastructure, and smart mobility and transformation.
4. **Principles for Responsible AI:** In February 2021, NITI Aayog released a paper titled "Principles of Responsible AI", detailing the ethical considerations related to implementing AI solutions in India.

2.6.11. The Unlawful Activities (Prevention) Act (UAPA), 1967

Unlawful Activities (Prevention) Act (UAPA), 1967: The Delhi Police opposed the bail pleas of the accused in the **North-East Delhi riots in the Delhi High Court** in 2020. The police contended that the violence **was the result of a** "well-planned and deadly conspiracy" executed **with "brutal intent and ruthless intensity".**

Unlawful Activities (Prevention) Act (UAPA), 1967: Introduction:

- Enactment in 1967, the law **sought to impose reasonable restrictions on the fundamental freedoms (right to free speech**, peaceful assembly, and association) under Article 19(1).
- Over the years, **after terror-specific laws such as** TADA **and** POTA were repealed, the UAPA became India's primary **anti-terror law.**

Purpose and Definition:

- **Prohibiting** punishment, funding, **and support for "illegal activities" and "terrorist acts**."
- Rules for declaring an organization an "unlawful association."
- **Illegal Activity:**
  - An **act**, word, writing, allusion, or visual representation that:
    - Supports the demand for secession **or** secession **of any part of India**.
    - Disrupts the sovereignty and integrity **of India**.
    - Tries to spread dissatisfaction with India.

Amendment and Terrorism:

- **2004 Amendment:**
  - Terrorist activities were included in the law.
  - **34 organisations** like Lashkar-e-Taiba and Jaish-e-Mohammed banned.
- **2019 Amendment:** The Ministry of Home Affairs has the power to designate individuals as terrorists.

Application Area:

- Applicable to offences committed in India and abroad.
- Also applicable to Indian citizens, government employees, and ships and aircraft registered in India.

Concerns Associated with the UAPA Act:

1. **Strict Bail Provisions:**
   - If the allegation is found to be "prima facie true" on the basis of the police report, bail is denied.
   - It **violates the principle of** presumption of innocence and incorporates elements of criminal prosecution in the bail process.
2. **Long Detention:**
   - Long-term detention is allowed without filing a formal charge sheet.
   - It **violates Article 21** (right to life and personal liberty).
3. **Ambiguity in Definitions: The broad and vague definitions of "unlawful activity"** and **"terrorist act"** increase the potential for abuse.
4. **Freedom of Expression:**
   - **It has been used against activists,** journalists and students, raising concerns of stifling dissent.
   - This is **a possible violation of Article 19** (freedom of expression).
5. **Excessive discretion:**

- The Government has been given wide discretion **to nominate individuals and organisations**.
- Special courts **can use** secret witnesses **and conduct in-camera** trials, which raises questions about transparency.

Way Forward

1. **Judicial Oversight: It is necessary to set up a periodic monitoring mechanism for** judicial review **to prevent misuse**.
2. **Protection of Freedom of Expression:** Guidelines should be implemented to prevent misuse of the law **to suppress dissenting voices**.
3. **Legal Reforms: The UAPA** should be amended to give a clear definition of offences and the stringent bail provisions should be softened.

2.6.12. Section 152 of BNS

The Rajasthan High Court has **warned against the misuse of Section 152 of the** Indian Judicial Code **(BNS) in the case of Tejendra Pal Singh vs State of Rajasthan (2024)**. The Court expressed concern over the possibility of suppressing legitimate dissent under this provision.
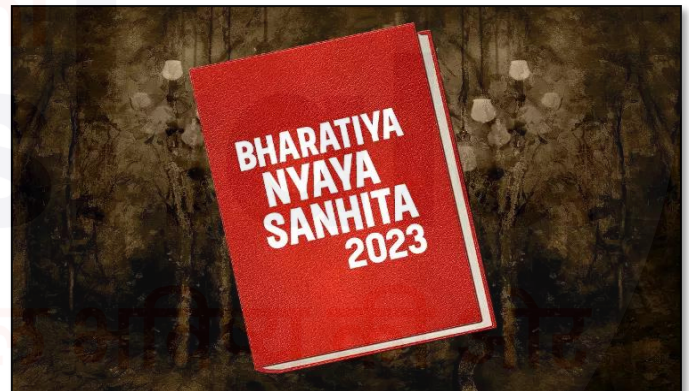
Section 152 of BNS:

Criminalises acts that threaten national integrity.

Key Provisions:

- **Offence punishable under Section 152 of BNS:** Any person, knowingly or knowingly, engages in the following actions:
  - By the use of words (oral or written), signs, visual presentation, electronic communications, or financial means:
    - **Incite or attempt to incite rebellion, armed rebellion, or subversive activities.**
    - **Promotes separatist sentiments.**
    - **Indulges in acts that threaten the sovereignty, unity and integrity of India.**

- **Penalties:**
  o **Life imprisonment**, or
  o **Imprisonment up to seven years**,
  o And **fines**.

Basis of Section 152 of BNS: Its source is Section 124A (sedition) **of the Indian Penal Code (**IPC), 1860.

Controversies and Relevance:

- In 2022, **the Supreme Court had stayed sedition cases under Section 124A of the IPC**.
- The government had promised to abolish the sedition law.
- **Section 152 of the BNS contains provisions that can be indirectly used for sedition.**

Court Observations:

1. **Prohibition of Sedition Prosecutions (2022):**
   o The Supreme Court suspended pending cases under Section 124A (sedition) of the IPC in 2022.
   o The decision was taken during a review of the law by the government.

2. **Concerns about Section 152 of BNS:**
   o The Indian National Security (BNS) law does not mention the word "sedition".
   o However, Section 152 criminalises acts that incite secession, rebellion, subversive activities and secessionism.
   o This has raised concerns about the possibility of misuse of the law in its new form as well.

Problems of Section 152 (BNS):

1. **Lack of Clarity and Comprehensive Explanation:**
   o Section 152 criminalises "acts threatening the sovereignty, unity and integrity of India", but does not clearly define these threats.
   o This ambiguity creates scope for broad and subjective interpretations for law enforcement.
   o Usage : Speech criticizing a political figure or expressing sympathy for a controversial ideology can also be interpreted as endangering unity, which can lead to legal action.

2. **Minimum Threshold of Offence – Use of the Word 'Intentional':**
   o Section 152 contains the word 'wilful intention', which reduces the extent of prosecution.
   o Even if a person does not intend to incite separation or rebellion, sharing a post on social media only knowing that it can provoke such feelings can lead to arrest.

3. **Cooling Impact on Freedom of Expression:**
   o Since Section 152 is a cognizable and non-bailable offence, individuals can be arrested even without sufficient primary evidence.
   o This can lead to harassment, lengthy detention, and a negative impact on freedom of expression.

4. **Scope of Misuse:**
   o According to NCRB data, of the 548 persons arrested under Section 124A of the IPC between 2015 and 2020, only 12 were convicted.
   o The broad scope of Section 152 shows the potential for further misuse.

5. **Lack of Safeguards Against Misuse:**
   o Unlike Section 124A, in which the Court's interpretations limited its misuse, Section 152 does not yet have clear statutory safeguards.
   o The absence of safeguards in Section 152 increases the risk of its misuse for sedition. Judicial intervention and clear guidelines are critical to safeguarding free speech while safeguarding national interests.

2.6.13. Meta plans to shut down independent fact-checking program

Meta recently announced the end of its independent fact-checking program in the US. The decision has sparked criticism and debate over how to tackle the spread of misinformation on social media.

Key Points:

Meta and the Independent Fact-Checking Program:

- **Following the 2016** U.S. presidential election, Facebook appointed content moderators globally and developed technology to filter out harmful content.
- Meta launched the independent **fact-checking program in partnership with the International Fact-Checking Network (IFCN)** and **the European Fact-Checking Standards Network (EFCSN).**
- Fact-checkers identified misinformation and rated it based on its severity. Meta took action based on that and informed users of the steps taken.

Community Notes:

- Meta is now **moving towards an** X-platform based content moderation system called 'Community Notes'.
- In this model, instead of having central authority for action against misinformation or illegal content, users collectively add additional context, which appears below such content.

Impact on Indian Fact-Checking Media:

- This announcement by Meta could have a significant impact on the media in India, where eleven organizations currently **partner with Meta under a third-party fact-checking** network (3PFCN).
- This decision could lead to a decline in revenue and employment.
- 3PFCN was launched in December 2016.

Establishment of Fact-Check Units in India:

Setting up of Fact-Checking Units:

- **IT Amendment Rules in 2023:**
  - The Ministry of Electronics and Information Technology (MeiTY) notified **the IT (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2023**.
  - This amendment made **changes to the Information Technology Rules**, 2021, allowing the government **to set up Fact Checking Units (FCUs).**
- **Extent of "Fake News"**: Rule 3(1)(b)(v) of the IT Rules, 2021 expanded the scope of "fake news" to include "government business".
- **Role of FCU:**
  - The FCU will flag **any content as fake, false,** or misleading, if it relates to the actions of the government.
  - **Online intermediaries** will have to remove such content if they wish to maintain their "safe harbour" protection (legal protection) under the **IT** Act, 2000

Concerns:

- **Violation of Fundamental Rights:**
  - **Violation of Articles of the Constitution:**
    - **Article 14:** Equality before law.
    - **Article 19(1)(a):** Freedom of speech and expression.
    - **Article 19(1)(g):** Right to practice profession.
  - This rule goes beyond the general restrictions **set out in Article** 19(2), which is unacceptable through a **regulated legislature**.

Against the Principle of Natural Justice:

- By making the FCU the "sole arbiter of truth" this process ignores the principles of natural justice.
- It is unconstitutional **to give the government sweeping and arbitrary powers to decide the authenticity of content**.

Failed the proportionality test:

- **Risk of losing a "safe harbor":** This rule could have a **chilling effect" on the freedom of expression of moderators and users**.
- **Shreya Singhal vs. Union of India (2013):** This judgment of the Supreme Court laid down strict procedures for blocking content. This amendment violates those procedures.

Judicial Decision on FCU:

Judicial Review of Indian Law:

- **Supreme Court, March 2024:** The Supreme Court suspended **the provision of the Press Information Bureau** (PIB) giving the FCU the power to **mark media content as misinformation and eliminate the "safe harbour" security** of social media platforms.
- **Bombay High Court, September 2024:** The Bombay High Court held **the amended provision of the IT Rules**, 2021 **as unconstitutional**.

The court said that this provision **gives excessive power to the government to identify "fake news"** on social media platforms, which is unfair.

2.6.14. Lokpal Day 2025

On 16th January 2025, the Lokpal of India celebrated its first Foundation Day, marking 11 years of formation under the Lokpal and Lokayuktas Act, 2013 of 2013 .

About Lokpal:

1. **Introduction:**
   - Lokpal is an independent statutory body established under the Lokpal and Lokayuktas Act, 2013.

o It aims to fight corruption in public offices and ensure accountability among public functionaries.

o The Lokpal acts as a "people-guardian" and investigates allegations of corruption against public functionaries.

o The Act also provides for establishment of Lokayukta in the States.

2. **Origin:**

   o The concept of Lokpal/Lokayukta is inspired by the Ombudsman system of Scandinavian countries.

   o In India, the Administrative Reforms Commission (1966-70) recommended the establishment of a Lokpal at the central level and a Lokayukta in the states.

   o Prior to the Lokpal and Lokayuktas Act, 2013, many states created the institution of Lokayuktas through their own laws.

   o Maharashtra set up its first Lokayukta body in 1971.

3. **Structure and Members:**

   o **Appointment:** Done by the President of India.

   o **Chairperson:** Chief Justice of India, Judge of the Supreme Court, or a distinguished person.

   o **Members:** Maximum 8 members (50% judicial, 50% from SC/ST/OBC/Minority/Women).

4. **Salary and Allowances:**

   o The salary and allowances of the Lokpal chairperson are equivalent to that of the Chief Justice of India.

   o The members enjoy the same facilities as a Judge of the Supreme Court of India.

5. **Tenure:** 5 years or up to the age of 70 years.

6. **Proceedings of the Ombudsman:**

   o On receipt of a complaint, the Ombudsman takes the following steps:

     ▪ Starts a preliminary investigation through its investigation branch.

     ▪ Refers the cases to the Central Bureau of Investigation (CBI) or the Central Vigilance Commission (CVC).

   o The CVC reports to the Ombudsman on Group A and B officers.

   o For Group C and D cases, the CVC takes independent action under the CVC Act, 2003.

Challenges/Issues of Lokpal:

1. **Seven-year limit:** Complaints older than seven years are not entertained.

2. **Delay in appointments:** There is a delay in the formation of Lokpal and the appointment of members.

3. **Rejection of grievances:** In the last 5 years, around 90% of complaints were rejected because they were not in the correct format.

2.6.15. New Watershed Development Projects

The Ministry of Rural Development (MoRD) has approved 56 new watershed development projects in 10 high-performing states with a budget of ₹700 crore.

Watershed Development Component of Pradhan Mantri Krishi Sinchai Yojana (PMKSY-WDC):

- **Background:**

  o **Integrated Watershed Management Programme (IWMP):** Implemented as a Centrally Sponsored Scheme (CSS) by the Department of Land Resources (DoLR) since 2009-10.

  o **'WDC-PMKSY 1.0':** In 2015-16, IWMP was added as the watershed development component of PMKSY's umbrella scheme.

  o **'WDC-PMKSY 2.0':** Expanding the success of PMKSY-WDC 1.0.

- **Period:** 2021-2026.

- **Target: Development of** 49.50 lakh hectare area.

- **Aim:**

  o **Preventing Land Degradation:** Through soil conservation, water recharge, and pasture development activities.

  o **Increasing Farmers' Income:** Promoting agricultural productivity and sustainable use of resources.

  o **Improving Climate Resilience:** Making agriculture and rural areas more resilient to the impacts of climate change.

What are watersheds?

- A watershed is a groundwater unit that drains water through a network of drains that carry it to a common point.

- **Watershed Development:**

  o Watershed development refers to the conservation, regeneration, and judicious use of natural resources.

o It specifically focuses on the following resources:

▪ **Land, Water, Vegetation and Livestock, Human Development.**

Significance of Watershed Development:

1. **Large Rain-Dependent Areas:** Dryland accounts for 51% of the total net sown area and 40% of the total food production.

   o The soil quality is poor, irrigation is not available and crops are dependent on the monsoon.

   o Dryland areas lack natural resources and the agricultural yield here is less than irrigated land.

2. **Crop Failure and Distress:** Crops in dryland areas often fail, leading to distress among farmers.

   o The average size of land holdings is small and farmers are not able to invest in increasing agricultural productivity.

   o **Poor Socio-Economic Condition:** These areas are more prone to problems such as poverty, malnutrition, low levels of education, poor access to public services, and land degradation.

3. **Vulnerability to Disasters:** Dryland areas are highly susceptible to drought, reducing their tolerance. Climate change can further exacerbate the uncertainties of these regions.

Benefits of Watershed Development
1. Protection against climate risks in agricultural production and income.
2. Diversification of cropping systems and animal husbandry.
3. Efficiency of rainwater harvesting and retaining moisture in the soil.
4. Equal access to water resources.
5. Sustainable, holistic and efficient use of natural resources.

2.6.16. Laws on abetment of suicide

The Supreme Court has again stressed the need for investigating agencies to exercise restraint in charging them with abetment to suicide. Recently, a bench of Justices Abhay S. Oka and K.V. Viswanathan said that **Section 108 of the Indian Judicial Code (BNS)** is being used unnecessarily.

Offence of abetment of suicide (in Indian Penal Code):

The abetment pursuant to Section 107 of the Indian Penal Code (IPC) (equivalent to Section 45 of the Indian Nystic Code (BNS), 2023) includes:

- To provoke somebody to do something**.**
- Conspiring with others**.**
- To intentionally aid something, whether by act or through illegal omission.

In order to prove the charge of abetment to suicide, it is necessary to prove that the accused directly induced or aided the deceased to commit suicide.

Penalties for abetment to suicide:

- This offence **is triable in the Sessions Court**.
- It is **a cognizable, non-bailable, and non-compoundable** offence.
- **Penalties under Section 306 IPC (equivalent to Section 108 of BNS):**
  o **Imprisonment: Punishment up to** 10 years.
  o **Penalty:** Additional monetary penalty.

Conviction Rate in Abetment to Suicide:

According to the National Crime Records Bureau (NCRB) 2022 data:

- **Conviction rate for Section 306 IPC:** 17.5%.
- **Overall conviction rate of all IPC crimes:** 69.8%.
- **Conviction rate of cognizable offences (which includes abetment of suicide):** 54.2%.

Standard of Abetment to Suicide:

Supreme Court's October 2024 Judgment:

The Supreme Court dismissed the case of suicide of a salesperson alleging alleged workplace harassment linked to the Voluntary Retirement Scheme (VRS).

Key Points:

- The Court stressed the need to avoid "unnecessary prosecution" in workplace-related suicide cases.
- The Court clarified that:
  o **A high level of authenticity** is expected, especially if the relationship between the deceased and the accused is official (e.g., employer-employee).
  o The prosecution will have to prove that **the accused deliberately abetted suicide.**
  o It is imperative to present concrete evidence of a clear and serious provocation or incentive for suicide.

Previous Supreme Court Judgments on Abetment to Suicide:

1. **M. Mohan vs. State (2011):**
   o To prove the charge, it is necessary to:
     ▪ An active or direct act has been committed by the accused.
     ▪ The deceased is left with no other option but to commit suicide.
     ▪ The act is intentionally done with the intention of pushing him into this position.
2. **Ude Singh vs. State of Haryana (2019):**
   o To prove the charge, it is necessary to:
     ▪ Evidence of direct or indirect abetment to suicide is available.
     ▪ If due to the continued act or behaviour of the accused, the deceased does not see any other option but to commit suicide, it can come under **Section 306 IPC**.

2.6.17. Uniform Civil Code (UCC)

Recently, the Uttarakhand government has approved the rules to implement the Uniform Civil Code (UCC) in the state. After its implementation, Uttarakhand will become the first state in the country to implement UCC.

Uniform Civil Code (UCC)
definition
o The objective of the Uniform Civil Code **is to create a common civil law system** that is equally applicable to all citizens.   o Currently, different **religious communities follow their own personal laws in matters such as marriage, divorce, and succession**.
importance
o The UCC is considered an important step towards a **secular and egalitarian society**.   o It is in consonance with the ideals enshrined in the Indian Constitution.
Constitutional Provisions
o Under Article **44** of the Indian Constitution, UCC has been included in **the Directive Principles of State Policy (DPSP).**   o Article 44 is not legally binding, rather it reflects an aspiration of the State to have a uniform civil law applicable to all citizens.

Need for Uniform Civil Code (UCC):

- **Gender Equity:**
  o The current personal laws related to marriage, divorce, etc. are often **discriminatory towards women**.
  o The UCC will ensure gender justice **by giving equal rights to women**.
- **Social Cohesion:**
  o Divisions and inequality can arise **due to religious and ethnic diversity in India's legal system**.
  o The UCC will strengthen national unity by creating a **common legal framework**.
- **Reforming Indian Society:** It will be helpful in eradicating many **superstitions and orthodox practices** prevalent in the society.

Supreme Court's Landmark Judgments on Uniform Civil Code:

1. **Shah Bano Case (1985):**
   o After the divorce, the Muslim woman was given the right to maintenance.
   o Emphasized the need for UCC and advocated gender equality.
2. **Sarla Mudgal Case (1995):**
   o Ban on polygamy by religious conversion.
   o Explained the importance of UCC to prevent misuse of personal laws.
3. **John Vallamattam case (2003):** Emphasis on ensuring equal rights by rejecting discriminatory provisions.
4. **Shayara Bano case (2017):** Protected women's rights by declaring triple talaq unconstitutional.

Key Challenges in Implementing the Uniform Civil Code (UCC):

- **Individual Rights vs. State Intervention:**
  o **Article 25** guarantees freedom of religion, making it challenging to maintain a balance between state interference and individual religious freedom.
  o **The 5th and 6th schedules** safeguard tribal customs and beliefs, which are required to be coordinated.
- **Opposition of Religious Groups and Leaders:**
  o Many religious groups fear that the UCC will interfere with their **religious laws and practices**.
  o This can lead to social and political tensions.

RAS FOUNDATION

HAND WRITTEN NOTES

अधिक जानकारी के लिए दिए गए नंबर पर संपर्क करें....

📞 7878158882

BEST OFFER
4500 Rs

By Ankit Avasthi Sir

3 Indian Economy

3.1. Development of India's Infrastructure

Context:

India has significantly improved its infrastructure in the last 25 years. Increasing progress and active participation of the private sector have made this shift possible. However, there are still many challenges and tasks to achieve the goal of becoming a USD 30 trillion economy by 2047, as 90% of the required infrastructure is yet to be built.

India's Infrastructure Achievements (as of 2024)

Roads & Highways

- The road network has grown almost threefold since 2000, now reaching 146,000 km. This includes modern expressways and GPS-based toll systems.
- Since 2014, 3.74 lakh km of rural roads have been built, connecting more than 99% of rural habitations.
- Toll collection reached Rs 2.1 trillion in 25 years, which shows the strength of the private sector.

Total Tolling Length (Kms)

2018-19	2019-20	2020-21	2021-22	2022-23	2023-24 (upto Nov,23)
25,996	29,666	34,071	38,315	42,595	45,428
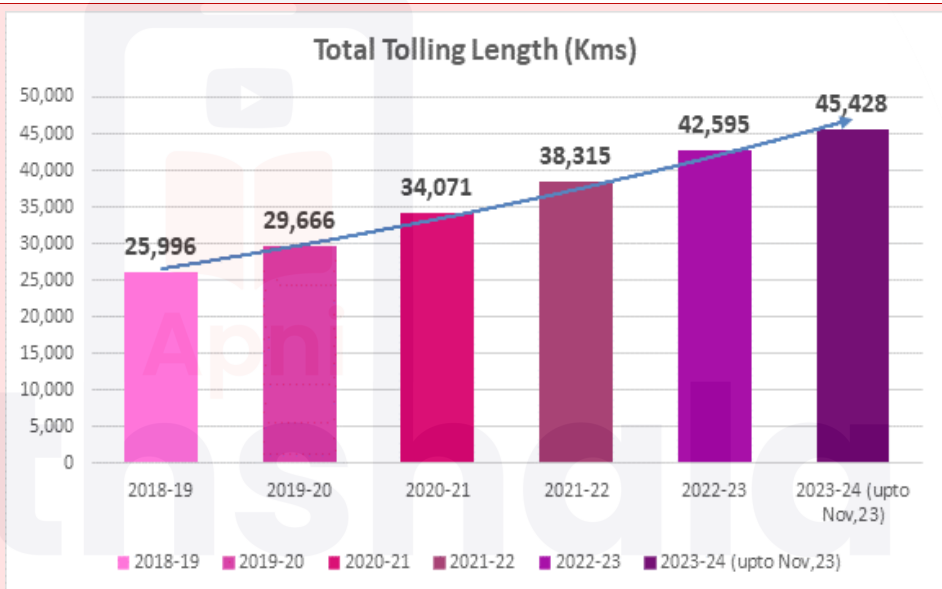
Railway

- India's first bullet train project, which will have a speed of 280 km/h, is likely to be completed by 2026.
- As of December 2023, 93.83% of broad-gauge track has been electrified, compared to only 21,801 km in 2014.
- Accidents have come down, especially despite incidents like the Kanchenjunga Express.

Marine Area

- India plans to invest Rs 54 trillion **to become a top five shipbuilding nation by 2047** .
- Major ports such as Galathea Bay and the India-Middle East-Europe Economic Corridor are being developed to boost trade connectivity.
- Under the Sagarmala project, 839 projects have been implemented with an investment of Rs 5.8 lakh crore.

Aviation Sector

- The number of domestic flights has increased from 3,568 in 2000 to 22,484 in 2024.
- The order of over 1,000 aircraft by major airlines such as Air India and IndiGo signals long-term growth.
- Between 2014 and 2024, 84 new airports were built, bringing the total number of airports to 158.

Urban Metros
• The metro network has grown from 248 km in 2014 to 945 km in 2024, serving 1 crore daily commuters across 21 cities. • Programs like the Delhi-Meerut RRTS corridor and the Namo Bharat train have given a boost to urban transport.

Ropeway Development
• As many as 32 ropeway projects have been undertaken under the Parvatmala programme, which has improved connectivity in inaccessible areas and reduced urban congestion.

Challenges to Infrastructure:

- **Stalled and Delayed Projects**: Many major projects, such as Bharatmala and Vision 2047, have been postponed due to red tape and policy changes.
- **Financial Constraints**: Large projects, such as the Delhi-Mumbai Expressway, are facing hurdles due to lack of resources.
- **Slow Progress**: The expansion of the railway network has been slow, with an average of 231 km of tracks added per year, which is less than a kilometre per day.
- **Dependence on Private Sector**: Despite the increase in private sector participation, recycling of capital and toll collection have raised concerns related to equity.

Government's Initiatives for Infrastructure Development:

- **PM Gati Shakti Yojana**: This scheme works to complement various infrastructures to each other, thereby reducing delays and duplications.
- **Bharatmala Yojana**: An important step for expanding the road network.
- **National Infrastructure Pipeline (NIP):** The scheme provides financial and technical support for various infrastructure projects.
- **Sagarmala Project**: A major initiative for the development of ports, which promotes maritime trade.
- **Ude Desh Ka Aam Nagrik (UDAN):** This scheme is designed to give a boost to the civil aviation sector.

Future Direction:

- **Integrated Infrastructure**: The coordination of various infrastructures will be done in a complementary manner to each other, such as expressways, high-speed rail, and multi-modal logistics parks.
- **Safe and Resilient Infrastructure**: Technologies such as railway safety, advanced traffic management systems, and electric vehicles will boost the safety of citizens.
- **Green Technologies**: The promotion of electric vehicles and alternative fuels will reduce carbon emissions. In addition, the focus will be on renewable energy, water conservation, and waste management.
- **Technological Integration**: The use of digital technologies, such as the FASTag and DigiYatra app, will make travel simpler and faster.
- **Policy and Regulatory Reforms**: Policy reforms are needed to promote private sector investment in ports, railways, and aviation.

India's infrastructure reforms and government initiatives are taking it in a new direction, but challenges still remain, which need to be resolved with policy reforms and solid investments.

3.2. Growth of Renewable Energy Sector in India

Context:

Recently, **the Ministry of New and Renewable Energy** has emphasized upon the States **to simplify the availability of land for renewable energy projects with focus on wind energy**. India's wind power capacity currently **stands at 47.95** GW, and the government aims to increase this **to 100 GW** as well as reach **500 GW of non-fossil energy capacity by** 2030, showing India's unwavering commitment.

Introduction to Renewable Energy:

Renewable energy is energy derived from natural and replenishable sources, such as **solar**, **wind**, **hydropower**, **biomass**, **geothermal** and **tidal** energy. This energy is **environmentally friendly** and reduces dependence on fossil fuels.

Types of Renewable Energy:

- **Solar energy**: derived from the radiation of the sun, using solar panels or solar thermal systems.
- **Wind Energy**: Converting the kinetic energy of the wind into electrical energy through wind turbines.
- **Hydropower**: Energy obtained from flowing water such as rivers, dams, and springs.
- **Biomass Energy**: For biofuels, heating and power generation from plant and animal waste.
- **Geothermal Energy**: Energy derived from the internal heat of the earth.
- **Tidal Energy**: Power generation from the motion of seawater.

India's Initiatives to Promote Renewable Energy
• **Pradhan Mantri Kisan Urja Suraksha Evam Utthan Mahaabhiyan (PM-KUSUM) Scheme.**
• **PLI Scheme for Solar PV Modules**.
• **Pradhan Mantri Suryoday Yojana and Solar Park**.
• **Green Energy Corridor Scheme**.
• **National Green Hydrogen Mission**.
• **Encouraging FDI in Renewable Energy.**

Potential of Renewable Energy in India:

- **Solar energy**: India has 748 GW of solar power capacity, and states like Rajasthan**,** Gujarat**,** and Tamil Nadu are major **contributors to increasing it**.
- **Wind power**: India has a wind power capacity of over 300 gigawatts, mainly concentrated in **Tamil Nadu**, **Gujarat**, **Maharashtra**, **Andhra Pradesh**, and **Karnataka**.
- **Hydropower**: India has over 148 GW of hydropower potential, of which 46 GW is yet to be harnessed.
- **Geothermal energy**: **Ladakh**, **Himachal Pradesh**, and **Jharkhand** have a potential of about 10 gigawatts of geothermal energy.
- **Ocean Energy**: India **has the potential to harness 40** gigawatts of wave energy, which **can be sourced from coastal areas such as the Gulf of Kutch** and the **Sundarbans**.

Challenges in Expanding Renewable Energy in India:

- **Land Scarcity and Use** Conflicts: Availability of land suitable for renewable energy, especially wind power, is a major challenge. In some states, division of land among landowners and opposition from local communities pose problems.
- **Financing and Investment Issues**: Wind power projects require initial capital, and private investors show less interest due to the long repayment period.
- **Grid Integration and** Cutbacks: Unstable supply of wind power and seasonal wind patterns lead to grid cuts, impacting profitability.
- **Policy Gaps and Delays in Approvals**: Environmental, wildlife, and forest-related clearances take long hours, leading to delays in projects.
- **Challenges of Offshore Wind Energy**: Offshore wind energy is yet to be harnessed appropriately due to high installation costs, need for advanced technology, and limited government support.

Future Direction:

- **Improving Access to Land**: Creating transparent policies for acquisition of government land and facilitating processes through digital land records.
- **Development of transmission infrastructure**: Developing green energy corridors and investing in hybrid systems (solar + wind + storage).
- **Harmonizing Policies**: Formulating an integrated National Renewable Energy Policy to remove inconsistencies at the state level.
- **Official financial incentives**: Providing long-term incentives for investors, such as tax exemptions and interest subsidies.
- **Modern technological research**: Invest in the research and development of advanced technology, which will help to increase the efficiency of energy production.

The renewable energy sector in India is poised to play an important role in the future, including the goals of sustainability, economic prosperity, and environmental protection.

3.3.   India-Latin America Trade Relations

Context:

Trade relations between India and Latin America (LAC) are witnessing a steady growth and diversity, which has become an important place in India's foreign policy. **India's trade from the region reached USD 43.22 billion in 2023, and India aims to increase it to USD 100 billion by 2028**.

Salient features of India-Latin America relations

Historical Background: There has been a rich literary and cultural exchange between India and Latin America. Pandurang Khankhoje and M.N. The contributions of celebrities like Roy shaped the relationship. Additionally, literary influence increased through personalities such as Rabindranath Tagore and Octavio Paz.

Economic and Trade Relations

- Major partners of India-Latin America trade are **Brazil, Mexico and Colombia**. Major imports include petroleum, gold, and soybean oil, while exports include petroleum products, motor vehicles, etc.
- **Economic Opportunities**: Latin America is rich in natural resources, including minerals such as copper, lithium, and iron ore, which are critical to India's industrial needs.
- **Energy Security**: Latin America, especially Venezuela, Mexico, and Brazil, are India's crude oil suppliers, and crude oil imports from the LAC account for 30% of India's total imports.

Political and bilateral cooperation

- There has been growing political relations between India and Latin American countries, especially with Brazil, which is active with India at forums such as BRICS, IBSA and G-20.
- **Strategic Partnership**: India and Latin American countries have pursued a policy of strategic autonomy, especially on global issues (such as the Ukraine war).

Cultural and Educational Exchange

- Cultural relations between India and Latin America have been boosted through cooperation in areas such as educational exchanges, information technology and pharmaceuticals.
- Indian IT companies employ more than 40,000 professionals in Latin America, helping in skill development and job creation.

Trade Agreements

- India has signed several trade agreements with Latin American countries, such as the India-Chile PTA and the India-MERCOSUR PTA. These agreements are important steps towards strengthening trade and economic relations.

Significance of Latin America for India:

- **Economic Opportunities**: The collective GDP of the region is over US$ 6 trillion, which presents a large market for Indian exports and investments.
- **Strategic and Geopolitical Significance**: Latin America has become a strategic region for India to counter China's growing influence.
- **Food Security**: Latin America's vast agricultural landscape provides support for India's food supply, especially in pulses and oilseeds.

India has been collaborating with Latin American countries in various fields, the major ones being:

1. **Pharmaceuticals and Healthcare:** India's pharmaceutical industry is renowned worldwide, providing high-quality medicines at affordable prices. India's exports to Latin American countries, including Brazil, have increased, leading to improved access and improvement in healthcare.

2. **Energy Cooperation:** India is collaborating in the exploration and extraction of lithium reserves in Bolivia. In 2023, India's Altmin Private Limited entered into a partnership agreement with the Bolivian state-owned lithium company. Bolivia has also joined the International Solar Alliance, enhancing cooperation in the solar energy sector with India.

3. **Agriculture and Food Security:** Latin American countries have vast agricultural resources, which can be helpful in promoting India's food security. Opportunities for cooperation in food processing and agricultural research are being explored with these countries to enhance the productivity and sustainability of both the sectors.

4. **Infrastructure Development:** India has also collaborated in infrastructure development in Latin American countries, such as building railways, highways, and energy routes. In addition, India has facilitated a US$ 100 million line of credit with Bolivia to support developmental projects.

Types of Trade Agreements:

The different types of trade agreements between India and Latin American countries are:

- **Free Trade Agreement (FTA):** India has negotiated several FTAs with countries such as Sri Lanka and ASEAN.

- **Preferential Trade Agreement (PTA):** India has signed PTA with Afghanistan.

- **Comprehensive Economic Partnership Agreement (CEPA):** India has established CEPA with South Korea and Japan.

- **Comprehensive Economic Cooperation Agreement (CECA):** India has signed CECA with Malaysia.

Challenges:

There are several challenges in deepening the relationship between India and Latin America, including:

1. **Lack of Regional Mechanisms**: There is a lack of institutional mechanisms and regional integration with the countries of Latin America.

2. **Limited Trade Agreements**: The scope of existing trade agreements is limited.

3. **Dominance of China**: India is facing competition with China, which is the major trading partner in Latin American countries.

4. **Geographical and Cultural Barriers**: Despite positive developments in the trade sector, geographical distance and cultural barriers remain a challenge.

5. **Lack of Bilateral Cooperation**: There is a need for more bilateral cooperation in areas such as climate change, trade, and security.

India's Strategies:

India should adopt the following strategies to improve its relations with Latin American countries:

1. **Reactivating the LAC Programme**: This will create a conducive environment for business.

2. **Promoting bilateral agreements and investment promotion**: Focusing in technology, agriculture and clean energy sectors.

3. **Promote Person to Person and Business to Business Relations**: This will promote cultural and economic cooperation.

4. **Promoting Diplomatic Coordination**: Enhancing cooperation through high-level visits and cultural exchanges.

5. **Export Promotion**: To provide financial assistance and targeted efforts to Indian exporters to enter the Latin American market.

6. **Services Trade Promotion**: Enhancing trade in the respective service sectors with FTA partners.

3.4. Household Consumer Expenditure Survey 2023-24

Context:

The Ministry of Statistics and Programme Implementation (MoSPI) has **released the factsheet of the** Household Consumption Expenditure Survey (HCES) 2023-24, which provides important insights into consumption patterns and economic well-being in India.

What is the Household Consumer Expenditure Survey (HCES)?

HCES is a survey that aims to assess standard of living, well-being, and consumption behavior. It collects data related to household expenditure patterns.

- HCES is administered by the **National Statistical Office (NSO)** and is part of the National Sample Survey (NSS) under the Ministry of Statistics and Programme Implementation.

- The survey provides the inputs needed to revise the base year for macroeconomic indicators such as **the Consumer Price Index (CPI) and Gross Domestic Product (GDP).**

- HCES also plays an important role in measuring poverty, inequality and social well-being.

Key Findings of HCES 2023-24

- **Increase in Consumption:**
    - Rural consumption expenditure increased by 9.3%, taking the average monthly per capita expenditure (MPCE) to Rs 4,122 (Rs 3,773 in 2022-23).
    - The MPCE of the urban area **increased by 8.3% to Rs** 6,996 (Rs 6,459 in 2022-23).
    - The gap between rural and urban consumption **reduced from 83.9% to** 69.7%, reflecting faster growth in rural consumption.

ALL- INDIA CONSUMPTION TREND

- Average monthly per capita expenditure (Rs)
- Difference as % of rural MPCE

	2011-12	2022-23	2023-24
Difference as % of rural MPCE	83.9%	71.2%	69.7%
Rural	₹1,430	₹3,773	₹4,122
Urban	₹2,630	₹6,459	₹6,996

SHARE OF FOOD IN MONTHLY PER CAPITA EXPENDITURE

(% share of food in MPCE)

Year	Rural India	Urban India
1999-2000	59.46	48.06
2004-05	53.11	40.51
2011-12	52.9	42.62
2022-23	46.38	39.17
2023-24	47.04	39.68

SPENDING ON FOOD ITEMS (% share of MPCE)

	2011-12		2022-23		2023-24	
	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN
Beverages, processed food	7.90	8.98	9.62	10.64	9.84	11.09
Milk & milk products	8.04	7.01	8.33	7.22	8.44	7.19
Vegetables	6.62	4.63	5.38	3.80	6.03	4.12
TOTAL *	52.90	42.62	46.38	39.17	47.04	39.68

SPENDING ON NON-FOOD ITEMS

RURAL INDIA (% share of MPCE)

	2011-12	2022-23	2023-24
Conveyance	4.20	7.55	7.59
Durable goods	4.85	6.89	6.48
Fuel and light	7.98	6.66	6.11
Total *	47.10	53.62	52.96

URBAN INDIA (% share of MPCE)

	2011-12	2022-23	2023-24
Conveyance	6.52	8.59	8.46
Durable goods	5.60	7.17	6.87
Rent	6.24	6.56	6.58
Total *	57.38	60.83	60.32

Source: Household Consumption Expenditure Survey 2023-24; * Includes other products

- **Regional Disparities:**
    - **The** MPCE was highest in Sikkim **(rural Rs 9,377 and urban Rs 13,927),** while **it was lowest in** Chhattisgarh **(rural Rs 2,739 and urban Rs 4,927).**
    - **Maharashtra, Punjab, Tamil Nadu, Telangana and Kerala** had **per capita consumption expenditure above** average, while **West Bengal, Bihar, Uttar Pradesh and Madhya Pradesh** had lower than the national average.
    - The MPCE was highest in Chandigarh **(Rs 8,857 rural and Rs 13,425 in urban),** while it was the lowest in Dadra and Nagar Haveli and Daman and Diu (Rs 4,311) and **Jammu and Kashmir (Rs 6,327).**
    - **Consumption Inequality:**
    - Consumption inequality as measured by the Gini coefficient has reduced in both rural and urban areas.
    - The rural Gini coefficient decreased from 0.266 to 0.237, and the urban Gini coefficient decreased from 0.314 to 0.284.

- **Food Expenses:**
    - Increase in Expenditure on Food Recorded:
        - In rural areas , 47.04% and
        - Urban areas saw a 39.68% increase.
    - Most of the spending was on beverages, refreshments and processed foods. This was followed by spending on milk, milk products and vegetables.
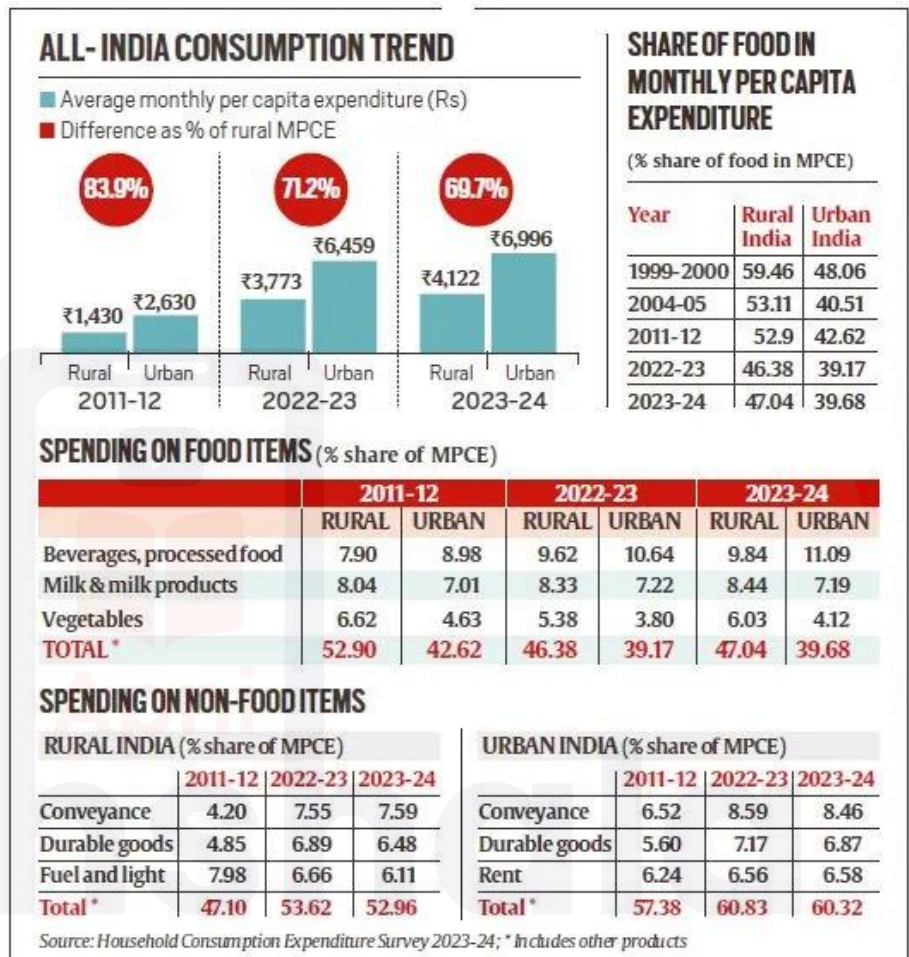
- **Non-Food Expenditure:**
  o Non-food expenditure in rural areas stood at 52.96% and in urban areas 60.32%.
  o The rural households spent more on transport (7.59%), medical (6.83%) and clothing (6.63%), while urban households spent more on transport (8.46%), miscellaneous goods (6.92%) and rent (6.58%).
- **Unstable Consumption Patterns:**
  o The consumption expenditure of the top 5% of the population in both rural and urban areas decreased compared to 2022-23.
  o There was a significant increase in consumption of the lower 5% class, where the rural sector saw a 22% increase and the urban sector saw a 19% increase.

Implications of HCES Findings on Policymaking:

- **Rural Development:**
  o The reduction in rural-urban gap indicates an improvement in rural incomes, which could be impacted by schemes such as the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) and the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).
  o Policy support is essential to sustain this progress, especially in rural transport infrastructure.
- **Increasing Expenditure on Services:**
  o Rising expenditure on services such as transport and entertainment is indicative of the shift towards a service-driven economy.
  o Policies should focus on skills and job creation, so as to promote growth in these sectors.
- **Urban Planning:**
  o High expenditure on rents and transport in urban areas highlights the need for affordable housing policies and better public transport infrastructure.
  o Urban policies will have to focus on addressing volatility in income growth, especially for the middle class.
- **Regional Disparities:** Efforts focused on education, health services, and employment are needed to boost economic activity in states with below-average consumption like Bihar.
- **Consumer protection:** Policymakers should focus on ensuring quality standards and consumer safety by regulating the processed food industries.

3.5. Importance of linking forest ecosystem to green GDP

Context:

Chhattisgarh has become the first state in India to link its forest ecosystem to the Green Gross Domestic Product (Green GDP). The initiative highlights the environmental and economic importance of forests, while also encouraging biodiversity conservation and climate change mitigation efforts. This initiative is in line with the broader goals of sustainable development, ensuring a balance between economic growth and environmental protection.

What is Green GDP?

- **Traditional GDP:** It is the annual value of goods and services produced within a country's borders, established as a global standard in 1944. However, it does not accurately indicate the true welfare of a country as it ignores aspects such as environmental health and social well-being.
- **Green GDP:** It is a modified form of traditional GDP, which includes the environmental costs of economic activities. It takes into account problems such as depletion of natural resources, environmental degradation and pollution, so as to obtain a more comprehensive view.

Why is Green GDP Needed?

- Traditional GDP ignores environmental damage and the welfare of society. Its main focus is only on economic production.
- Green GDP ensures that economic growth takes place under sustainable practices and it also reflects the real cost of environmental damage and depletion of natural resources.

Green GDP formula

According to the World Bank, the formula for Green GDP is:

Green GDP = NDP (Net Domestic Product) – (Cost of Natural Resource Degradation + Cost of Ecosystem Degradation)

Here:

- NDP = GDP – Depreciation of assets produced.
- Cost of Natural Resource Depletion: Loss caused by overuse of natural resources.
- Cost of Ecosystem Degradation: Loss due to environmental causes such as pollution, deforestation.

Uttarakhand and Green GDP Initiatives:

In 2024, Uttarakhand has become the first state to launch the "Gross Environmental Product" (GEP) index. It measures the contribution made to the environment in addition to traditional ecosystem services. This index includes factors such as the value of tree species, their lifespan, and conservation efforts.

Linkage of Chhattisgarh and Green GDP:

- The forest cover in Chhattisgarh has increased, and the state has 44.2% of the forest area, which plays a key role in absorbing carbon dioxide. It contributes to climate change mitigation.
- Chhattisgarh's forest resources are the basis of livelihood for millions of people. Forest products such as tendu leaf, lac, honey, and medicinal plants are highly important to the rural economy.
- Linking the forest ecosystem in the state to green GDP emphasizes the environmental and economic value of forests, thereby promoting the balance between development and sustainability.

How does green GDP promote sustainable development?

- **Sustainable Use of Resources:** Green GDP promotes sustainable production and consumption patterns, which corresponds to SDG 12 (Responsible Consumption and Production).
- **Climate Change Mitigation:** Green GDP promotes the reduction of dependence on fossil fuels and the adoption of renewable energy, which is in line with SDG 13 (climate action).
- **Biodiversity Conservation:** Green GDP focuses on the protection of ecosystems and species with the promotion of environmental protection, which corresponds to SDG 15 (life on land) and SDG 14 (life below water).
- **Promoting Green Investment:** Green GDP encourages investment in sustainable technologies and practices, while also promoting green sector jobs and industries.

Global Green GDP Practices

- **United Nations:** Under the eco-economic accounting system (SEEA), economic and environmental data are integrated to better understand the interrelationship between the economy and the environment.

- **EU:** An initiative to include sustainability metrics in economic assessments, focusing on the long-term health of the planet.

- **World Bank:** The WAVES system, which focuses on incorporating natural resource accounting into development plans.

- **Bhutan:** Bhutan has made ecological sustainability a part of its development policies under the Gross National Happiness (GNH) framework.

Challenges of Green GDP Framework:

- **Definition of Forest Cover:** The definition of forest cover also includes plantations such as palm oil and rubber, which can be harmful to the environment. This can lead to misleading results in the Green GDP calculation.

- **Political agenda:** If forest cover is made the criterion for financing, states with low ecological value can manipulate the data.
- **Integration of Local Bodies:** Involving panchayats and local bodies in the Green GDP framework can be challenging as there may be a lack of awareness and literacy at the grassroots level.

Way Forward

- **Clear Standard Framework:** Governments should adopt a consistent and transparent methodology for calculating green GDP.
- **Public monitoring:** The data should be made transparent so that it can be tested by analysts and critics.
- **Quality Priority:** Emphasis should be placed on carbon sequestration and biodiversity conservation, and better management of local forests and ecosystems.
- **Public Awareness:** Communities should be educated about the benefits of green GDP, so that local communities can be encouraged for forest conservation.

3.6   Future of Jobs Report 2025

Context:

The World Economic Forum (WEF) has released the fifth edition of the "Future of Jobs Report 2025", which analyses global labour market trends for the period 2025-2030. The report highlights the key trends and changes that will shape the global job market by 2030.

Future of Jobs Report 2025: Key Points

- The Future of Jobs Report is a **biennial report**.
- This report provides an in-depth analysis of global labour market trends for the upcoming years.
- The report outlines the developments and changes that are likely to impact the global job market.
- This report highlights the emerging technological, **social, and** economic trends that are likely to cause job disruption and shape the future job market.
- The report's findings **are based on data collected from** 1,000 leading global employers across 22 industry sectors.
- The report has been carefully prepared based on inputs from 55 economies.
- The report **also mentions the** 10 fastest-growing jobs that are likely to see significant demand in the coming years.

Future of Jobs Report 2025 – Highlights:

- **Job Creation and Displacement**: According to the report, 170 million **new jobs will be created by** 2030, but **22% of** jobs may face disruption. Automation and technological advancements will contribute significantly to these changes.
- **Technological Advancements**: Artificial intelligence (AI) and information processing technologies (81%) will have the greatest impact on businesses, followed by robotics and automation systems (58%) and energy generation and storage technologies (41%).
- **Geopolitical Fragmentation**: Rising geopolitical tensions and trade restrictions are driving changes in business models in 34% of organizations. These stresses are increasing the demand for security roles and cybersecurity skills. Increasing protectionist measures pose a medium-term risk to global economic growth.
- **Economic instability**: The report pointed out that low inflation and flexible monetary policy are giving some hope, but slow growth and political instability could put many countries at risk of economic shocks. Economic challenges in the global job market will remain.
- **Demographic Change**: The report also highlighted that **40% of** employers worldwide are promoting lowering of working age, while **25%** of employers are encouraging it to increase. An ageing population and a shrinking workforce are disrupting the labour supply.
- **Green Transformation**: Industries such as automobile, aerospace, mining, and metals will undergo significant organizational changes as workers move towards carbon-free practices. This will require skill upgradation and re-skilling.

Important things related to the World Economic Forum (WEF)

- **The WEF** is an independent and non-profit international organization, founded in 1971 by German economist **Klaus Schwab**.

- Its **headquarters** is located in Geneva, Switzerland.

- The founder of WEF **is Klaus Schwab**.

- The WEF aims to improve the state of the world and work on various global issues.

- The organization **works** on global, regional, **and** industry-related issues, and brings together leaders from politics, business, academia, and society to discuss these issues.

- **Its annual meeting is held in** Davos, where important leaders of the world unite.

- The WEF has **a Board of Trustees to guide** it, which consists of prominent leaders from business, politics, academia, and civil society.

- The WEF adopted a **sustainable procurement policy** in **2017**.

Emerging Skill Sets Between 2025 and 2030:

- **Skills such as artificial intelligence (AI),** big data, cybersecurity, creative thinking, and multilingualism will see an increase.
  - Creative **thinking skills**, which are associated with flexibility, flexibility, and quick reaction, will increase by **66%.**
  - **Skills based on** dependability and extension **will see only a 12%** increase.
  - Basic skills such as **reading, writing,** and arithmetic can have a negative growth rate of **4%.**
- **Fastest-growing jobs**: Sectors such as **AI and machine learning**, software and application developers, and fintech engineers will see the fastest job growth by percentage. By volume, working in **the care** economy
- New jobs such as agricultural labourers, delivery drivers, construction workers, nursing professionals and social work will see the highest growth.
- **Job Displacement**: According to the International Labour Organization (ILO), **repetitive tasks in** the manufacturing and service sectors are being automated, which can lead to a lot of job displacement.
- **Decreasing roles**: Some roles, such as **postal service clerk**, bank teller, **data entry** clerk, cashier, and stamp clerk, may see significant reductions. These roles may decline due to automation and digitization.

Key WEF Reports
• Global Competitiveness Report
• Global Gender Gap Report
• Energy Transition Index
• Global Risk Report
• Global Travel & Tourism Report
• Global Manufacturing Index
• Islam and the West: Annual Report on the State of Dialogue

Focus on India-Future of Jobs Report 2025:

- **Job Trends by 2030**: The main trends shaping future jobs in India will be **increased digital access**, geopolitical tensions, and climate mitigation efforts. These changes will transform the labor market, spur technological development, and help create new jobs.

- **Increased Investment**: Indian companies **are investing extensively in** AI, robotics, energy technologies, and autonomous systems, which will transform many sectors and create new jobs.

- **India's Leading Role in AI Skills**: India is a leader in AI skill enrolment, and corporate sponsorship in **generative AI (GenAI)** training is expected to see rapid growth.

- **Technology Adoption**: India will lead the global in semiconductor and computing technologies (35%), while **quantum and encryption** technologies (21%) are expected to completely transform business operations.
- **Labor force growth**: India and **countries in sub-Saharan Africa** will provide **two-thirds** of the global labour force in the coming years, which will have a major impact on the global labour market.

Employment Schemes of Government of India
• **Make in India**: The initiative aims to make India a global manufacturing hub, which will increase employment opportunities and bring economic prosperity.
• **Pradhan Mantri Rozgar Protsahan Yojana (PMRPY):** This scheme is a scheme launched to encourage employers to create new jobs.
• **Garib Kalyan Rojgar Abhiyan (GKRA):** It **was a 125-day** campaign, launched to provide employment to migrant workers and the rural population affected by COVID-19
• **Pradhan Mantri Shram Yogi Maan-dhan Yojana (PM-SYM):** This scheme gives a pension scheme to provide old age security to the workers of the unorganized sector.
• **Startup India**: This initiative was launched to create a conducive environment for startups and new ideas, which promotes entrepreneurship.
• **Skill Development and Training Programmes**: These schemes are designed to improve various vocational skills.
• **Pradhan Mantri Daksh Yojana (PM-DAKSH):** The scheme focuses on imparting skill training to particularly marginalized communities, so that they can get better employment.
• **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):** The scheme ensures employment in rural areas and provides wage-based employment to unprofessional workers.
• **Pradhan Mantri Kaushal Vikas Yojana (PMKVY):** The scheme is meant to impart industry-relevant skill training to the youth, so that they can be better job ready.
• **Job Fair**: These are job fairs organized by the government to bring together job seekers and employers.

Employment Challenges in India:

- **Large Population of Youth**: People below the age of 35 years in India are **more than 65%.** This young population presents a challenge for employment opportunities, as there is a need for adequate job creation and skill development for such a large section.
- **Lack of Education and Skills**: There is a lack of quality education and technical knowledge in India. Many young people are also lagging behind in basic digital literacy, such as having difficulty sending emails or copy-pasting files. It is very important to bridge this gap.
- **Employment in Agriculture Sector**: About **45% of** the workers are employed in the agriculture sector, but the sector is facing a lack of productivity and limited employment opportunities, leading to no significant increase in employment generation in the agriculture sector.
- **Gender Inequality**: Female workforce participation in India is very low, while the level of education among women is increasing. This gender disparity affects employment opportunities.
- **Unorganized Sector**: About **19% of the workforce** works in the unorganized sector, where there is a lack of working security and worker rights, due to which productivity and working conditions are poor. These jobs need to be organized.
- **Employment Displacement**: According to the International Labour Organization (ILO), automation and digitization are leading to job displacement in the manufacturing and services sectors. Low-skill jobs are becoming automated, which requires workers to be re-skilled.

To address these challenges, targeted steps need to be taken in various areas, such as improving the quality of education, promoting investment, and making inclusive economic policies so that all sections of the society get employment opportunities.

3.7   Devaluation of Indian Rupee

Context:

The Indian rupee hit a new low of 86.40 against the US dollar on 13 January **2025**. The continuous depreciation of the rupee has raised concerns about rising inflation, rising import costs and macroeconomic impacts.

What is devaluation of currency?

Devaluation of a currency means a fall in the value of a country's currency when compared to other foreign currencies.

- The devaluation of a currency usually **takes place in the floating exchange rate system**.
- This process can be due to a variety of economic reasons, both domestic and global.
- For example, if the Indian rupee **weakens against the** US dollar, it means that more rupees will be needed to buy a dollar.
- When a country **imports** more and exports less, the demand for foreign exchange increases, weakening the local currency.
- In addition, political instability or global financial shifts can also cause a devaluation of the currency.
- However, the depreciation of the currency can increase inflation by increasing the cost of imports, but it can make exports cheaper and more competitive in the global market.
- The impact of currency devaluation depends on the economic situation of the country and the broader global conditions.

Floating Exchange Rate System:

- In the floating exchange rate system, the value of a country's currency is decided by the forces of **demand and supply** in the foreign exchange market.
- This system allows for frequent fluctuations in the exchange rate because it is sensitive to changes in economic conditions such as inflation, interest rates, and the balance of trade.
- **In** an independent temporary system, the central bank usually intervenes to stabilize the currency only in exceptional circumstances, such as extreme market volatility.
- The floating exchange rate system offers more **flexibility**, it can sometimes **cause extreme** volatility, which can be problematic for international transactions.
- Demand and supply cause a change in the value of a currency, which can lead **to a devaluation of the currency** (when the value of the currency falls) or **appreciation** (when the value of the currency increases).
- The system **also allows countries to adopt** autonomous monetary policy, which enables them to adjust interest rates or implement appropriate measures to manage economic growth and weather economic crises.

Reasons for Depreciation of Indian Rupee
• **Differences in the policies of central banks**: The difference in the monetary policies of the US Federal Reserve and the Reserve Bank of India (RBI) causes the devaluation of the rupee. When the US raises interest rates and India's rates remain low, capital flows out of India, leading to rupee weakness.
• **Global Economic Factors**: Global economic instability, such as economic slowdown, trade wars, and geopolitical tensions, undermines investor confidence in emerging markets. This has an impact on the Indian rupee.
• **Increase in Oil Imports**: India is a major importer of oil. A rise in global oil prices increases the demand for foreign exchange, thereby weakening the rupee. The pressure on the rupee has increased due to the price of crude oil rising to $81.20 per barrel in 2025.
• **Interest Rate Policies**: To tackle rising inflation, the RBI has raised interest rates by adopting a tight monetary policy. While this is an attempt to bring down inflation, it leads to a reduction in foreign investment and capital inflows, leading to a depreciation of the rupee.
• **Lack of confidence of foreign investors**: The confidence of foreign investors is low due to issues such as political instability or financial losses. In 2025, foreign investors preferred the US dollar led to capital outflows, leading to a fall in the value of the rupee.
• **Sale of equities by the government**: The sale of equities by the government in the global market increases the supply of rupees. With excess supply in the market, the value of the rupee falls further.

Impact of Depreciation of Indian Rupee:

1. **Positive Impact:**
   o **Boost Exports**: A weak currency makes Indian products cheaper in the international market, which can increase demand in export sectors such as pharmaceuticals, textiles, and IT services.
   o **Global** Competitiveness: The depreciation of the rupee makes Indian products more competitive in the global market, especially at a time of economic recovery and global uncertainty.

2. **Negative Impacts:**
   o **Increase in Import Cost**: Importers have to spend more rupees to buy the same amount of foreign exchange, which makes imports costlier.
   o **Impact on Interest Rates**: The weakening of the rupee increases the risk of imported inflation. This makes it difficult for the RBI **to keep** interest rates low, making it challenging to strike a balance between economic growth and price stability.
   o **Travel and education expensive**: International travel and education abroad become more expensive for Indians due to the weakening of the rupee.
   o **Burden of external debt**: Loans taken in foreign currencies become more expensive when the rupee weakens, which puts an additional burden on lenders.
   o **Increase in Inflation**: Increasing the cost of imports increases the prices in the domestic market, which negatively affects the purchasing power of consumers and hampers **economic stability**.
   o **Current Account Deficit (CAD):** Depreciation increases the cost of imports, which puts pressure on foreign exchange reserves and makes it difficult to manage the balance of trade and fiscal deficit.

Role of Reserve Bank of India (RBI) in Controlling Rupee Devaluation:

The depreciation of the rupee can have a serious negative impact on the economy. RBI can take various measures to prevent this:

- **Sale of foreign exchange reserves**: The RBI may sell a part of its foreign exchange reserves to stabilize the rupee. This increases **liquidity in the market** and helps in controlling the falling value of the rupee. The use of foreign exchange reserves can be effective in preventing sharp declines in times of currency crisis.
- **Boosting Capital Inflows through NRI Accounts**: Encouraging the deposits of Non-Resident Indians (NRIs) can be an effective way to increase the supply of foreign exchange. When NRIs deposit money in India, they convert their foreign currency into rupees, which supports the value of the rupee. RBI can encourage this process through attractive interest rates and offering NRI bonds.
- **Currency Swap Agreement**: In currency swap transactions, RBI transfers rupee into the banking system. This process helps manage liquidity and can stabilize the exchange rate in the short term.

Measures to strengthen the stability of the Indian rupee
• **Encouraging Long-Term Foreign Direct Investment (FDI):** **Promoting** FDI can bring steady capital flows into India, which can strengthen the value of the rupee over time. Emphasis on long-term investments will reduce India's dependence on volatile Foreign Portfolio Investments (FPIs).
• **Promoting Remittances**: India is a global leader in remittances. Simplifying the remittance policies for NRIs (Non-Resident Indians) will boost the foreign exchange reserves.
• **Balanced Fiscal Situation**: The government should avoid populist policies and focus on maintaining a balanced fiscal situation. Proper financial management will boost investor confidence and create a stable macroeconomic environment, which will be helpful for the rupee.
• **Promoting Domestic Manufacturing**: Promoting domestic manufacturing will reduce India's import dependence, thereby limiting the flow of foreign exchange. A strong manufacturing sector will also make the economy more resilient.

- **Increasing Export** Competitiveness: Investing in sectors such as technology, pharmaceuticals, textiles, and manufacturing can make Indian products more competitive in global markets. Increasing exports will strengthen India's foreign exchange earnings.

- **Promoting foreign investment**: Foreign central banks, sovereign wealth funds and other funds could be encouraged to invest in Indian government bonds, which would increase foreign investment and strengthen the stability of the rupee.

3.8   8th Pay Commission

Context:

The Central Government has approved the formation of the Central 8th Pay Commission. The commission will review and make recommendations on the new pay structure and allowances for over one crore central government employees and pensioners.

Key Points of the 8th Pay Commission:

- **Expected date of implementation**: The recommendations of the 8th Pay Commission **are likely to be implemented from 1 January 2026**.
- **Appointment of Chairperson and Members**: A Chairperson and two Members will be appointed **soon to oversee the functioning of the Commission**.
- **7th Pay Commission recommendations**: Until the implementation of the 8th Pay Commission, the recommendations of the 7th Pay Commission will remain in effect till the year 2026.
- **Salary hike expectation**: There is likely to be a salary hike for central government employees, which will improve their standard of living.
- **Fitment factor**: The fitment factor can be increased to **2.86** in the 8th Pay Commission, which will be an important part of the salary increase.

Introduction of Pay Commission:

In India, the Pay Commission plays an important role in reviewing the pay structure of government employees and suggesting necessary changes in it.

- The aim is to ensure that government employees are paid a fair wage, thereby boosting their morale and **productivity**.

- **Role of Pay Commission:** The Pay Commission is an important institutional mechanism to decide the salaries, allowances, and other benefits of millions of central government employees. The commission considers factors such as employee performance, **inflation rate** and the government's ability to pay and makes recommendations for revision of pay structures.

- **Governance and formation:** This commission is constituted by the central government and **works under**

Fitment Factor in Pay Commission

The fitment factor is a significant **multiplier**, which is used to revise the salaries and pensions of government employees. This is a major part of the Pay Commission's recommendations.

How does the fitment factor work?

The fitment factor is applied to the existing **basic pay** of employees so that their revised pay can be determined under the new pay commission. It works as a **multiplier** and directly affects the increase in the salary of the employees.

Why is the fitment factor important?

The fitment factor plays an important role in the economic upliftment **of government employees and pensioners**. It **standardizes** wage increases and ensures equality at all levels. Along with this, it also has a positive impact on **perks and retirement benefits**.

Impact on Employees and the Economy

The fitment factor improves the **livelihood** level of the employees, as it increases their income. This increased income **boosts household consumption** and contributes to economic growth. The use of a higher multiplier also causes an increase in **fiscal expenses** for the government.

the **Department of Expenditure**, Ministry of Finance. Its main objective is to ensure that the public sector employees are given a fair salary on time and according to the economic condition.

- **Period of formation:** The Pay Commission is constituted once in every ten years. It was first **established in 1947**. Since independence, seven pay commissions have been set up to review and revise pay structures.
- **Significance:** This regular evaluation ensures that the salaries of government employees remain in line with the changing economic conditions of the country and provide adequate financial security to the employees.
- It is not mandatory **for the Government to accept the recommendations of the Pay Commission**. It is for the Government to accept or reject these recommendations.

Structure and Functioning of Pay Commission:

The system of Pay Commission in India **is operated by the** Central Government, and its headquarters is located in Delhi. It functions through an organized panel, which is appointed to review and make recommendations for improvement in the pay and allowances of government employees.

Modus operandi:

- **Time frame:** After the formation of the Pay Commission, it is given **18 months** to give its recommendations.
- **Review process:** The commission reviews the pay and working conditions of employees of all **civil and military departments** of the central government. The aim is to ensure that due attention is given to all categories of employees.
- **Research and Consultancy:** The Commission conducts extensive research, consultancy, and data analysis in its process. Experts and consultants are taken to evaluate the existing pay structure and propose necessary modifications.
- **Evaluation of Recommendations:** After submitting its recommendations, the Government of India reviews these and decides about the implementation of these amendments. The government decides whether the recommendations should be accepted in full, amended, or rejected.
- **Duration and implementation:** After approval by the government, the recommendations are implemented and remain **in effect for about 10 years**.

Need for Pay Commission:

- **Increase in Basic Pay:** The Pay Commission evaluates not only the basic pay but also the various allowances and benefits **given to government employees** and suggests improvements in them. These measures ensure that employees receive competitive salaries, commensurate with the economic situation of the country.
- **Impact on other sectors:** The recommendations of the Pay Commission **affect the salary structures in the private sector** and **state governments** as well. Many organizations and state administrations adopt the recommendations of the Central Pay Commission as a standard when they make changes in their pay structures.
- **Promotion of pay parity:** The Pay Commission **addresses the issues of** pay parity **and** social justice, to ensure a fair pay structure among different categories of government employees. It helps in reducing the pay gap and promotes equality in the workforce.
- **Adapting to Economic Changes:** The Pay Commission **analyses the** current economic scenario to ensure that government employees receive fair and competitive salaries. It provides an opportunity for the government to balance the salaries of employees with economic changes from time to time.

Pay Commission: Timeline and Important Functions

Here is the timeline and key details of all the seven pay commissions in India:

1. **First Pay Commission:**
   - **Time:** May 1946 - May 1947
   - **President:** Srinivasa Varadacharya
   - **Main task:** Rationalize the salary structure after India's independence. Introduced the concept of "**living wage**" for employees.
   - **Minimum Salary:** ₹55/month
   - **Beneficiaries:** About 15 lakh employees

2. **Second Pay Commission:**
   - **Time:** August 1957 - August 1959
   - **Chairman:** Jagannath Das
   - **The main task:** balancing the economy with inflation. Introduced the concept of "**form of socialistic society**".
   - **Minimum Salary:** ₹80/month
   - **Beneficiaries:** About 25 lakh employees

3. **Third Pay Commission:**
   o **Time:** April 1970 - March 1973
   o **President:** Raghubir Dayal
   o **Main task:** highlighted the need for equality in public and private sector pay. Removed inequalities in salary structure.
   o **Minimum Salary:** ₹185/month
   o **Beneficiaries:** About 30 lakh employees

4. **Fourth Pay Commission:**
   o **Time:** September 1983 – December 1986
   o **Chairman:** P.N. Singhal
   o **Main task:** To reduce discrimination in the salary of different categories of employees. **Introduced the concept of performance based pay**.
   o **Minimum Salary:** ₹750/mo
   o **Beneficiaries:** About 35 lakh employees

5. **Fifth Pay Commission:**
   o **Time:** April 1994 – January 1997
   o **Chairperson:** Justice S. Ratnavel Pandian
   o **Main Tasks:** Modernization of Government Offices and Reducing the Number of Pay Scales.
   o **Minimum Salary:** ₹2,550/mo
   o **Beneficiaries:** About 40 lakh employees

6. **Sixth Pay Commission:**
   o **Time:** October 2006 - March 2008
   o **Chairperson:** Justice B.N. Srikrishna
   o **Main Functions: Introduced Pay Band and Grade Pay system**. Emphasis on performance based incentives.
   o **Minimum Salary:** ₹7,000/month
   o **Beneficiaries:** About 6 million employees

7. **Seventh Pay Commission:**
   o **Time:** February 2014 – November 2016
   o **Chairman:** Justice A.K. Mathur
   o **Main work:** Minimum salary increased to ₹18,000/month. Replaced the grade pay system with a new **pay matrix**. Focused on improving perks and work-life balance.
   o **Beneficiaries:** Over 1 crore employees and pensioners

Key points of the 7th Pay Commission

- The 7th Pay Commission **was implemented in January 2016**. This commission made significant changes in the salary structure of central government employees and pensioners.

- **Increase in minimum pay**: The minimum pay of government employees was increased from ₹7,000 to ₹18,000 per month.

- The minimum salary for **newly recruited** Group A officers was fixed at ₹56,100 per month.

- **Salary of high-level executives**: The maximum salary of top-level executives was increased to ₹2.25 lakh per month. For the posts of Cabinet Secretary and equivalent, the salary was increased to ₹2.5 lakh per month.

- **New Pay Matrix System**: A pay matrix system was introduced by abolishing the grade pay structure, thereby improving the pay structure and removing disparities.

- **Annual increment**: Each employee gets 3% of his basic salary as an annual increment.

- **Fitment Factor**: A similar fitment factor of 2.57 was proposed.

- **Increase in Dearness Allowance (DA):** The DA was increased by 2%, benefiting 50 lakh employees and 55 lakh pensioners.

- **Revision of allowances**: HRA (House Rent Allowance) was increased to 27%, 18%, or 9%, when the DA exceeds 50%.

- **Review of 196 allowances**: The Commission reviewed 196 allowances and made recommendations for improvement.

- **Military Service Pay (MSP):** Military Service Pay was recommended exclusively for defence personnel, which will be applicable to ranks ranging from soldiers to brigadiers.

Challenges Faced by the Pay Commission:

- **Balancing Fiscal Responsibility and Employee Demands**: One of the biggest challenges is maintaining fiscal discipline while meeting the rising salary expectations of employees. Meeting the salary demands of about 50 lakh central government employees and 65 lakh pensioners is an uphill task, as the recommendations of each commission often result in **an expenditure of more than ₹1 lakh crore**.
- **Addressing Regional and Departmental Inequalities**: Inequality in the cost of living in different regions and variations between departments pose a challenge in creating a uniform wage structure. Employees living in metro cities face higher living costs than employees living in small towns.
- **Managing Pension Burden**: The rising pension commitments of about 65 lakh pensioners put a huge strain on government finances. The **New Pension Scheme (NPS)** resolved some of the issues, but pensioners involved in the old pension scheme continue to have a constant demand for higher perks and benefits.
- **Opposition to Performance-Based Pay**: The implementation of performance-linked incentives by the Seventh Pay Commission was opposed by the employees, as they often prefer uniform pay increases. It is difficult to implement a concrete system for measuring performance in government positions, as most administrative roles continue to lack clear and measurable criteria.

3.9   55th Davos Conference

Context:

In 2025**, the 55th Davos Summit** of the World Economic Forum **(WEF) will be held in** Davos-Klosters**, Switzerland**. The five-day event will see a meeting of the world's most influential and accomplished individuals who will discuss global economic challenges.

Key Points of the 55th Davos Conference 2025:

- **Dates**: The 55th Annual Meeting **will be held on January 20-24, 2025** in Davos-Klosters, Switzerland.
- **Theme**: The theme of the conference **will be "**Cooperation for the Wise Age", which will guide the discussions aimed at revitalizing and reimagining development.
- **Global participation**: The conference **will bring together more than 2,500** global leaders to discuss development and innovation. They are from the fields of government, business, civil society, science, and culture.
- **Aim**: Its main objective **is to foster new partnerships and innovative approaches for** a sustainable and inclusive future, which are essential in the context of rapidly changing technology.

Focus on Key Areas:

1. **Reimagining Development**: The sector aims to redefine global economic growth, making it inclusive and sustainable, so that it benefits all sections of society.
2. **Industry in the Intelligent Age**: With the rise of artificial intelligence, automation, and other technology innovations, the field will discuss how industries can evolve in the intelligent age.
3. **Investing in People**: The main focus will be on the role of human capital. The conference will discuss **education**, **skills**, and strategies to enhance the capacity of the workforce.
4. **Protecting the Planet**: Growing environmental crises will be discussed, with a particular focus on **climate change**, resource conservation, and green technologies. The conference will also emphasize the protection of the planet for future generations.
5. **Rebuilding Trust**: The field will focus on rebuilding trust between governments, businesses, and societies, in the midst of global disagreement and political polarization. It will discuss the role of institutions **in promoting** cooperation **and** understanding, and maintaining global stability and security.

India's participation in the 55th Davos Summit 2025:

An important delegation will arrive in Switzerland for participation in the 55th Annual Meeting **of India's** Davos 2025, led by prominent personalities from the Indian government and prominent leaders of industry.

- **Indian Delegate**: This year, a large delegation led by **Mr. Ashwini Vaishnaw** will arrive in Switzerland.
- **Delegation Included**: It will include a total of five Union Ministers, **three Chief Ministers and about 100** CEOs, who will showcase India's strong leadership and business prospects to the global stage.
- **Special sessions**: The **Ministry of Commerce and Industry** will organise special sessions through its **Department for Promotion of Industry and Internal Trade (DPIIT).**
- **Economic Progress**:
  - India has achieved a significant milestone recently, when **Foreign Direct Investment (FDI) crossed** $1 trillion.
  - **FDI** has increased by **26%** in the first half of the current financial year, **reaching $42.1** billion, indicating India's economic maturity. This growth is driven by strategic policy initiatives and increasing global competitiveness.

India's Focus Areas
1. **Sustainability and Trust**: India will prioritize environmental responsibility, build sustainable systems and promote global trust.
2. **Food security**: India will discuss growing concerns about global food security, thereby promoting food production, distribution systems, and agricultural resilience.
3. **Promoting Investment-Centric Economic** Partnerships: India will aim to establish economic partnerships to promote foreign investments and strengthen trade ties.
4. **Infrastructure development**: India will focus on the development of robust infrastructure to support urbanization, including transport networks, smart cities, and digital infrastructure.
5. **Diversification of Supply Chains**: Amid the disruptions in the global supply chain, India will talk about the diversification of supply chains so that it can become more resilient and robust.
6. **Investment Opportunities in Chemical Sector**: India will present the chemical industry as an important sector for foreign investment.
7. **Leadership in Innovation and Technology**: India will demonstrate its commitment to innovation in technology and R&D, and strive to establish itself as a leader in global technology.
8. **Use of Artificial Intelligence (**AI): India will showcase how **AI** can be used for the transformation of business processes in various sectors, thereby improving efficiency, productivity, and quality of life.

3.10   Preliminary Examination

3.10.1.   World Bank's Business Ready Report

The Global Trade Research Initiative (GTRI) has highlighted the possibilities and challenges for India under the World Bank's **Business Ready (B-READY)** framework. The framework is designed to measure the business environment globally and is **being implemented in place of the previous 'Doing Business Index'**, which was disputed due to data irregularities.

About Business Ready Report:

About: The B-READY Index is the successor to the World Bank's "Ease of Doing Business" ranking, which was shut down in 2021 due to data irregularities.

Objectives:

- Undertake a comprehensive assessment of the business environment.
- Regulatory frameworks, evaluation of public services and their functionality.
- Improve private sector growth and the global investment climate.

Highlights:

- Covers 10 areas of a firm's lifecycle, such as business start-up, labor regulations, and international trade.
- Focused on starting, operating, and closing or restructuring a business.

Three Pillars of Assessment:

1. **Regulatory Framework:**
   - Evaluation of rules and regulations throughout the life cycle of the firm.
   - Promotes clarity, fairness, and consistency.
2. **Public Services:**
   - Review of government services and infrastructure that support businesses.
     - Emphasis on digitization, transparency and interoperability.
3. **Operational Efficiency:**
   - Measures adherence to regulations and ease of accessing public services.
   - Focused on ease of operation and regulatory functionality.

Highlights of GTRI on B-READY Report:

Global Comparison:

- Singapore excels in standards such as online business registration and business facilitation.
- Germany and Singapore have promoted business efficiency by simplifying custom procedures.

Opportunities for India:

- **Positive Zone:**
  - Quality of regulators.
  - Effectiveness of public services.
  - Possibility of better performance in operational efficiency.

Challenges for India:

- **Areas of Medium to Low Score:**
  - Starting a business.
  - Labor Rules.
  - International Trade.
  - The need for improvement in these standards due to existing shortcomings.

Recommendations of the Business Ready (B-READY) Report 2024:

- **Simplifying Business Operations:**
  - Simplifying and digitizing business registration, regulatory approvals, and custom processes.
  - Taking inspiration from the model of a one-day registration system like Singapore's to reduce delays and costs.

- **Strengthening Public Services and Digital Transformation:**
  - Investments in key public services such as tax portals, utility service access, and dispute resolution mechanisms.
  - Promote digital tools to enhance compliance and efficiency of operations.
- **Promoting Sustainability and Inclusivity:**
  - Development of policies that encourage environmentally sustainable business practices.
  - Implement gender-sensitive regulations, promote inclusivity and align with global climate goals.
- **Encouraging peer learning and collaboration:** Encouraging knowledge sharing and learning to adopt innovation from performing countries such as Singapore, Rwanda, and Estonia.
- **Adoption of Reforms:**
  - Develop adaptive policy frameworks that address local challenges.
  - Ensuring balanced and inclusive economic growth with global standards.

3.10.2. Index of Eight Core Industries

The combined index of eight core industries registered a significant growth of 4.3% in November 2024, as compared to the same period last year. The index has grown by 4.2% during April-November 2024, compared to the same period in FY 2023-24. The coal sector has been an important contributor to this growth, which is strengthening industrial growth.

Core Area Performance (Nov 2024):

The growth **reflects positive trends in production of cement, coal, steel, electricity, refinery products and fertilisers**.

- **Last Growth Rate:** ICI recorded a decline of 1.5% in August 2024.
- **Cumulative Growth:** The cumulative growth of ICI for April-November 2024-25 stood at 4.2% (provisional), as compared to the same period last year.

What is Core Sector Growth?

- Core sector growth refers to the increase in production/output of the core industries of an economy over a period of time.
- These core industries are critical to the economy and are considered to be the benchmark of industrial performance.

Index of Eight Core Industries (ICI)
The ICI is prepared monthly and reflects the performance of India's industrial sector.
Main Components
1. **Coal:** Total production excluding coking coal.
2. **Electricity:** Thermal, nuclear, hydro sources, and electricity imported from Bhutan.
3. **Crude Oil:** The total crude oil production.
4. **Cement:** The production of both large and small plants.
5. **Natural Gas:** The total natural gas produced.
6. **Steel:** Production of alloy and non-alloy steel.
7. **Refinery Products:** Total Refinery Production.
8. **Fertilisers:** Production of fertilisers like urea, ammonium sulphate, etc.

Index of Eight Major Industries (ICI) Reporting:

- **Reporting Process:**
  - o **Preparation and Release:**
    - ▪ ICI is prepared every month.
    - ▪ It is released after a gap of one month (on the last day of the month).
    - ▪ The report is released by the Office of the Economic Adviser, the Department for Promotion of Industrial and Internal Trade (DPIIT), and the Ministry of Commerce and Industry.
  - o **Base Year: The** current base year of ICI is 2011-12, which is the same as the Index of Industrial Production (IIP).

3.10.3. Amendments to Foreign Trade Policy 2023

The Directorate General of Foreign Trade (DGFT) has amended the **Foreign Trade Policy 2023** to mandatorily consult stakeholders before formulating or amending policies.

This amendment **has been made under the Foreign Trade (Development and Regulation) Act, 1992.**

What is Foreign Trade Policy 2023?

The Foreign Trade Policy 2023 is a policy document based on the continuation of time-tested plans. It is responsive to the requirements of the trade as well as facilitating exports.

Objectives:

1. **Streamlining Processes and Automating Processes:** Making trading processes easier and faster for exporters.
2. **Achieving the $2 trillion export target by 2030:** Increase exports and increase India's share in global trade.

Key Pillars of the Policy (4 Pillars):

- **Incentive to Remission:** To simplify the tax-exempt process of traders by providing incentives.
- **Export Promotion through Collaboration:** Promoting exports in collaboration with exporters, states, districts and Indian missions.
- **Ease of Doing Business:** Reducing transaction costs, promoting e-processes, and simplifying business processes.
- **Emerging Areas:**
  - o Promoting e-commerce.
  - o To develop districts as export hubs.
  - o Streamlining the SCOMET policy.

Major Amendments to the Foreign Trade Policy 2023:

1. **Mandatory Stakeholder Consultation:**
   - o The amendments include legal provisions for mandatory consultations with stakeholders such as importers, exporters and industry experts.
   - o Stakeholders are encouraged to give their views, suggestions, comments and feedback on the proposed policies or amendments.
2. **Mechanism for Feedback Acknowledgment:** A mechanism has been introduced through which stakeholders will be informed as to why their suggestions were not accepted, if they have not been incorporated in the final policy.
3. **Reserved Rights for Exceptional Cases:**
   - o Despite consultation being mandatory, the government reserves the right to take suo motu decisions in contingencies.
   - o This ensures flexibility and quick action as needed.

Significance of Amendments

1. **Enhanced Participation:**
   o To encourage active participation of all stakeholders in framing policies relating to import, export and transit of goods.
   o To provide a fair opportunity to the stakeholders to comment on policies and contribute to the decision making process.

2. **Commitment to Transparency:** By making consultation mandatory and providing feedback mechanisms, the government ensures transparency and accountability in policymaking.

3. **Ease of Doing Business (EoDB):**
   o These amendments are aimed at improving ease of doing business in India.
   o Streamlining processes and incorporating industry feedback into trade policies.

3.10.4.   Banihal Bypass

Recently, Union Transport and Highways Minister Nitin Gadkari **announced the completion of a crucial portion of the Banihal bypass in Ramban district of Jammu and Kashmir.**

Key Points of Banihal Bypass:

1. **Length and Purpose:**
   o A 35 **km long four-lane bypass in Banihal town of Jammu and Kashmir.**
   o It aims to **end the problem of frequent traffic jams in the Banihal area.**

2. **Construction cost:** It has **been built at a cost of ₹224.44** crore.

3. **Location and Structure:**
   o It is strategically located on **the Ramban-Banihal section of NH-44.**
   o The bypass consists of **4 viaducts (bridges) and 3 culverts 1,513 meters long.**

4. **Solving Problems:**
   o Solves the problem of traffic jams caused by roadside markets and shops.
   o Eliminates traffic bottlenecks, ensures smooth traffic.

5. **Impact and Significance:**
   o Reduces travel time and overcrowding.
   o Eases traffic for tourists and defence vehicles heading towards the Kashmir Valley.

Banihal Pass
condition
o Banihal Pass is located **in the Pir Panjal mountain range in the Jammu and Kashmir region** of India.   o It connects the Jammu region **with the Kashmir Valley** and is an important route for travel and transportation.   o The pass is situated at an altitude of **about 2,832 metres (9,291 ft) above sea level.**
Features
o It is known for its inhospitable terrain and natural beauty.   o Historically, the pass has been an important crossing point for travellers and traders.
importance
o The Banihal Pass is a major transit route **between the Jammu and Kashmir region.**   o It plays an important role for **regional connectivity and economic activities.**

Key facts about NH-44:

1. **Longest Highway:**
   o **NH-44,** also known as Old NH-7, is the longest national highway in India.
   o It is 3,745 kilometres (2,327 mi) long.

2. **Adding Locations:**
   o It starts from Srinagar in Jammu and Kashmir and goes up to Kanyakumari in Tamil Nadu.
   o It passes through 11 states (Jammu and Kashmir, Punjab, Haryana, Delhi, Uttar Pradesh, Madhya Pradesh, Maharashtra, Telangana, Andhra Pradesh, Karnataka, Tamil Nadu).
3. **Key Locations:** NH-44 passes through important cities like Agra, Delhi, Hyderabad, and Bangalore.
4. **Special Construction:** It is built by combining seven different national highways.

3.10.5.   Great Nicobar Project

The Ministry of Shipping of the Central Government has **proposed a major expansion of the ₹72,000** crore **mega-infrastructure project (Great Nicobar Project) on Great Nicobar Island**.
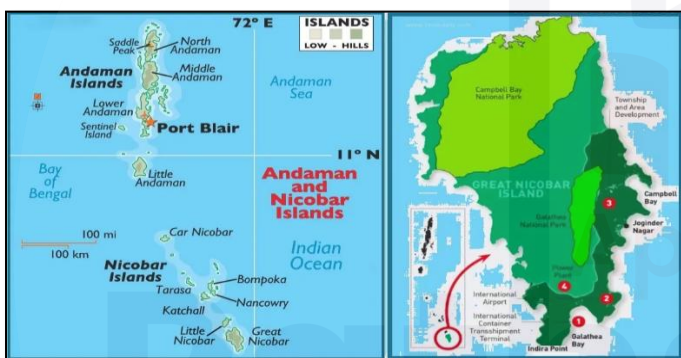
About Great Nicobar Project
• **Multi-Development Initiatives**: The project focuses on the holistic development of Great Nicobar Island, which is strategically located at the southern tip of the Andaman and Nicobar Islands.
• **Environmental clearance:** Approved by the Ministry of Environment in November 2022, making the project in line with national environmental regulations.
• **Strategic Significance:** Designed to strengthen India's strategic presence and infrastructure in the region, which will support both economic growth and national security.
• **Long-term development:** It will be implemented in a phased manner over a period of 30 years, ensuring systematic progress and sustainable outcomes.

Key Objectives of Great Nicobar:

1. **Strategic Significance:** The project aims to counter the expansionist activities of neighbouring countries, especially China, and to curb maritime activities such as poaching by Myanmar fishermen.
2. **Infrastructure Development:**
   o The Rs. 72,000 crore project consists of:
      ▪ International Container Trans-shipment Terminal.
      ▪ Greenfield International Airport for Duplex (Military and Civilian) Use.
      ▪ City development and 450 MVA gas and solar energy based power plant.
3. **Geographical Context:**
   o **Location:**
      ▪ Great Nicobar Island, the southernmost island of the Andaman and Nicobar Group, separated from the Andaman Islands by the Ten-Degree Channel.
      ▪ Indira Point is the southernmost point of India, which is just 150 km away from Indonesia.
   o **Environmental Mechanism:**
      ▪ The island has tropical evergreen forests, mountains up to 650 meters high, and coastal plains.
      ▪ The island is home to two national parks and a biosphere reserve, where endangered species such as the leather-backed sea turtle are found.

Significance of Great Nicobar Project:

1. **Economic Development:** The International Container Transshipment Terminal (ICTT) will make Great Nicobar a major hub for global maritime trade, thereby boosting regional economic growth.
2. **Strategic Significance:** The project will enhance India's maritime capabilities and reduce dependence on foreign ports for goods transshipment.
3. **Sustainability:** The 450 MVA gas and solar power-based power plant will provide renewable energy, reducing dependence on fossil fuels.

New Features:

1. **Tourism and port development:** The project incorporates international cruise terminals and high-level tourism infrastructure, aiming to transform the island into a global port-based city and sustainable eco-tourism hub.

2. **Initiative of the Ministry of Shipping:** The **proposed development of** 100 acres of land along the coastline and an export-import port is planned to facilitate shipbuilding and ship breaking.

Concerns:

1. **Environmental Loss:** 33,000 acres of biodiversity-rich forests will be destroyed, threatening marine ecosystems, coral reefs, and the habitat of endangered species.

2. **Humanitarian Concern:** The project will lead to the displacement of tribal communities like Payuh, affecting their livelihood and cultural heritage.

3. **Lack of Transparency:** The request for project information was rejected under Section 8(1)(a) of the RTI Act, citing national security and sovereignty.

3.10.6. SBI 's Poverty Reduction Report in India

Poverty Reduction Report in India: According to a research study conducted by the State Bank of India (SBI), rural poverty **has fallen below 5% in the financial year** 2023-24, mainly driven by government support programmes.

Key points of SBI's Poverty Reduction Report in India:

1. **Reduction in Rural Poverty:**
   o The rural poverty ratio declined from 7% in 2011-12 to 4.86% in FY24.
   o The decline was mainly due to support schemes offered by the government, which led to the highest consumption growth in the lower 0-5% income bracket.

2. **Urban Poverty:**
   o Urban poverty has also declined from 7% in 2011-12 to 4.09% in FY24.
   o The data points to poverty reduction across the country, although urban poverty still remains a challenge, owing to problems such as high living costs, inadequate housing, and informal sector jobs.

3. **Government Support:** Government schemes such as the **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY),** which provides food security and financial assistance to the poor, have played a significant role in poverty alleviation.

4. **Consumption Inequality:** The latest **Household Expenditure Consumption Survey** showed that consumption inequality has decreased in both rural and urban areas, indicating an improvement in income distribution.

5. **Likely predictions:** The report notes that the final figures may be slightly revised after the completion of the 2021 census, which will provide updated data on the rural-urban population distribution.

Definition of Poverty Line:

1. **FY24 Poverty Line:** The estimated poverty line for rural areas is **Rs 1,632** and for urban areas **is** Rs 1,944, adjusted for inflation and other factors.

2. **Poverty line in 2011-12: The Tendulkar Committee** had set the poverty line at Rs 816 for rural areas and **Rs 1,000** for urban areas in **2011-12**.

Poverty and its Adverse Effects:

1. **Food Insecurity**
   o The poor often face **hunger** and **malnutrition**.
   o It has an effect on the **physical growth** and **health** of children.

2. **Inadequate Health Services:** Lack of access to affordable and quality health services leads to diseases not being cured.

3. **Lack of education**
   o Due to poverty, children are not able to get good and quality education.
   o This limits opportunities for **personal and professional** growth.

4. **Housing Instability:** The poor are often forced to live in **overcrowded and unsafe places**.

5. **Financial stress:** Constant financial instability leads to mental **health problems**, **anxiety**, and depression.

Government Initiatives for Poverty Alleviation
1. **Pradhan Mantri Street Vendor Atmanirbhar Nidhi (PM SVANidhi)**
2. **Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM)**
3. **National Nutrition Mission (NNM)**
4. **Pradhan Mantri Garib Kalyan Yojana (PMGKY)**
5. **Pradhan Mantri Suraksha Bima Yojana (PMSBY)**

3.10.7. Organic Fish Cluster

Union Minister Shri Rajiv Ranjan Singh inaugurated **India's first** organic fisheries cluster **in Soreng district of Sikkim**. The initiative has been launched under the Pradhan Mantri Matsya Sampada Yojana (PMMSY).

Features:

- Focuses on minimal environmental pollution and sustainable production.
- Organic fish farming incorporates Amur carp and other major species.
- Supported by NABARD through infrastructure, capacity building and funding for formation of **Farmer Producer Organizations (FFPO).**

Organic Fisheries

Introduction: Organic fisheries focuses on fish farming systems that are environmentally healthy and avoid the use of harmful chemicals, antibiotics, and pesticides.

Importance of Organic Fish Cluster

1. **Ecological Benefits:**
   o Helpful in reducing environmental pollution and protecting aquatic ecosystems from damage.
   o Significant contribution to the state's **Blue Economy**.
2. **Economic Benefits:**
   o Organic fish products get a premium price in the market.
   o To increase the economic production capacity of Sikkim by leveraging the growing demand for organic and sustainable seafood.
   o Opening up new opportunities for export of organic fish and related products.
3. **Social Benefits :**
   o Empowering local fishermen.
   o Creating new opportunities for cooperatives and **Farmer Producer Organizations (FFPOs).**
   o Helpful in upliftment of communities and livelihood improvement.

Collaboration with NABARD:

- **NABARD** provides financial and technical assistance in the development of organic fisheries clusters, including **infrastructure development**, capacity building, and encouraging private investment in aquaculture techniques.
- **Assistance in setting up of FFPO (**Farmer Producer Organization) to streamline organic fisheries.

Cluster Based Approach under PMMSY:

- **The cluster model of PMMSY** focuses on enhancing efficiency and competitiveness **by connecting enterprises connected to the fisheries value chain**.
- Ensures economic benefits and better market access by promoting cooperation between **fishermen, processors and entrepreneurs**.
- Successful examples: **Pearl Cluster (Jharkhand), Ornamental Fisheries Cluster (Tamil Nadu), and Seaweed Cluster (Lakshadweep).**

National and Global Significance of Fisheries Sector:

- **At the National Level:**
  o The fisheries sector is vital to India's economy, it provides livelihood to **3 crore fishermen and fish farmers**.
  o India's fisheries sector contributes about **24% to the agricultural GDP** and 0.92% to the total GDP.
- **Globally:**
  o **The second largest fish producing country**, India contributes **8% to global fish production**.
  o India **is the global leader in shrimp production and export**.
  o **Government Initiatives:** Since 2015, the government has **committed ₹38,572** crore, which includes:
- **Blue Revolution**
  o **Fisheries and Aquaculture Infrastructure Development Fund (FIDF)**
  o **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**

3.10.8. First Advance Estimates of GDP

The National Statistical Office (NSO) has released the First Advance Estimates of Gross Domestic Product **(GDP) for the** financial year 2024-25.

About First Advance Estimates of Annual Gross Domestic Product (GDP):

1. **Advance Estimates:** Advance estimates of GDP are based on indicators and are compiled using the benchmark-indicator method.

2. **Data Source:** Data is obtained from various ministries, departments, and private agencies.

3. **Region-wise Projections:** Projections for individual regions are prepared based on the following indications:

   o Index of Industrial Production (IIP).

   o Financial performance of listed companies.

   o Agricultural and Horticultural Crop Estimates.

   o Livestock production targets.

   o Fish production.

   o Other production and consumption indicators.

Key Points of India's GDP Projection (2024-25):

1. **GDP Growth:**

   o **Real GDP growth: 6.4% (down** from 8.2% in 2023-24).

   o **Gross GDP:** Rs.324.11 lakh crore (an increase of 9.7%).

2. **Regional Growth:**

   o **Primary Sector:** Growth of 3.6% (improvement from 2.1% in 2023-24).

   o **Secondary sector:** 6.5% growth (down from 9.7% in 2023-24).

   o **Industry:** Construction (9%) and manufacturing (14%) main contributors.

   o **Tertiary sector:** 7.2% growth (down from 7.6% in 2023-24).

3. **Consumption Expenses:**

   o **Private Final Consumption Expenditure (PFCE):** Growth of 7.3% (up from 4% in the previous year).

   o **Government Final Consumption Expenditure (GFCE):** 4.1% growth (up from 2.5% last year).

4. **Gross Value Added (GVA):**

   o **Real GVA growth: 6.4% (down** from 7.2% in 2023-24).

   o **Gross GVA:** Rs.292.64 lakh crore (9.3% increase).

5. **Net Exports:**

   o Negative impact on GDP due to imports exceeding exports.

   o **Subtraction effect:** 144% increase, but decreased from 19.6% to 13.3% indicating improvement in the situation.

Gross Domestic Product (GDP)

Represents the final value of goods and services produced in a given period of time (usually a year) within a country's borders.

Types of GDP

Nominal GDP

o The value of goods and services at current prices, without adjusting for inflation.

o It is used for comparison of production within the same year.

o Generally, it is higher than the actual GDP because of the impact of inflation involved.

Real GDP

o It reflects the actual output and services volume, removing the effect of inflation.

o Useful for comparisons between different years.

GDP per capita (GDP per capita)

o Measures the average economic output or income per capita in a country.

o Indicator of standard of living and productivity.

GDP Growth Rate

o Measures the quarterly or annual change in GDP.

o It is closely linked to inflation and unemployment policies.

o Fast-growing growth could indicate that the economy is heating up, prompting central banks to raise interest rates.

o Negative growth indicates recession, in which central banks may lower interest rates.

GDP Purchasing Power Parity (PPP)

o Adjusting for differences in local prices and living standards makes comparisons between countries possible.

o It helps to evaluate the actual production, income, and standard of living internationally.

3.10.9. Deendayal Port

The Union Minister of Ports, Shipping & Waterways has announced major initiatives involving an investment of over ₹57,000 crore to increase the capacity of Deendayal Port.

About Deendayal Port:

- **Location:**
  - o Located on the Gulf of Kutch in Gujarat.
  - o Earlier it was known as Kandla Port.
- **Strategic Significance:**
  - o One of the busiest ports in India.
  - o Helpful in handling the trade of northern and western India.
  - o Crucial to ease increasing pressure on Mumbai port.
- **Installation:**
  - o Built in the 1950s.
  - o In 2017, the name was changed in honor of Pandit Deendayal Upadhyay.
- **Types:**
  - o Tidal, artificial harbor.
  - o Capable of handling bulk, liquid, and container cargo.
- **Infrastructure:**
  - o Advanced terminals for various types of goods.
  - o A free trade zone to promote international trade.
- **Special Economic Zones (SEZs):**
  - o India's first Special Economic Zone.
  - o Helpful in attracting industries and promoting export activities.

3.10.10. National Programme for Organic Production

The 8th edition **of the National Programme for Organic Production (NPOP)** was launched in New Delhi, emphasizing the potential of India's organic farming. The Union Minister of Commerce and Industry announced that **exports from organic farming could touch ₹20,000 crore in the next three years**.

Highlights of the 8th Edition of the National Programme for Organic Production (NPOP):

1. **Simple Certification Process:** Organic Producer Groups were **given legal recognition in place of** the Internal Control System **(ICS).**
2. **Market support:** The ICS of organic producer groups must ensure:
   - o **Purchase of whole organic produce**.
   - o Establishing market linkages **for farmers**.
3. **Fast Land Conversion: The conversion period to** organic farming was **reduced to three years** under special circumstances.
4. **Portals launched during the event:**
   - o **NPOP Portal:** Simplifies and streamlines the actions of stakeholders.
   - o **Organic Promotion Portal :** Connects farmers with global buyers.
   - o **TraceNet 2.0:** Improve traceability.
   - o **APEDA Portal :** Provides a better experience for users.

Organic Farming
Main Objective
• The main objective of organic farming **is to prioritize the soil, ecosystem,** and people's health. It focuses on avoiding synthetic chemicals and natural processes.
• It **combines ecosystems, biodiversity and tradition, innovation and science**.

- **Promotes environmental benefits and fairer relationships** .

- The U.S. generally **tries to avoid** foreign substances, but certification systems allow the use of **biological, biological, and mineral supplements** when required.

Status of Organic Farming

- **India ranks** second **in terms of organic agricultural land in the world**.

- **Sikkim**: World's first fully organic state.

- **Northeast India**: Organic farming is traditionally practiced and the use of chemical fertilizers is low.

- **India** has the largest number of organic farmers in the world, numbering **2.3 million**.

- As of 2023-24, about **4.5 million hectares** (2.5% of the total agricultural land) area is under organic certification.

Top 4 Organic Farming States in India

Madhya Pradesh (26%)

Maharashtra (22%)

Gujarat (15%)

Rajasthan (13%)

These four states together account for 76% of India's total organic farming area .

Key Organic Products in India:

- Major export products include **flax seeds, sesame, soybeans, tea, medicinal plants, rice, and pulses** .
- India is the global leader in **organic cotton production**.

National Programme for Organic Production (NPOP):

- **Launched:** in 2001.
- **Implementation by:** By the Agricultural and Processed Food Products Export Development Authority (APEDA), under the Ministry of Commerce and Industry.
- **Main Objectives:**

  o Certification, focusing on organic production standards.
  o Promotion of organic farming.
  o Enhancing India's global competitiveness.

- **In-house recognition: The National Programme for Organic Production (NPOP)** standards are accredited by the European Commission and Switzerland for production and certification, whereby Indian organic products are accepted in the international market.

Achievements of National Programme for Organic Production (NPOP):

- **Global Ranking:** India ranks first in organic producers and second in organic agricultural land.
- **Certified Area:** The total certified area reached 3 million hectares by 2023-24, with Madhya Pradesh leading the way, followed by Maharashtra and Rajasthan.
- **Organic exports: Currently** valued at ₹4,007.91 crore, which is estimated to reach ₹20,000 crore in three years.

3.10.11. Microfinance Sector

In India's microfinance sector, the top ten states are witnessing a significant increase in default cases, while the banking sector has seen an overall decline in non-performing assets (NPAs), the lowest in 12 years.

Micro Finance / Microfinance:

Microfinance refers to providing credit and other financial services and products in a very small amount to poor and low-income households who live in rural, semi-urban or urban areas. It aims to increase their income and improve their standard of living. It is an economic tool to promote financial inclusion, which assists the poor to come out of poverty.

Types of Micro Finance Institutions (MFIs)

1. **Non-Banking Financial Companies - Micro Finance Institutions (NBFC-MFIs):** These institutions are established specifically to provide micro finance services.

2. **Non-Governmental Organizations (NGOs):** These operate as non-profit organizations and provide micro-finance.

3. **Cooperatives:** These are member-owned organizations that provide microfinance services.

4. **Commercial Banks and Small Finance Banks (SFBs):** These provide microfinance as part of their priority sector lending.

Current Status:

Increasing Defaults:

- Microfinance loans for the low-income group have seen a sharp increase in **Portfolio at Risk (PAR)** (overdue loans of 31-180 days).

- **Geographical impact:** Bihar, Tamil Nadu, Uttar Pradesh and Odisha, accounted for 62% of the total new late payments.

- Defaults are on the rise across all loan categories, and **Small Finance Banks (SFBs)** have been the worst affected.

Market Share and Growth:

- **NBFCs and banks** hold 71.3% of the microfinance loan portfolio.

- **Annual Growth:**
  - A 7.6% increase in the loan book.
  - An 8.9% increase in the active customer base (Live Customer Base).

- **Quarterly decline:** 4.3% decrease in loan book.
  - Decrease in customer base by 1.1%.

Challenges Faced by Microfinance Institutions:

1. **Difficulty in raising low-cost long-term funds: Microfinance institutions face problems in raising long-term funds at low cost**, which affects their operations.

2. **Risk of Unsecured Loan Portfolio: With** the large portion of the loan portfolio concentrated in unsecured microloans, institutions become more vulnerable to risk and volatility.

3. **Loan-waiver** drives: Loan waiver campaigns by states disrupt the loan repayment cycle, adversely affecting financial discipline.

Significance of Microfinance:

1. **Financial Inclusion:** Provides financial services to **about 8 crore low-income** group borrowers, who are excluded from traditional banking services.

2. **Rural Development and Poverty Alleviation:**
   - Supports local industries such as handicrafts, agriculture, and small-scale manufacturing.
   - Reduces dependence on seasonal or exploitative jobs by promoting self-employment.

3. **Women Empowerment: Provides micro-finance to women self-help groups (SHGs)** and gives them financial independence and decision-making power.

3.10.12. National Turmeric Board

Union Minister of Commerce and Industry Shri Piyush Goyal inaugurated the National Turmeric Board in New Delhi. This board has been set up with the objective of welfare of turmeric farmers, development of high-quality varieties and promotion of exports.

National Turmeric Board Turmeric Board of India:

- **Main purpose:** To promote turmeric production, marketing, and export in India.

- **Headquarters:** Nizamabad, Telangana.

- **First Chairperson:** Palle Ganga Reddy appointed as the first Chairperson.

- **Board Members:**

- Representative:
  - Ministry of AYUSH
  - Department of Pharmaceuticals
  - Ministry of Agriculture and Farmers Welfare
  - Ministry of Commerce

- Representatives from Maharashtra, Telangana and Meghalaya will also attend.

- **Objective:** To double turmeric production to 2 million tonnes in the next five years.

Priorities of National Turmeric Board:

- Focusing on the welfare of turmeric farmers.
- To ensure the quality and safety standards of turmeric production and export.
- Promote research and development of new turmeric products.
- Increasing trade in new international markets for turmeric products.
- Implement effective measures for storage and supply chain management.

Benefits of National Turmeric Board:

- Increase in Income of Turmeric Growers.
- India's Turmeric Exports Recognized Globally.
- New Business Opportunities for Farmers and Exporters.
- Boosting the contribution of spices to India's economy.

About Turmeric:

- **Scientific Name:** Curcuma longa
- **Family:** Zingiberaceae
- **Usage:** Health, Beauty, and Cooking.

Amazing Benefits of Turmeric:

- **Anti-inflammatory:** Helps reduce inflammation.
- **Antioxidant:** Protects the body from free radicals.
- **Antiseptic:** Helps to heal wounds.
- **Digestive improver:** Helpful in reducing indigestion.
- **Immunity:** Strengthens the immune system.

Cultivation and Production of Turmeric:

- **Area cultivated:** 05 lakh hectares.
- **Production:** About 74 million tons.

Global contribution: India contributes to more than **70% of global turmeric production**.

Types and Varieties:

- There are 30 **distinct varieties of turmeric found in the country**.
- Each variety has its own unique properties and uses.

Importance in Agriculture: Turmeric production occupies an important place in the agricultural landscape of India.

Future Direction for Turmeric Sector:

1. **Role of National Turmeric Board**:
   - Turmeric will work to promote the overall development of the sector.
   - Coordinate with government departments and agencies to streamline efforts.
2. **Key Initiatives**:

   - **Increasing Trade Opportunities**: Promoting domestic and international trade of turmeric.
   - **Promotion of health benefits**: To highlight the health benefits associated with turmeric and raise awareness.

3.10.13. PM-Surya Ghar: Free Electricity Scheme

The Ministry of New and Renewable Energy (MNRE) has recently released the Operational Guidelines for the implementation of various components of the 'PM-Surya Ghar: Free Power Scheme'.

PM-Surya Ghar: Free Electricity Scheme:

About:

- The objective of the scheme is to promote the use of **rooftop solar power** in residential areas.
- It has been launched by **the Ministry of New and Renewable Energy (MNRE).**
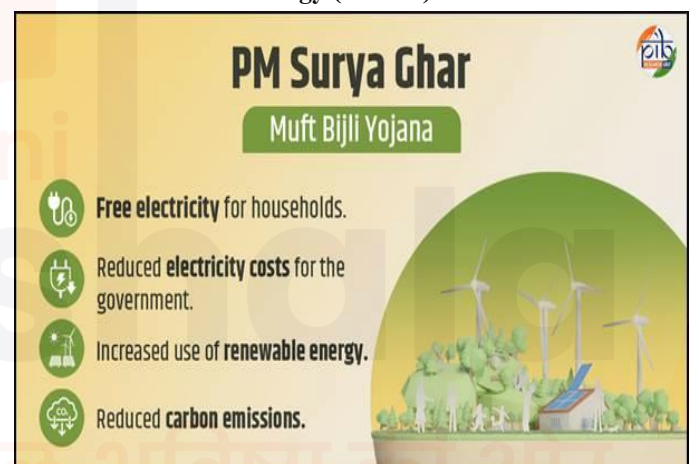
PM-Surya Ghar: Highlights of Free Electricity Scheme:

1. **Subsidy and Financial Assistance:** Subsidy of up to **40% is provided to reduce the upfront cost of rooftop solar installation**.
2. **Payment Security Mechanism:**
   - Use of DBT **(Direct Benefit Transfer) to ensure timely payments to vendors and installers**.
   - Encouraging greater private sector participation.
3. **Capacity Building and Training: Target to create 3 lakh skilled workers through training and upgradation programmes of new skills**.
4. **Simplicity in Application: The 'National Portal for Rooftop Solar'** makes the application process simple and smooth.

5. **Model Solar Village:**
   o The goal is to set up **a solar powered village** in every district, which will promote **energy self-sufficiency** and solar adoption.
   o An allocation of ₹800 crore for this, ₹1 **crore for each village**.

The scheme promotes renewable energy as well as encourages **energy literacy** and **economic growth**.

PM-Surya Ghar: Key components of the recent guidelines of the free power scheme:

1. **Payment Security Mechanism (PSM):**
   o **A fund of ₹100 crore** has been set up **to de-risk investments in the Renewable Energy Service Company** (RESCO)-**based** grid-connected rooftop solar model, which will be applicable in the residential sector.
   o The fund can be augmented from other grants, funds and sources approved by the Ministry.

2. **Implementation Model:**
   o **RESCO Model:**
     ▪ In this model**, third-party entities** invest in rooftop solar systems.
     ▪ Consumers only have to pay for the electricity they use, and they don't have to incur the initial cost to install.
   o **Utility-Lead Aggregation (ULA) Model:** In this model**, DISCOMs** (distribution companies) or state-determined entities **will install rooftop solar systems** on behalf of individual residential households.

3. **Central Financial Assistance (CFA):** The initiative aims **to support 1** crore residential consumers **in the installation of** rooftop solar systems, so that renewable energy becomes more accessible and affordable.

Step-1 : Visit the official website
Step-2 : Provide personal details for registration
Step-3 : Login with Consumer Number & Mobile Number.
Step-4 : Apply for the Rooftop Solar as per the form.
Step-5 : Fill out the online application form.
Step 6: Await DISCOM approval and then install the plant with a registered vendor.
Step-7 : Once installation is over, submit the plant details and apply for net meter.
Step 8: After net meter installation and DISCOM inspection, obtain the commissioning certificate from the portal.
Step 9: Submit bank details and a cancelled cheque. Receive subsidy within 30 days.

The guidelines are designed to reduce financial barriers in the adoption of rooftop solar energy and facilitate the transition to clean energy.

3.10.14. Startup India Initiative

On 16th January 2025, the Startup India initiative completed nine years of its launch. The initiative, which started in 2016, celebrates the day as National Startup Day to **celebrate the achievements of fostering a strong entrepreneurial ecosystem in India**.

Startup India Initiative:

- **Launch:** Launched by the Government of India to promote innovation and encourage startups.
- **Statistics:** As of January 15, 2025, more than 1.59 lakh startups have been recognized by DPIIT.
- **Global Situation:**
  o India has now become the third largest startup ecosystem in the world.
  o There are more than 100 unicorns in India.
- **Key Hubs:**
  o Startups are growing in major cities like Bengaluru, Hyderabad, Mumbai and Delhi-NCR.
  o Small towns are also contributing significantly to the field of startups.

Celebrating 9 Years of
#startupindia Initiative

Key Achievements of
Startup India

› **Maharashtra** leads with 27,459 startups, followed by **Delhi** (15,851) and **Karnataka** (16,335)

› **IT Services industry** leads with **2.04 lakh jobs**, followed by Healthcare & Lifesciences with 1.47 lakh jobs, and Professional & Commercial Services with around 94,000 jobs*

› The **BHASKAR** platform, launched in 2024, streamlines collaboration for startups, investors, and stakeholders

› Over **27,574** startups onboarded through the **GeM Startup Runway**, generating orders worth ₹32,000 crore

› The **MAARG platform** : As of 2024, **1,749 mentors and 3,022 startups** are registered, providing over 16,000 mentorship hours

*As of October 31, 2024

2/3

Features of Startup India:

- **Ease of Doing Business:**
  - Startup registration and operations were simplified through simplified compliance processes and single-window clearances.
  - Self-certification is allowed under various labour and environmental laws.
- **Tax benefits:** Eligible startups get the benefit of tax exemption for three consecutive financial years, thereby reducing the financial burden.
- **Financial Support: The** ₹10,000 crore Fund of Funds for Startups (FFS) provides significant early-stage financial support.
- Sector-specific policies: Special attention is given to biotechnology, renewable energy, and agriculture sectors, to promote growth in key industries.
- **Capacity building:** Programs and workshops like iGOT Karmayogi promote skill development, especially in non-metro areas.

Key Achievements of Startup India:

- **Growth in Startups:** The number of startups recognized by DPIIT increased from 500 (2016) to 59 lakh (2025).
- **Startup Ecosystem:** India emerged as the third-largest startup ecosystem in the world, with over 100 unicorns.
- **Employment Generation:** More than 6 lakh direct jobs have been created till October 31, 2024.
- **Women empowerment:** 73,151 accredited startups have at least one woman director.

Challenges for the Startup Ecosystem:

- **Skill Shortage:** The lack of professionals in AI, data science, and product development has an impact on growth.
- **Bottlenecks in regulations:** Bureaucratic delays and ambiguity of the compliance framework lead to disruptions in operations.
- **Inequality of Resources:** Tier II and Tier III cities do not have a robust startup ecosystem and infrastructure.
- **Access to Capital:** Excessive dependence on foreign funding and lack of domestic investment sources.
- **Corporate Bad Management:** Governance problems and financial mismanagement in startups raise questions about long-term sustainability.

Other Initiatives under Startup India:

- **India Startup Knowledge Access Registry (BHASKAR):** Launched in 2024, this platform connects entrepreneurs, investors, consultants, policymakers, and other startup ecosystem players on a single platform.
- **MAARG Mentorship Platform:** This platform facilitates smart matchmaking between mentors and startups.
- **Startup India Hub Portal:** This platform serves as a comprehensive digital platform for all stakeholders in the entrepreneurship ecosystem.
- **State-level startup ranking framework:** This initiative organizes capacity building workshops and strengthening the regional startup ecosystem.

3.10.15. National Broadband Mission 2.0 and new Sanchar Saathi Mobile App

Recently, Union Minister Jyotiraditya Scindia launched several telecom initiatives to enhance connectivity and security in India. These include the Sanchar Saathi mobile app, the National Broadband Mission 2.0, and intra-circle roaming on DBN-funded 4G mobile sites. These initiatives are aimed at promoting digital inclusivity by providing citizens access to better telecom services.

National Broadband Mission 2.0:

1. **Introduction:**
   - An initiative to improve telecom access in India.
   - Building on the success of NBM 1.0, which was launched in 2019 under the National Digital Communications Policy, 2018.
   - **Under NBM 1.0:**
     - The number of telecom towers increased to 17 lakh.
     - The number of broadband subscribers reached 941 million.
2. **Aim:**
   - Accelerating the growth of digital infrastructure.
   - Bridging the digital divide.
   - Providing affordable broadband access to all.
3. **Vision:**
   - **Optical Fiber Cable (OFC):**
     - Enhancing connectivity to 70 lakh villages by 2030 (currently about 50,000 villages).

- Ensuring 95% uptime.
  o **Broadband to anchor institutions:** By 2030 , 90% of anchor institutions (schools, primary health centers, anganwadi centers, panchayat offices) will have broadband facility.
  o **Download Speed:** Minimum fixed broadband download speed of 100 Mbps.
  o **Development of 5G and 6G Networks:** Accelerate the implementation of 5G networks and prepare for future 6G networks.
  o **Optical Ground Wire (OPGW): The use of** OPGW from the power sector to enhance connectivity during disasters, wars, and emergencies .

New Communication Companion Mobile App
It is a user-friendly platform designed to strengthen telecom security and empower citizens. It provides users with important tools to secure their telecom resources and fight telecom fraud.
Key features
1. **Eye – Reporting of Suspected Fraudulent Communications (SFC):** Users can report suspicious calls and SMS from the app or directly from their mobile phone logs.
2. **Information on mobile connections issued in their name:** Citizens can identify and manage all mobile connections issued in their name, thereby preventing unauthorized usage.
3. **Blocking lost/stolen mobile handsets:** A lost or stolen mobile device can be blocked, traced and recovered faster.
4. **Know the authenticity of the mobile handset:** The app provides an easy way to verify the authenticity of the mobile handset, allowing users to only buy the real device.

Intra Circle Roaming (ICR):

- Under the ICR initiative, multiple telecom service providers can share infrastructure at 4G sites funded by DBN (Digital Bharat Network).
- The objective of this collaboration is to promote connectivity in rural areas.

Highlights:

1. **Partnerships:** Collaboration between service providers like BSNL, Airtel, and Reliance.
2. **Improved connectivity:** Uninterrupted 4G services in more than 35,400 rural villages.
3. **Cost Reduction:** Sharing of infrastructure reduces capital expenditure for operators.

3.10.16. New Initiative of Rubber Board

The Rubber Board of India has launched two important initiatives named iSNR (Indian Sustainable Natural Rubber) **and** INR Konnect **with an aim to strengthen India's rubber industry globally and increase domestic production**. These initiatives will prove to be a milestone for the sustainable development of the Indian rubber industry and improving international competitiveness.

iSNR (Indian Sustainable Natural Rubber):
Objectives:

- To make Indian rubber production compliant with European Union Deforestation Regulation (EUDR) standards.
- Easing entry into the EU market.

Highlights:

1. **Traceability Certification :**
   o This certifies that the origin of rubber products corresponds to the EUDR.
   o Helps in making the process from production to supply transparent.
2. **Ease of Compliance:**
   o Simplify the process for stakeholders in complying with EUDR rules.
   o To provide smooth trade routes for exporters.

INR Konnect: Web-based productivity platform:

Objective: To improve productivity by connecting owners of underutilized rubber plantations with interested adopters.

Highlights:

1. **Certified Network:** Producers, receivers, and tappers are certified by the rubber board, ensuring their reliability.
2. **Training :** Training is provided in production management and sustainable practices so as to promote efficient production.
3. **Database :** An extensive list of certified tappers is maintained, ensuring the availability of the right resources.

Significance:

- As much as 20-25% of India's total rubber assets are underutilised, which remains neglected due to low prices and absent ownership.
- This platform helps overcome these challenges and promotes sustainable growth in the rubber sector.

India's Rubber Industry

- India ranks third in the world in natural rubber production, while Thailand ranks first and Indonesia second.
- India is the fourth largest consumer of natural rubber.
- Kerala contributes more than 90% of India's total natural rubber production. The other major producing states are:
  - **Tamil Nadu, Karnataka, Tripura, Assam and Meghalaya.**

Main Challenges

1. Production is being affected due to climate change.
2. Competition from other rubber producing countries.
3. Shortage of skilled labor, which affects the production process.

Government Initiatives

1. **National Rubber Policy 2019: Aims to** increase production, improve productivity, and strengthen the domestic rubber industry.

2. **Sustainable & Inclusive Development Scheme of the Natural Rubber Sector:**
   - Promote sustainable rubber farming practices.
   - Improving the livelihood of rubber producers.

3. **INROAD Project:** Focused on harnessing the full potential of underutilized rubber plantations in India.

3.10.17. Open Market Sale Scheme (Domestic) Policy

The Union Minister of Food and Consumer Affairs has **announced the Revised Open Market Sale Scheme (Domestic) Policy for 2024-25**. The policy aims to ensure availability of essential commodities in the market and maintain price stability.

Open Market Sale Scheme (Domestic) – OMSS

Under the Open Market Sale Scheme (OMSS), the Food Corporation of India (FCI) periodically sells surplus food grains (wheat and rice) in the Kendriya Bhandar in the open market.

Key features:

- **Sales Process:**
  - It is sold to food grain dealers, wholesale consumers and retail chains at predetermined rates.
  - Sales are made through *e-auction as per the prices fixed by the Ministry of Food and Public Distribution*.

- **Participation of States:**
  - State governments *can buy food grains directly without participating in auctions to meet their National Food Security Act (NFSA)* requirements beyond the prescribed limit.
  - The procured grain is distributed among NFSA beneficiaries.

Major Procurement States (2022-23): Karnataka, Tamil Nadu, Jharkhand, Jammu and Kashmir, and Assam made the highest procurement of rice under OMSS.

Procurement Process:

- Procurement of wheat and paddy during Rabi and Kharif seasons by FCI and state agencies is done as per the government's estimates.
- The procurement is done on the basis of Minimum Support Price (MSP).

OMSS is an important policy for food grain management, thereby maintaining equilibrium in the market and making food grains available to consumers at reasonable prices.

Food Corporation of India (FCI)

- **About:** The Food Corporation of India (FCI) is a statutory body, established *under the Food Corporation of India Act, 1964*.

- **Administrative Ministry:** Functions under the **Ministry of** *Consumer Affairs, Food and Public Distribution*.
- **Objectives:**
  - **Prevention of food crisis:** especially to prevent shortage of wheat.
  - **Foodgrain management: Ensuring the procurement**, storage, transportation, distribution, and sale of food grains and other food items.
- **Headquarters: New Delhi**, India.
- The FCI aims to ensure food security and provide fair prices to farmers.

Functions of Food Corporation of India (FCI)
1. **Procurement of Food Grains**
2. **Operational & Buffer Stock**
3. **Allocation of Food Grains to States**
4. **Sale at Central Issue Price**
5. **Distribution & Transportation**

3.10.18. India's First Edible Oil Survey

The Union Agriculture Ministry has launched the first-ever survey to assess the consumption pattern of edible oils in India. The survey **is being carried out with the objective of effective implementation of Mission on Edible Oilseeds**. The initiative aims to boost edible oil production in India and reduce dependence on imports.

Key Points of Edible Oil Survey:

1. **Duration and participants of the survey:** The survey lasted **for 45 days** and covered various stakeholders such as **edible oil consumers and distributors**.
2. **Objective:** To understand **consumers'** consumption patterns **and** choice of edible oils, thereby aiding policy decisions.
3. **Behavioural Analysis:**
   - The survey analyzed consumer **behaviour** patterns, the impact of **advertising and labelling**, and willingness to pay **for premium oils**.

- It also examined various aspects such as **the frequency of deep-frying**, **seasonal usage patterns**, and factors influencing oil selection.

4. **Need for Survey:**
   - The report shows that per capita consumption of edible oil in India **has exceeded 20 kg**.
   - This **reflects** lifestyle and health risks, as according to the Indian Council of Medical Research (ICMR), the per capita consumption **should be less than 12 kg**.

Key Points of National Edible Oilseeds-Oilseeds Mission (NMEO-Oilseeds):

1. **Duration:** The initiative **will run from 2024-25 to 2030-31**.
2. **Main targets:**
   - To   increase the production of **major oilseed crops like raisar (mustard), groundnut, soybean, sunflower and sesame**.
     - **Increasing collection and extraction capacity from secondary sources such as cotton seed, rice bran and tree-borne oils**.
3. **Aim:**
   - To increase **primary oilseeds production from 39 million tonnes (**2022-23) to **69.7 million tonnes (2030-31).**
   - To meet 72% of the country's projected domestic demand by **2030-31**.

Challenges of Indian Edible Oil Sector:

1. **Dependence on Imports:**
   - India imports 55-60% **of its edible oil requirements**.
   - The major importing countries **are Indonesia,** Malaysia, and Ukraine, which increases the pressure on domestic production and maintains dependence on foreign markets.
2. **Dominance of Palm Oil:**
   - Palm oil is a major contributor to Indian edible oil consumption **with a 38% share**.
   - Due to its excessive consumption, the production and consumption of other oilseeds (mustard, groundnut, soybean) is being affected.
3. **Health Challenges:**
   - Increasing consumption of edible oils and **fast-food culture** is having a negative impact on health.

o Excess oil consumption is **increasing the risk of heart disease, obesity and other health problems**.

Importance of Edible Oil Survey:

- **Analysis of consumption patterns: It** will help in understanding the consumption trends of edible oils in India.
- **Policy Formulation:** Helpful in regulating production and imports, helping in the implementation of NMEO-Oilseeds.
- **Advertisement Control:** Helps in taking effective steps to curb misleading advertisements.
- **Health Awareness:** Helps in initiating preventive measures by recognising the effects on health.

3.10.19. Securities Transaction Tax (STT)

Despite the volatility of the stock market, the **Securities Transaction Tax (STT)** collection has increased by more than 75%. The STT collection reached ₹44,538 crore as of 12th January 2025 as compared to ₹25,415 crore in the same period of 2024.

Increase in Securities Transaction Tax (STT) Collections:

1. **Significant Growth:**
   o As of 12th January 2025, the Securities Transaction Tax (STT) collection has registered **an increase of over 75%.**
   o The collection **has reached ₹44,538** crore as compared to ₹25,415 crore in the same period of 2024.
2. **Bounce despite rise on F&O:**
   o The collections have increased significantly despite the increase in STT rates to control speculative activities in the Futures & Options (F&O) segment.
   o This clearly shows that trading activity has increased in the market, which has led to an increase in revenue.
3. **Regulatory Concerns:**
   o The Securities and Exchange Board of India (SEBI) and the Reserve Bank of India (RBI) have raised concerns over the increasing volume of transactions in the F&O market.

o Over-speculative activity **can pose a risk to macroeconomic stability**.
4. **Contribution to the Government's Revenue:** Increasing STT collection increases the revenue income of the government, making more funds available for public expenditure and development projects.

About Securities Transaction Tax (STT)

It is a **direct tax** that is levied on **the** purchase and sale of securities listed on the recognized **stock exchanges** of India.

1. It is levied and collected **by the Government of India**.
2. **Regulation:** STT **is regulated under the Securities Transaction Tax Act**.
3. **Taxable Securities:**
   o STT applies to securities that include:
     ▪ **Equities**
     ▪ **Derivatives**
     ▪ **Equity-Oriented Mutual Fund Investment Units**
   o STT **does not apply to commodity & currency** transactions.
4. **Tax rate:** Tax rates vary **for different types of securities**.
5. **STT on off-market transactions**: It does **not apply to off-market transactions** (transactions made outside the stock exchange).
6. **Liability of STT:**
   o When the client transacts in the stock market, it is the responsibility of the broker to apply **the STT**.
   o The tax amount collected by the broker is deposited to the government.
7. **Contract Notes: The STT charges and rates are clearly shown** in the **contract notes** given by the broker for the execution of each trade.

3.10.20. Foreign Direct Investment (ODI)

According to the Reserve Bank of India (RBI), the External Direct Investment (OFDI) made by domestic companies has registered a growth of about 17% in 2024, reaching $37.68 billion. According to Reserve Bank of India (RBI) data, the total foreign direct investment in 2023 was $29 billion.

Foreign Direct Investment (ODI)

Foreign Direct Investment (ODI) means an investment made by a company or individual in properties or businesses located in another country. It involves directly owning and controlling the foreign business, such as setting up subsidiaries, joint ventures, or branches in foreign markets.

Key Points of Foreign Direct Investment (ODI)

1. **Control and influence:** Must have a significant level of control or influence (usually at least **10% ownership**) over the foreign business.

2. **Objective:** To expand its operations, gain access to new markets, benefit from resources, or diversify risks.

3. **Investment form:** This can be in the form of investments in foreign companies, real estate, infrastructure projects, or other assets.

4. **Areas of Investment by India:** **Hotels**, **Construction**, **Building Materials**, **Agriculture**, **Mining**, and **Services**.

5. **Countries for investment:** Countries like **Singapore**, **US**, **UK**, **UAE**, **Saudi Arabia**, **Omani**, and **Malaysia**.

Benefits of Foreign Direct Investment (ODI):

1. **Better Access to Technology:** Indian companies get better access to technical knowledge.

2. **Expansion of Global Trade:** It provides an opportunity for companies **to expand business on a global scale**.

3. **Wider Market Access:** Indian companies get **wider market** access, which increases their competitiveness.

4. **Global customer base: Helps build a global customer base**, leading to increased revenue.

Framework of Foreign Direct Investment (ODI) in India:

1. **Adherence to Rules and Laws:**
   o **Under Section 6(3)(a)** of **the Foreign Exchange Management Act (FEMA) 1999**, **FEM (Permissible Capital Account Transactions) Regulations, 2000**.

   o **FEM (Transfer or Issue of any Foreign Security) Regulations, 2000**.
   o **Circulars issued by** the Reserve Bank of India **(RBI).**
   o **Guidance on ODIs issued by RBI**.
   o **Liberalised Remittance Scheme (LRS)** and **FAQs** (which are applicable to residents).

conclusion

- **Joint ventures (JVs)** and **wholly owned subsidiaries (WOS)** have become important avenues for Indian businesses to increase their global presence.
- Indian companies **are investing in their** own subsidiaries, which shows that they are **expanding outside**.
- The continuous international outreach **of Indian companies** is not only helping them expand globally but **also strengthening economic ties** between **India and other countries**.

3.10.21. SEBI proposes changes in NPO and Social Stock Exchange

The Securities and Exchange Board of India (SEBI) has proposed a new framework for social stock exchanges. This includes a change in the definition of **nonprofit organizations (NPOs)** and the expansion of eligible activities identified as social enterprises.

Proposed Amendments to Social Stock Exchange (SSE) Rules:

1. **Expanding the Definition of Non-Profit Organizations (NPOs):**
   o **Current Definition:**
     ▪ Charitable Trust registered under the Indian Trusts Act, 1882.
     ▪ Charitable Societies registered under the Societies Registration Act, 1860.
     ▪ Companies registered under Section 8 of the Companies Act, 2013.
   o **Extended Definition:**
     ▪ Trusts registered with the Sub Registrar under the Indian Registration Act.
     ▪ Charitable society registered under the Societies Registration Act of the state.
     ▪ Companies registered under Section 25 of the Companies Act, 1956.
2. **Expansion of List of Eligible Activities:**
   o **Activities Involved:**

▪ Welfare of underprivileged children, women, elderly and disabled.

▪ Promotion of vocational skills.

▪ Promotion and education of art, culture and heritage.

3. **Expansion of Target Category:** Social units as well as **cultural and environmental ecosystem units** will also be included.

4. **Relaxation of conditions of registration renewal:**

   o NPOs will now be able to register for two years without raising funds through SSE**.**

   o The exemption has been made after taking into account the cost of annual reporting and social impact assessment.

5. **Condition of Business Income:**

   o **Offer:**

      ▪ For for-profit and non-profit social enterprises, business income **must be more than 20% of revenue**.

      ▪ To ensure that 67% of the activities meet the criteria for eligible activities.

Social Stock Exchange (SSE)

- **About:**

   o SSE will act as a separate segment **within the existing stock exchange**.

   o It will help **social enterprises** to raise funds from public investors.

- **Objectives:**

   o Obtaining financial support **for social initiatives**.

   o To provide **visibility** and **transparency** to enterprises, allowing fundraising and usage to be monitored.

- **Investment Rules:**

   o **Retail investors:** Can only invest in the main board under **profitable social enterprises (FPSEs).**

   o **Institutional and Non-Institutional Investors: They can invest in securities issued by** all social enterprises (SEs).

Eligibility for Social Stock Exchange (SSE)

- **Social Intent:**

   o Any **Non-Profit Organization** (NPO) **or Not-for-Profit Social Enterprise** (FPSE) **that**

prioritizes a social purpose will be recognized as a **social enterprise**.

   o Accredited organizations will be eligible to register on **SSE**.

- **Dependent on Corporates:** NPOs that **receive more than 50% of their** funding from corporates will be ineligible for registration on **SSE**.

3.10.22. What are Mudra Loans?

In the third quarter of the financial year 2024-25, the Pradhan Mantri Mudra Yojana (PMMY) reached an all-time high with loan disbursements of ₹3.39 lakh crore, the highest ever quarterly disbursement since the inception of the scheme in 2015.

Current Status of Mudra Loans:

- **Highest ever disbursement: In** the third quarter of **FY 2024-25** (till December 2024), Mudra loan disbursements **reached an all-time high of ₹3.39 lakh crore**.

- **Largest contributor: State Bank of India (SBI) holds** the largest share in the disbursement of Pradhan Mantri Mudra Yojana (**PMMY) loans**.

- **Reduction in NPAs:** The overall NPA of PMMY **loans decreased from 4.9% in 2019-20 to 3.4% in** 2023-24, which has led to an improvement in loan quality.

Pradhan Mantri Mudra Yojana (PMMY)

About:

- Launched in 2015, it is a flagship initiative of the Government of India, which aims to provide affordable credit to **micro and small enterprises**.

- It aims to integrate **underdeveloped enterprises** into the formal financial system and make them access to credit.

Objectives:

- "Fund the Unfunded" means providing financial assistance to small businesses.

- Providing credit through Public Sector Banks (PSBs), Regional Rural Banks (RRBs), Cooperative Banks, Private Banks, Foreign Banks, Microfinance Institutions (MFIs), and Non-Banking Financial Companies (NBFCs).

Loan Details:

- Loan amount: **Loans up to ₹10 lakh** are available for sectors that **are not** agriculture-based, such as construction, trade, services.
- Eligibility: Any Indian citizen who has a **business plan** and needs a loan of up to ₹10 lakh can apply through a bank, MFI, or NBFC.

Loan Categories:

1. **Shishu: Up to** ₹50,000 (for new and micro enterprises).
2. **Kishor:** ₹50,000 to ₹5 lakh (for developing businesses).
3. **Tarun:** ₹5 lakh to ₹10 lakh (for businesses expanding).

Subsidies:

- There is no direct subsidy under **PMMY**.
- If a loan is linked to a government scheme that **provides** capital subsidy, it can be availed under PMMY.

Impact of MUDRA 1.0:

- **Loan disbursement: Over** Rs. 27.75 lakh crore was disbursed to 47 crore small entrepreneurs, increasing access to formal finance.
- **Inclusivity:** 69% of loan accounts **are held by women** and 51% by **SC/ST/OBC** entrepreneurs.
- **Employment Generation:** Self-employment was promoted in rural and semi-urban areas and small businesses flourished.

Vision of MUDRA 2.0:

1. **Extended Scope:**
   o Increasing access in rural and semi-urban areas.
   o Providing financial literacy, counseling, and professional support.
2. **Financial Literacy Programs: Implementing programs covering** budgeting, savings, debt management, investment strategies, and digital literacy.
3. **Comprehensive Credit Guarantee Scheme (ECGS):** To assist banks in reducing risk by extending more loans to small enterprises.
4. **Robust Monitoring and Evaluation Framework (RMEF):**
   o Monitoring loan disbursement**, utilization and repayment in real-time using technology**.
   o Increasing transparency and preventing misuse.

3.10.23. Global Economic Prospects (GEP) Report 2025

According to the World Bank's Global Economic Prospects (GEP) Report 2025 released in January 2025, India's economy is projected to grow at 6.7% in the financial years 2026 and 2027.

Key Points of the Global Economic Prospects (GEP) Report 2025:

1. **Global Economy:** The global economy is projected to grow at 7% in 2025 and 2026, the same as in 2024.
2. **Emerging Economies (EMDEs):**
   o Since 2000, the contribution of emerging economies to global GDP has increased from 25% to 45%.
   o India, China, and Brazil have accounted for nearly 60% of annual global growth since the beginning of the 21st century.
   o India will continue to be the fastest growing major economy, growing at 7% in FY26 and FY27.

Trade Restrictions:

   o New global trade restrictions in 2024 were five times higher than the average rate of 2010-19.
   o Due to this, the economic growth rate declined from 9% in the 2000s to 3.5% in the 2020s.
3. **Challenges and Recommendations:**
   o Rising trade tensions could lead to a slowdown in global growth.
   o Persistent inflation may delay the cut in interest rates.
   o With the right policies, these economies can be turned into opportunities.
   o All countries should work together to strengthen global trade governance in collaboration with multilateral institutions.

About the World Bank

THE WORLD BANK

introduction

- o **The World Bank is** an international financial institution that provides loans and grants to the governments of developing countries for capital projects.
- o It was **established along with the International Monetary Fund (IMF) at the** 1944 Bretton Woods Conference.

structure

- o The World Bank is mainly composed of two institutions:
  - **International Bank for Reconstruction and Development (IBRD)**
  - **International Development Association (IDA)**

Mission & Objectives

- o Reduce poverty and promote sustainable development.
- o Working in areas such as education, health, agriculture, infrastructure and environmental sustainability.

Major Reports of the World Bank

1. **Global Economic Prospects**

2. **Global Financial Development Report**

3. **Poverty and Shared Prosperity**

4. **World Development Report**

5. **Remittance Report**

6. **Universal Health Coverage Index**

3.10.24. Diamond Imprest Authorization (DIA) Scheme

The Ministry of Commerce has recently launched the Diamond Imprest Authorization (DIA) scheme, which aims to enhance the global competitiveness of India's diamond industry.

Diamond Imprest Authorization (DIA) Scheme:
About:

- It has **been introduced under the Foreign Trade Policy 2023**.
- It aims to provide a streamlined mechanism for duty-free import of natural cut and polished diamonds.

Salient Features of the Diamond Imprest Authority (DIA) Scheme:

1. **Duty-free import: Duty-free import of natural cut and polished diamonds of less than** 1/4 carat (25 cents) is allowed under this scheme.
2. **Export Obligation: It is mandatory to adhere to** 10% value addition on exports.
3. **Eligibility:** Diamond exporters are eligible, who have **the status of Two Star Export House** and export up to US**$ 15 million per annum**.
4. **Exception:** This scheme **does not apply to lab-grown diamonds (LGDs)**.
5. **Taxes exempted:** Exemption from Basic Customs Duty, Additional Customs Duty, Education Cess, Anti-Dumping Duty, Countervailing Duty and other taxes.

Impact on Indian Diamond Industry:

1. **Improving Exports and Employment Opportunities:**
   - o The diamond industry has faced challenges such as declining exports and job losses.
   - o The DIA scheme will help overcome these problems by promoting local processing and increase employment opportunities.
   - o The scheme is designed to revive the diamond sector, including supporting large exporters with small and medium enterprises (SMEs).

Challenges of Diamond Industry:

- **Global Challenges:**
  - o **Fall in demand:** A drastic drop in demand for polished diamonds in the US, China and Europe.
  - o **Shifting Consumer Preferences:** Growing Trends Toward Lab-Grown Diamonds.
- **Internal Challenges:**

- o **More stock:** Large unsold stocks of polished diamonds.
- o **Rising Operating Costs:** Continuous increase in production costs.
- o **Decrease in profit:** Decline in margins due to competition in the global market.
- o **High Corporate Tax:** The High Tax System in India is a Challenge for the Industry.
- o **Declining Bank Credit:** Reduction in Financing by Banks.

Strategic Significance for MSMEs:

1. **Equal Opportunities for MSMEs:**
   - o The scheme is particularly useful to benefit Micro, Small and Medium Enterprises (MSMEs) in the diamond sector.
   - o It provides equal opportunities to small players to compete with large firms.
2. **Boost local economy:** The scheme will help strengthen the domestic diamond processing industry and stimulate local economic development.

3.10.25. Assessment and Measurement of India's Digital Economy

According to a report released by the Ministry of Electronics and Information Technology (MeitY), India has become the first developing country to adopt the Organisation for Economic Co-operation and Development (OECD) framework for assessing the digital economy. The report also covers digital contributions to traditional industries such as trade, banking, financial services, insurance (BFSI) and education.

Key Findings of the Report on Digital Economy:

1. **Contribution of Digital Economy: India's digital economy** contributed 74% to the national income in 2022-23, which is projected to grow to 13.42% by 2024-25.
2. **Faster Growth Rate:** The digital economy is growing almost twice as fast as the overall economy and can contribute about 20% to the national income by 2029-30.
3. **Share more than other sectors:** Within six years, the share of the digital economy will be larger than the agriculture and manufacturing sectors in the country.
4. **Employment Generation:** The digital economy employed 67 million (1.46 crore) workers in 2022-23, which is 2.55% of the total workforce.
5. **Expansion in All Sectors:** The digital economy is not limited to the ICT industries, but it is rapidly spreading throughout the economic system.

Recommendations for the Development of the Digital Economy:

1. **Reducing Regulatory Uncertainty: It** is essential to make the rules clear and stable for digital platforms and intermediaries.
2. **Digital Literacy and Skills Development:** Joint efforts should be adopted to increase digital literacy and develop digital skills.
3. **Ease of Doing Business:** Procedures for doing business in the digital arena should be simplified and simplified.
4. **Cyber Security and Enhancing Trust:** Ensuring the trust of users by promoting security in digital transactions.
5. **Building Sustainable Broadband Network:** Developing sustainable and robust fixed-line broadband networks to strengthen mobile coverage.

4 Society & Social Justice

4.1. Management of Hazardous Waste

Context:

Four decades after the Bhopal Gas Tragedy (1984), hazardous waste (toxic waste) from the defunct Union Carbide India Limited (UCIL) factory in Madhya Pradesh was finally taken out for incineration.

What was the Bhopal Gas Tragedy?

On the night of 2 December 1984, a disastrous chemical leak occurred at the UCIL pesticide plant in Bhopal. The leak involved methyl isocyanate (MIC) gas, which killed more than 5000 people in the city of Bhopal and poisoned more than five lakh people with this gas. This incident is considered to be the world's most devastating industrial disaster.

- **Cause of Leakage:** On 1 December 1984, a failed maintenance attempt and inappropriate safety systems led to a chemical reaction in the tank containing the MIC, resulting in the release of about 30 tons of MIC gas into the atmosphere by midnight on 2 December 1984.
- **Effects on Health:**
  - **Urgent:** Individuals exposed to this gas experienced respiratory problems, abdominal pain, eye problems, and neurological impairments.
  - **Long-term:** Long-term health problems such as reduced lung function, genetic defects, effects on pregnancy, and sudden increase in infant mortality.
- **Governmental and Legal Response:** The Government of India passed the Bhopal Gas Leak Disaster (Processing of Claims) Act, 1985 to act as the legal representative of the victims. UCIL initially proposed a relief of USD 5 million, but the Indian government asked for USD 3.3 billion. The case was finally settled out of court in 1989 for US$470 million.
- **Consequences and legacy:** Even after all this time, the lack of health care for survivors and the risk of toxins at the factory site remains. Various welfare organisations have been demanding removal of hazardous waste.

Methyl Isocyanate (MIC):

- **Introduction:** Methyl isocyanate is a colorless liquid used to make pesticides.
- **Reactivity:** This chemical is highly reactive to heat.
- **In contact with water:** The MIC becomes highly reactive when it comes in contact with water and reacts to heat.
- **Storage:** It is no longer produced, although it is still used in pesticides.

What is Hazardous Waste?

Hazardous waste refers to wastes that pose a threat to health or the environment due to characteristics such as toxicity, flammability, reactivity, or corrosiveness.

- **Source:**
  - Most hazardous wastes are generated during chemical production and consumption, which increases with the increasing demand for consumer goods.
  - Outdated technologies generate more toxic waste from Small and Medium Enterprises (SMEs).
  - Wastewater treatment and gaseous discharge produce residues of hazardous substances.

Hazardous Waste Regulation

- **Environment Protection Act, 1986:** Hazardous Wastes (Management and Handling) Rules, 1989 were brought under the These rules were amended in 2008, 2009, 2010 and 2016 to include other types of waste such as electronics, paper, metal scrap and waste tyres.
- **Basel Convention, 1992:** India is a signatory to the Basel Convention, which aims to regulate the movement of hazardous waste.
- **Waste Generation:**
  - About 7.66 million tonnes of hazardous waste is generated every year from industries in India.
  - 44.3% of waste is landfillable, 47.2% is recyclable, and 8.5% is incineratable.
  - Seven states: Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, West Bengal, and Chhattisgarh account for 83% of hazardous waste.

How is hazardous waste disposed of?

- **Co-processing:**
  This process involves the use of waste materials, such as industrial by-products or hazardous wastes, as alternative raw materials or fuels in cement manufacturing or other high-temperature industries.
  - About 25 cement plants in India have started co-processing.
- **Recovery of Materials and Energy:**
  - The physical value inherent in waste is used in material retrieval.
  - Energy recovery involves the calorific value of waste, such as recovering copper from cable residues and recovering lead from used batteries.
  - Used lubricating oils, solvents, solids and semi-solid greases can be used as alternative fuels for industrial processes.
- **Incineration:** It is a process in which waste materials are burned in high-temperature furnaces, turning it into ash, flue gases, particles, and heat, which can be used in power generation.
- **Pyrolysis:** Pyrolysis is a thermal decomposition process, in which waste materials are burned at temperatures ranging from 300°C to 900°C with limited oxygen.
  - This process generates useful products such as bio-oil, synthetic gas (syngas) and charcoal.

Conclusion:

The Bhopal gas tragedy exposed the catastrophic consequences of negligence of industrial safety. Despite regulatory advancements such as the Hazardous Waste Management Rules, 2016 and the Basel Convention, challenges in hazardous waste disposal in India remain. The solution urgently requires strict compliance, technological upgradation, and effective treatment of hazardous waste.

4.2. Rights of Transgender Persons and Related Concerns

Context:

In the case of Ms X vs State of Karnataka, 2024, the Karnataka High Court (HC) held that transgender persons can make changes in name and gender on their birth certificates. This permission has been clearly given under the Transgender Persons (Protection of Rights) Act, 2019 and the Bisexual Persons (Protection of Rights) Rules, 2020.

Key facts of the case Ms X vs State of Karnataka, 2024

- **Background**: The petitioner had sexual dysphoria, and for this reason, she underwent sex change surgery. She then got her name and gender legally changed on her Aadhaar card, driving licence and passport. However, the request to make changes in gender and name on the birth certificate was rejected.
- **Gender dysphoria**: It is a mental condition in which a person's assigned gender at birth does not match their gender identity.
- **Legal Objection**: Under Section 15 of the Registration of Births and Deaths Act, 1969, changes in a birth certificate can be made only if the information of birth in the register is incorrect or fraudulently recorded.
- **Violation of Fundamental Rights**: The petitioner argued that the restriction violates the right to life under Article 21 of the Indian Constitution, and documents showing different identities increase harassment and discrimination.

The Bisexual Persons (Protection of Rights) Act, 2019

- It states that transgender persons can be issued an "identity certificate" as proof of their identity, which can be modified after sex-reassignment surgery.
- The law also ensures that the gender of transgender persons will be recorded in all official documents.

Karnataka High Court Judgment:

- The court said the **1969 Act** is an ordinary Act and it should follow the Transgender Persons (Protection of Rights) Act, 2019, as it is a special Act.
- The Court, applying the principle of "Generalia Specialibus Non-Derogant", ruled that the Registrar has to accept the transgender certificate and issue the revised birth certificate.

importance

The judgment emphasises the supremacy of special laws protecting the rights of transgender persons. It paves the way for the recognition of gender identity in all official documents for transgender persons.

Transgender Population in India

- **According to the 2011 census,** the total population of transgenders in India is around 4.88 lakh.
- **Top 3 states** with the highest transgender population: Uttar Pradesh, Andhra Pradesh and Maharashtra.

Timeline for Reforms for Transgender Persons

1. **Election Commission's directive (2009):** Inclusion of "Other" option in registration forms, allowing transgender persons to avoid male or female identification.
2. **Supreme Court Judgment (2014):** In the **National Legal Services Authority vs Union of India** case, the Supreme Court recognized transgender people as the "third gender".
3. **Legislative Efforts**: The Transgender Persons (Protection of Rights) Bill**, 2019 was enacted to protect transgender rights**.

Key facts related to Transgender Persons (Protection of Rights) Bill, 2019

- **Transgender**: This is a person whose gender does not match the gender given at birth. It clarifies 'persons with intersex differences' and 'transgender persons', so as to include trans males/males and females/females, regardless of surgery or therapy.
- **Non-Discrimination**: It prohibits discrimination in education, employment, health care, and public facilities.
- **Identity certificate**: The Bill provides for the right to self-empirical gender identification and empowers the District Magistrate to issue certificates without medical examination.
- **Medical Care**: Ensures HIV surveillance, access to medical care, sexual reassignment surgeries, and insurance coverage.
- **National Council for Transgender Persons**: Established to advise the government and address grievances.
- **Offences and Penalties**: Offences such as forced labour, abuse, and deprivation of rights are punishable by imprisonment and fines.

Problems faced by transgenders in India
• **Social Vulnerability**: Transgender individuals face exclusion from society, due to which they have limited opportunities and feel alienated.
• **Discrimination in Education**: Transgender persons face harassment and exclusion in education, due to which their literacy rate is 46%, compared to the national average of 74%.
• **Homelessness**: Many transgender youth are rejected by families and forced to live on the streets.
• **Transphobia**: Transgenders face social intolerance and negative attitudes, leading to increased violence, harassment, and discrimination.
• **Psychological distress**: Transgenders face mental problems like anxiety, depression, and suicidal thoughts due to lack of supportive systems.
• **Public Representation**: The negative portrayal of transgenders in the media promotes social rejection and violence towards them.

Way Forward

1. **Empowerment and Legal Reforms**: The government should adopt a more inclusive approach in policy-making, so that transgenders are included in the decision-making process.
2. **Access to Education**: Anti-harassment and anti-ragging policies should be adopted in schools to reduce discrimination against transgender students.

3. **Focus on Social Concerns**: The government should ensure access to services such as free legal aid, supportive education, and social rights for transgenders.
4. **Economic opportunities**: Providing generous credit facilities and financial assistance can help transgenders start their own businesses.
5. **Awareness Campaigns**: Public education campaigns should aim to reduce social intolerance and raise awareness about transgender related issues.

4.3.   Global Nutrition Goals (GNT): Status, Challenges and Solutions

Context:

The Lancet study on global nutrition targets has shown that progress on these targets has been slow from 2012 to 2021. Tackling maternal and child malnutrition, undernourishment, and obesity has been difficult, and this study underscores the need for improvement in policymaking.

What are the Global Nutrition Goals (GNTs)?

The World Health Assembly's resolution in 2012 sets out some important global nutrition targets by 2025, which aim to improve nutrition. These goals include:

- **40% reduction in the number of stunted children**: Reducing the rate of stunting in children under five years of age.
- **A 50% reduction in anaemia in women of reproductive age**: reducing anaemia in women.
- **30% reduction in birth** weight: Reducing the number of low birth weight babies.
- **Prevention of overweight in children**: controlling the rate of overweight in children.
- **Increasing breastfeeding rate to 50%**: Increasing the rate of exclusive breastfeeding in the first 6 months of children.
- **Maintaining childhood malnutrition at less than 5%**: Reducing childhood malnutrition to a minimum level.

Malnutrition, Anaemia and Other Related Problems:

- **Malnutrition**: Malnutrition is caused by the lack of essential nutrients to the body, including stunting, debauchery, and underweight.
- **Anemia**: Deficiency of hemoglobin in the blood, which majorly affects women and children, is called anemia.

Key findings of the study:

- **Slow Progress**: Progress towards the Global Nutrition Goal (GNT) has been slow in 204 countries. It is estimated that by 2050, only a few countries will meet stunting targets in children under 5 years of age.
- **Status of Anaemia in India**: The prevalence of anaemia in India has been stable for 2 decades. There has been a rise in cases of anaemia during the COVID-19 lockdown.
- **Stunting**: 7-8% of children in India are stunted at birth, which goes up to 40% by the age of 2.
- **Overweight in childhood**: The problem of overweight in children is increasing in India, which can lead to metabolic diseases.

Key recommendations:

- To reduce anemia, it is necessary to diversify the diet, because it is not just iron deficiency.
- The prevention of stunting in children should be the focus in the first two years of life.
- Energy intake, especially fat intake, should be increased for children under 3 years of age.
- Anaemia and stunting should be measured in more precise and context-specific ways.

Global and Indian Challenges:

Global Challenges:

- **Anaemia**: The prevalence of anaemia in women of reproductive age has remained largely unchanged. Due to lack of solution to this problem, its burden increases, especially in rural and poor areas.
- **Stunting**: Slow progress is being made in addressing the problem of stunting in children, which could reach 127 million affected children by 2025.

- **Overweight and obesity**: The problem of overweight and obesity is increasing due to urbanization, changing dietary patterns, and lack of physical activity.
- **Wasting: Wasting affects nearly** 45 million children under the age of 5, especially in South Asia.

India's Challenges:

- **Limited dietary variety**: The diet in India is usually of rice and wheat, which is causing nutritional levels to fall.
- **Economic Barriers**: High food prices are making it harder for poor families to buy nutritious food.
- **Insufficient Data**: Lack of adequate surveys on dietary diversity is hampering nutrition interventions.
- **Non-Communicable Diseases (NCDs):** Diseases such as obesity, diabetes, and hypertension are on the rise, which necessitates attention on both malnutrition and overnutrition.

Way Forward

- **Policy Realignment**: Incorporating Regional Dietary Solutions into National Programs.
- **Public Distribution System (PDS):** To increase the availability of nutrient-dense foods.
- **Setting Targets at the National Level**: Setting specific nutrition targets for the country.
- **Resource allocation**: Mobilizing financial and human resources for nutrition-specific programs.
- **Integrating Nutrition in Different Sectors**: Incorporating nutrition outcomes into health, food systems, and water, sanitation, and health (WASH) policies.
- **Monitoring mechanisms**: Monitoring systems should be upgraded to track the progress of nutrition indicators.

Nutrition Related Initiatives in India
• **Mission Poshan 2.0**: This program of the Government of India amalgamates several schemes to improve nutrition.
• **Integrated Child Development Services (ICDS) Scheme**: To improve the nutritional status of children and mothers.
• **Pradhan Mantri Matru Vandana Yojana (PMMVY):** Nutrition schemes for pregnant women and new born children.
• **Mid-Day Meal Scheme**: Scheme to provide nutritious food to children in schools.
• **Scheme for Adolescent Girls (SAG):** To address nutrition problems of adolescent girls.

4.4. Elimination of manual scavenging

Context:

The National Human Rights Commission (NHRC) held an open discussion on the topic "Dignity and Freedom of the Person – Rights of Manual Scavengers". This problem remains a serious issue of human rights and social justice.

Introduction to Manual Scavenging:

- **Definition**: Manual scavenging refers to the manual cleaning of human excreta by a person without any safety equipment.
- **Tasks Involved**: This involves manual cleaning of human excreta from unhygienic toilets, drains, pits or railway tracks.
- **Current Status**:
  - In 2021, 58,098 manual scavengers were recorded in India, of which 75% were women.
  - As of 31st July 2024, 732 of India's 766 districts declared to be manual scavenging-free.
- **Violation of Fundamental Rights:** It **directly violates Article 17** (abolition of untouchability) and **Article 21** (right to dignity and life).

Legal Framework Related to Manual Scavenging:

- **Prohibition of Employment and Rehabilitation of Manual Scavengers Act, 2013**:
  - Prohibition of manual scavenging and construction of unhygienic latrines.
  - Rehabilitation of manual scavengers through skill development, financial assistance, and alternative employment.
- **SC/ST (Prevention of Atrocities) Act, 1989**: It is considered an offence to employ Scheduled Castes in manual scavenging.

Key Challenges:

- **Health Problems**:
  - Risk of diseases such as hepatitis, tetanus, and cholera.
  - Risk of asphyxiation and sudden death due to poisonous gases in septic tanks.
  - Between 2019-2023, 377 deaths were recorded during the cleaning of sewers and septic tanks.
- **Social stigma**: Manual scavengers face untouchability, leading to social exclusion and caste discrimination.
- **Economic Challenges**: Paid less than minimum wages, work on contract or daily wages.
- **Women's Double Discrimination**: Gender Inequality, Sexual Harassment, and Exploitation.
- **Psychological problems**: depression, anxiety, and drug use.

Supreme Court Guidelines:

- **Dr. Balram Singh Case, 2023**:
  - • Phased elimination of manual sewer cleaning practice.
  - Compensation of ₹30 lakh to the family of the deceased and ₹10-20 lakh assistance on disability.
  - Rehabilitation of workers, employment to the next of kin and education to dependents.
  - Setting up of a monitoring portal for compensation management.

Initiative to stop manual scavenging
Safaimitra Safety Challenge
Swachhta Abhiyan App
National Garima Abhiyan
National Commission for Safai Karamcharis
Swachhta Udyami Yojana (SUY)
Recognition of Prior Learning (RPL)

Technical Solutions:

- **Bandicoot Robot:** Sewer Cleaning and Inspection.
- **Endobot and Healthy AI**: Water Contamination and Sewer Management.
- **Robo-Drain System**: Automatic sewer cleaning.
- **Vacuum** trucks: cleaning sewage without human intervention.

Way Forward

- **Mechanization**: Safe and efficient cleaning **through automatic equipment**.
- **Applying the OHS Standard**: Adherence to Occupational Safety and Health Standards.
- **Health Check-up**: Regular health check-ups and treatment for sanitation workers.
- **Education and Training**: Providing technical skills and safety equipment to workers.
- **Economic and Social Empowerment**: To train women and workers for sustainable livelihoods.
- **Expansion of Swachh Bharat Mission**: Prioritizing the health and dignity of sanitation workers.

Conclusion: Manual scavenging is a dark stain on the social structure of India. Technological solutions, social awareness and strong legal and rehabilitation measures are needed to end it. This will not only improve the lives of these workers but will also promote inclusivity and dignity in society.

4.5.   Beti Bachao Beti Padhao Scheme

The Ministry of Women and Child Development celebrated the 10th Foundation Day of the Beti Bachao Beti Padhao Scheme (BBBP) on January 22**, 2025**. The scheme has made a significant contribution towards protecting the rights of girls, improving their education and empowering them across the country.

Introduction of Beti Bachao Beti Padhao (BBBP) Scheme:

- Beti Bachao Beti Padhao Yojana was launched on January 22, **2015 in** Panipat**, Haryana**.
- **Collaborative Initiatives**: The scheme is a joint initiative of the Government of India, which also involves several other ministries.
- **Initial Implementation**: The scheme was first implemented as a pilot project in 100 districts that **had a low Child Sex Ratio (**CSR) **based on the 2011 Census**.
- **Objective**: The main objective of the scheme is to address the decline in child sex ratio and to promote protection, survival and education of girls. The scheme seeks to address the problems targeted at the grassroots level along with awareness campaigns.
- **Integration**: Currently, the scheme **is integrated with** Mission Shakti, which will be applicable for **the period of the** 15th Finance Commission (2021-2022 to 2025-2026).

Introduction to Mission Shakti

- **Start**: Mission Shakti is a government initiative, launched in July **2022 to ensure the safety**, protection, and empowerment of women and girls.
- **Aim**: The scheme provides support to women at various stages of their lives, through the following services:
  - Ensuring the safety and protection of women
  - Empowering women and raising awareness about their rights
  - Promoting self-reliance and entrepreneurship among women
  - Helping women live in a safe environment

Sub-Schemes under Mission Shakti

1. **Sambal (Safety and Protection):** This sub-scheme focuses on women's safety, including services such as One Stop Centre (OSC), Women's Helpline (181), and Beti Bachao Beti Padhao (BBBP). This **includes** Nari Adalat, which addresses issues such as violation and harassment of women's rights.
2. **Samarthya (Empowerment):** The objective of this sub-scheme is to empower women. This includes **facilities such as Shakti Ghars** (shelters), relief and rehabilitation homes, and crib-crèches **for the children of working women**. The scheme **also supports the Pradhan Mantri Matru Vandana Yojana (**PMMVY), which provides financial assistance for pregnant women and lactating women.

Need for Beti Bachao Beti Padhao (BBBP) Scheme:

- **Decline in Girl Birth Ratio (CSR):** One of the main reasons for the introduction of the Beti Bachao Beti Padhao scheme was the decline in the ratio of birth of girls.
  - **According to the** 2011 census, the ratio of girls declined **to 918 girls** per 1,000 boys from **927** girls **per 1,000 boys** in 2001.
- **Global Comparison**: According to a survey conducted by UNICEF in 2012, India was ranked 41 out of **195** countries on the basis of sex ratio, which shows the seriousness of this problem at the global level. This figure highlights the problem of **gender inequality** in India.
- **Cultural and Social Factors**: The desire for boys in India has been considered to be a major reason, which is the main reason for gender inequality. Due to this conservative thinking**, the prevalence of discriminatory practices like sex selective abortion** in India can also be considered as the main reason.

The Beti Bachao Beti Padhao scheme was launched as a multi-ministerial initiative to address these critical issues.

Objectives of Beti Bachao Beti Padhao (BBBP) Scheme:

- **Elimination of gender-based discriminatory practices**: The scheme aims to prevent gender selective practices such as sex determination tests and abortion of girls , which cause a decline in the ratio of births to girls. The attempt of the scheme is to raise awareness about the importance of girls and to end the **gender discrimination** prevalent in the society.

- **Ensuring the safety and survival of girls**: An important objective of the scheme is to ensure the safety of girls, so that they can avoid physical, mental, and social harm. The scheme aims to educate girls about their **rights** and enable them to differentiate between right and wrong.
- **Promoting Girls'** Education: The BBBP scheme prioritizes girls' education, so as to increase the enrolment rate **of girls in schools**. It aims to reduce the dropout rates of girls at secondary and higher secondary level and give girls equal opportunities for educational success.
- **Improving Health Services for Girls**: The scheme aims to improve **maternal and child health** services so as to ensure the survival of girls. It aims to improve the sex ratio at birth by 2 points each year and maintain the institutional delivery rate **at 95%** or more. Another objective is to increase first-quarter antenatal care **(ANC)** by 1% annually. The scheme also emphasizes on raising awareness about safe menstrual hygiene practices of adolescent girls.

Salient Features and Implementation Structure of Beti Bachao Beti Padhao Scheme

- **Governing Body**: The Beti Bachao Beti Padhao (BBBP) scheme is a joint initiative, coordinating 3 ministries.
  - **Ministry of Women and Child Development (MoWCD):** Responsibility for budgetary control and administration of the scheme.
  - **Ministry of Health and Family Welfare (MoH&FW):** Responsibility for capacity building and quality control.
  - **Ministry of Human Resource Development (MoHRD**): Development and implementation of educational components of the scheme
- **Economic and Operating Structure**:
  - BBBP Scheme is a centrally funded scheme, fully funded by the Central Government under Mission Shakti.
  - The financial assistance **is allocated district-wise on the basis of Sex Ratio at Birth (**SRB):
    - **SRB $\leq$ 918: ₹40 lakh per annum**
    - **SRB between 919–952 : ₹30 lakh per annum**
    - **SRB > 952: ₹20 lakh per annum**
  - The scheme started with 100 districts in 2014-15 and expanded to 640 **districts by 2018**. The scheme gives priority to those districts whose **CSR (Child Sex Ratio)** is lower than the national average (as per the 2011 census).
- **List Structure**:
  - **State Task Force (STF):** These task forces monitor the smooth implementation of the scheme at the state level. They are headed by the Chief Secretary of the State.

  - **District Task Force (DTF):** These task forces monitor all activities at the district level and ensure proper utilization of funds. They are headed by the District Collector or Deputy Commissioner.
  - **Block Level Committees**: These committees help in the functions of campaigning, intervention, and review.
  - **Target Group**: The BBBP scheme is targeted at **two levels** to address immediate and long-term social needs.
- **Primary Target Group**:
  - **Young men and married couples**: Newly married couples and pregnant couples are made aware of the importance of girls.
  - **Adolescents (Girls and Boys**): Programs are organized to empower adolescents for gender sensitivity and change.
  - **Family and Community**: Families and communities are involved to change mindsets and attitudes towards girls.
- **Secondary Target Groups**:
  - **Schools and Anganwadi Centres (AWCs):** These institutions play an important role in reaching out to girls and their families.
  - **Healthcare providers**: Medical professionals and private hospitals are important in preventing gender selective practices such as sex determination testing.
  - **Local Government Bodies**: Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs) are actively involved in local implementation.

Achievements of Beti Bachao Beti Padhao Scheme:

The success of the Beti Bachao Beti Padhao (BBBP) scheme can be seen as significant progress in reducing gender inequality, whose major achievements are the following:

- **Improvement in Sex Ratio at Birth (SRB): From** 918 girls **per 1,000** boys in 2014-15 to 933 in **2022-23** (Source: HMIS, MoHFW). This sustained increase reflects the impact of the scheme, which has been successful in raising awareness of gender selective practices.
- **Increase in Girls' Enrolment: The** Average Enrolment Rate (GER) of girls **increased from 75.51% in** 2014-15 to 79.4% in **2021-22** (Source: U-DISE Plus, MoE), which demonstrates the positive educational impact of the scheme.
- **Increase in Institutional Deliveries**: Institutional deliveries increased from 87% in 2014-15 to 94% in 2019-20, thereby ensuring safe deliveries and reducing maternal and infant mortality.
- **Success of Awareness Campaigns**: Targeted campaigns like 'Selfie with the Daughter' gained popularity across the country, which was succeeded through events like '**Beti Janmashtami' to celebrate the birth of daughters**.
- **Economic Empowerment of Women**: **BBBP in** association with the Ministry of Skill Development has promoted skill development and economic participation of girls and women. **Programmes like 'Khelo India'** helped in identifying and promoting sports talent among girls.

Benefits of Beti Bachao Beti Padhao Scheme:

- **Empowerment of Women and Girls**: The scheme has made a significant contribution in empowering women and girls, giving them better opportunities for education, healthcare, and personal growth. This scheme is trying to break the social barriers so that girls can lead an empowered life with equal opportunities.
- **Strengthening Legal and Social Framework**: The scheme has strengthened the legal and social framework to protect girls from gender-based violence, discrimination and exploitation. It promotes gender equality and is an important initiative to reduce harmful traditional practices such as female foeticide and child marriage.
- **Multi-sectoral Intervention and Collaboration**: The scheme has promoted multi-sectoral interventions to bring together various ministries and stakeholders to address issues related to the welfare of girls.
- **Financial Incentive (Sukanya Samriddhi Yojana):** Under BBBP, through Sukanya Samriddhi Yojana, financial incentives are provided to parents to create a fund for their daughter. This fund has been started with the objective of using the education of the girl child and her welfare works.

Sukanya Samriddhi Yojana (SSY)

- Sukanya Samriddhi Yojana (SSY) was launched by Prime Minister Narendra Modi on 22 January **2015** under the Beti Bachao Beti Padhao campaign.
- The objective of the scheme is to motivate parents to save for girls in the future for their education and marriage.

Salient Features

1. **Account opening eligibility**: This account can be opened for a girl child who is an Indian citizen and is below the age of 10 years at the time of opening the account.
2. **Minimum and Maximum Deposit**: The minimum deposit is ₹250 per year, while the maximum deposit can be made up to ₹1.5 lakh per year.
3. **Account maturity**: The account matures at 21 years, but if the girl gets married at the age of 18, the account can be closed early.
4. **Account Transfer**: This account can be transferred from one post office or bank to another post office or bank, providing convenience to account holders across the country.
5. **Tax-free interest**: The interest earned on deposits is tax-free, making the scheme especially beneficial for savings.
6. **Tax benefits**: Deposits made in the account are eligible for tax exemption under **Section 80-C** of the Income Tax Act.

Challenges of Beti Bachao Beti Padhao Scheme (BBBP):

The Beti Bachao Beti Padhao (BBBP) scheme has faced some significant challenges, which prevent its full impact:

- **Inadequate Utilization of Resources**: The biggest problem has been that the funds allocated for the scheme have not been used properly. **According to** audit reports, the state governments effectively **utilised only 23.48% (**₹155 crore) of the **budget of** ₹848 crore. This misallocation of funds became a major hindrance in the success of the scheme.
- **Increased focus on marketing**: The scheme faced criticism as the scheme focused mostly on advertising and publicity, while the main objective of the scheme was to directly address the problems of health and education of girls. **The Committee on Empowerment** of Women has expressed concern that funds have not been allocated properly for suitable sectors.
- **Challenges in Addressing Gender Discrimination in Education**: Although the scheme aimed to improve girls' education, irregular attendance in schools and high dropout rates remain a major challenge in this initiative. This is affecting the progress of the scheme in the education sector.
- **Disorganized Infrastructure in Schools**: The lack of clean, functional toilets for girls in schools has been a significant obstacle, as many schools do not have adequate sanitation facilities for girls. This hinders their participation and presence.
- **Gender Discrimination in Society**: Even after the implementation of BBBP, social practices such as gender discrimination, son preference, and gender-based violence continue to have an impact in many areas. This undermines the goals of the scheme.

4.6 Preliminary Examination

4.6.1. Combined District Information System (UDISE+) Report 2023-24

According to the Ministry of Education's (MoE) Combined District Information System for Education (UDISE+) report 2023-24, the total enrolment number of students in 2023-24 has decreased by over one crore compared to previous years.

Key Points of the Joint District Information System for Education (UDISE+) Report 2023-24:

1. **Decline in Enrolment**: A total of 8 crore students enrolled in the 2023-24 academic year as compared to 25.18 crore in 2022-23.
2. **More than 6% decline in enrolment rate**: There has been a decrease in the number of about 22 crore students as compared to 2018-19 .

TOTAL SCHOOL ENROLMENT

Year	Enrolment
2023-24	24.80 cr
2022-23	25.18 cr
2021-22	26.52 cr
2020-21	26.44 cr
2019-20	26.45 cr
2018-19	26.03 cr

Average total enrolment for 2018-19 to 2021-22 is 26.36 cr

3. **Decline on the basis of gender**:
   - **Boys:** 12.87 crore boys were enrolled in 2023-24 as compared to 53 crore boys in 2018-19, a decline of 4.87%.
   - **Girls:** 11.93 crore girls were enrolled in 2023-24 as compared to 49 crore girls in 2018-19, a decline of 4.48%.
4. **State-wise Decline**:
   - **65 lakh students fall in Bihar**
   - **Decline of 26 lakh students in Uttar Pradesh,**
   - **A decline of 55 lakh students in Maharashtra.**

Joint District Information System for Education (UDISE+) Report:

1. This system **has been developed by** the Department of School Education & Literacy (DOSEL) from the reference year of 2018-19.
2. **Data Uploading**:
   - Through this system it is possible to upload the data online at the school level.
   - The data is later verified at the block, district and state level.

3. **Significance**: This data serves as an important tool for monitoring and evaluating the quality of education from pre-primary to higher secondary level.

Challenges in India's Education System:

1. **Quality of Education**: There is a question mark on the quality of education due to outdated teaching methods and inadequate infrastructure.

2. **Urban-Rural Inequality**: There is a disparity in access to quality education between urban and rural areas.

3. **Rote Education System**: In education, there is more focus on rote learning, critical thinking and creativity are not fostered.

4. **High dropout rates**: Many students drop out of education due to financial difficulties, child marriage, and lack of interest.

5. **Lack of Infrastructure**: Schools in rural areas lack basic amenities such as classrooms, toilets, and electricity.

6. **Economic Deficit**: Public spending on education is insufficient, leading to a shortage of resources for schools and teachers.

7. **Heavy Syllabus**: The syllabus is excessively rigorous and over-filled, leaving less space for practical skills.

8. **Technological Integration**: Digital education is gaining momentum, but technology access in rural areas is limited.

9. **Access to Higher Education**: The quality of higher education has increased, but still the demand for quality higher education exceeds the supply.

Government Initiatives
1. **Right to Education (RTE) Act, 2009**
2. **Mid-Day Meal Scheme**
3. **Pradhan Mantri Jan Dhan Yojana (PMJDY)**
4. **National Scheme of Incentive to Girls for Secondary Education**
5. **Swachh Vidyalaya Abhiyan**
6. **Digital India Programme**
7. **Professional & Financial Assistance**
8. **New Education Policy 2020**

4.6.2.   Pradhan Mantri Fasal Bima Yojana (PMFBY)

The government has decided to continue Pradhan Mantri Fasal Bima Yojana (PMFBY) and revamped Weather Based Crop Insurance Scheme (RWBCIS). This decision has been taken to protect farmers and reduce their crop risk.

Key Modifications:

1. **Extension of the scheme**: With a budget of ₹69,515.71 crore by 2025-26.

2. **Large scale induction of technology**: Fund of ₹824.77 crore through Innovation and Technology Fund (FIAT).

3. **Funding for Technological Initiatives**: Utilization of funds for initiatives such as YES-TECH, WINDS, etc.

About Pradhan Mantri Fasal Bima Yojana (PMFBY):

1. **Launched**: Launched in 2016 by the Ministry of Agriculture and Farmers Welfare.

2. **Aim**:
   o To provide financial assistance to farmers on crop loss due to natural calamities, pests or diseases.
   o Stabilizing the income of farmers and motivating them to stay in farming.
   o To encourage farmers to adopt new and modern agricultural practices.
   o To ensure the flow of credit to the agriculture sector.

3. **Coverage**: All farmers, including stake farmers and tenant farmers, who grow the crops in the notified areas.

4. **Crops to be Covered**:
   - Food crops (cereals, millets and pulses)
   - Oilseeds & Annual Commercial/Oilseed Horticultural crops.
5. **Contribution of Centre and State**:
   - Due to the crucial role of states in the implementation of the scheme, the premium subsidy is shared in the ratio of 50:50 between the Centre and the state government.
   - For the north-eastern states, the ratio is fixed at 90:10.

About Innovation and Technology Fund (FIAT):

1. **Establishment**: The Innovation and Technology Fund (FIAT) has been set up for technology improvement in insurance schemes.
2. **Key Initiatives**:
   - **YES-TECH (Yield Estimation System):** This system estimates crop production using remote sensing.
   - **WINDS (Weather Information and Network Data System):** It promotes weather data through an automatic weather station.
3. **Fund size**: A corpus of ₹824.77 crore has been earmarked for FIAT.

Other Important Government Schemes

1. Kisan Credit Card (KCC) Scheme
2. Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)
3. Interest Subsidy Scheme
4. Farmer Development Loan (FDL)
5. Rashtriya Krishi Vikas Yojana (RKVY)
6. National Mission on Agricultural Extension and Technology (NMAET)
7. Credit Guarantee Fund Scheme (CGS)
8. Rural Infrastructure Development Fund (RIDF)
9. Kisan Loan Portal (KRP)

4.6.3. Revised birth and death certificates for transgenders

The Karnataka High Court has directed the Registrar of Births and Deaths of the Mangaluru City Corporation to issue revised birth and death certificates for transgenders.

Objectives of Revised Birth and Death Certificate for Transgender:

1. The revised certificates should show the person's current name and gender, as well as include a previous name and gender.
2. Implement the procedure for alteration of birth and death certificates for sex change till the Registration of Births and Deaths Act, 1969 is amended.

Transgender Persons (Protection of Rights) Act, 2019:

- The Act allows transgender persons to obtain an "identity certificate" (Section 6), and allows it to be modified after gender-reconstruction surgeries (Section 7).
- The Act mandates that the gender recorded on this certificate must appear in all official documents.
- It explicitly allows for the change of first name and gender in birth certificates and other identity documents based on this certificate.

2020 Rules and Procedures:

- **The Transgender Persons (Protection of Rights) Rules, 2020** lay down the procedure for obtaining this certificate.
- These rules also include a list of official documents that can be modified, with the "birth certificate" being the first place.

Case Background: Miss X vs State of Karnataka (2024):

- **Initial case:** Miss X was diagnosed with gender dysphoria and underwent penis-reconstruction surgery. She then changed her name to update her official documents according to her gender identity.
- **Update of documents:** Miss X successfully updated her Aadhaar card, driving license, and passport, but when she applied to change the name and gender on her birth certificate, she got rejected.

Rejection of Registration Officer:

- **Reason: The** Birth and Death Registration Officer of Mangalore rejected his application, on the grounds that **according to Section 15 of the "**Registration of Births and Deaths Act, 1969", a birth certificate can be

altered only if the information is "falsely" or "fraudulently or incorrectly" recorded.

Challenge in Karnataka High Court:

- **Petition:** The petitioner challenged the narrow interpretation of Section 15, arguing that it violates his "right to live with dignity" under Article 21 of the Constitution. He also said that inconsistent documents lead a "dichotomy life", which makes him a victim of harassment and discrimination.

Eligibility Criteria:

- **Gender Identification:** The person has to identify as transgender and file an affidavit with the District Magistrate (DM).
- **Changes after penis-reconstruction surgery: For this**, a medical certificate from the Chief Medical Officer or Medical Superintendent is required.

Process of Change:

1. **Application for Identity Certificate:**
   o Submit an affidavit to the District Magistrate (DM) declaring gender identity.
   o The identity certificate and transgender identity card will be issued by the DM within 30 days.
2. **Revised Identity Certificate after Surgery:**
   o Obtain a medical certificate from an accredited authority.
   o Apply for modification to the DM, which will be processed within 15 days.
3. **Updates in official documents:**
   o Submit the identity certificate to the concerned authorities for changes in documents such as Aadhaar, passport, or birth certificate.
   o The change must be implemented within 15 days of application.

4.6.4. Cashless Treatment Plan

The Ministry of Road Transport and Highways (MoRTH) has recently launched a nationwide cashless treatment initiative to provide necessary assistance to road accident victims.

Cashless Treatment Plan: An Introduction

Objective of the Scheme:

The cashless treatment scheme provides necessary medical assistance to road accident victims. If the accident is reported to the police within 24 hours, the government will bear the cost of treatment for up to 7 days. The initiative aims to ease the financial distress of the victims and their families.

Key Features of Cashless Treatment Plan:

1. **Cost of Treatment:**
   o Assistance of up to ₹1.5 lakh will be available for treatment for 7 days, provided the accident is reported to the police within 24 hours.
   o **In hit-and-run cases**: A compensation of ₹2 lakh will be given to the family of the deceased.
2. **Implementing Agency:**
   o The National Health Authority (NHA) will coordinate with the police, hospitals and state health agencies in implementing the scheme.
   o **The e-Detailed Accident Report (eDAR)** application will help NHA in the implementation of this scheme.
3. **Coverage:** The scheme will be applicable to all types of road accidents.

Need and Importance of Cashless Treatment Plan

1. **Status of Road Accidents:**
   o In the year 2024, 80 lakh people died due to road accidents.
   o Of these, 30,000 died due to not wearing helmets and 10,000 children died in and around educational institutions.

2. **Holistic coverage:** Applying this scheme to all road accident victims ensures inclusivity and increases the reach of life-saving measures.

3. **Effective Implementation:** Coordination among key stakeholders and the use of advanced IT systems improve access and reduce administrative delays.

4. **Financial assistance:** Covering compensation and treatment expenses in hit-and-run cases reduces the economic hardships of the victims and their families.

4.6.5. Ayushman Bharat Pradhan Mantri Jan Arogya Yojana

Odisha has become the 34th state/UT government to implement the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) by signing a Memorandum of

Understanding (MoU) with the National Health Authority (NHA). It has become a Union Territory.

Key Points:

1. **Expansion of Healthcare Services:** The landmark agreement between the Government of Odisha and the National Health Authority (NHA) aims to improve access to healthcare services for about **1.03 crore families** in the state.

2. **Integration of two schemes:** **The** Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) will be implemented along with **the Gopabandhu Jan Arogya Yojana (GJAY)** in Odisha.

3. **Population affected:** Around **4.5 crore residents of Odisha will be benefited under this scheme**.

4. **Improving Health Outcomes:** The objective of this coordination is to streamline health services and ensure better health outcomes for the people.

Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY):

- **PM-JAY** is the world's largest government-funded health insurance scheme, which was launched in 2018.

- It **provides a health cover of Rs 5 lakh** to each family, which is for secondary and tertiary care.

- The health benefits package includes **surgeries**, **medical treatments**, **day-care procedures**, **medications**, and **diagnostics**.

Beneficiaries:

- The scheme **is rights-based** and targets beneficiaries identified through **the Social-Economic Caste Survey (SECC).**

- States/UTs can use the family database with similar socio-economic profiles for incomplete SECC households.

Financing:

- The funding of this scheme is shared between the Centre and the State/Union Territories:

- **60:40** For states that have their own legislatures.

- **90:10 for** North-Eastern States, Jammu & Kashmir, Himachal Pradesh and Uttarakhand.

- **100%** Central funding for Union Territories that do not have a Legislative Assembly.

Nodal Agency:

- **The National Health Authority (NHA)** works as an autonomous body to implement the scheme

effectively, working closely with the state governments.

- **The State Health Agency (SHA)** is the apex body for the implementation of the scheme at the state level.

Achievements of Ayushman Bharat Pradhan Mantri Jan Arogya Yojana:

1. **Success in Remote Areas: The scheme** has achieved success in **Naxal-affected areas such as** Bastar **and** Bijapur, where the hospitalization rate has increased by **3%.**

2. **Better Healthcare for Cancer Patients: According to the** Lancet study, **cancer patients** have access to **33% more healthcare services** under **AB PM-JAY**.

3. **Total hospitalizations: A total of** 19 **crore hospitalizations have been done since the inception of the scheme**.

4. **Financial expenditure: An amount of** ₹1.13 **lakh crore has been spent** under this scheme, providing health services to the **underprivileged section**.

Medical treatments covered: More than 2,000 medical procedures **and 27** specialisations **are covered under** AB PM-JAY, including **major surgeries such as bypass surgery** and **knee replacement surgery**.

4.6.6.   Sex ratio at birth declines in Haryana

In 2024, Haryana recorded a worrying decline in the sex ratio at birth, reaching only 910 girls per 1,000 boys, the lowest level in the last eight years. The figure has alarmed social activists and civil society, while government officials have described it as a minor fluctuation.

- Sex ratio is an important indicator of the status of women and gender equality in society.

- At the national level, the sex ratio at birth in India was recorded at 929 according to the National Family Health Survey-5 (NFHS-5) published in 2021.

Decline in Sex Ratio at Birth in Haryana:

Status:

- **The sex ratio at birth in 2024** stood at 910, the lowest in 8 years compared to 923 in 2019 .
- **Of the total 5,16,402 children born in 2024**:
  - Boys: 52.35%
  - Girls: 47.64%

Recent Trends:

- **Sex Ratio in 2024:**
  - A total of 2,70,354 boys and 2,46,048 girls were born, bringing the sex ratio to 910.
  - **In 2023:** The sex ratio was 916.
  - **In 2019:** It had reached 923, the best in recent years.
- **Decline: The declining trend in sex ratio after** 2019 is a matter of concern.

Definition of Sex Ratio:

- **Sex ratio at birth:** Number of girls born per 1,000 boys.
- **Total sex ratio: The number of females per** 1,000 males in a population.

Reasons for the previous improvement:

1. **PNDT Act, 1994:**
   - Strict implementation to prevent foetal screening.
   - The awareness campaign contributed to the improvement between 2014-2019.

Sex Ratio at Birth in Haryana: Historical Perspective and Current Status:

Historical Perspective:

- **Sex ratio in 2014:** 871 in Haryana, which was alarmingly low.
- **Beginning of Reform:**
  - Widespread protests and efforts by the government and civil society made the issue a priority.
  - **'Beti Bachao Beti Padhao' campaign (2015):** Launched by Prime Minister Narendra Modi, aimed at preventing female foeticide and ensuring welfare of girls.

Reasons for the Recent Decline:

1. **Laxity in Law Enforcement:** Compliance with laws preventing female foeticide has weakened.

2. **Lack of change in mindset:** The thinking of giving equal importance to daughters is still not fully developed in society.

3. **Concept of 'boy only':** Due to receding lands, some families are now beginning to prefer only the boy.

Sex Ratio in India: Statistics and Analysis

Census 2011

- **Sex ratio at the national level:** 943 (949 in rural areas and 929 in urban areas).
- **Sex Ratio by Age Group:**
  - 0-19 Age Group: 908
  - 60+ Age Group: 1033
- **Economically active age group (15-59 years):** 944
- **Highest Sex Ratio in States:**
  - Kerala (1084)
  - Puducherry (1037)
- **Minimum Sex Ratio:**
  - Daman and Diu (618)
  - Dadra and Nagar Haveli (774)
  - Chandigarh (818)

National Family Health Survey 2021 (NFHS-5)

- **Sex ratio at birth:** 929
- **Sex ratio of total population of country:** 1020

4.6.7. Decline in fertility levels and increase in maternal mortality rate in Kerala

Kerala's maternal mortality rate (MMR) has been rising, currently reported to be 19 per one lakh live births, but the state health department estimates that it has reached 29.

Key Points of Increase in Maternal Mortality Rate (MMR) in Kerala:

- **Reason for the Increase in Mortality:** This increase is not due to the increase in the number of maternal deaths, but due to the low number of childbirths.
- **Decrease in Delivery Numbers:** The number of live births has come down from 5-5.5 lakh annually to 3.93 lakh, leading to an increase in MMR.
- **Impact of COVID-19:** In 2020-21, several deaths associated with COVID-19 infection were recorded in pregnant women.

Maternal Mortality Rate (MMR)

Definition: Maternal Mortality Rate (MMR) refers to the number of deaths of mothers due to complications related to pregnancy or childbirth per 1,00,000 live births.

Global and National Goals

1. **WHO's global target**: To reduce MMR to less than 70 per 1,00,000 live births by 2030 under the Sustainable Development Goals (SDGs).
2. **India's national goal: To bring** the MMR below 70 by 2030.
3. **Kerala's target: To reduce** the MMR to 20 by 2030.

Current Stats

- India's MMR: 97 (SRS 2018-20).
- Kerala's MMR: Only 19, which is significantly lower than the national average.

Total Fertility Rate (TFR)

- **Definition:** Total Fertility Rate (TFR) refers to the average number of children born by a woman during her reproductive period.
- **Status of TFR in India: According to the National Family Health Survey** (NFHS-5), India's TFR has declined to 2.0, which is lower than the replacement level of 2.1.
- **Sustainable Development Goals (SDGs) and Maternal Mortality (MMR) Targets**:
- **SDG Goal 1: Reduce** the global maternal mortality ratio (MMR) to less than 70 per 1,00,000 live births by 2030.
- **India's Progress:**
  o India's MMR currently stands at 97 per 1,00,000 live births, which is moving rapidly towards the SDG target.
  o From 2000 to 2020, the average annual reduction in India's MMR was 36%, which is higher than the global average decrease (2.07%).

Decline in Fertility Rate:

- **Fertility Rate Trends in Kerala:**
  o Kerala's fertility rate has been steadily declining for three decades.
  o **In** 1991, the fertility rate came down from the replacement level (2.1 children per woman) and stabilized at 1.7-1.8.
  o **In** 2020, the Total Fertility Rate (TFR) declined to 1.5 and currently stands at 1.46.
  o According to the TFR, couples in Kerala usually have one or no children.
  o The state is facing significant social consequences due to the decline in the birth rate.

- **Impact of Migration and Social Changes:**
  o **Migration:** Many young people from Kerala migrate to other places for jobs or education, which affects the fertility rate.
  o **Delayed marriage and childbearing** delay: Delayed marriage and childbearing are also a major cause of the decrease in birth rate.

Future Challenges:

- In the next decade, the elderly population in Kerala will exceed the number of children.
- This will raise serious concerns for care and well-being.

4.6.8. UGC Draft Regulations 2025

Recently, the Union Ministry of Education has released the draft UGC (**Minimum Qualifications) Regulations, 2025 based on the minimum qualifications for appointment and promotion of teachers and academic staff in universities and colleges and measures to maintain standards in higher education**.

UGC Draft Regulations 2025:

Appointment of Vice-Chancellor (VC)

- **Selection Process:**
  o **Selection by the Search--Selection** Committee, which will include:
    ▪ Nominees of the Chancellor/Visitor (Governors in most State Universities).
    ▪ UGC Chairperson.
    ▪ The highest body of the university (such as the Senate or Syndicate).
- **Eligibility Criteria:** Professionals related to academia, industry, public administration, or public policy will be eligible.
- **Tenure:** The tenure of the Vice-Chancellor will be 5 years, eligible for reappointment.

Recruitment and Promotion of Faculty:

- **Emphasis on "Distinguished Contributions":** Prioritizing contributions in 9 areas such as teaching innovation, sponsored research, teaching in Indian languages, and promotion of startups.
- **Career Advancement Scheme (CAS):** Promotion based on qualitative assessment rather than a score based system.

- **Indian Knowledge System (IKS):** Promotion of research and teaching in traditional knowledge and Indian languages.

Flexibility in faculty recruitment

- **Eligibility in various subjects:** Through NET/SET, candidates who have qualified in subjects other than UG/PG will be eligible.
- **PhD Priority:** More importance to PhD specialization.

Contractual Teachers: 10% limit removed, allowing recruitment of more contract teachers.

- **Inclusion and Representation:**
  - **Diversity in Recruitment: Promotion of participation of** SC/ST/OBC/EWS and persons with disabilities.
- **Transparency and Good Governance:**
  - **Recruitment Processes:** Ensure public notifications and systematic procedures.

Professor of Practice (PoP):

- **Participation of industry professionals:** Higher educational institutions (HEIs) can induct industry experts up to 10% of the total sanctioned positions.
- **Promotion of Research and Entrepreneurship:**
  - **Faculty Expectations:** Contributing to research labs, startups, and digital content creation (such as MOOCs).
- **Compliance and Penalties:**
  - **Consequences for non-compliance:**
  - Deprived of UGC funding and schemes.
  - Termination of recognition under Section 2(f) and 12B of the UGC Act.

About University Grants Commission (UGC):

- **Installation:**
  - **Established in 1956**: The University Grants Commission (UGC) was established in 1956 **as a statutory body**.
  - It was **constituted under the "University Grants Commission Act 1956"**.
- **Headquarters:** The head office of UGC is located in **New Delhi**.
- **Objective of UGC:**
  - Promoting and coordinating university education.
  - To set and maintain standards of teaching, examination and research.

- To make regulations on minimum standards of education.
- Monitor developments in college and university education and disburse grants.
- To advise the Central and State Governments on measures necessary for the improvement of university education.

4.6.9.   Obesity: a problem

The Lancet has emphasized on adopting better obesity measurement methods instead of Body Mass Index (BMI). This underscores the need for accurate assessments so that rising obesity rates can be effectively tackled.

Major Reforms Proposed in Diagnosis of Obesity:

Old Classification System:

- **Traditional Approach (Old System):**
  - Based only **on body mass index (BMI).**
  - A BMI **above 30** was considered obese.
  - This system **was simple but problematic**.

New Classification System:

1. **Two-tier system**: The new system divides obesity into two categories:
   - **Clinical obesity**.
   - **Pre-clinical obesity**.
2. **Clinical obesity:** takes into account not just physical measurements, but also effects on health, such as:
   - Heart disease.
   - Diabetes.
   - Joint problems.
   - Assesses the impact of excess weight on daily activities.
3. **Pre-Clinical Obesity:**
   - Identifies individuals who are at risk **before serious health problems**.
   - **Allows early intervention** and promotes a healthy lifestyle.

Obesity: An Introduction

What is obesity?

- Obesity is a condition caused by excessive body fat (adipose tissue) that can affect health.
- It is a chronic health problem that grows over time.

Causes of Obesity:

1. **Energy imbalance: An** imbalance between daily energy intake and expenditure, leading to excessive weight gain.

2. Genetic and Social Factors:
- o Obesity is a multifactorial disease involving genetic, cultural and social causes.
- o **Genetic influence:** Studies show that obesity is highly hereditary and many genes are associated with weight gain and fat accumulation.

3. Other Causes:
- o Decreased physical activity.
- o Insomnia and endocrine disorders.
- o Excessive intake of high-sugar foods and carbohydrates.
- o Certain medications and slow energy metabolism.

Health Effects:
1. Diseases:
- o **Heart disease** and **dyslipidemia**.
- o **Insulin resistance** and **diabetes**.
- o **Stroke**, **gallstones**, and **fatty liver**.
- o **Sleep apnea**, **hypoventilation syndrome**, and cancer.
2. **Mortality:** Obesity ranks second among the preventable causes of death after smoking.

4.6.10. Supreme Court's Verdict on Matrimonial Rights

Recently, the Supreme Court has clarified that proceedings relating to restitution of conjugal rights (Section 9, Hindu Marriage Act) and maintenance (Section 125, Code of Criminal Procedure) are independent and not linked to each other.

What are Matrimonial Rights?
1. **Definition:** Marital rights are rights arising out of marriage, which provide the spouse with the right to live (contiguously) with each other.
2. **Legal Recognition:**
   - o These rights are recognized in the following:
     - ▪ **Personal Law**: Relating to marriage, divorce, etc.
     - ▪ **Criminal Law**: The need to provide maintenance and alimony to spouses.
3. **Section 9 of the Hindu Marriage Act :**
   - o **Recognizes the right of association** (Consortium).
   - o Protects this right and allows any spouse to approach the court to enforce it.

Restitution of Conjugal Rights:
1. Meaning:
- o Restitution of conjugal rights means restoring pre-existing marital compatibility and obligations between the couple.
- o Its purpose is to maintain the sanctity of marriage and encourage living together.
2. Origin of Matrimonial Rights:
- o The concept is currently codified in Hindu personal law, but has its roots in colonial times and religious law.
- o Similar provisions exist in the Muslim Personal Law and **the Divorce Act**, 1869, **governing Christian Family Law**.
3. Legal Provisions:
- o **Hindu Marriage Act, 1955 (Section 9):** The aggrieved spouse can file a petition in the court if the other spouse has deserted their company without reasonable cause.
4. Role of the Court:
- o The court examines the veracity of the claims.
- o This ensures that there are no legal hurdles before issuing an order.

Legal Recognition of Conjugal Rights:
- **Codified in Personal Laws:** Marital rights are recognized in personal laws governing marriage and family relations.
- **Key Provisions:**
  - o **Hindu Marriage Act, 1955 (Section 9):** If one spouse withdraws from the other's company without reasonable cause, the other spouse can file a petition in court for restitution.
  - o **Muslim Personal Law:** Recognizes conjugal rights and allows petitions for restitution.
  - o **Christian Law (Divorce Act, 1869):** makes similar provisions for Christian marriages.
  - o **The Code of Criminal Procedure, 1973 (Section 125):** Provides for maintenance, thereby ensuring financial security to spouses who cannot support themselves, even if conjugal rights are not being fulfilled.

Important Judicial Cases:
1. Saroj Rani vs. Sudarshan Kumar Chadha (1984):
- o The Supreme Court upheld Section 9 of the Hindu Marriage Act .
- o It was said that this provision is helpful in preventing marital disharmony.

2. **Tripura High Court Judgment (2017):** It held that non-compliance with the order of restitution of conjugal rights does not automatically disqualify the wife from receiving maintenance.

3. **XYZ vs ABC (2023):** The Karnataka High Court held in this case that non-compliance with the order of restitution of conjugal rights by the wife can be a ground for divorce.

4.6.11. What is Anemia?

According to a recent study, anaemia in India can be caused not only by iron deficiency but also due to many other reasons. These include **factors such as vitamin B12 deficiency** and **air pollution**. This research is important towards understanding the broader causes of anemia and its diagnosis.

About Anaemia:

Anemia is a medical condition in which the level of red blood cells (RBCs) or hemoglobin in the body is lower than normal, leading to a decrease in the supply of oxygen to the body's tissues.

Major symptoms of anemia:

- Fatigue and weakness
- Pale skin
- Breathlessness
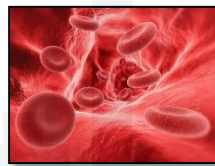
Types of Anaemia:

1. **Iron-Deficiency Anaemia:**
   o It occurs when the body does not have enough iron needed to make hemoglobin.
   o **The cause:** poor diet, bleeding, or problems with iron absorption.
2. Vitamin-deficiency anaemia: It is caused by a deficiency of vitamin B12 or folate in the body, which are essential for RBC production.
3. **Aplastic anaemia:** This occurs when the bone marrow can't produce enough RBC.
4. **Sickle** cell anaemia: This is a genetic disorder in which the RBCs become abnormally shaped, which can lead to obstruction of blood flow and decreased oxygen supply.
5. **Hemolytic anaemia:** It is caused by the premature breakdown of RBCs.
6. **Thalassemia :** This is a genetic disorder in which abnormal hemoglobin is produced.
7. **Anaemia of Chronic Disease:** It is related to chronic diseases like cancer, kidney disease.

Problem of Anaemia in India:

The problem of anemia is increasing seriously in India. According to the National Family Health Survey (NFHS-5, 2019-21):

- **Among women aged 15-49 years:** 57%
- **Children 6-59 months:** 67%
- **Among adolescent girls 15-19 years:** 59%
- **Among teenage boys aged 15-19 years:** 31%

Reasons for the rise in anaemia in India
1. **Nutritional Deficiencies:** o Deficiency of vitamin B12, folate and other erythropoietic nutrients. o Erythropoietic nutrients are the essential elements that help in hemoglobin synthesis and the formation of red blood cells.
2. **Environmental factors:** Air pollution and unhygienic environment aggravate the problem of anaemia.
3. **Blood Collection Methods:** Capillary blood samples used in NFHS can exaggerate the prevalence of anaemia due to exposure to body fluids.
4. **Dietary habits:** Inadequate dietary diversity limits the absorption of nutrients, leading to the problem of anemia.

4.6.12. Recommendation for inclusion in SC, ST and OBC list

The Anthropological Survey of India (AnSI) in collaboration with Tribal Research Institutes (TRIs) has conducted a comprehensive study on 268 denotified, semi-nomadic and nomadic tribes. It aims to classify groups that were not recognised by earlier committees.

Key Points of the Report:

- **Inclusion Recommendations:**
  o 179 communities were recommended to be included in the SC (29), ST (10), and OBC (46) categories.
  o Of these, 85 are new communities, and Uttar Pradesh has the highest recommendation of 19 communities.

- **Classification:**
  o Classification of nine communities was improved.
  o Sixty-three communities (20%) were deemed "untraceable" due to inclusion or migration.
- **Study Studies:** The study was conducted in Odisha, Gujarat and Arunachal Pradesh, with three months of field studies, resource identification, and counselling on each community.
- **Awaiting Approval:** It requires proposals from the State/UT Governments, followed by approvals from the Registrar General of India and the respective National Commissions.

Provision for SC, ST, and OBC lists

- **Role of Central Government:** The central government enacts a law to include or exclude communities from the SC, ST, and OBC lists.
- **Role of State Governments:**
  o The State/UT Governments identify and recommend for inclusion of communities.
  o These governments also have to evaluate the socio-economic status of the communities.
    o States can also maintain a list of their OBC communities.

Importance of Lists:

- **Social Justice:**
  o Provides targeted benefits such as education, employment and welfare schemes.
  o Reduces the historical losses suffered by marginalized communities.
- **Cultural Recognition:**
  o Recognizes and preserves unique cultural identities.
  o Ensures representation in decision-making processes.
- **Economic Advancement:** Increases access to opportunities, thereby improving the socio-economic status.

Possible Impact on Policy:

- **Re-Fixation of Quota System:** The inclusion of these communities can lead to a change in the caste-based reservation system, which will affect education, employment, and welfare programs.
- **Complexity of governance:** The Ministry of Social Justice is reviewing the recommendations, and the

final approval is yet to be received from the NITI Aayog.

Challenges:

- **Ambiguity in Classification:** Many communities are indeterminately or partially classified in the state and central lists.
- **"Can't be found" communities:** 63 communities could not be relocated, indicating differences in historical records or migration patterns.
- **Administrative Complexity:** Multi-level clearance processes cause delays in implementation.
- **Demand for Separate Quotations:** There is a demand to create separate categories for DNTs, NTs, and SNTs to address their special challenges.

4.6.13. National Conference on Tribal Health 2025

The National Tribal Health Conference 2025 was organized at Bharat Mandapam, New Delhi. The event was organized by the Ministry of Tribal Affairs (MoTA) and the Ministry of Health and Family Welfare (MoH&FW) under the **Dharti Aba Tribal Village Utkarsh Abhiyan**.

Objectives of National Tribal Health Conference:

1. **Discussion on Healthcare Delivery Models:** Exploring and deliberating on innovative healthcare models **for tribal areas**.
2. **Primary Areas of Policy Intervention and Research:** Identification of priority areas **for policy formulation and research**.
3. **Culturally Appropriate Health Strategies:** Development of culturally adaptive strategies **to increase health awareness and service utilization**.
4. **Strengthening the Health System:** Strengthening health systems through capacity building, community participation, and monitoring mechanisms.
5. **Formulation of Comprehensive Action Plan:** To **prepare a** comprehensive action plan **to improve the accessibility and outcomes of health services in tribal areas**.

Major Initiatives and Initiatives in Tribal Health

The Union Ministry of Tribal Affairs (MoTA) in collaboration with the Ministry of Health and Family Welfare (MoH&fw), AIIMS, and other partners has launched several important initiatives to strengthen tribal health:

1. **Bhagwan Birsa Munda Chair of Tribal Health and Haematology:** Established at AIIMS Delhi, this Chair aims to provide a multidisciplinary platform for research and data collection on tribal health.

2. **Centre of Competence (CoC):**
   o 15 Centres of Competency **(CoCs) have been approved in 14 states**.
   o The main objective of these centres is to ensure advanced and prenatal diagnosis of Sick Cell Anaemia, which is a common genetic problem among tribal communities.

3. **Collaborative Approach:** MoTA has collaborated with MoH&FW, MoAYUSH, MoWCD, NHM, AIIMS, CoCs, ICMR, UN agencies, NGOs, and State Tribal Welfare Departments to provide effective health services.

Tribal Communities in India: Tradition, Status and Population:

1. **Characteristics of Tribal Communities:**
   o Tribal communities have their own **rich traditions, culture and heritage**.
   o Their lifestyle and customs are unique.
   o Tribal groups are usually **geographically isolated** and are **equal and self-sufficient**.

2. **Tribal Status in India:**
   o Tribal groups are considered to be one of the oldest anthropogenic groups in India.
   o These are often referred to as "tribals" (natives).
   o The term "aboriginals" is internationally recognized, and the International Labour Organization (ILO) classifies **them as "indigenous"**.
   o India has the **second largest tribal population** in the world, comprising about **100 million tribals**.
   o **Population Figures: According** to the 2011 Census, 8.9% of India's total population is comprised of tribal communities.

3. **Geographical Distribution:**
   o **Tribal groups in the north-eastern states** have distinct ethnicities, and they remain more isolated from the mainstream.
   o **More than 80%** of tribal communities reside in the central and southern region, where they have greater contact with non-tribal communities.

Challenges Faced by Tribal Communities:

1. **Preservation of Cultural Heritage: Maintaining** your **culture, traditions and language** is a major challenge.
2. **Economic and Social Inequalities:** Poverty, lack of health services, and limited access to education further complicate the situation of tribal communities.
3. **Protecting Rights and Resources: Securing rights over land and natural resources** is a significant problem.
4. **Employment and Livelihood Problems:** Unemployment and **lack of modern skills training** add to economic hardships.
5. **Discrimination and Lack of Participation in the Decision Process:** Social **discrimination** and lack of representation **in policy making** weaken their position.
6. **Depletion of Traditional Knowledge and Resources:** Due to modernization, the **traditional knowledge and resources** of tribal communities are gradually being depleted.

GS FOUNDATION *For*

UPSC & STATE PSC

IF ANYONE INTRESTED IN ONLY

ECONOMY

FEE ₹~~2000/-~~ ₹**1499/-**

- ✓ DAILY LIVE CLASSES
- ✓ WEEKLY TEST
- ✓ CLASSES PDF (HINDI+ENGLISH)
- ✓ LIVE DOUBT SESSIONS
- ✓ DAILY PRACTICE PROBLEM

COURSE VALIDITY 1 YEAR

5 Internal Security

5.1. Decision to celebrate the year 2025 as 'Year of Reform'

Context:

Recently, the Ministry of Defence has decided to observe the year 2025 as the **'Year of Reforms' to transform the armed forces capable of multi-zonal integrated operations into a technologically advanced and combat-ready force**.

The year 2024 is being observed as the 'Technology Absorption Year', which focuses on assimilating the technological innovations of the military.

Reforms Identified Areas in 2025:

- **Rationalization and Integration:**
  - Promote cooperation among the military services and facilitate the establishment of **Integrated Theatre Command (ITC).**
  - Development of a shared understanding of operational requirements and joint operational capabilities through inter-service cooperation and training.
  - Coordination and strategic training of various Commands based at Thiruvananthapuram, Jaipur and Lucknow.
- **Emerging Technologies:**
  - Focusing on new areas such as cyber and space.
  - **Inclusion of emerging technologies such as artificial intelligence, machine learning, hypersonics, and robotics.**
  - **Development of allied strategies**, techniques and procedures for future wars.
- **Acquisitions and Defence Exports:**
  - **Promote technology transfer and public-private partnerships.**
  - **Establish India as a major defence exporter.**
  - **Growth in** defence exports, which have increased from Rs 2,000 crore in 2014 to Rs 21,000 crore.
- **Veteran Welfare and Indigenous Culture:**
  - Ensuring the welfare of **the elderly by leveraging their expertise**.
  - To promote pride and confidence in Indian culture to reach global standards **through indigenous capabilities**.

Direction of Improvement in India's Defence Position:

- **Importer to Exporter:**
  - India has now gone from **being the world's largest arms importer** to a major defence exporter.
  - Defence exports reached Rs 210.83 billion in 2023-24, and are planned to achieve a target of Rs 500 billion by 2028-29.
- **Improving Defence Acquisition: The Defence Acquisition Process (DAP)** aims to give priority to the domestic industry and increase the share of indigenous content.
- **Private Sector Participation:** Private companies **in India** now contribute 20% to defence production, such as **the Tata Aircraft Complex**, which is the first private sector factory for military aircraft.

Goldwater-Nichols Reforms in the US:

- **The Goldwater-Nichols** Defense Reorganization Act, 1986 reorganized the U.S. Department of Defense and introduced a number of reforms to make **joint military operations** effective.
- These reforms **were meant to create better synergy between** the constitution and strategy and to promote **the cooperation of the troops**.

Need for reforms in defence forces

1. **Lack of National Security Strategy (NSS):** It creates a gap between political and military operations, leading to a shortfall in dealing with emerging threats such as China and Pakistan.

2. **Cyber Warfare:** Cyberspace warfare has **given rise to** new threats, as seen from the **Ukraine-Russia** cyber war.

3. **Dependence on Imports:** India is still **an arms importer**, while the slow pace of indigenisation and lack of competition in the domestic defence industry are hampering self-reliance.

4.	**Cultural Resistance to Jointness: Resistance to the** integrated model is arising due to the autonomy of the military.

5.	**Inadequate Financing: Despite the** allocation **in the defence sector** being adequate, it is inadequate for the development of technology and infrastructure.

India's Initiative: Reforms in Defence Forces

1.	**Corporatisation of Defence Industrial Corridors and Ordnance Factory Boards.**
2.	**Innovations like Defence India Startup Challenge** and **Srijan Portal** .
3.	**Initiatives like Innovations for Defence Excellence (iDEX)** and **Mission Defence Gyan Shakti**.

Way Forward

1. **Institutional Reforms: There is a need to clarify the responsibility distribution even after the establishment of** the CDS (**Chief of Defence Staff) and** DMA (**Department of Military Affairs).**

2. **Integration of Technologies: Advances in autonomous systems, cyber warfare, and** AI will give India an advantage in potential conflicts with **China and Pakistan**.

3. **Boosting Domestic Defence Industry: Fostering public-private partnerships** and **foreign collaborations** .

4. **Boost Defence Cooperation: Collaborations such as** the India-US iCET **will promote strategic autonomy** and security.

5. **National Defence University (NDU):** India should **prioritize the establishment of** NDUs **for advanced training and research in** defence strategies **and** technologies.

Thus, the **reform year 2025** aims to empower the Indian defence forces from **a technological and strategic perspective** to meet the challenges of the future.

5.2.   Suicides of CAPF personnel

Context:

The Central Industrial Security Force (CISF) has effectively reduced its suicide rate by 40%. There were 25 suicides in 2023, which has come down to 15 in 2024. This number is quite significant in terms of the statistics of suicides from **2018 to** 2022 as per the data of the Ministry of Home Affairs (MHA). During this period, **654 Central Armed Police Forces (CAPF)** personnel committed suicide, with the highest **number of suicides recorded in** the CRPF (230), **followed by** the BSF (174), and the CISF **(**89).

TOTAL DEATHS BY SUICIDE IN THE CAPFs

Source: March 2023 report of the Parliamentary Standing Committee on Home Affairs

- **According to the National Crime Records Bureau (**NCRB), the national suicide rate in 2022 was 12.4 per lakh.

Causes of Suicide:

The major reasons for the incidence of suicides among CAPF personnel are as follows:

- **Stressful Deployment**
  - Jawans **are deployed in Naxal-affected areas and conflict zones such as** Jammu and Kashmir, where they **work for long hours without adequate leave**.
  - **The lack of** peace posting, i.e. the absence of deployment in a peaceful and safe environment, increases mental fatigue. This situation further increases the pressure of work.
- **Family separation**
  - Prolonged separation from family increases **emotional stress** and makes it harder to resolve family issues.
  - More than 80% of soldiers who die by suicide are reported when they **have returned home on leave**.
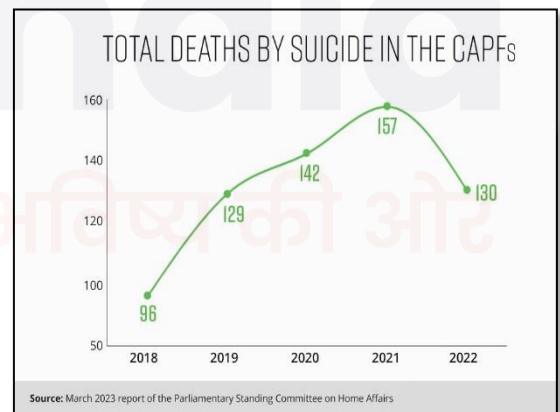
- **Mental Health Challenges**
  - **Getting psychological help** is **stigmatized** in many cases, and young people avoid sharing it.
  - Female soldiers are less likely to attempt suicide than male counterparts because men shy away from sharing their problems for fear of being ridiculed by their peers.
  - CAPF personnel are **often not seen at par with** the armed forces, which leads to discouragement **among them**.
- **Career Progression Related Issues**
  - Promotion opportunities in **CAPFs** are limited and at times, jawans have to serve for **10** years **in the same post**.
  - Higher posts **are reserved only for IPS** officers, which increases frustration and mental stress among the jawans.
- **Dissatisfaction with the job:**
  - The families of army personnel **get army hospital** and canteen facilities, while the families of CAPF personnel do not have access to these facilities.
  - The CAPF jawans **get paid under the New Pension Scheme (**NPS), while the armed forces personnel receive higher payments under the Old Pension Scheme (OPS).
  - **Having easy access to firearms** increases the risk of impulsive actions in times of crisis.

Why is the suicide rate high in the CRPF?

The suicide rate in the CRPF has been high, and there are some specific reasons behind it:

- **Statistics:** In 2018 , there were 36 suicides in the CRPF, which increased to 40 in 2019, 54 in 2020, and 57 in 2021 . In 2022, the number was reduced to 43.
- **Excessive dependence on CRPF**
  - There is a lack of resources and training in the state police forces, due to which the CRPF has to work under **immense pressure**.
  - The CRPF **is also tasked with maintaining order on huge events** such as **Ganesh Chaturthi** and **Rath Yatra** besides ensuring **free and fair elections**.
  - Due to this , the workload of CRPF personnel increases and opportunities for rest are reduced, leading to mental exhaustion and stress.

In view of all these factors, **several initiatives are being taken by the government to reduce the suicide rate among** CAPF personnel, including **mental health support**, **promotion opportunities**, **balancing workload**, and **family-based support**.

About Central Armed Police Forces (CAPFs)
The Central Armed Police Forces (CAPFs) function under the **Ministry of** Home Affairs, Government of India and contribute to **various security, law and order** related tasks. The objective of these forces is to **ensure internal security** of the country. Each CAPF has a specific scope and role, which deals with the defence of various territories and borders of India.

Major CAPFs and their Establishment and Objectives

Assam Rifles (AR)
o **Establishment**: 1835, as 'Cachar Levy' .   o **Objective**: Counter-terrorism operations in North-East India, security of Indo-China and Indo-Myanmar borders.   o **Important Role**: Indo-China War 1962, Indian Peace Keeping Force (IPKF) 1987 for Sri Lanka.   o **Speciality**: Associated with tribal areas, known as the 'Friend of the North East'.

Border Security Force (BSF)

- o **Establishment**: 1965
- o **Objective**: Securing the land borders with Pakistan and Bangladesh, preventing infiltration in the Kashmir Valley, insurgency in the north-eastern regions and anti-Naxal operations in Odisha-Chhattisgarh.
- o **Specialty**: BSF is India's first Line of Defence and the world's largest border guarding force. It includes Air Wing, Marine Wing, Artillery Regiment and Commandos.

Central Reserve Police Force (CRPF)

- o **Establishment**: 1939, Pre-Independence (Crown Representative's Police).
- o **Objective**: Crowd Control, Riot Control, Counter Militancy and Insurgency Operations.
- o **Speciality**: CRPF is the premier central police force for internal security.

Indo-Tibetan Border Police (ITBP)

- o **Establishment**: 1962
- o **Objective**: Guarding of the India-China border, deployment along the 3488 km long border.
- o **Specialty**: Mountain Military Force, First Response Force to Natural Disasters.

National Security Guard (NSG)

- o **Establishment**: 1984 (came into existence in 1986).
- o **Objective**: task-based forces for anti-terrorist operations, special operations.
- o **Specialty**: Two major branches - Special Action Group (SAG) and Special Ranger Group (SRG).

Sashastra Seema Bal (SSB)

- o **Establishment**: 1963
- o **Objective**: Protect Indo-Nepal and Indo-Bhutan borders, curb cross-border crimes, prevent smuggling and unauthorized entry.

Central Industrial Security Force (CISF)

- o **Establishment**: 1968, under the Central Industrial Security Force Act.
- o **Objective**: Protection of critical infrastructure and industrial installations.
- o **Specialty**: CISF is the only CAPF to have exclusive fire fighting capabilities.

These **CAPFs have a wide range of jurisdiction** and are engaged in **a wide range of security, control**, and defence operations ranging from border guarding **to terrorism, insurgency, industrial security, and natural calamities**. Management is involved. The objective of these forces is to ensure the internal security of the country and provide security to the citizens.

Suicide Rate in CAPFs and Steps Taken for Prevention:

The increasing rate of suicides in the Central Armed Police Forces (CAPFs) is a serious issue. Several steps have been taken by the government to address this problem, including mental health support, workplace improvement, and schemes to deal with personal problems.

Suicide Prevention Measures in CAPFs:

1. **Formation of Task Force:**
   - In December 2021, the Ministry of Home Affairs constituted a task force to study suicide cases in CAPFs and identify prevention measures.
   - This task force identified three main risk factors:
     - **Work Conditions**, **Service Conditions**, **Personal/Private Issues**
2. **E-Leisure System**
   - CRPF launched a mobile app, which facilitates personnel to apply for leave expeditiously.
   - The approval of leave is given through the e-Vacation portal, making the process simple and quick.
3. **Mental Health Support**
   - The CRPF appointed mental health counsellors for the mental and emotional well-being of its jawans.
   - **Under the "**partner" system, colleagues are appointed to monitor and assist each other, which helps in recognising the early signs of mental health problems.
   - **CISF** has launched the Mental Health Championship programme, which is helpful in identifying early signs of mental health problems.
   - **Through Project Mana** , CISF has provided 24/7 tele-consultation and personal sessions.
4. **Family-Centric Interventions:** To deal with mental health problems and depression, family members are allowed to stay with the affected individuals, to get emotional support.

Way Forward

1. **Workload Management:** Ensuring that personnel are deployed periodically in a peaceful, non-hostile environment, thereby reducing tensions.
2. **Training to Effectively Deal with Legal Enforcement Crises:** To train state police forces and increase manpower, so that there is no excessive pressure on CRPF and other CAPFs.
3. **Increased Job Satisfaction: Improving promotion opportunities within** the CAPFs and ensuring that senior positions are not reserved only for IPS officers, providing opportunities for advancement to personnel.
4. **Family Support Program:** Providing family members with more opportunities to stay with personnel and meet with them during work, thereby reducing family stress.
5. **Policy Support:** Existing policies related to mental health care, leave system, and career progression to make CAPF personnel more flexible to address specific challenges.
6. **Skill Development:** After retirement, CAPF personnel should be taught new skills, such as beekeeping or mushroom farming, through diverse training programs to lead a respectable life.

Through these measures, the government is making continuous efforts to reduce the suicide rate in CAPFs, so that the personnel of these forces can get better support in terms of mental health, family and career.

5.3   Z-Morh Tunnel

Context:

Prime Minister Narendra Modi inaugurated the crucial Z-Morh Tunnel in Jammu and Kashmir on January **13, 2025**. This important infrastructure project has been built with the objective of providing round-the-year connectivity to the beautiful hill station of Sonamarg. The tunnel will not only facilitate the movement of people and goods but will also boost the local economy and tourism.
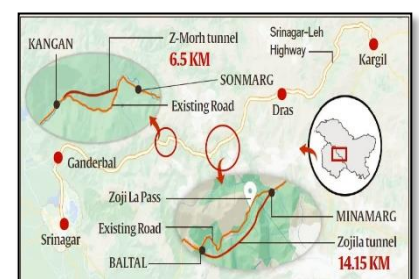
Introduction to Z-Morh Tunnel:

The Z-Morh Tunnel is a significant infrastructure project located at Gagangir **in the Ganderbal** district **of Jammu and Kashmir**.

- The tunnel **is 6.5 kilometres** long and **is built as a** 2-lane road tunnel connecting Gagangir and Sonamarg.
- The name of this tunnel is derived from the Z-shaped bend that it calls the bypass.
- This tunnel provides all-weather connectivity to Sonamarg.
- The journey through this tunnel **will be only 15 minutes**.
- The new Austrian Tunnel Construction Method (**NATM) has been used for** the construction of the Z Diversion **Tunnel**.

New Austrian Tunnel Construction Method (NATM)

- The new Austrian tunnel construction method (NATM), **also known as the sequential excavation method (**SEM), revolutionized tunnel construction in the modern era.
- It was first introduced in Austria in the **1960s**.
- Experts such as Ledislaus von Rabcevic**, Leopold Müller, and Franz Pacher contributed to the development of this method**.

Key features

- **Utilizing the Strength of Natural Rock:** The main objective of NATM is to make the tunnel stable using the natural strength of the surrounding rock. This reduces the need for heavy structural reinforcement.
- **Economy and efficiency:** This method makes construction more efficient and cost-effective, especially in difficult terrains such as karst structures.
- **Security and Surveillance:** Geotechnical tools are used for continuous monitoring of the ground situation in NATM. This method **is based on the principle of** "Design as you monitor", in which the necessary changes can be made in accordance with the ground conditions in real time.

Key Principles

- Using the natural power of rock as a primary support.
- A layer of shotcrete **is applied** immediately after excavation, to reduce the deformation of the rock.
- Rock bolts, wire meshes, and steel ribs **are used to reinforce the rock**.
- Tunnel and ground-mounted instruments measure deformation, allowing changes to be made as needed.

Features of Z-Morh Tunnel:

- **Altitude: The Jade Morh tunnel** is located at an altitude of **8,652 feet** above sea level, making it a significant infrastructure built at an altitude.
- **Cost:** The total cost of the construction of this tunnel **is estimated to be around ₹2,680 crore**.
- **Main Tunnel:** The main tunnel of the Z Morh tunnel **is 6.5 km** long and **10 meters** wide. This tunnel reduces the travel time to a great extent.
- **Auxiliary Security Tunnel:** The system also includes **a parallel security tunnel of 6.426 km** long and **7.5 m** wide. This tunnel is designed for use in emergencies, such as an accident or in the event of a tunnel collapse.
- **Ventilation tunnel:** A 0.6 km long and 8.3 m wide ventilation tunnel has been built to maintain air quality in the tunnel. This tunnel is helpful in keeping the air inside clean and safe.
- **Roads:** The Z Morh tunnel **has been connected to the** NH-1 highway through 6.05 km of approach roads. These roads ensure smooth and seamless connectivity to the tunnel entrance.
- **Vehicular capacity:** This tunnel is designed to handle traffic of **1,000** vehicles per hour. The maximum permissible speed limit for vehicles in the tunnel is **80 kmph**.

- **Western Portal:** The western entrance of the tunnel is located towards Srinagar, followed by Gagangir at Rezan village. This gateway is the starting point for vehicles entering the tunnel from the Srinagar side.
- **Eastern Portal:** The eastern entrance of the tunnel is located at Shetkari village in the direction of Sonamarg. This portal provides connectivity to the entry and surrounding infrastructure for travelers heading towards Sonamarg.

Commencement and Development of Jade Morh Tunnel Project:

- The Z Morh Tunnel project was first conceptualised **by the Border Roads Organisation (**BRO) **in 2012**. The project was entrusted to Tunnelway Limited under the public-private partnership (PPP) model. It was to be implemented in **DFBOT** (Design, Build, Finance, Operate and Transfer) mode.
- By July **2018,** the project work was halted due to financial problems. Subsequently, **the National Highways and Infrastructure Development Corporation Limited (NHIDCL)** took over the responsibility of the project.
- The project **was initially planned to be completed by** August 2023, but was delayed several times due to various challenges.
- The tunnel **was** partially inaugurated **in February** 2024, but the official inauguration was postponed due to the model code of conduct applicable for the Jammu and Kashmir assembly elections.
- The tunnel was eventually opened to the public in January 2025.

Why is there a need for a Z Morh tunnel in Jammu and Kashmir?

- **Harsh weather conditions:** The road on which the Z Morh tunnel is being built is located at an altitude of 8,500 feet above sea level. These high altitude areas are highly vulnerable to harsh weather conditions such as heavy snowfall and avalanches in winter.
- **Seasonal Road Closures:** Due to frequent avalanches and snowfall, the road leading to Sonamarg remains closed for most of the winter. Connectivity is severely affected by this seasonal lockdown, making it extremely difficult for local residents and tourists to reach Sonamarg and nearby areas.

Strategic Importance of Z Morh Tunnel for India's Defence:

- **Improving Strategic Connectivity:** The Z-Morh tunnel plays an important role in strengthening India's strategic connectivity. The tunnel ensures unhindered travel in key areas like Srinagar, Drass, Kargil and Leh, which are critical to Indian defence.
- **Part of the Zojila Tunnel Project:** The Jade Morh Tunnel is an important part of the Zojila Tunnel Project. The project is aimed at keeping the Srinagar-Leh route operational throughout the year. Through this, infrastructure can be strengthened in sensitive border areas like Siachen Glacier, Turtuk and Eastern Ladakh, where the Indian Army is deployed. The project not only ensures seamless transportation but also provides logistical and strategic advantages in these areas.
- **Military Logistics and Cost Improvements:** Aircraft were previously used to transport troops and essential supplies to these forward areas. After the construction of the Z-Morh tunnel, this work will now be possible by road. This will not only reduce transportation costs but will also reduce the need for repeated use of aircraft, which will increase their lifespan. The construction of

Advantages of Jade Diversion Tunnel
- **Reduction in travel distance:** The Z Morh tunnel will reduce the distance between Gagangir and Sonamarg from 12 km to just 6.5 km. This will save time for passengers and make travel more convenient. Also, no toll tax will be charged on using the tunnel.
- **Better Traffic Management:** Intelligent Traffic Management System (ITMS) has been installed in the tunnel, which will efficiently control the flow of traffic. This system will help in reducing the problem of congestion especially during the peak season of tourism.
- **Boost to Tourism and Regional Development:** The completion of the Z Morh tunnel will ease access to popular tourist destinations like Sonamarg, thereby boosting tourism in the region. The tunnel will encourage activities like white-water rafting on the Sindh River and the Thajiawas Glacier. This will benefit local businesses and accelerate social and economic development across the region.

the tunnel ensures that military personnel and supplies can be transported efficiently through the road.

5.4   Nag MK-2 missile

Context:

Recently, the Defence Research and Development Organisation (DRDO)   successfully conducted field evaluation trials of the indigenous **anti-tank guided missile** "Nag MK2" at Pokhran Field Range in Rajasthan.

Introduction of Nag MK-2 Missile

The Nag MK-2 missile is a third-generation **fire-and-forget anti-tank guided missile (ATGM).** It is an upgraded version of the predecessor **land-based NAG missile**.


- The missile **is part of the** Integrated Guided Missile Development Programme, which is led by **DRDO**.
- This upgraded model has a **jet-vane control system** taken from the Helina version, which enhances its **maneuverability**.
- It has **been manufactured by Bharat Dynamics Limited (BDL).**
- **In successfully testing the NAG MK-2**, it was tested three times at both maximum and minimum ranges, and destroyed all scheduled targets with complete accuracy.
- This success demonstrates its **accuracy** and effectiveness.

IGMDP (Integrated Guided Missile Development Program)

- **The Integrated Guided Missile Development Programme (IGMDP)** was conceived **by** Dr. APJ Abdul Kalam to help India become self-reliant in missile technology.
- This program **was approved by the Indian government in 1983**.

Development of IGMDP

- **1983-84**: Creation of infrastructure and training of scientific talent.
- **1984-89**: Development of **Prithvi** and **Trishul** missiles.
- **1989-92**: Mastered the **Nag** anti-tank and sky surface-to-air missiles.
- **1992-2008**: Mature **Agni ballistic missiles** proved the success of the program.
- The programme **was successfully completed in March 2012**.
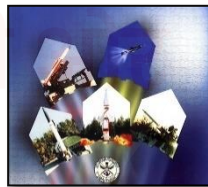
Under this program, 5 major missiles were developed

1. **Prithvi**: A **short-range surface-to-surface** ballistic missile designed to rapidly attack enemy targets.

2. **Agni**: A series of ballistic missiles, which **have different** ranges, such as **Agni 1, 2, 3, 4 and 5**, which are made for strategic defense.

3. **Trishul**: A **short-range surface-to-air** missile that protects against incoming air attacks at low altitudes.

4. **Nag**: A **third-generation anti-tank missile**, capable of destroying enemy armored vehicles with high accuracy.

5. **Akash**: A **medium-range surface-to-air** missile that provides protection against internecine aerial attacks.

Features of Nag MK-2 Missile

- **Range and accuracy**: The estimated range of the NAG MK-2 is between 7 and 10 kilometers.
  - It is capable of hitting targets **ranging from 500** meters to **4 kilometers** away.
  - The missile **hits its target at a speed of 230** meters per second, and **destroys the target in 17** to 18 seconds from a distance of 4 kilometers.
  - The earlier version **Nag MK1** had a range of only 4 km.
- **Effectiveness**: The missile is fitted with **a tandem high-explosive anti-tank (HEAT)** warhead, which is capable of destroying modern armoured vehicles.
  - Its **top-attack capability** makes it even more effective by targeting the weakest part of the enemy's tanks.
  - The missile **is also capable of destroying Explosive Reactive Armour (ERA)** and other modern defence systems.
- **Launch Platform**: This missile **is launched from** NAMICA (Nag Missile Carrier), which is a strong and maneuverable platform.
- **All-weather Efficient**: The NAG MK2 **is** a lock-on-after-launch system, designed to function in all weather. It can work both day and night.
  - A **helicopter-launched version** called **Helina** (or **Dhruvastra**)
  - A **Human-Flowing Version** (MPATGM)

Features of Nag Missile

- **Weight**: The Nag missile weighs **42 kg** (93 lb), making it a lightweight but powerful system.
- **Length**: The missile has an overall length of **1.83 m** (6 ft), which makes it compact and can be easily transported and deployed.
- **Diameter**: The missile has a diameter **of 0.15 m** (5.9 in), which is designed to fit into different launch platforms.
- **Wingspan**: The wingspan of the missile is 0.4 meters (16 inches), which helps in maintaining stability during the flight.
- **Demolition:** The NAG missile has a tandem-charged **HEAT** destroyer, which has the capability to penetrate more than 900 **mm of reactive and rolled homogeneous armour** (ERA+RHA), so as to effectively destroy armoured targets.

- **Mobility**: The NAG MK-2 **is designed to be** lightweight **and easy to** carry, allowing it to be deployed fast.

Introduction of Nag Missile System

The Nag missile, **also known as "**Naga", is India's **Anti-Tank Guided Missile (ATGM).**

- It is **equipped with** a launch-after-lock-on system, which enables it to hit targets with precision even in difficult conditions.
- The range of the missile varies from 500 meters to 20 kilometers, which varies according to the variant.
- It has **a 90%** hit probability (probability of hitting a target in a single shot) and a maintenance-free shelf life of 10 years.
- The missile is produced **by Bharat Dynamics Limited (BDL).**
- Its total cost is estimated at ₹ 300 crore.
- **In July 2019,** the Indian Ministry of Defence (MOD) announced that it was ready for missile production.
- The last successful test of **the missile was conducted on 21 October 2020** at Pokhran Army Ranges.
- Several versions of the Nag missile are being developed:
  - A **land-based version**
  - A **mast-mounted version**

- **Weight of the demolitionhead**: The weight of the warhead is 8 kg.
- **Engine**: The missile uses solid propellant rocket boosters and a **sustainer motor**, which provides the required force for both the initial phase of launch and continuous flight.
- **Launch Platform**: The Nag missile can be launched from various platforms, such as **NAMICA, HAL Rudra**, **HAL Prachanda** and **Mi-24** helicopters.
  - **NAMICA (Nag Missile Carrier)** is based on the BMP-2 Infantry Fighting Vehicle.
  - NAMICA can carry 12 missiles, of which 8 missiles are in ready-fire mode and 4 are in storage.
- **External Structure**: The outer structure of the missile **is made of** fiberglass, which makes it strong and tolerant to environmental elements.
- **Operational range**: The operation range of the missile varies according to the version:
  - **Nag (Prosina):** 500 m to 4 km
  - **Helina/Dhruvastra**: 7-10 km

- o **SANT:** 15-20 KM
- **Speed**: The missile attains a maximum **speed of 220-230 meters per second** (792-828 km/h).
- **Guidance System**: The guidance system of the missile includes:
- **Mid-course**: Two-way data link for area correlation and precise navigation.
- **Terminals**: Imaging Infrared Homing (IIR) for Helina/Dhruvastra and Millimeter-wave Active Radar Homing for SANT.
- **Flight characteristics**: The missile has **foldable fins** and **tail fins**, which provide stable and precise control of its flight.
- **Image Processor**: It has a **real-time image processor**, capable of automatic target identification and tracking.

Development of Nag Missile

- **Inception**: The development of the Nag missile started in 1988 **under the leadership of Dr. APJ Abdul Kalam**. The project faced delays for several years due to problems in the infrared guidance system.
- **First Test**: The first test of the missile **took place in November** 1990, which was the first step towards **success in its operation**.
- **Upcoming Tests**: Successful tests of the missile **were conducted in September 1997** and **January 2000**. It received production approval in July 2009, and by 2010 its **final user tests** were successfully completed.
- **Challenges and Modifications**: The missile failed the test in 2011. Subsequently, a new **indigenous seeker** was developed, which was successfully tested **in difficult desert conditions** in July **2013**.
- **Final Development and Clearance**: The Nag missile successfully completed its final development trials in

September **2016**. In 2018, the missile was **approved by** the Defence Acquisition Council **for re-entry into the Indian Army** and in 2019 it was officially inducted into the Indian Army.

Different Variants of the Nag Missile

- **Nag (Prosina):** It is the original version of the Nag missile, which is part of the Nag family. It is launched from **the NAMICA** platform. Several successful tests of this version have been conducted.
- **Nag MK-2**: It is an upgraded version of the Nag missile and is a third-generation **fire-and-forget anti-tank guided missile** (ATGM). It has undergone a number of improvements compared to the previous land-based version.
- **MPATGM (Man-Portable Anti-Tank Guided Missile):** It is a third-generation man-portable anti-tank guided missile developed from the Nag missile. DRDO confirmed its production in 2021 and it is currently undergoing user trials.
- **Helina**: It is **the air-borne version** of the Nag missile, which has a range **of up to 7 km**. It is suitable for operation in mountainous terrain and has the ability to penetrate armor up to 800 mm. It **is launched from HAL Rudra** and **HAL Prachanda** helicopters.
- **SANT (Stand-Off Anti-Tank Guided Missile):** It is a fourth-generation upgraded version of Helina, a long-range **anti-armour** missile. The missile carries **an electro-optical thermal imager** (EO/IR) and **a millimeter wave active radar homing** (MMW) seeker. Its range is from 15 to 20 kilometers. It was successfully tested **in Pokhran range** in November 2018.

Importance of Nag and its variant missiles

- **Modern Anti-Tank Warfare**: The Nag missile and its variants play an important role in modern anti-tank warfare for the Indian armed forces. These missiles enhance Indian Army's capability in land and air operations, allowing them to destroy heavy armoured tanks and other armoured vehicles in the battlefield.
- **High Accuracy and Reliability**: The NAG missile family offers high accuracy **and reliability due to its** fire-and-forget **and lock-on after launch** features. Its advanced guidance systems, such as **infrared homing** and **radar homing**, make it effective even in challenging situations, such as during countermeasures or jamming attempts.
- **Versatile Deployment**: The various versions of the NAG missile system such as Nag MK-2, MPATGM, Helina and SANT provide the Indian Army with a versatile deployment option. **From land-based platforms like** NAMICA to **helicopter-launched** versions like **Helina** and the long-range **SANT**, these versions cover a variety of attack range and mobility options.
- **Flexibility in Operations**: The NAG missile system, with its diverse range, provides the Indian Army with the flexibility to operate in a wide variety of terrains and combat scenarios.
- **Indigenous Development and Self-Reliance**: The development of the NAG and its versions **by DRDO** is an important step towards self-reliance in India's defence technologies. This missile family is a symbol of India's capability to develop advanced weapon systems.

5.5 China's Tsangpo Dam Project

Context:

Recently, Arunachal Pradesh Chief Minister Pema Khandu has expressed serious concern over the Tsangpo dam project being built by China in Tibet. According to him, the dam **could be used as** a "water bomb" by China in the future, causing widespread disastrous consequences in low-lying areas of India.

Introduction of Tsangpo Dam Project

- **Location and Geographical Significance:**
  - The Tsangpo Dam is proposed to be constructed **in Medog County of the Tibet Autonomous Region** (TAR). This place is geographically very important, as it is from here that the Yarlung Tsangpo River flows towards Arunachal Pradesh in India by making a sharp U-shaped turn. In India, this river is known as **Brahmaputra**.
  - This area is considered to be the deepest valley in the world, where this river flows about 25,154 **feet below the Tibetan Plateau**.

- **Hydroelectric Potential:**
  - The hydropower potential of the proposed Tsangpo Dam is highly impressive. The project will enable hydropower generation from a vertical height of 2,000 metres in a 50-km stretch of the Yarlung Tsangpo River. Due to the steep slope here, the dam will get the benefit of high water pressure and an estimated **70 million kWh** of electricity can be generated.
  - The estimated power generation capacity from the dam is about **60,000 megawatts** (or 60 gigawatts), making it one of the largest hydropower sources in the world.
  - This is more than three times the production capacity of **China's Three** Gorges dam, currently the largest hydropower project in the world.

- **Investment:** The Tsangpo Dam project is being touted as the largest infrastructure project globally, with a massive investment of around **$137 billion**.

China's control and strategic advantage from the Tsangpo Dam

- **Economic Benefits:** The sheer size of the Tsangpo Dam can strengthen China's energy security and enhance its dominance in the global energy market. The construction of this dam is also likely to give a significant economic boost to the Tibet Autonomous Region. The project is expected to source an estimated **20 billion yuan** (about $3 billion) of annual income, creating new economic opportunities in an underdeveloped region.

- **Water Control and Regional Dominance:** By keeping control over the upper reaches of the Brahmaputra River, China will be able to gain significant control over the water flow in the region. This can have an impact on downstream countries, such as **India** and **Bangladesh**. The dam is an important part of China's strategy to establish its control over the natural resources of the region.

- **Support in Renewable Energy and Carbon Neutrality:** The Tsangpo Dam coincides with China's renewable energy goals. China is pushing to reduce dependence on fossil fuels and increase the share of clean energy. The hydropower generated from this project **will play an important role in achieving China's goal of carbon neutrality by 2060**.

- **Solving the Water Crisis:** The water crisis in China's northern regions is severe, including excessive water use, industrialization, and climate change. By controlling the water flow of the Yarlung Tsangpo, China **could divert water** under its South-North water distribution project to the north, helping solve water crises in arid regions such as Beijing and Tianjin.

Concerns Regarding Tsangpo Dam Project

- **Environmental and Ecological Risks:**
  - The Brahmaputra River is highly important for agriculture and ecological balance in the lower regions of Arunachal Pradesh, Assam and Bangladesh. The proposed dam **may block** the silt in the river's downstream, which may affect soil fertility. This will reduce agricultural productivity and affect farm yields.
  - The project **could also drastically reduce** biodiversity, as the region is home to threatened species and is considered an ecological hotspot. Changes in the flow of the river will affect the habitats of local wildlife.
  - Changes in river flows can increase **the risk of weather events**, such as floods and droughts, due to climate change.
- **Water Security and Geopolitical Risks:**
  - Experts say the dam could cause serious disruption to the river's water flow. This can lead to water scarcity in the dry season and increase the risk of flooding during the monsoon.
  - The threat of water being used as **a "**weapon" (**water bomb**) is also a major concern. China having control over the river will allow it to influence downstream countries like India and Bangladesh, which could increase **regional tensions**.
  - This dam can also cause **water pollution**. Pollutants can build up in the water stored behind the dam, affecting water quality in downstream areas, threatening the health and drinking water supply of millions of people living in this area.

About 'Water Bomb'
- A "water bomb" is a **strategic mechanism** in which a country stores vast quantities of water in dams during a war and releases it when necessary.
- This sudden water flow can cause huge economic, social and environmental damage to the downstream areas.
- As per **China's** 13th Five Year Plan, China has proposed to build a number of hydropower projects on the rivers originating from Tibet.
- In the last two decades, China has constructed more than **20 dams** on eight major rivers emanating from Tibet, which is a matter of concern for India.
- **China's past steps, such as withholding climate data during the** 2017 **Doklam** crisis, show that it can use water as a water bomb.

Water-sharing concerns for India with China

- **Lack of a Formal Water-Sharing Agreement:** Similar to the Indus Water Treaty between India and Pakistan, there is no formal water-sharing agreement between India and China regarding the Brahmaputra River. In the absence of this agreement, China may take advantage of unfair actions in terms of India-China water flow control.
- **Termination of MoUs: An** MoU was signed between India and China in 2002, which provided for the exchange of hydrological data. This MoU was extended several times, but it has expired in **2023** and has not been renewed till now.
- **Ineffectiveness of ELM: The** Expert Level Mechanism (ELM), established in 2006, was intended to address water-related issues and facilitate dialogue between India and China. However, despite the mechanism being in operation for more than two decades, it has proved ineffective in resolving major disputes or addressing problems of water sharing.
- **Lack of Global Framework for Transboundary Waters:** India and China have not yet joined the United Nations Water Treaty (1997). It is a global legal framework, the absence of which complicates water cooperation and distribution. India and China do not have any international commitments to guarantee the use of river waters, their equity and environmental protection.

India-China Water Treaties

India and China have been trying to cooperate through various agreements on water-sharing. The objective of these agreements is to share information regarding trans-border rivers and to provide timely warnings.

- **MoU on Brahmaputra River (2002): In** 2002, India and China signed a Memorandum of Understanding (MoU) on the Brahmaputra River (Yarlung Tsangpo in Tibet). Under this agreement, India receives early warning of floods during the monsoon. It aims to **reduce the impact of floods in** the north-east region of India, which is dependent on this river for agriculture and water supply.

- **MoU on Sutlej River (2015): Another important agreement was signed regarding the Sutlej River in** 2015. Under this MoU, both the countries were allowed to share the water flow data of the river. Its purpose is to reduce the risks of floods and deal with the situation of water crisis, for this, information on river flow and water level is exchanged.

- **Umbrella MoU on Trans-border Rivers (2013): In** 2013, India and China signed an Umbrella MoU on trans-border rivers , which covers all trans-border rivers. The agreement has enhanced cooperation between the two countries on water-related issues and established a framework for data sharing and resolution of water concerns of various river basins.

- **Expert Level Mechanism (ELM) (2006):** The Expert Level Mechanism (ELM), established in 2006, has further strengthened bilateral dialogue on cross-border water issues. This mechanism brings together technical experts from both the countries on one platform to discuss issues related to water resources, river management and flood control.

Strategic Measures to be taken by India

- **Support for Water-Sharing Agreement**: India should support a legally binding water-sharing treaty with China. The agreement should focus on mutual trust and equitable river management to ensure proper distribution and utilisation of water resources of trans-border rivers like Brahmaputra.

- **Water Storage Systems and Flood Control**: Advanced water storage systems and flood control projects should be developed to mitigate the threats arising due to disruptions in water flow in Arunachal Pradesh and Assam.

- **Hydropower Projects to Boost Energy Security**: Focusing on projects such as the 10 GW **hydroelectric project in** the Dibang Valley and **the Siang hydroelectric dam** will boost India's energy security and water management capacity. These strategic moves will be helpful in dealing with China's hydropower projects.

- **AI-based tools**: AI-based flood forecasting tools should be implemented for accurate prediction of floods and sharing hydrological data in real-time, thereby effectively managing risks.

Siang Hydroelectric Dam Project

- **Capacity:** 11,000 MW

- **Location:** Siang River, Upper Siang District, Arunachal Pradesh

- **Manufacturer:** National Hydroelectric Power Corporation (NHPC) and North-Eastern Electric Power Corporation (NEEPCO)

- **Storage Capacity:** 9 billion cubic meters (BCM)

- **Cost:** ₹1,13,000 crore (approx. US₹ 13 billion)

- **Strategic Significance for Arunachal Pradesh:**

  o **Free power:** As per India's policy, Arunachal Pradesh will get 12% of the total annual electricity generated by this project for free, which will be about 5,640 MU (or 1320 MW) of electricity annually. The state is estimated to earn additional revenue of about ₹3384 crore from this free electricity.

- o **Employment and Infrastructure:** The construction of this project will generate a large number of employment opportunities in the state and will also develop infrastructure. This will improve road connectivity, especially to and from Assam.
  - o **Fisheries and water transport:** The reservoir created by the dam will promote fish farming in an area of 125 km, thereby increasing the income of the local population.
- **Contribution to Tackling Climate Change**:
  - o The Siang Hydroelectric Project **will play a vital role in mitigating the effects of climate change in the Brahmaputra basin**.
  - o The project will reduce dependence on coal-fired energy generation, helping India **meet its commitments under the** Paris Agreement **and the COP26** conference.
  - o The project will prevent the emission of 32 million tonnes of CO2 annually. The project can play an important role in achieving **net-zero carbon emissions** by **2060**.
- **Renewable Energy:**
  - o The project will help integrate renewable energy into India's grid in a big way.
  - o This hydropower grid will act as a key factor to ensure the sustainability of solar and wind energy.
  - o The Siang Hydroelectric Project will help in keeping the grid stable through water storage and hydropower generation.
- **Strategic Significance for India:**
  - o The project is particularly important for dealing with the impacts of hydropower projects being undertaken by China on the **Yarlung Tsampo** (called the Brahmaputra River in India).
  - o The project is designed to ensure the stability of water flow and reduce the risk of flooding arising from uncontrolled water flow by China.

5.5   Preliminary Examination

5.5.1.   Submarine agreement by Ministry of Defence

The Ministry of Defence, Government of India, has recently signed two contracts worth about Rs 2,867 crore for two submarine projects. These contracts are aimed at enhancing the capabilities of the Indian Navy and supporting the country's self-reliance in defence technology.

Submarine Agreement by Ministry of Defence:

1. **'Make in India' initiative:** Both the agreements are under the 'Make in India' initiative, which means **the propulsion system** and **torpedoes** will be manufactured in India.
2. **Air Independent Propulsion (AIP) System:**
   - o The first agreement is worth Rs 1,990 crore, which has been signed with Mazagon Dock Shipbuilders Limited (MDL), Mumbai.
   - o The AIP system is being developed indigenously by the Defence Research and Development

Organisation (DRDO), which will enhance the stealth and endurance of conventional submarines.

3. **Integration of Electronic Heavy-Weight Torpedoes (EHWT):**
   - o The second agreement is worth Rs 877 crore, which will be done in collaboration with the Indian Navy, DRDO and Naval Group (France).
   - o This will boost the fire power of the Indian Navy's Kalvari class submarines.

Air Independent Propulsion (AIP) Plug:

1. **Technique of AIP Plug:**
   - o This is an advanced technology, which is used in non-nuclear submarines.
   - o The AIP system reduces the need for submarines to surface.
2. **Improving Submarine Operations:**
   - o Conventional diesel-electric submarines have to surface to run diesel engines and charge batteries.

o Coming to the surface allows the submarine to be identified by the enemy, affecting secrecy.

3. **Advantage of AIP:**

o The AIP system gives submarines the ability to stay underwater for long periods.

o This increases the stealth and operational capability of the submarine.

Electronic Heavy Weight Torpedoes (EHWT):

1. **Techniques of EHWT:**

o It is a state-of-the-art weapon, which increases the fire power of submarines.

o It is also known as the F21 Heavy Weight Torpedo.

2. **Aluminum Silver Oxide Technology:**

o EHWT uses advanced Aluminum Silver Oxide technology.

o This technique increases the range and speed of torpedoes.

3. **Modern Security:**

o It is more lethal than other torpedoes.

o Safety has been prioritized while designing the torpedoes, which would have eliminated the possibility of accidental explosion in case of a submarine catching fire or torpedo falling.

Strategic Significance:

1. **Improving India's Defence Capability:**

o These advanced technologies prove to be a significant step in the modernization of India's naval fleet and development of indigenous defence capabilities.

o The move enhances India's self-reliance at a time of instability of global supply chains of defence technology.

2. **Strengthening India's Position as a Regional Power:**

o Self-reliance in defence technology strengthens India's position as a regional power.

o It helps India become a strong player as a global power.

3. **Boosting Submarine Capabilities:**

o By enhancing submarine capabilities, India can ensure the security of critical sea routes.

o This helps in preventing any adverse naval activity and maintaining the balance of power in the region.

5.5.2.　　　India's Defence Exports

Defence Minister Rajnath Singh informed that India's defence exports have crossed a record ₹21,000 crore, which was ₹2,000 crore a decade ago. He said that by 2029, a target has been set to reach defence exports of Rs 50,000 crore.

Key Points:

1. **Growth and Targets in Defence Exports:**

o India's defence exports have increased from ₹2,000 crore to ₹21,000 crore.

o Target of ₹50,000 crore by 2029.

o Exports of Indigenous Defence Equipment Increase.

2. **New Combat Modes and Training:**

o Facing new challenges like information warfare, AI-based warfare, cyber attacks.

o The need to impart advanced training to soldiers.

3. **Military Solidarity and International Relations:**

o Plans to enhance coordination among the three services.

o Morocco invites Indian defence companies to invest.

Key Aspects of India's Progress in Defence Sector:

1. **Increase in Defence Exports:**

o India's defence exports have registered growth at a CAGR of around 28% **over the last six years (till FY24)**.

o Defence exports are projected to grow at a rate of 19% over the next five years (FY24 **to FY29**).

o Exports include **products such as aircraft, naval systems, missile technology**, and **military equipment**.

2. **Promotion of Indigenous Manufacturing:**

o **Through initiatives like 'Make in India',** India is moving towards self-reliance in defence production.

o By reducing dependence on foreign suppliers, India is strengthening its **defence capabilities**.

3. **Allocation of Defence Budget:**

o India's defence budget has consistently **been a share of GDP ranging from** 90% to **2.8%.**

o **For the 2024-25 financial year**, a provision of Rs 22 **lakh crore has been made for the defense sector**.

India's Defence Exports:

• **Targets and Achievements:**

- o Defence exports target of ₹50,000 crore by 2028-29.
  - o Exports of ₹21,083 crore in FY 2023-24, an increase of 5% from the previous financial year.
- **Contribution to Exports:**
  - o The share of the private sector **is 60%,** while that of DPSUs **is 40%.**
  - o About 100 **local firms from India are exporting defence items to** 85 countries.
- **Major Importing Countries:**
  - o Myanmar is the largest importer with 31% of exports between 2000 **and 2023**.
  - o It is followed by Sri Lanka (19%), Mauritius, Nepal, Armenia, Vietnam and Maldives.
- **Increase in Defence Production:**
  - o Increased from ₹74,054 crore in 2016-17 to ₹1,08,684 crore in 2022-23.
  - o Of this, 96% is produced **by private companies**.

Challenges Associated with Defence Production:

1. Limited participation of private sector.
2. Lack of quality and international standards.
3. Competition in the global market.
4. Lack of infrastructure.
5. Lack of investment in research and development (R&D).
6. Dependence on foreign imports.
7. Lack of coordination between armed forces and industries.

Way Forward

1. Revenue from defence exports to be used to increase research budget and capital expenditure.
2. China's inconsistent export policy and use of geopolitical opportunities.
3. Enhancing product quality and trust by adhering to international standards**.**
4. **Promotion of public-private partnerships** and investment in international marketing.
5. **Promotion of export of high value weapons like Pinaka, Akash, Dhruv**.

5.5.3. Defence Reforms Year 2025

The Ministry of Defence has declared 2025 as the "Year of Defence Reforms". This decision reflects the Ministry's commitment towards modernizing and empowering the Armed Forces.

Why are reforms in defence forces necessary?

1. **Lack of National Security Strategy (NSS):**
   - o **The lack of NSS leads to a lack of coordination between defence strategies and national policies**.
   - o **There** has been a lack of preparedness against emerging threats such as China and Pakistan.
2. **Growing Threat of Cyber Warfare:**
   - o **Cyberspace has become** the fifth hotbed of warfare where state-sponsored attacks are damaging economic and military infrastructure.
   - o The Ukraine-Russia conflict is the latest example.
3. **Dependence on Imports:**
   - o **India was the world's largest arms importer during 2019-23**.
   - o The slow indigenisation process and the challenges of the domestic defence industry are hindrances to self-reliance.
4. **Cultural Resistance: The divergent perspectives of the Indian military services (Army, Navy, Air Force)** hinder the adoption of the joint model.
5. **Inadequate Financial Resources: The defense budget is only 9% of total** GDP, which limits the development of modern equipment, technology, and infrastructure.
6. **Lack of Necessary Procurement Procedures: Emergency procurement procedures were adopted after** the Galwan conflict (2020), which highlights the lack of strategic preparedness.
7. **Short-term policies:** Questions have been raised over the Agnipath scheme's 6-month training period, which may affect the combat readiness of the soldiers and the morale of the army.
8. **Cyber and Technological Challenges:** Technological superiority is essential in modern warfare, but India lacks advanced cybersecurity and digital capabilities.

Key Areas of Defence Reforms 2025:

1. **Jointness and Integration: Establishment and joint operation of Integrated Theatre Commands (Lucknow, Jaipur, Thiruvananthapuram).**
2. **Emerging Technologies:**
   - o **Investing in AI, cyber, space, hypersonics, and robotics** .
   - o Encourage technological partnerships and innovation.
3. **Simple Acquisition:** Making the Defence Procurement Process Faster and Effective.

4. **Defence exports:** Defence exports worth **₹21,000 crore**, making India a reliable exporter.

5. **Ex-Servicemen Welfare:** Promotion of well-being and indigenous capabilities of ex-servicemen.

Aim: To become a self-reliant and modern defence power.

Recent Defence Reforms:

1. **Space and Cyber Agencies:** Establishment of Defence Space Agency (DSA) and Cyber Agency (DCA).

2. **Defence exports: Target of $5 billion defence exports by 2025;** Export of Products like BrahMos Missiles.

3. **Simplified Procurement Process: Making the procurement process faster and simpler under the Defence Acquisition Procedure (DAP) 2020**.

4. **Atmanirbhar Bharat:** Focus on indigenisation, negative list of limiting defence imports and establishment of defence industrial corridors.

5. **Chief of Defence Staff (CDS):** Established in 2020, **to enhance jointness in the three services (Army, Air Force, Navy)**.

6. **Agnipath Scheme:** Short-term soldier recruitment, modernization and pension expenditure for 4 years.

7. **Defence Research & Development:**
   o *Promotion of startups and* MSMEs through iDEX (Innovations for Defence Excellence).

5.5.4. Naval Includes Warships and Submarines

The Indian Navy joined two indigenously built frontline warships and a submarine at the Naval Dockyard in Mumbai.

The Navy includes warships and submarines:

1. **Vessels and submarines to be incorporated:**
   o **'Nilgiris': The first warship of** the Project 17A stealth frigate class.
   o **'Surat': The fourth and final vessel of** the Project 15B stealth destroyer class.
   o **'Vagsheer':** The sixth and final submarine of the Scorpene-class.

2. **Construction site:** All three warships and submarines were built at Mazagon Dock Shipbuilders Limited (MDL) in Mumbai.

3. **Design & Construction:**
   o Both warships are designed in India.
   o The Scorpene-class submarines are built in India under licence from France's Naval Group.

Nilgiri Stealth Frigate:
Highlights:

1. **Upgraded from Shivalik class:** Built under Project 17A, this frigate is capable of countering conventional and non-conventional threats in India's maritime domain.
   o It is designed for blue water operations.

2. **Construction Techniques:** Use of Integrated Construction method, which reduces construction time.
   o The process of pre-outfitting was adopted at the block stage.

3. **Propulsion System:**
   o Powered by Combined Diesel or Gas (CODOG) systems.
   o Use of Controllable Pitch Propeller (CPP).

4. **Advanced Platform Management System:** Equipped with Integrated Platform Management System (IPMS).

Vagsheer Submarine:
Highlights:

1. **The last submarine under Project 75: the** sixth and last Scorpene-class submarine of the Kalvari class.
   o It has been built by Indian shipyard Mazagon Dock Shipbuilders Limited (MDL) in technical collaboration with France's Naval Group.

2. **Technology and construction:** This is a quiet and versatile diesel-electric submarine.
   o Modular construction technology has been used, which facilitates the addition of advanced technologies such as Air Independent Propulsion (AIP) in the future.

3. **Mission Capabilities:**
   o Anti-Surface Warfare.
   o Anti-Submarine Warfare.
   o Intelligence gathering.
   o Field surveillance and special operations.

Surat Stealth Destroyer:
Highlights:

1. **Class and construction:** Fourth stealth destroyer of the Visakhapatnam class (Project-15B).
   o Built by Mazagon Dock Shipbuilders Limited (MDL) and designed by the Indian Navy's Warship Design Bureau.

2. **Predecessor ships:** INS Visakhapatnam (2021), INS Marmugao (2022), INS Imphal (2023).

3. **Attributes:**
   o The name of the city of Surat in Gujarat.
   o The first AI-enabled warship.

6 Environment & Biodiversity

6.1   IPBES Transformative Change Assessment

Context:

The recently released Transformative Change Assessment Report by the Intergovernmental Science-Policy Forum for Biodiversity and Ecosystem Services **(IPBES)** emphasizes the role of effective governance in biodiversity conservation. The report recognises governance based on inclusivity and sustainability as essential for biodiversity conservation and long-term systemic change.


Key Points of the Report:

1. **Ecological Loss:** The report emphasizes the need for accelerated changes in society's behaviour with nature. It warns that inaction can lead to the destruction of ecological assets such as coral reefs and rainforests.
2. **Economic and Employment Opportunities:** Urgent action can create US$10 trillion worth of business opportunities and 395 million jobs globally by 2030, especially in nature-dependent industries.
3. **Causes of Biodiversity Loss:**
   o The disconnect between people and nature.
   o Tendency to dominate over nature and other.
   o Concentration of power and wealth.
   o Prioritizing short-term gains over long-term stability.

Five Key Strategies for Change:

1. **Conservation and Revival:** Linking environmental restoration to cultural values in areas of bio-cultural diversity, such as community-driven forest management in Nepal.
2. **Shift in key sectors:** Addressing sectors such as agriculture, fisheries and infrastructure from sustainable practices.
3. **Improving Economic Systems:** Improving Environmentally Damaging Subsidies and Promoting Sustainable Business Models.
4. **Adaptive Governance:** Involving all stakeholders, including indigenous communities, as well as prioritizing biodiversity in policies.
5. **Shift in attitudes and values:** Strengthening the human-nature relationship while promoting education and diverse knowledge systems.

IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services):

- It is an independent inter-governmental body established in the year 2012.
- More than 150 member countries, including India.
- Objective: To provide scientific assessments on biodiversity and ecosystem services and to develop tools and methods for conservation.
- Secretariat: Bonn, Germany.
- It is not a UN body, but UNEP provides secretariat services to it.
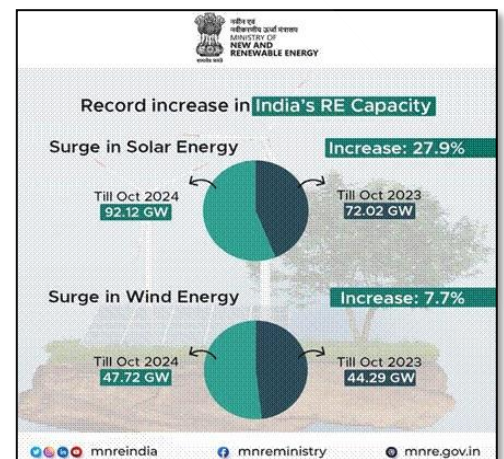
India's Initiatives

1. **National Biodiversity Action Plan (NBAP):** Strategy for Biodiversity Conservation.
2. **Swachh Bharat Abhiyan:** Promoting Cleanliness.
3. **National Climate Change Action Plan (NAPCC):** Climate adaptation and mitigation efforts.
4. **FAME Scheme:** Promoting Electric Vehicles.
5. **Pradhan Mantri Ujjwala Yojana (PMUY):** Use of clean energy.
6. **Mission LiFE:** Promoting an environment-friendly lifestyle.

Transformative Change:

It is a systemic restructuring of paradigms, goals, and values along with technological, economic, and social factors. It aims to conserve biodiversity, ensure sustainable use and a high quality of life.

Steps for Transformative Change:

1. **Carbon-Neutral Actions:** Creating the norm for carbon-neutrality for governments, businesses, and individuals.
2. **Geo-positive alternatives:** Making environmental contributions simple and economical.
3. **Improving subsidies:** A shift away from resource-extraction industries to sustainable practices.
4. **Precautionary Decisions:** Proactively addressing potential threats.
5. **Strong Environmental Laws:** Emphasis on their effective implementation.

Sustainable Development Goals (SDGs): India's initiatives, such as the Smart Cities Mission, the Green India Mission, and the National Clean Energy Fund, are in line with the Sustainable Development Goals. India aims to generate 500 gigawatts of electricity from non-fossil sources by 2030.

6.2 Central Ground Water Board (CGWB) Report on Ground Water

Context:

The recently released report by the Central Ground Water Board (CGWB) has highlighted the serious situation of groundwater pollution in India. According to the report, nitrate **pollution levels are increasing** in most parts of the country, which is especially dangerous for young children. This chemical pollutant is causing serious health problems.

Key Findings of the CGWB Report:

- **Increase in Nitrate Contamination**: Excess nitrate levels were found in groundwater in 440 districts, increasing from 359 districts in 2017 to 2023.
- **Nitrate concentration is above the safe limit of 45** mg/l in 56% of districts in India.
- **Regional hotspots**: Rajasthan (49%), Karnataka (48%), and Tamil Nadu (37%) have seen the highest levels of nitrate contamination. This level is increasing in Maharashtra, Telangana, Andhra Pradesh and Madhya Pradesh.
- **Impact of Monsoon**: An increase in nitrate pollution is seen after the monsoon, where 32.66% of samples exceeded the safe level during the monsoon season, while the level was 30.77% before the monsoon.
- **Other pollutants**: Fluoride contamination has become a major problem in Rajasthan, Haryana, Karnataka, Andhra Pradesh and Telangana. At the same time, uranium contamination is also increasing in Rajasthan, Punjab, Haryana, Gujarat, Tamil Nadu, **Andhra Pradesh and Karnataka**.
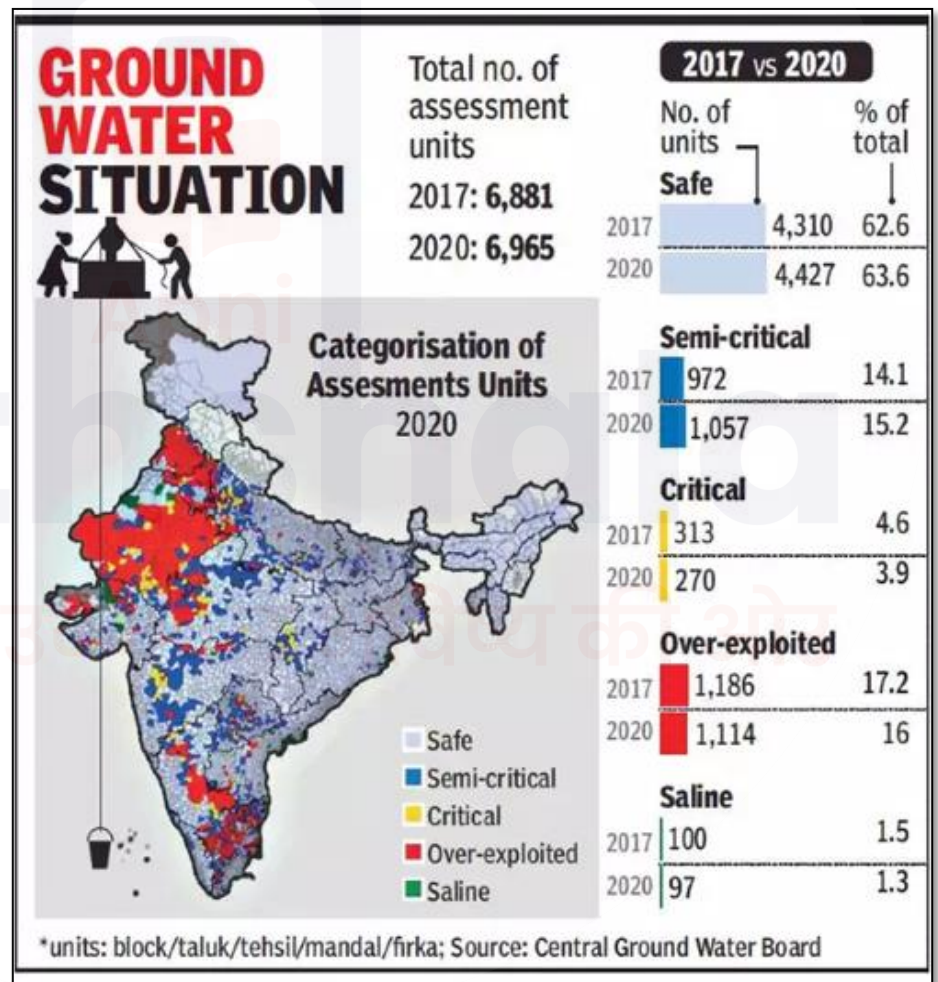
Major Sources of Groundwater Pollution:

- **Agricultural Practices**: The use of excessive fertilizers and pesticides causes nitrates and phosphates to seep from the soil into the groundwater.
- **Over-exploitation of Irrigation and Water**: Improper irrigation methods increase groundwater pollution.
- **Storage tanks and waste sites**: Chemical leakage from corrosive tanks can contaminate groundwater.
- **Landfills and septic systems**: Due to poor maintenance, pollutants from these can leach into the groundwater.
- **Atmospheric Pollutants**: Atmospheric pollution can reach groundwater, affecting water quality.

Effects of Groundwater Pollution:

- **Health impact**: Pollutants such as fluoride, nitrates, and heavy metals can cause serious health risks, especially in children, causing **blue baby syndrome**.
- **Food security**: Polluted groundwater can lead to the accumulation of toxins in crops, posing a threat to food security.
- **Environmental** impacts: Nitrate pollution can lead to imbalances in the ecosystem, which negatively impacts plants and aquatic organisms.
- **Cost Increase**: Expensive treatment procedures are required to make contaminated water safe for consumption.
- **Water Crisis**: Groundwater pollution can reduce the availability of clean water, leading to a water crisis.

Way Forward

- **Control of Fertilizer Use**: Excessive use of nitrogen fertilizers **in agriculture** should be taken care of, and **sustainable agricultural** practices should be promoted.
- **Rainwater Harvesting**: Promoting rainwater harvesting can avoid replenishment and over-exploitation of groundwater.
- **Better Waste Management**: Groundwater pollution can be prevented by adopting better waste management systems in urban areas.
- **Monitoring and Policies**: Monitoring of groundwater quality should be increased and stringent rules should be made for pollution control.

Given the growing concern over groundwater pollution in India, there is a need for effective policies and actions to conserve this resource and improve its quality.

Measures to Control Groundwater Pollution
• **Programmes such as the Jal Shakti Abhiyan (JSA)** and **the National Aquifer Mapping and Management Programme (NAQUIM)** are helpful in pollution control.
• **Groundwater conservation and recharge are being promoted under the Atal Bhujal Yojana (ABHY).**
• **Pollution Control Measures**: The Central Pollution Control Board (CPCB) and state boards are implementing water pollution control measures.
• **Sewage Treatment Plants (STPs) and Wastewater Treatment Plants (ETPs)** have been installed so that water can be treated before it is released into the environment.
• **Public Awareness Campaign**: Through institutions like the Rajiv Gandhi National Ground Water Training and Research Institute (RGNGT&RI), people are being made aware of water conservation.

6.3   Preliminary Examination

6.3.1.   Green Steel Mission

The government is working on a Rs 15,000-crore 'Green Steel Mission' to reduce carbon emissions in the steel sector. The mission covers steps such as Generation Linked Incentive Scheme (PLI), incentives for adoption of renewable energy, and mandatory procurement of green steel by government entities.

Carbon Emissions:

Carbon emissions mean the release of gases such as carbon dioxide and methane into the atmosphere. These are greenhouse gases, which contribute to increasing global warming.

Steel Sector in India:

- **Production:**
  - India's crude steel production capacity reached 179.5 million tonnes in 2023-24.
  - In 2023-24, the production of finished steel, including alloys and non-alloys, stood at 139.15 million tonnes, steadily increasing.
  - Steel production is dominated by the private sector, which contributes about 83% of the total crude steel production.
- **National Steel Policy 2017:**
  - Aim to create a steel industry with advanced technology and global competitiveness.
  - Target to achieve 300 million tonnes production capacity by 2030-31 .
- **Steel Consumption:**
  - The total consumption of finished steel during April-October 2024 was around 75.6 million tonnes.
  - In the financial year 2023, the per capita steel consumption was recorded at 86.7 kg.

Benefits of Green Shift in Steel Industry:

1. **Health and Environmental Protection:**
   - Reduced pollution will improve the quality of air and water.
   - There will be a positive impact on the health of local communities and environmental degradation will be prevented.
2. **Contribution to Global Climate Goals:**
   - Reducing carbon emissions will help limit global temperature rise.
   - This will be helpful in meeting the climate targets under the Paris Agreement.
3. **Employment and Economic Growth:**
   - Investment in green steel technologies and renewable energy will create new job opportunities.
   - The long-term economic development of the industry will be ensured.

Green Steel Mission:

To make the steel sector carbon free and align it with India's net-zero emission target by 2070.

Main Components:

1. **Production-Linked Incentive (PLI) Scheme for Green Steel:**
   - Promotion of production of green steel.

   - Attract investments and boost domestic production of special steel.
   - Reducing dependence on imports.
2. **Incentives for Renewable Energy:**
   - Promote the use of renewable energy in steel production.
   - Helping to reduce the carbon footprint of the steel industry.
3. **Essentials for Government Agencies:**
   - Government agencies must procure green steel.
   - This will increase the demand for green steel and help the industry move towards more sustainable processes.

Policies Promoting Decarbonization in Steel Industry
• **Steel Scrap Recycling Policy (2019)**
• **Vehicle Scrapping Policy (2021)**
• **National Solar Mission (2010)**
• **Perform, Achieve and Trade (PAT) Scheme**
• **National Green Hydrogen Mission**
• **Green Steel Taxonomy**
• **Carbon Credit Trading Scheme (CCTS) (2023)**
• **Pilot Projects under Green Steel Mission**

6.3.2. Ozone pollution at ground level

The National Green Tribunal (NGT) has sought a response from the central government on the implementation of the recommendations of the Central Pollution Control Board (CPCB) to control the ozone level in Delhi.

Key Findings of the CPCB Report:

1. **Ozone levels higher than the standards:** Ozone levels were found to exceed the national standard (100 $\mu g/m^3$, 8 hours) at several monitoring stations.
2. **Highest Level:**
   - **Nehru Nagar:** 9 $\mu g/m^3$ (56 days)
   - **Patparganj:** 3 $\mu g/m^3$ (45 days)

o **RK Puram:** 4 μg/m³ (dangerous level in April-May 2023)

o **Aurobindo route:** 38-day highs recorded.

3. **Traffic-Affected Areas**: Areas with heavy traffic witnessed dangerous ozone levels during April-May 2023.

4. **Major Causes:**

o Emissions from vehicles, biomass burning, industrial activities.

o Cross-border emissions and biological sources also contribute.

What is ozone pollution at ground level?

1. **Definition:**

o Ground-level ozone (O_3) is ozone formed near the Earth's surface, which is formed by chemical reactions in the atmosphere.

o It is different from the protective ozone layer present in the stratosphere and acts as a harmful pollutant.

2. **Effects on health and the environment:** Ground-level ozone causes serious health hazards and environmental damage.

3. **Manufacturing Process:**

o **Type:** It is a **secondary pollutant** (not emitted directly).

o **Chemical reaction:** It is **formed by reactions between nitrogen oxides (NOx)** and **volatile organic compounds (VOCs)**.

o **Sources:**

▪ NOx: Vehicles, Power Plants, Industrial Processes.

▪ VOCs: Vehicles, petrol pumps, solvents, garbage burning.

o **Status:** This reaction occurs in the presence of sunlight, causing ozone formation to be greater on sunny and hot days.

Impact of Ground Level Ozone Pollution:

1. **Health Effects:**

o **Respiratory problems:** Ground-level ozone causes respiratory problems and further aggravates conditions such as asthma and heart disease.

o **Long-term effects:** Constant exposure to ozone can decrease lung capacity and cause permanent damage.

o **Potential consequences by 2050:** If emissions are not controlled, exposure to ozone by 2050 could lead to more than a million deaths in India.

2. **Environmental Impact:**

o **Effects on Agriculture:** Ozone damages crops, leading to a decrease in agricultural production.

o **Effect on forests:** Ozone affects the growth and photosynthesis of trees, which has a bad effect on plant life.

Tips for Ozone Control:

- **Control of Major Ingredients:** Ozone control can be achieved mainly by reducing its catalysts, such as nitrous oxides (NOx), volatile organic compounds (VOCs), methane, and carbon monoxide (CO).

- **Limitations of Local Control:** Local control of catalysts cannot significantly reduce ozone levels, as both ozone and its catalysts can travel long distances.

- **Initiatives at the national level:** Initiatives and policies at the national level are necessary to effectively control these triggers.

6.3.3. COP29: Climate Finance Agreement

Since 1991, the financial issue has been central to climate change negotiations. The UNFCCC (1992) stated that the climate action of developing countries is dependent on financial and technical support from developed countries.

- Despite the ambitious target set at the 29th Conference of the Parties (COP-29) held in Baku, its results have been met with skepticism and criticism, especially in the case of climate finance.

Importance of Climate Finance:

1. **Climate Finance in the UNFCCC:** Climate finance has been an important part of the international agreements of the United Nations Framework Convention on Climate Change (UNFCCC), established in 1992.

o **Article 4(7):** This Article states that the climate action commitments of developing countries are dependent on the financial support and technology provided by developed countries.

2. **Paris Agreement: Article 9(1):** Under this Article, developed countries are given the responsibility to raise finance for developing countries.

3. **IPCC 's Sixth Assessment Report:**

- o The IPCC's sixth report has identified finance, capacity building and technology transfer as key factors for implementing climate actions.
- o The report also states that anthropogenic emissions have contributed to a temperature rise of up to 1°C above pre-industrial levels.

COP29: Challenges of Climate Finance Agreement:

- **Lack of Targets:** Developed countries had promised to mobilize $100 billion every year for developing countries' climate action by 2020.
  - o This target was met in 2022, but even that falls far short of the actual needs.
- **Unrealistic Proposal:**
- The new Collective Quantitative Target (NCQG) **at** COP29 proposed to mobilize $300 billion annually by 2035.
  - o Whereas according to the Standing Finance Committee of the UNFCCC, the annual requirement is $455 billion-$584 billion.
- **Inadequate Allocation for Vulnerable Groups: Small Island Developing States (SIDS)** demanded $39 billion and **Least Developed Countries (LDCs)** asked for $220 billion, but no concrete allocation threshold was set.
- **Cost of Loss and Damage: According to Global Stocktech (2023),** the cost of loss and damage could be $447 billion-$894 billion per year by 2030.
  - o This shows the deep gulf between existing financial commitments and actual requirements.

COP 29: Global Conference on Climate Change

Introduction to COP: The principal governing body of the United Nations Framework Convention on Climate Change (UNFCCC) **is the** Conference of the Parties (COP), established in 1992. Its 198 members (197 countries and the European Union) are united to tackle climate change. The COP is held every year to review national emissions data, assess progress, and formulate global climate policy.

COP 29 Summit: Key Points

- **Venue:** Baku, Azerbaijan.
- **Significance:** Azerbaijan this time played a leadership role in global climate action.
- **Key Discussion Topics:**
  - o Mobilizing climate finance and supporting global sustainability efforts.
  - o Promoting technological innovation in renewable energy.
  - o Develop global adaptation strategies for climate risks.

Objectives of COP 29:

1. **Climate Finance: Setting up new Collective Quantitative Targets (NCQGs)**, particularly on mobilizing financial resources for the climate efforts of developing countries.
2. **Mitigation and Adaptation:** Strengthening commitments to reduce greenhouse gas emissions.
   - o Implementing adaptation strategies to combat the effects of climate change.
3. **Technology Transfer:** Promote the exchange of climate-friendly technologies, thereby supporting global mitigation and adaptation efforts.
4. **Global Stocktake:** An Evaluation of Collective Progress Toward the Long-Term Objectives of the Paris Agreement.

6.3.4. Animal Welfare Framework in India

Recently, **the World Association of Zoos and Aquariums (WAZA)** has suspended the membership of Delhi Zoo for six months. This step has been taken regarding the mistreatment of an African elephant there.

Reason: WAZA 's decision The main reason for suspending the membership of the Delhi Zoo is the poor condition of the African elephant Shankar.

- The elephant's seclusion and chaining in the past violate WAZA's ethical standards.
- These standards emphasise respectful and dignified treatment of animals, especially for social animals such as elephants requiring proper care and social interaction.

WAJA 's Animal Welfare Strategy:

What is WAZA?

The **World Association of Zoos and Aquariums (WAZA)** is a coalition of **globally regional organizations, national federations,** zoos, and aquariums, dedicated to the care and conservation of animals and their habitats.

Key Objectives

1. Guiding zoos and aquariums and ensuring animal welfare.

2. Use of knowledge on a scientific basis in animal care and conservation.

3. Promote environmental education and global protection.

Animal welfare model based on five areas

1. **Nutrition:** Availability of balanced diet and clean water to the animals.

2. **Environment:** Providing a life-environment that gives animals a chance to express natural behaviors.

3. **Health:** A system of preventing and treating illnesses and injuries.

4. **Behavior:** Animals have the opportunity to express positive social interactions and natural behaviors.

5. **Mental state:** Taking care of the emotional needs of animals, such as positive experiences (enthusiasm, contentment).

Role of Central Zoo Authority (CZA):

Establishment: A statutory body established in 1992 under the Wildlife (Protection) Act, 1972.

Aim:

- Bringing Indian Zoos up to international standards.
- • To supplement the national efforts in wildlife conservation as per the National Zoo Policy, 1998.

Issues of Zoo Management in India:

1. **Lack of Infrastructure:** Lack of protection and recreational facilities for the varying needs of animals.

2. **Poor living conditions:** Lack of maintenance in many zoos, leading to unsafe and unhygienic conditions for animals and visitors.

3. **Staff shortage**: Most zoos lack physicians, biologists, and teachers, making it harder to care for animals.

4. **Violation of Rules:** Neglect of conservation provisions by zoos and CZA under the Wildlife Protection Act, 1972.

5. **Negligence of CZA :** Lack of updated guidelines in line with global standards for zoos and non-adherence to them.

6. **Lack of Accountability:** There are no punishments or consequences set for neglect of the duties of the CZA.

Issues of Animal Welfare in India:

1. **Neglect of animal welfare:** Ignoring the welfare of animals only to symbolize friendship.

2. **Habitat changes:** Wild animals are isolated from their herds, making it difficult for them to adapt to new environments.

3. **Problems of adaptation: It is difficult to adjust to** new weather, captive conditions, and new caregivers.

4. **Mental challenges:** Animals suffer mental and physical trauma, which can cause them to become aggressive and they have to face cruelty or neglect.

5. **Language barriers:** Often animals are trained in a new language, causing them to struggle in the new country.

Animal Welfare Measures in India:

1. **Constitutional Duties:** Under Article 48A of the Constitution, the state is mandated to protect the environment and conserve wildlife.

2. **Prevention of Cruelty to Animals Act, 1960:** To prevent cruelty to animals without any reason.

3. **Animal Welfare Board India:** Established in 1962, it is an advisory body for animal welfare laws.

4. **Wildlife (Protection) Act, 1972:** To protect plant and animal species.

5. **Indian Penal Code (IPC), 1860:** Punishment for cruelty to animals, such as murder, poisoning, or causing harm to animals.

6.3.5. United Nations Climate Change Framework Convention

India has recently submitted its Fourth Biennial Update Report (BUR-4) to the United Nations Framework Convention on Climate Change (UNFCCC). The report details India's greenhouse gas (GHG) emissions and the steps taken to reduce it.

Highlights of the Report:

1. **Reduction in GHG Emissions:**

- o Reduction in emission intensity of India's GDP by 36% between 2005 and 2020.
- o Work continues on the goal of reducing it to 45% by 2030.

2. **Sectoral Emissions:**
   - o **Energy Sector:** 66%
   - o **Agricultural Sector:** 72%
   - o **Industrial Processes:** 06%
   - o **Waste Management:** 56%

3. **Classification of GHG Gaes:**
   - o **Carbon dioxide (CO2):**53%
   - o **Methane (CH4):**32%
   - o **Nitrous Oxide (N2O):**13%

4. **Progress on Nationally Determined Contribution (NDC) Targets:**
   - o A 36% reduction in the emissions intensity of GDP between 2005 and 2020.
   - o Non-fossil fuel efficiencies reached 52%.
   - o Renewable energy capacity increased to 22 GW.
   - o Absorbed an additional 29 billion tonnes of CO2 through afforestation between 2005-2021.

5. **Efforts towards Climate Goals:** India is on track to achieve the ambitious target of net-zero emissions by 2070.

United Nations Framework Convention on Climate Change (UNFCCC)

1. **Installing as of an idol:**
   - o Adopted at the Rio Earth Summit in 1992.
   - o Objective: To stabilize the concentrations of greenhouse gases so as to limit global warming.

2. **Headquarters:** Bonn, Germany.

3. **Cardinal principle:**
   - o Equality and *Common But Differentiated Responsibilities (CBDR).*
   - o Developed countries have to take the lead in climate action.

4. **Membership:** It consists of 198 parties, indicating almost global participation.

---

5. **Key Agreements:**
   - o **Kyoto Protocol (1997):** Mandatory emission reduction targets.
   - o **Paris Agreement (2015): Global commitment** to limit global warming to 1.5°C.

6. **Meetings:** *Annual meetings of the* Conference of the Parties (COP) are held to review progress and set targets.

6.3.6.   Cat of Pallas

Recently, the first photographic evidence of Pallas**'s cat has been obtained during the Snow Leopard Survey in** Himachal Pradesh, India. This incident underscores the urgent need for conservation of lesser-known species in the Indian Himalayan region. The discovery of this unique species proves that we need to focus more on the conservation of these rare and important species.

About Pallas's Cat:

1. **Scientific name**: **The cat of Pallas is also called manul (**Otocolobus manul), and it is a short **, long-haired species** of the cat family (Felidae).

2. **Nomenclature**: It was named in 1776 **by** Peter Simon Pallas, who was the first to describe it on the basis of specimens collected near Lake Baikal, Russia.

3. **Distribution**:
   - o It is mainly found in Central Asia.
   - o Its distribution area includes **western Iran, Mongolia, China, Russia (on the border of Mongolia and China), Kazakhstan, and Kyrgyzstan** .
   - o In these areas it inhabits the hilly plains and semi-desert slopes.

4. **Features**:
   - o It is a species with soft fur, similar in size to a house cat and its color is light silvery gray or light brown.

- o The head and body lengths range from 45 to 60 centimetres (18 to 24 in), while the tail lengths range from 23–30 centimetres.
- o Weighs between 5 and 3.5 kilograms (5.5 to 7.7 pounds).
- o It can be identified by wide head, high set eyes and low set ears.
- o The end of its tail is covered with rings in black, and some individuals have blurred, black spots on their bodies.
- o The fur of its lower body is about twice as long as the upper part, which probably reflects the habit of lying and bending over on cold ground.

5. **Abode:**
   - o In its southwestern part, where there are cold and dry winters in winter and moderate to low rainfall in summer, its habitat is affected.
   - o The common vegetation of the region includes **small shrubs, artemisia, festuca, and stipa grasses**.

6. **Conservation Status**:
   - o **IUCN Red List**: Least Concern
   - o **CITES**: Appendix II

6.3.7. Need for Green Bank

The detailed study conducted by the Council on Energy, Environment and Water (CEEW) and the Natural Resources Defence Council India (NRDC) has highlighted the need for a green bank in India.

About Green Bank:

1. **Mission-Driven Entities**: Green banks are institutions that are specifically designed to mitigate climate change and provide funding for adaptation projects.
2. **Public, semi-public, or nonprofits:** These entities use public and private capital to meet goals for clean energy projects, thereby reducing emissions.
3. **Bridging the gap between costly green projects and affordable finance:** The Green Bank aims to provide affordable finance for costly green projects so that they can be realized.

Need for Green Bank:

1. **Detailed Study Conducted by Officials: A detailed study conducted by the** Council on Energy, Environment and Water (CEEW) and the Natural

Resources Defence Council India (NRDC) has highlighted the need for a green bank in India.

2. **High Interest Rates and Short Duration of Commercial Banks:** Generally, commercial banks offer credit facilities at high interest rates and for short periods, which do not coincide with the nature of green projects.
3. **Higher Interest Rates than Developed Countries:** For residents of developing countries, where interest rates are higher than in developed countries, it is difficult to get affordable credit, which does not attract investment in green projects.
4. **Obtaining Cheaper Loans from Foreign Sources:** This leads to green projects taking loans from abroad for cheaper loans, which ultimately leads to capital outflow and lack of reinvestment.
5. **Need for Affordable Credit Sources in India:** If an affordable credit source is available in India, it will ensure long-term sustainable financiality.

Key Achievements and Drawbacks of COP29:

1. **Assured Climate Finance: Developed countries assured to provide** $300 billion of climate finance per year to developing countries.
2. **Demand for the Global South:** The Global South (developing countries) had demanded $1.3 trillion of annual climate finance, which is significantly higher than the promised amount.
3. **Challenge of Difference:** This gap shows that there is a large imbalance between the climate finance needs and commitments of developed countries and developing countries.

How do green banks work?
1. **Capital raising:** Green banks raise funds through government grants, environmental cess, and issuance of green bonds.
2. **Targeted Loans:** These banks provide loans to clean energy projects that are economically viable and have assured repayment capacity.
3. **Market Development:** Green banks identify and finance opportunities that maximize environmental and economic benefits.
4. **Reinvestment cycle:** The returned funds are reinvested in new green projects, creating a self-sustaining financing cycle.

Benefits of Green Bank

1. **Decarbonisation Target**: To help achieve the net-zero target by 2070 by providing affordable financial support to green projects.

2. **Cheap financing**: Low interest and long-term loans.

3. **Investment Attraction**: Encouragement of domestic-foreign investment.

4. **Capital conservation**: Reducing the need for foreign debt and maintaining investment in India.

5. **Promote innovation**: Green technology and support to startups.

6.3.8. 2024 Earth's warmest year on record

According to the World Meteorological Organization, 2024 was Earth's warmest year on record, with temperatures reaching 1.5 **degrees Celsius above pre-industrial levels (**1850-1900) for the first time, well above the Paris Agreement limits.

Reasons to declare 2024 as Earth's warmest year:

1. **Extreme Weather Events:**
   - Record-breaking temperatures in 2024 led to events such as heatwaves, droughts, wildfires, hurricanes, and floods.
   - 3°C highlights the dangers of anthropogenic global warming.

2. **Impact of Climate Change: At least** 3,700 deaths and millions of people displaced by climate change in 26 major events in 2024.

3. **El Niño vs. Climate Change:** El Niño affected some events, but climate change was a major contributor to cases such as the Amazon's historic drought.

4. **Floods and Climate Change: Record temperatures in** 2024 led to heavy rains and floods. 15 out of 16 flooding events were caused by climate change.

5. **Impact on Ecosystem:**
   - Droughts and fires in the Amazon rainforest and Pantanal wetlands caused huge damage to biodiversity.
   - Stopping deforestation and protecting the ecosystem is imperative.

6. **Strong Storms:**

   - The warm sea and wind made the storms more destructive.
   - The risk of Category 3-5 storms is increasing in the Philippines due to climate change.

Resolutions for 2025:

1. **Improved Early Warning System:** Implementation of accurate and effective warning system to prevent weather disasters.

2. **Rapid transition to fossil fuels:** Reducing the use of oil, gas and coal and moving towards renewable energy.

3. **Financial Support from Developed Countries:** Financial support for adaptation to developing countries affected by climate disasters.

4. **Real-Time Reporting on Heat Deaths: Real-Time Reporting** for Understanding the Impact of Heatwaves and Timely Action.

6.3.9. Water Cycle and Climate Change

A new report **has revealed** severe disruptions to Earth's water cycle due to climate change, creating **an imbalance in the flow of water between land, oceans and the atmosphere** . The result **has been extreme rainfall,** devastating floods, and widespread droughts, which affected billions of people globally in 2024.

Water Cycle:

The water cycle involves the continuous movement of water, which occurs in solid, liquid, and gaseous states across the Earth's surface, atmosphere, and underground level. This process, powered by the sun's energy, such as evaporation, transpiration, condensation, and precipitation, balances the water availability and weather on Earth.

Components of Water Cycle:

1. **Evaporation:** Water changes from liquid form to vapor, mainly from the oceans, by the sun's energy.

2. **Transpiration:** Plants release water vapor into the atmosphere, which increases moisture.

3. **Condensation :** Water vapour in the atmosphere cools down to form clouds, which form the basis of rainfall.

4. **Precipitation:** Water comes back to the earth in the form of rain, snow, or hail, filling surface and underground water reservoirs.

5. **Infiltration:** Water is absorbed into the soil, recharges groundwater and supports vegetation.

6. **Runoff:** Water flows over land into rivers, lakes, and the sea, thereby maintaining water balance.

Impact of Climate Change on Water Cycle:

1. **Increase in Evaporation and Precipitation:**
   - Rising global temperatures speed up evaporation, which leads to more moisture accumulation in the atmosphere.
   - The atmosphere holds 1% more moisture for every 7°C temperature rise, causing heavier and more frequent rains.

2. **Dry and Dry Soil:**
   - An increase in the evaporation rate makes the soil dry, which reduces the absorption of water during the rainy season.
   - This generates a cycle of dry and surface water flow, making it difficult to retain moisture in the soil.

3. **Possible trends:**
   - Global temperatures are expected to rise by 6–3.1°C by the end of the century, leading to severe disruption of the water cycle.
   - **The IPCC** predicted long-term changes such as more intense droughts and extreme rainfall.

4. **Geographical Changes:** Climate change can alter the location of rainfall belts and deserts.

Ocean waters are getting warmer and acidic:

- **Dying Coral Reefs:**
  - The warm waters of the shallow oceans have caused the destruction of about 25% of coral reefs in the last few decades.
  - Warm water **causes coral bleaching**, which weakens and kills corals.
- **Increased acidity:**
  - Ocean water is becoming more acidic due to absorbing carbon dioxide from the atmosphere.
  - This has made it difficult for coral and sea creatures to build their own shells and bones.

Highlights of the 2024 Global Water Monitor Report:

1. **Disasters and Economic Impact:** In 2024, water-related disasters killed more than 8,700 people, displaced 40 million people, and caused economic losses of $550 billion.

2. **Increase in Extreme Situations:**
   - The incidence of record-dry months was found to be 38% higher than in the baseline period (1995–2005).

- Daily rainfall records were broken 52% more often than in 2000.

3. **Regional Water Storage Trends: Low levels of groundwater storage (**TWS) were observed in most arid regions.
   - The rise in TWS in parts of Africa was an exception.

4. **Projection for 2025**
   - Drought conditions are likely to worsen in northern South America, southern Africa, and parts of Asia.
   - Flooding risks may increase in wet areas such as the Sahel and Europe.

6.3.10. Nitrogen Utilization Efficiency

Researchers have demonstrated that reducing nitric oxide (NO) levels in plants can significantly improve nitrogen absorption and nitrogen use efficiency (NUE) in rice and Arabidopsis.

Key findings of the study:

- **Role of Nitric Oxide (NO):**
  - Nitric oxide affects nitrate absorption by controlling nitrate transporters.
  - Low levels of NO activate high-affinity nitrate transporters (HATs), especially in confined nitrogen conditions.
- **Overrelease of phytoglobin:** Overrelease of phytoglobin, a natural NO scavengers, increases the expression of HATs (such as 1 and NRT2.4), leading to more effective absorption of nitrogen at lower NO levels.
- **Protein Nitrosylation:**
  - Protein nitrosylation, which is the biochemical modification of proteins by NO, plays an important role in nitrogen regulation.
  - By targeting this process, the results of nitrogen use efficiency (NUE) have been improved.
- **NO Scavenging Formulations: The development of** NO scavenging formulations suited to different agricultural ecosystems can be helpful in the reduction of nitrogen fertilizer use.

Importance of Improving Nitrogen Use Efficiency (NUE):

- Reducing the excessive use of nitrogen fertilizers.
- Reducing environmental pollutants, such as nitrate leaching and greenhouse gas emissions.
- To increase crop production.

About Nitrogen Use Efficiency (NUE):

Definition: It refers to the efficiency of plants applying or using fixed nitrogen for biomass production. It is defined as the ratio of crop production and the amount of nitrogen absorbed by roots from the soil or fixed to the atmosphere by bacteria.

Significance:

- NUE is an important quality in crop breeding programs.
- It aims to increase crop production, as well as reduce input costs such as fertilisers and keep nitrogen out of the environment.
- **Problems Associated with Traditional Methods:**
  - Inorganic nitrogen fertilizers are commonly used to increase NUE.
  - These methods, while effective, pose a number of problems:
    - **Increase in Farm Costs:** The use of fertilizers increases the operating cost for the farmers.
    - **Environmental Impact:**
      - Pollution from the emission of nitrogen oxides (NOx) during fertilizer production.
      - Increased greenhouse gas emissions due to excessive use of fertilizers.

Significance of Nitric Oxide (NO):

1. **Regulation of various processes in plants:** NO plays an important role in controlling many physiological processes in plants.
2. **Role in Nitrogen Absorption:**
   - NO activates high-affinity nitrate transporters.
   - It is essential for the absorption of nitrogen, especially in low nitrogen conditions.

6.3.11. River interlinking project, source of environmental disaster

On 25th December 2024, Prime Minister Narendra Modi laid the foundation stone of the Ken-Betwa River Linking Project. The project has been launched with an aim to address the water crisis in the Bundelkhand region spread over parts of Uttar Pradesh and Madhya Pradesh.

Ken-Betwa River Interlinking Project:

1. **Objective of the Project:**
   - The project involves the construction of a dam within the Panna Tiger Reserve, raising concerns over the environmental submergence zone.
   - The project will connect the Ken river (which is supposed to have surplus water) with the water-rich Betwa river.

Historical Perspective of Linking of Rivers:

- **Beginnings:** 130 years ago, Sir Arthur Cotton first envisaged basin-based water transfer.
- **Extension:** It was further refined by M. Visvesvaraya.
- In the 1970s and 1980s, K.L. Rao and Captain Dinshaw J. Dastur named this concept the "National Water Grid".

National Water Development Agency (NWDA)

- The National Water Development Agency (**NWDA**) was established in 1982, with the aim of studying the feasibility of 30 identified river systems.

- Estimated cost of projects: ₹5.5 lakh crore (excluding social, environmental, and operational costs).

Environmental Impact of River Interlinking Project:

1. **Disruption of Ecosystems:**
   - Disrupt local ecosystems and natural water flows.
   - The construction of dams and canals is likely to submerge vulnerable areas such as the Panna Tiger Reserve and threaten biodiversity.
2. **Changes in Hydrology:**
   - Diversion of rivers decreases groundwater recharge and increases salinity in delta areas.
   - Example: Agriculture and livelihoods affected by such problems in the Indus delta.
3. **Loss of Ecological Services:**
   - Negative impact on services such as siltation of rivers, nutrient cycling and habitat support.
   - Neglecting the role of rivers in maintaining biodiversity and soil fertility.

Lessons from Global Examples:

1. **Indus Delta (Pakistan):** Biodiversity decline and ecological damage due to diversion of water flow.
2. **Sardar Sarovar Dam (Narmada River):** Modern Indian example indicating environmental degradation.

3. **International Affairs:**
   o **Kisimi River (Florida):** Environmental damage from river channelization.
   o **Aral Sea:** Destruction of water source due to failure of water management.

Socio-Economic Impact:

1. **Displacement and loss of livelihoods:** The submergence of land and homes from projects, such as the submergence of 9,000 hectares of land from the Daudhan dam, will affect many villages.
2. **Water Inequality:** Despite the objective of delivering water to drought-prone areas, prioritising certain areas can increase inequality.
3. **Economic Dependence:** Local economies may become highly dependent on these large projects, which will not yield sustainable benefits in the event of environmental degradation or project failure.

Way Forward

1. **Promoting Sustainable Water Management:**
   o Implement Integrated Water Resources Management *(IWRM) with community participation*.
   o Use modern irrigation techniques such as drip irrigation.
   o Adopt local methods like rainwater harvesting.
2. **Prioritizing Ecological and Social Impact Studies:**
   o Undertake a comprehensive study of the environmental and social impacts of river interlinking projects.
   o Ensure the protection of biodiversity, livelihoods and deltaic ecosystems.

6.3.12. Miyawaki Technique

As part of the preparations for Maha Kumbh 2025, about 56,000 square meters of dense forests have been prepared using Miyawaki technique in Prayagraj in the last two years.

Green Area Development in Prayagraj:

Green Initiatives in Preparation for Mahakumbh 2025:

- **Clean Air and Healthy Environment: Green areas are being developed with an aim to provide clean air and green environment for millions of people coming to** Mahakumbh 2025.
- **Major Projects:**
  o **Naini Industrial Area:**
    ▪ Planting of 2 lakh trees.
    ▪ Contains 63 different tree species.
  o **Baswar Region:**

▪ The largest garbage dump in the area was cleared and 27,000 trees planted.
▪ Contains 27 tree species.

- **influence**
  o Freedom from industrial waste.
  o Reduction of dust, dirt and foul odor.
  o Contribute to increasing urban green cover.

This initiative is not only helping in environmental improvement but is an effort to make the city more attractive and healthy.

About Miyawaki Technique:

1. **About:**
   o The Miyawaki technique is a pioneering method of growing dense forests.
   o It was developed by Japanese botanist Akira Miyawaki in the 1970s.
2. **Highlights:**
   o It is also known as the 'pot plantation method'.
   o The natural forest ecosystem is mimicked by planting local species in densification.
   o It promotes rapid tree growth and biodiversity.
3. **Objective:** To revive barren and damaged ecosystems by restoring natural processes.
   o Helps in increasing the green cover in urban areas.
4. **Global Use:** This technique has been widely adopted for urban afforestation projects across the world

Important features of Miyawaki technique:

1. **Dense Planting: Trees and shrubs are planted closely** together, allowing growth up to 10 times faster, compared to traditional methods.
2. **Native Species:** Local plant species are mainly planted to mimic the natural ecosystem.
3. **Improved Biodiversity:** It promotes species diversity, thereby supporting more plants and wildlife.
4. **Carbon Absorption: Trees absorb more carbon**, which helps combat urban pollution.

Benefits of the Miyawaki technique
1. **Temperature Balance:** Helps to balance the day-night temperature in summer.
2. **Pollution Reduction:** Reduces air and water pollution and increases biodiversity.
3. **Temperature drop:** This method can reduce the surrounding temperature by 4-7 degrees Celsius.
4. **Specific purpose:** Tsunami protection and help stabilize mine slopes.
5. **In urban environment:** Turns polluted land into green areas in urban areas.

6.3.13. Pesticide Poisoning and Regulation

A new study has revealed that more than 70**% of wild bee species**, which play a key role in the pollination of food crops, are facing a serious threat from pesticide residues **found in the soil**.

What are pesticides?

About:

- **Definition:** Pesticides are chemical or biological substances that are used to prevent, destroy, or control damage caused by pests. They are used both in the farm and non-farm sectors.
- **Concerns:** Incorrect use, excessive use, or illegal sale of pesticides can pose serious risks to human health and the environment.

Types of Pesticides:

1. **Insecticides:** Used to protect crops from insects and pests.
2. **Fungicides:** To control fungal diseases in crops.
3. **Herbicides:** To control or destroy weeds in the field of cultivation.
4. **Bio-pesticides: Pesticides derived from** biological sources such as plants, animals, or bacteria.
5. **Others:** This includes plant growth regulators, nematode killers, rodent killers and fumigants.

Pesticide Poisoning:

- **Definition:** Adverse effects caused by pesticide exposure to humans or animals.
- **WHO report:** Pesticide poisoning is one of the leading causes of death among agricultural workers.

Types of Pesticide Poisoning:

1. **Acute poisoning:** When a large amount of pesticide is ingested into a person's body in a short period of time (through inhalation, skin, or swallowing).
2. **Chronic Poisoning:**
   - It is caused by prolonged exposure to insecticides in small amounts.
   - It can damage various organs and systems of the body.

What is the Status of Pesticides in India?

Status in Production:

- India is the fourth largest global producer of agrochemicals, after the US, **Japan and China**.

- The pesticide market size in India was pegged at ₹229.4 **billion in** 2022, which is projected to grow to ₹342.3 **billion by 2028**.
- Estimated Annual **Growth Rate (CAGR):** 6% to 4.08%.

Favourable Factors:

- The following factors boost production in India:
  - Low production costs
  - Cheap Labor Force
  - Technically trained human resources
  - High production efficiency

Status in Export:

- **According to the World Trade Organization** (WTO), India has moved from sixth place to second place in **the last 10 years in pesticide exports**.
- **India's exports of agrochemicals stood at** US$ 5.4 **billion (₹43,223 crore) in the** financial year 2022-23, **up from US$ 4.9** billion **(₹36,521 crore) in the financial year 2021-22**.
- **Major importing countries:** USA, Brazil, Japan.

Concerns Associated with the Use of Pesticides:

1. **Health Risks**
2. **Environmental Impact**
3. **Residues in food**
4. **Effects on non-target organisms**
5. **Pest Resistance**

Regulation of pesticides in India
1. **Insecticides Act, 1968: Regulation of manufacture**, import, transport and storage of pesticides under the Central Insecticides Board and Registration Committee (CIB & RC) by the Ministry of Agriculture.
2. **CIB & RC:** Decides the registration, restriction or limited use of pesticides.
3. **FSSAI: Aligns** the maximum residue limit (MRL) in food with the standards of the Codex Alimentarius Commission and the European Union.
4. **Anupam Verma Committee:** Constituted to review 66 pesticides, which are banned/restricted abroad but registered for use in India.

6.3.14. What are Blue Flag certifications?

Kerala's Kappad Beach (Kozhikode) and Chail Beach (Kannur) have achieved the coveted Blue Flag certification for meeting high environmental and safety standards .

About Blue Flag Certification:

- **Definition:** The Blue Flag is an internationally recognized eco-label, awarded to beaches, marinas and sustainable boating tourism operators as a symbol of their environmental excellence.
- **Certification Authority:**
  - o It is awarded by the Denmark-based Environmental Education Foundation (FEE).
  - o Established in 1985, this certification promotes sustainable development in coastal areas.
- **Eligibility and Criteria:**
  - o Blue Flag certification is awarded every year to beaches and marinas of FEE member countries.
  - o **To get the Blue Flag certification, one has to meet 33 stringent criteria, which are divided into four major categories**:
    1. **Environmental Education & Information**
    2. **Bath Water Quality**
    3. **Environmental Management**
    4. **Protection & Security Services**

International Jury:

- **The decision to grant the Blue Flag** certification is taken by an international jury, consisting of the following representatives:
  1. **United Nations Environment Programme (UNEP)**
  2. **United Nations World Tourism Organization (UNWTO)**
  3. **Environmental Education Foundation (FEE)**
  4. **International Union for Conservation of Nature (IUCN)**
- **Global Reach:**
  - o More than 4,000 beaches around the world have received the Blue Flag certification.

- o Spain has 729 certified sites, followed by Greece.
- **Blue Flag beaches of India:** India has 13 Blue Flag beaches, such as Kappad and Chail, which reflect India's commitment to environmental coastal management.
- **Annual Update:** The Blue Flag certification updates every year, and landmarks have to consistently meet the criteria to maintain their location.
- **India's Environmental Label BEAMS:** India has introduced its own eco-label BEAMS based on the model of Blue Flag certification .

BEAMS (Beach Environment & Aesthetic Management Services)

- **Objectives:**
  - o Develop world-class facilities on Indian coastlines, while ensuring environmental sustainability.
  - o Promote beach cleaning, conservation and sustainable tourism, which conform to global standards.
- **Launch and Implementation:**
  - o BEAMS was launched by the Ministry of Environment, Forest and Climate Change under the Integrated Coastal Zone Management Project (ICZMP).
  - o The objective is to make beaches environmentally friendly and ensure compliance of safety standards and public amenities.
- **Highlights:**
  - o **Reducing Pollution:** Emphasis on reducing pollution on beaches and preserving coastal ecosystems.
  - o **Supporting local communities:** Generating employment opportunities in beach management and eco-tourism.
  - o **Promotion of Green Technologies and Renewable Energy:** Promoting the use of green technologies and renewable energy in beach infrastructure development.

India's first Blue Flag beach:

- **Chandrabhaga beach**, which is located on Odisha's Konark coast, is the first beach in Asia to receive the Blue Flag certification. This certification is given to beaches that are eco-friendly and clean, and have facilities of international standards for tourists.

6.3.15. Mission Mausam

The Prime Minister inaugurated 'Mission Mausam' on the occasion of the 150th anniversary of the India Meteorological Department (IMD).

About Mission Mausam:

- **Objective:** To make India a 'weather-ready and climate-smart' nation, to boost weather and climate science, research and services.
- **Budget and implementation:** Allocation of ₹2,000 crore, for two years. It will **be implemented by the Indian Meteorological Department** (IMD), **the Indian Institute of Tropical Meteorology (IITM)** and **the National Centre for Medium-Range Weather Forecasting (NCMRWF).**
- **Highlights of Mission Mausam:**
  - **Accurate Forecast:**
    - Real-time local weather forecast.
    - Research on weather management techniques.
  - **Use of Advanced Technology:**
    - Modern Weather Monitoring System.
    - High-resolution atmospheric observations.
    - New generation radars, satellites, and high-performance computers.
  - **Data-Based Forecasting:**
    - Improve spatial and temporal accuracy.
    - Solutions to the challenges of climate change.
  - **Air Quality Monitoring:** Detailed Air Quality Data for Long-Term Strategies.

Significance of Mission Mausam:

1. **Extreme Weather Events:**
   - Incidents such as cloudbursts, lightning, and heavy rains are common in India.
   - Need for better forecasting for small-scale events.
2. **Weather Modification:**
   - A technique of increasing or stopping precipitation by spraying silver iodide into clouds.

   - Successful use in other countries (USA, China, UAE).
3. **Flood Prevention:** Changes in rainfall patterns in flood-affected areas.
4. **Drought Solution:** Reducing water problem by artificial rain in drought areas.

Challenges of Weather Forecasting in India:

1. **Complexity of Atmospheric Processes:** Tropical location and uncertainty of the monsoon make forecasting difficult.
2. **Decrease in Local Forecasting Capability:** The IMD provides forecasts only for a 12 km x 12 km area, which is not sufficient for a specific location within a city.
3. **Inadequate equipment:** IMD has only 39 Doppler radars and no wind profilers, while China has 217 radars and 128 wind profilers.
4. **Misinterpretation of Forecast: Misinterpretation of** satellite images, radar, and other data leads to repeated forecast lapses.
5. **Impact of Climate Change:**
   - Erratic weather patterns lead to local phenomena such as heavy rains and droughts.
   - The understanding of phenomena such as cloudbursts, thunderstorms is still limited.

India Meteorological Department (IMD)

1. **Installation and Purpose:**
   o IMD was established in 1875.
   o It is the country's national weather service and the principal government agency in all matters related to meteorology.
2. **Principal Officer:** The head of IMD is Director General of Meteorology.
3. **Regional Centres:**
   o 6 Regional Meteorological Centres:
     ▪ Headquarters: Mumbai, Chennai, New Delhi, Kolkata, Nagpur, and Guwahati.
4. **Headquarters:** IMD is headquartered in New Delhi.
5. **Ministry:** Currently IMD comes under the Ministry of Earth Sciences (MoES).

6.3.16. Temperature rise slows in India

According to the latest report by the Intergovernmental Panel on Climate Change (IPCC), the temperature rise in the Indian subcontinent has been recorded less than the global average.

Global Temperature Rise:

1. **Total increase:** The global annual average temperature **has increased** by 1°C, compared to the average period of 1850-1900.
2. **Temperature Rise on Land: The temperature on land has increased by** 59°C **since the Industrial Revolution**.
3. **Ocean Temperature Rise:** The temperature of the oceans **has increased** by about 88°C, leading to sea level rise and ecological shifts.

WMO confirms 2024 as the warmest year on record:

1. **Global Temperature Record:**
   o 2024 is the warmest year on record.
   o The last ten years between 2015-2024 were the warmest years on record.
2. **Temperature Rise in India:**
   o According to the Indian Meteorological Department (IMD), the temperature rise in India is lower than the global average rise.
   o Global climate models do not accurately reflect changes in India.
3. **Concerns and Need for Reform:**
   o India needs to improve its climate monitoring and impact assessment capabilities.

   o Better local climate modelling will help in accurate data and effective policy formulation.

Causes of Comparatively Low Temperature Rise in India:

1. **Tropical Location:** Due to its proximity to the equator, India has less fluctuations in temperature than the polar and temperate regions.
2. **Aerosols and particulate matter:** High concentrations of aerosols in India scatter sunlight, leading to a cooling effect.
3. **Impact of Monsoon:** The Indian monsoon system balances the surface temperature through seasonal rainfall.
4. **Ocean Effect:** The oceans around India regulate the temperature and absorb heat.
5. **Land Ratio:** Due to the small land area of India compared to the global land areas, the temperature rise is relatively low.

Challenges in Controlling Global Temperature Rise:

1. **Rising Emissions:** Despite global efforts, the use of fossil fuels and the emission of greenhouse gases remain at high levels.
2. **Economic Dependence:** Many countries, including India, are highly dependent on coal and oil for energy.
3. **Global Inequality:** Inequality in responsibilities and capacities disrupts integrated climate action.
4. **Inadequate Financial Support:** Climate adaptation and mitigation efforts in developing countries are facing financial limitations.
5. **Climate denial:** Conflict from interest groups and campaigns that spread misinformation slow progress on international agreements.

Measures to Control Global Warming

1. **Adoption of Renewable Energy:** Reducing dependence on fossil fuels by rapidly using solar, wind and hydropower.

2. **Afforestation:** Large-scale tree planting initiatives can act as a carbon sink and prevent deforestation.

3. **Climate policies:** Strengthening international agreements such as the Paris Agreement and ensuring emissions reductions.

4. **Technological integration: investments in** carbon capture, storage, and other green technologies.

5. **Public Awareness:** Educating communities about climate change, so as to promote grassroots action and policy support.

6.3.17. Nagarhole Tiger Reserve

The population of spotted deer in Nagarhole Tiger Reserve has increased impressively to a density of 28 per square kilometre.

About Chital (Spotted Deer):

- **General Introduction:**
  - **Scientific Name**: Axis Axis
  - **Common Name**: Chital or Spotted Deer
  - **Importance**: One of the most common deer of India, which plays an important role in the ecology of forests.
- **Distribution:**
  - **Natural areas**: India, Nepal, Bhutan, Sri Lanka and Bangladesh (especially the Sundarbans region).
  - **Introduced Areas**: Andaman Islands (India), Argentina, Australia, Texas (USA), and other locations.

- **Housing and Diet:**
  - **Preferred habitat:** deciduous forests, grasslands and shrub areas.
  - **Diet**: Mainly dependent on grasses, leaves, fruits and herbs.
- **Features:**
  - **Unique habit:** engaging in plasentophagy (umbilical cord eating), thereby removing traces of odor to avoid predators.
  - **Active period:** More active in the morning and evening (crepuscular behavior), but sometimes finds bait during the day.
- **Ecological Role:**
  - **Predator-prey relationship**: The main prey of large predators such as tigers and leopards.
  - **Ecological Contribution:** Helps in the dispersal of seeds and maintains the ecology of grasslands.
- **Conservation Status:**
  - **IUCN Red List:** Listed as "Least Concern", due to its wide distribution and stable population.
  - **Wildlife Protection Act (1972):** Included in Schedule II, which provides it protection from poaching.

Nagarhole Tiger Reserve:

Location & Area Description:

- **Location:** Spread over Mysore and Kodagu districts of Karnataka.
- **Area:** 981 km² in total.
  - **Core area:** 392 sq. km.
  - **Buffer Zone:** 589 sq. km.
- **Geographical location:** Located between Bandipur Tiger Reserve and Wayanad Wildlife Sanctuary, which connects important wildlife corridors.

7 Science & Technology

7.1. Future of Thorium-based Nuclear Energy in India

Context:

India's largest power producer, **National Thermal Power Corporation (NTPC) Limited** has signed a strategic agreement with US-based **Clean Core Thorium Energy (CCTE).** The objective of this agreement is to collaborate for the development and deployment of advanced nuclear energy for **enriched life (ANIL)** thorium-based fuel. ANEEL developed by **CCTE is a thorium-based fuel for** pressurised heavy water reactors (PHWR). Through this, **the Department of Atomic Energy (DAE)** is formulating a long-term strategy to utilise India's vast thorium reserves.

ANEEL: Mixture of Thorium and HALEU:

ANEEL is a **patented** nuclear fuel, which **is a mixture of thorium** and **high assay Low Enriched Uranium (HALEU).**

- **HALEU** is uranium enriched from 5% to 20%, which is essential for many advanced nuclear reactor designs.
- Currently, it is produced only **in** Russia **and** China, while its production in the US is limited.

Compatibility of ANEEL with PHWR

- **ANEEL fuel can be** used in the existing **PHWRs** (Pressurised Heavy Water Reactors), which are currently India's source of nuclear power.
- India has 22 reactors in operation, with a total installed capacity **of 6780 MW**. Of these, 18 reactors are PHWR.
- India **is building 10 more** PHWRs, each with a capacity of **700 MW**.

Role of ANIEL in Thorium Deployment
ANIEL fuels provide a simple and fast alternative to **thorium deployment** using imported **HALEU**. This **avoids the traditional method of production of uranium-233**, which is a labour-intensive process around thorium and uranium/plutonium reactors.

Benefits of ANEEL
- **Efficiency: The** burn-up efficiency of ANIEL **fuel is** 60,000 MWe-day per tonne, while for conventional natural **uranium** it is only **7,000 MWe-day per tonne**.
- In a typical **220 MW PHWR**, the lifetime of fuel bundles is **reduced from 1,75,000 to** 22,000, thereby reducing **the amount of waste** and operating expenses.
- **Nonproliferation**: **Thorium** and **ANIEL** fuels are non-weaponized, reducing proliferation concerns for foreign **uranium suppliers** and reactor operators.
- **Economic and Environmental Impact**: ENEL's **high efficiency** and **long-lasting fuel bundles** reduce the operating costs of the reactors, which coincides with India' **s clean energy goals**. It will also help in enhancing India's nuclear capability, as highlighted in the global commitment at **COP28**.
- **Global Cooperation**: Canadian Nuclear Laboratories and **CCTE** have **signed a Memorandum of Understanding to promote ANEEL** fuel development and licensing, promoting HALEU-thorium **blending on a global scale**.

Thorium: Introduction and Abundance:

Thorium is a **silvery-like** radioactive metal, commonly found in **igneous rocks** and **heavy mineral sand**.

- The average concentration of thorium at the Earth's surface **is 10.5** parts per million (ppm), which is three times higher than **that of** uranium **at 3 ppm**.

- The only naturally occurring isotope of thorium **is thorium-232**, which **is fissile** but **not fissile (cannot continue the chain reaction)**.
- Thorium-232 requires high-energy neutrons **for fission**.

Thorium-based nuclear reactors: a new direction

- Thorium-based nuclear reactors use **thorium-232 as primary fuel** instead of **uranium-235** or **plutonium-239**. Thorium itself **is not a** fissile material, but it is fertile, i.e. an external fissile material such as **uranium-235** or **plutonium-239** is needed to use it as fuel.
- **Thorium and Fission**: Thorium-232 requires **high-energy neutrons** for fission, so that it can initiate and sustain chain reactions from external neutrons.

Fuel Cycle Strategies

- **Thorium with Low Enriched Uranium (**LEU): In this**, LEU** (19.75% enrichment) is mixed with thorium to prepare **thorium-LEU mixed oxide (MOX)** fuel.
- **Thorium with Plutonium (**Pu): In this combination, plutonium is used as an external fissile reservoir.

Advantages:

- **Reduction of Nuclear Waste**: Thorium-based reactors generate fewer long-term short actinides than uranium-plutonium fuel cycles .
- **Safety**: The presence of 232U **in thorium** generates gamma radiation, which prevents armament.
- **Recycling capacity**: 233U has low non-fissile absorption, facilitating **multiple recycling cycles**, and improving fuel efficiency.
- **Improved Fuel Utilization**: Thorium can generate more fissile uranium-233 than water-cooled or thawed-salt reactors, ensuring efficient use **of the fuel**.

INDIA'S THREE-STAGE NUCLEAR PROGRAMME

Homi Bhabha envisioned India's nuclear power programme in three stages to suit the country's low uranium resources profile

Stage 1 Heavy water reactors fuelled by natural uranium produce plutonium.

Stage 2 Fuelled by a mix of plutonium and with natural uranium. With sufficient Stocks, thorium is introduced to convert it into U-233.

Stage 3 Mix of thorium and uranium fuels the reactors. Thorium transmutes to U-233, which powers the reactors.

Tarapur Atomic Power Station

Challenges:

- **Extraction Cost**: Thorium extraction is expensive as it **is obtained from** moniazite mining, which makes dedicated mining non-profitable.
- **Dependence on Fissile Conductors**: Thorium requires external fissile materials such as uranium-235 **or** plutonium-239 **to initiate and sustain the chain reaction**.
- **Limited Experience**: Most nuclear power systems **are optimized for** uranium, due to which research, development, and operational experience on thorium is limited.

India's Three-Stage Nuclear Power Programme:

India's nuclear energy strategy, known as Dr. **The project, prepared by** Homi Bhabha, **is based on** thorium, which focuses on harnessing India's vast thorium reserves.

1. **Step-1: Use of PHWR** reactors that use natural **uranium** and **heavy water (deuterium oxide)** as coolants.
2. **Stage-2: Plutonium-powered reactors** in Fast Breeder Reactors (**FBRs**), which **also generate Uranium-233**.
3. **Phase-3: Development of** thorium-based reactors using **Uranium-233** and Thorium to use **Uranium-233** as India's primary nuclear fuel.

- **The commissioning of the Prototype Fast Breeder Reactor (PFBR)** marks the beginning of the second phase of this programme. The reactor **produces** Uranium-233 and has already started functioning at the Madras Atomic Power Plant (MAPP) at **Kalpakkam in Tamil Nadu**.

Conclusion:

India's **thorium-based nuclear energy** strategy is a concrete step towards meeting the country's energy needs and **clean energy goals**. With the development of **advanced thorium fuels** like **ANIEL**, India's nuclear power programme can get an important place on the global stage. The use of thorium **provides the ability to generate energy with** low waste **and** high efficiency, which gives it the opportunity to emerge as **the energy solution of the future**.
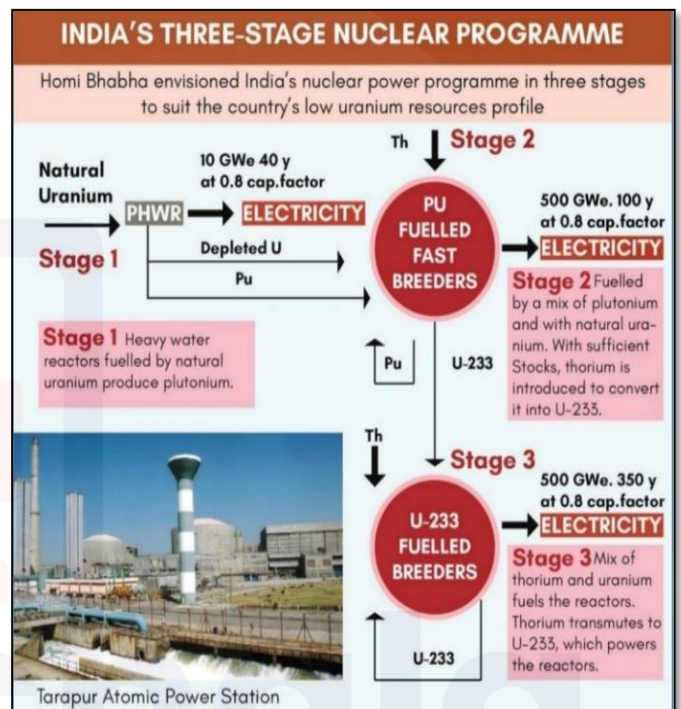
7.2. Third-Party Audit for Smart Cities Mission

Context:

Recently, a Parliamentary Standing Committee on Housing and Urban Affairs has flagged the need for a third-party assessment of projects under the Smart Cities Mission (SCM). The objective is to identify and rectify implementation gaps, especially in smaller towns.

Introduction to Parliamentary Standing Committee:

- **Standing Committees**: These committees are permanent and work from time to time. These are generally of six types:
  1. Financial Committees
  2. Departmental Standing Committees
  3. Inquiry Committees
  4. Committees for Investigation and Control
  5. Committees dealing with the day-to-day functioning of the House
  6. Housekeeping committees or service committees
- **Ad-hoc Committees**: These are temporary and dissolve only after completing the assigned task.

Need for Third-Party Audit for SCM:

1. **Evaluation and Transparency**: Third-party assessment provides an unbiased analysis of the project's progress and impact. This allows the project to identify gaps and identify areas that need improvement. It promotes transparency, which increases the confidence of citizens and investors.
2. **Evidence-Based Policy**: It helps in policy formulation, as it shows what urban development needs to improve and how other initiatives like AMRUT and DAY-NULM can be successful.
3. **Addressing Inequalities**: Larger cities perform better because of better resources, while smaller cities face problems in project execution. Third-party audits can highlight these inequalities and suggest strategies for balanced growth.
4. **Strengthening of Urban Local Bodies (**ULBs): Many ULBs do not have adequate technical and financial capacity for large projects. Third-party evaluation can enhance the efficacy of best practices by identifying them, enabling informed policy making and efficient resource allocation.
5. **Future Planning and Sustainability**: It provides valuable insights for the future stages of the SCM. This can further strengthen urban development planning and promote integrated development from economic, social, and environmental perspectives.

What is the Smart Cities Mission (SCM)?

About: The Smart Cities Mission (SCM) is a centrally sponsored scheme that was launched in June 2015. It aims to transform 100 cities in India by providing them with the necessary infrastructure. Additionally, it aims to provide a clean and sustainable environment in cities and a decent quality of life to citizens through the application of "Smart Solutions".

aim

- **Efficient Use of Resources and Green Spaces**: Promoting Environmental Sustainability.
- **Access to Facilities**: Ensuring access to clean water, electricity, sanitation, healthcare, and public facilities.
- **Improving Governance**: Improving governance through digital platforms, e-governance, and citizen participation.
- **Housing Solutions for Economically Weaker Sections**: Providing affordable housing.
- **Smart traffic management**: Improving public transport systems and reducing congestion.
- **Ensuring Safety**: Protection of citizens, especially vulnerable groups, through surveillance and emergency services.
- **IT Infrastructure**: Creation of robust IT infrastructure for seamless access to services and information .
- **Development of Model Cities**: Building model cities to showcase best practices for other cities.

Main Components

1. **Field-Based Development:**
   o **Redevelopment**: Upgradation of existing urban areas with improved infrastructure (e.g., Bhendi Bazar, Mumbai).
   o **Retrofitting**: Modernization of infrastructure in existing localities (e.g., local area development of Ahmedabad).
   o **Greenfield development**: Creation of new, sustainable urban spaces (e.g., New Town Kolkata, GIFT City).
2. **Pan-City Solutions: Adoption of Information and Communication Technology (**ICT) solutions in areas such as e-governance, waste and water management, urban mobility, and energy efficiency.
3. **Governance Structure:**
   o Implementation through Special Purpose Vehicles (SPVs) set up under the Companies Act, 2013 led by bureaucrats or industry representatives.
   o **Emphasis will be laid on the Public-Private Partnership (PPP)** model.

Major Development and Financial Progress under SCM:

- **Completed Projects**:
  o The mission was targeted to be completed by the year 2020, but its deadline has been extended to March 2025.
  o As of 3rd July 2024, out of more than 8,000 projects worth Rs 1.6 lakh crore, 7,188 projects (90%) have been completed. The remaining 830 projects, costing Rs 19,926 crore, are at an advanced stage of implementation.
- **Financial Progress**:
  o The Government of India allocated Rs 48,000 crore, out of which Rs 46,585 crore (97%) has been released to cities.
  o Ninety-three per cent of the funds released have been utilized.

  o 74 cities have received full financial support under the Mission.

The Smart Cities Mission is working with a comprehensive and holistic approach to improve the quality of urban life in Indian cities.

Challenges in Implementation of SCM Projects:

1. **Cost and financing**: Smart city projects have large financial requirements. These investments go into infrastructure advancement, installation of sensors and networks, and their maintenance. While some cities have received 100% central funding, others have not yet received full funds, slowing down the pace of projects.
2. **Displacement and Social Impact**: A large number of people in urban areas of India live in slums. During the smart city projects, people from some of the poorer areas such as street vendors have been displaced, which has

affected the social fabric and negatively impacted the lives of the poorer section.

3. **Project Completion Delays**: The mission deadline has been extended, yet many projects are still incomplete. This could be due to inadequate planning, lack of technical expertise, and problems in land acquisition and clearances.

4. **Privacy and Data Security**: Smart city projects involve massive data storage, which can lead to the risk of data breach, unauthorized access, and misuse. This can undermine the confidence of citizens. This requires strong cybersecurity and clear data governance policies.

5. **Lack of Coordination**: Differences in priorities, bureaucratic hurdles, and ambiguity of roles between the central, state and local governments are causing problems in coordination, affecting the smooth implementation of the mission.

6. **Sustainability Concerns**: Many smart city projects emphasize technology, while other important aspects of urban planning and governance are ignored. Questions are being raised about its long-term stability and effectiveness.

Way Forward

1. **Solving Funding Problems**: Smart city projects can be strengthened through PPP models and with central, state,

and international financial assistance. Transparent fund allocation and regular monitoring can ensure the progress of projects.

2. **Capacity Building**: Urban Local Bodies (ULBs) can be empowered **with the support of the central government** to improve governance and increase the capacity of project execution in small towns.

3. **Timely Project Completion**: Detailed planning and approval processes need to be improved to remove land acquisition and other hurdles.

4. **Data Security**: Strengthening cybersecurity measures and protecting privacy requires a clear governance framework.

5. **Sustainability and long-term planning**: Environmental, social, and economic **sustainability should be prioritized in smart city projects**. Develop long-term operation and maintenance (O&M) strategies to ensure the longevity of smart city infrastructure.

Conclusion: The Smart City Mission needs significant improvement, especially to increase the pace of implementation in smaller cities. Timely intervention, effective governance reform, and focus on sustainability can make this mission more effective and inclusive.

7.3   Preliminary Examination

7.3.1.   Parker Solar Probe

NASA's Parker Solar Probe has made history by making history by making the closest approach to the sun. The spacecraft is on a mission to gather critical information about the Sun and will help understand solar movements.
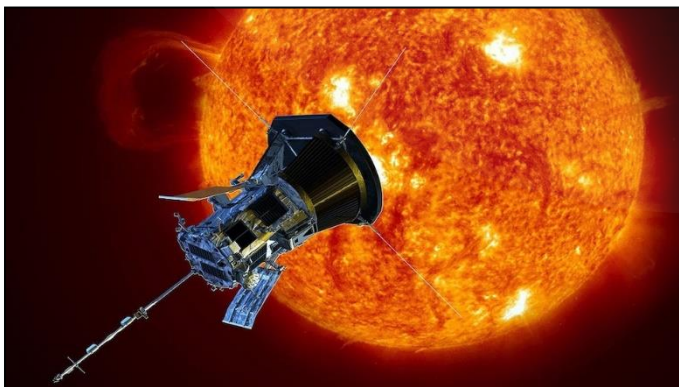
Key Points:

1. **New Speed Record:**
   o The Parker Solar Probe traveled at a **speed of about 700,000 km/h**.
   o It has become the fastest man-made object ever.

2. **Facing Harsh Conditions:**
   o The spacecraft **withstood high temperatures of up to 1,400°C**.
   o The intense radiation could have affected the onboard electronics, but it was kept safe.

3. **Record-setting passes:**
   o This mission is the first of three passes.
   o The next passes **are scheduled for March 22, 2025** and **June 19, 2025**.
   o Both spacecraft will reach the same distance near the Sun.

4. **Launch and Orbital Travel:**
   o The mission was launched in 2018.

o Gravity was used while passing near the planet Venus.

o The spacecraft was brought closer to the sun, shortening the orbit.

Significance of Flyby:

1. **Understanding the Sun's Temperature:** Figuring Out How the Sun's Corona Temperature Rises by Millions of Degrees.

2. **The study of the solar wind:** tracing the origin of a continuous stream of charged particles emanating from the sun (the solar wind).

3. **Exploring energetic particles: understanding** how fast particles in the Sun's atmosphere are to near the speed of light.

4. **Important Information:**

   o The data obtained from this mission will provide a better understanding of solar phenomena.

   o It will help in space weather prediction and solar physics.

   o Solar energy will also enhance the understanding of processes and the Sun-Earth relationship.

Parker Solar Probe:

About:

- **Launch Year**: 2018

- **Mission Operations**: NASA (National Aeronautics and Space Administration)

- **Objective**: To observe the outer corona of the Sun.

Objectives:

1. **The study of energy flows**: figuring out how the Sun's corona heats up to millions of degrees.

2. **Study of the structure of the solar wind**: understanding the flow of the solar wind and the reasons behind its acceleration.

3. **Analysis of plasma and magnetic fields**: studying their structure and dynamics.

4. **The study of the acceleration of energy particles**: Finding the mechanisms behind the acceleration and transport of these particles.

Features:

- **Closest to the Sun**: It has become the closest artificial vehicle to the Sun so far.

   o It entered an orbit closer to the Sun using Venus's gravity.

- **Solar Shield**: Developed for protection from the sun's intense heat and radiation.

   o Materials:

      ▪ Made of carbon-carbon composites.

      ▪ Core: Carbon foam.

   o Temperature tolerance: more than 1370°C.

Scientific Significance:

- This mission marks a major progress in gaining a deeper understanding of the Sun.

- It will help us understand not only about our Sun but also the way other stars in the universe work.

7.3.2. Increasing GPS interference in India's borders

Globally, cases of GPS interference, including spoofing attacks, have increased, especially near India's border with Pakistan and Myanmar. This poses a serious threat to aviation safety, as it can affect navigation accuracy and flight operations.

GPS Interference and Spoofing:

1. **GPS interference:** Disruption in the accuracy of GPS signals used for navigation.

2. **Spoofing:**

   - A cyber attack, in which false GPS signals are sent so as to mislead the navigation system.

   - The attacker mimics real GPS signals, causing the system to guess the wrong location, speed, or altitude.

3. **Influence:**

   - Disruption in the accuracy of navigation for planes and drones.

   - Incorrect speed or terrain warnings are generated.

   - Used to mislead enemies in modern warfare and conflict zones.

4. **Examples of affected areas:**

   - Frequent incidents on the India-Pakistan and India-Myanmar borders.

   - Azerbaijan Airlines contributed to the crash.

5. **New hotspots (from 2023):**

   - Northern Iraq (Baghdad region).

   - Black Sea region.

   - Western Russia and the Baltic Regions.

   - North and South Korea border region.

- India-Pakistan and India-Myanmar borders.

Inertial Reference System (IRS):

- **Definition:** It is an independent navigation system that provides position, speed, and orientation without external cues such as GPS.
- **Constituent:**
  - **Gyroscope:** Measure angular momentum.
  - **Accelerometer:** Track linear acceleration.

Procedure:

- Calculates the position by integrating the data obtained from the gyroscope and accelerometer , which corresponds to a known starting point.
- Works independently of external signals, ensuring reliability in anti-GPS environments .
- If the GPS fails, it can function safely for up to five hours.

Importance:

- It serves as an additional mechanism to maintain the accuracy of navigation.
- GPS ensures the safety of the aircraft during jamming or spoofing attacks.

Recent Events and Impacts:

- **Azerbaijan** Airlines **crash:**
  - The accident, which took place on 25 December 2024, killed 38 people.
  - The reason for this was associated with GPS interference, including Russian air defense operations and Ukrainian drones.
- **Growth of GPS Spoofing:** 300 incidents were recorded daily in January 2024, which increased to 1,500 by August 2024.

Areas affected and reporting:

- **Airspace of Delhi:**
  - In one month, 316 flights were affected by GPS spoofing.
  - Pilots often report interference on flights to international destinations from Amritsar and North India.
- **DGCA Directions: The** Directorate General of Civil Aviation (DGCA) has suggested airlines to set up safety protocols.
  - However, reporting of incidents is low and data has not been disclosed.

7.3.3.   In-flight Wi-Fi service

Air India has introduced in-flight Wi-Fi services, making it the first airline in India to provide internet connectivity on domestic flights.

Extension of Wi-Fi service in Air India's domestic flights:

1. **Availability:**
   - Wi-Fi service **will be provided on Airbus A350, Boeing 787-9, and select Airbus** A321neo **aircraft**.
   - The service will be available on aircraft that **Air India acquired after its merger with Vistara in 2024**.
2. **Technical preparation of the facility:** the hardware necessary for onboard Internet is already installed **in these aircraft**.
3. **Pre-position:**
   - Vistara was already providing this service in partnership with Nelco and Panasonic Avionics Corporation **on select international flights**.
   - Now this partnership has been extended to Air India's domestic flights as well.
4. **Connectivity Process:**
   - Passengers should turn on Wi-Fi on **their device**.
   - **Connect to the 'Air India Wi-Fi'** network.

- **Enter your** PNR and last name **when redirected to** the portal.

5. **Importance of the Scheme:**
   - The rollout, which earlier started as a pilot program on international flights, is now expanding to domestic flights.
   - This is a significant step towards improving passenger experience in line with Air India**'s global standards**.

How does the in-flight Wi-Fi service work?

1. **Wi-Fi Antennas:**
   - The cabin of the aircraft **is fitted with several Wi-Fi antennas** that receive signals from the passengers' devices.
   - These signals are sent **from in-cabin antennas to the onboard server**.
2. **Technologies for in-flight internet connectivity:** In-flight **connectivity systems mainly use two types of technologies**:
   - Special antennas and other equipment are installed on the aircraft.

Air-to-Ground (ATG) Technology:

- **Functioning:** An antenna is mounted under the aircraft that receives the signal from the nearest **ground tower or ground receiver** and provides connectivity to the aircraft.
- **Limitations:**
  - The biggest limitation is the availability of ground towers.
  - If the plane **passes through water bodies, desert land,** or sparsely populated areas, the network may be disrupted.

Satellite-Based Connectivity:

- **Procedure:**
  - Internet is **transmitted from the ground station to the aircraft via satellites** .
  - Antennas are mounted above the aircraft that receive signals.

Advantage:

- **It offers comprehensive coverage.**
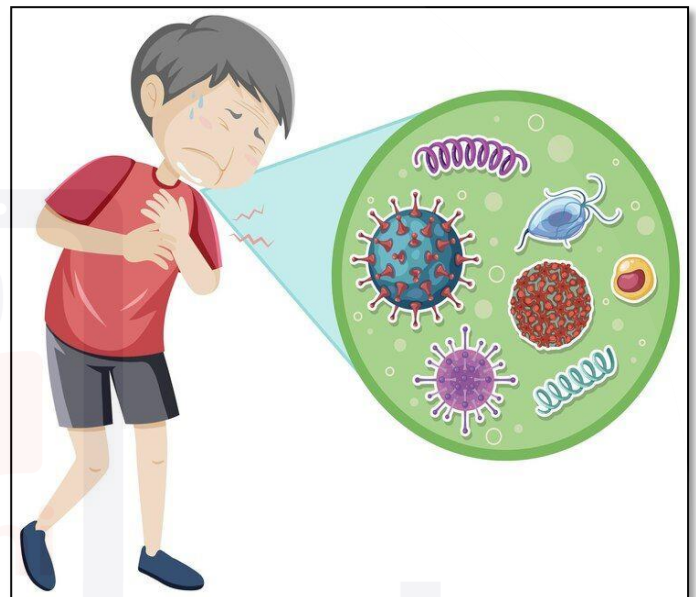- **This ensures connectivity in areas where ground towers are not available, such as over the sea.**

Concerns:

- **Lack of encryption**
- **Fake Network**

- **Malware threat**
- **Man-in-the-Middle Attack**
- **Device vulnerabilities**

7.3.4.   Norovirus

During the week of December 5, the CDC confirmed 91 cases of norovirus, more than double the highest number of cases recorded between 2021 and 2024.

Norovirus Outbreak:

1. **Outbreaks in India: Small outbreaks of norovirus** have also been reported in India, especially in Kerala.
2. **According to the World Health Organization (WHO):** Norovirus affects an estimated 685 million people every year, including 200 **million** children under the age of five.
3. **According to the United States Centers for Disease Control and Prevention (CDC):** Norovirus is the cause of 58% of all foodborne illnesses in the country .

About Norovirus
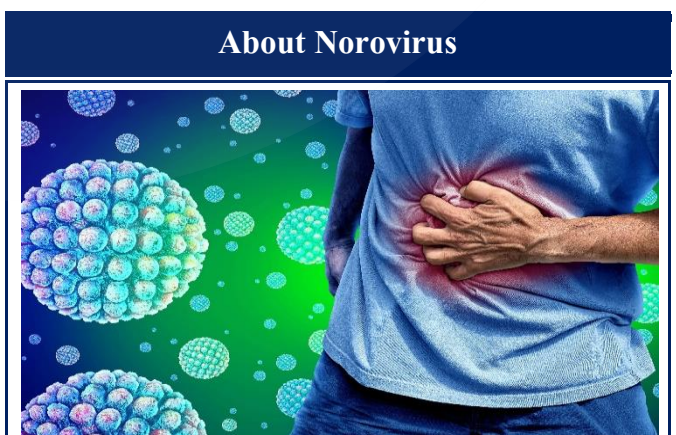
introduction

- Norovirus is a common and highly contagious virus that causes inflammation in the stomach and intestines (gastroenteritis).

- It is also sometimes called 'stomach flu' or 'winter vomiting bug'.

- This virus can affect people of all age groups and spreads very easily and quickly.

Impact and spread

- Norovirus causes about 90% of viral gastroenteritis outbreaks and 50% of cases worldwide.

- It can infect multiple times in life, as there are many different types of norovirus.

Mode of infection

- It is usually spread through food or water, which becomes contaminated during preparation, or through contaminated surfaces.

- It can also spread through close contact with an infected person.

symptom

- The initial symptoms of norovirus are vomiting and/or diarrhea, which appear a day or two after exposure to the virus.

- Patients may also feel nausea, abdominal pain, fever, headache, and body aches.

- In severe cases, dehydration can occur due to lack of fluids .

remedy

- There is no vaccine available to prevent norovirus.

- The main aim of treatment is to reduce the symptoms.

- In the acute stage, it is necessary to maintain the lack of water in the body.

- In severe cases, patients may have to be given fluids through intravenous (IV) medium.

7.3.5.   Stabilization lysozyme bilayer

A team of scientists from the Indian Institute of Science and Technology-Guwahati has developed new studies on stabilizing lysozyme bilayers on silicon surfaces. This work replicates the ionic-related adhesive mechanism of proteins in living organisms, which will be helpful in the study of biological processes involving implants and biomaterials.
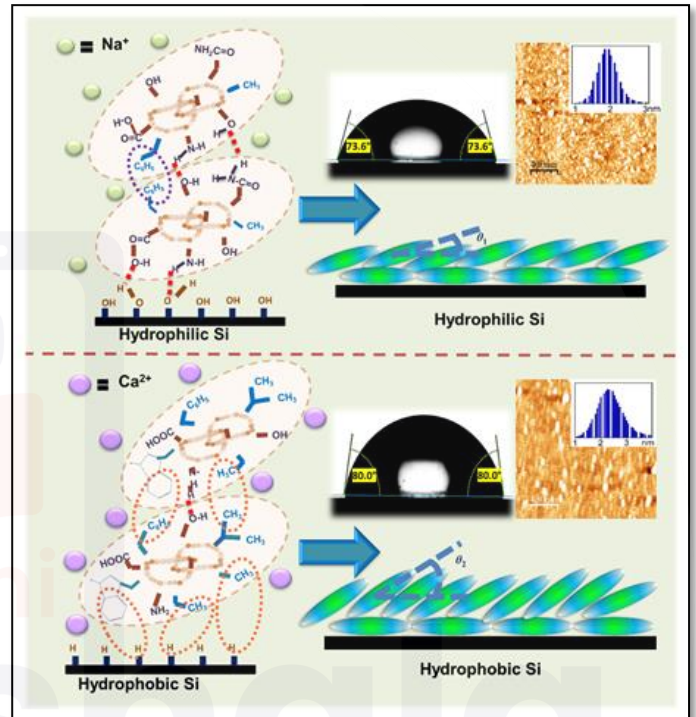
Research on Lysozyme Bilayer by IASST:

1. **Purpose of research:** Formation of **lysozyme bilayers** on silicon surfaces, using various ions:
   - **Monovalent ion (Na^+)**
   - **Divalent ion (Ca^{2+})**
   - **Trivalent Ion (Y^{3+})**
2. **Key Findings:**
   - **Ion-based lysozyme adsorption** mimics the natural process of organisms.
   - Ions regulate **biological processes** and **protein-surface interactions**.
     - **Bilayer Structure:**
       - **Bottom layer**: Side-on orientation.
   - **Upper layer**: side-on or tilted orientation.
   - **Stabilization mechanisms: hydrogen bonding**, **hydrophobic interactions**, and **electrostatic forces**.
3. **Structural Analysis:**

- o **Hydrophilic Surface**: Lysozyme maintained **the natural globular structure**.
- o **Hydrophobic surface**: The structure **became slightly elongated**.
- o **Surface Contact and Angle: The number of lysozyme molecules in the bilayer film was observed** to be higher as **the contact angle** increased.

This research **is helpful in better understanding ion-based protein interactions in implants and biomaterials**.

Impact on Biomaterials and Implants:

- **Potential for ion-induced protein adsorption:** The replication of ion-induced protein adsorption on implant surfaces illustrates **the emerging possibilities** in biomaterial design.
- **Significance of the Study:**
  - o This study **provides a model for understanding the behavior of proteins in ionic** environments.
  - o **It is important to improve the** biocompatibility **and** functionality **of biomaterials and medical implants** .

Lysozyme and Ion-Induced Adsorption:

- **What is Lysozyme?**
  - o **Lysozyme** is an enzyme found in human **tears, sweat, milk, and saliva** .
  - o It contains **a trace of cysteine** with **four disulfide bonds** .
  - o It is widely used **in test tube** experiments.
  - o **Role of Ions in the Human System:**
    - ▪ Ions play an important role in many biological functions, such as:
      - ▪ **Contraction of muscles**.
      - ▪ **Fluid balance**.
      - ▪ **Electrical Chemical Gradient**.
  - o **Importance of Ion-Induced Adsorption:**
    - ▪ When **implants** are inserted into the tissues of the body, **ion-assisted protein-surface interactions** occur.
    - ▪ **Knowledge of these interactions** can be helpful in improving the quality and effectiveness of biomaterials and implants.

7.3.6. Human Metapneumovirus (HMPV) Virus

China is witnessing a spike in human metapneumovirus (HMPV) cases, raising fears of another health crisis following the COVID-19 pandemic. However, the Chinese authorities and the World Health Organization (WHO) have not yet declared an emergency.
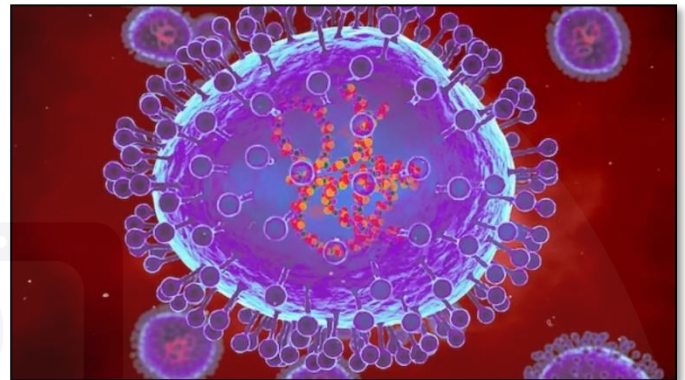
About Human Metapneumovirus (HMPV):
About:

- **Family:** HMPV is **a** respiratory tract virus, belonging to **the Pneumoviridae family**. It usually causes mild infections such as **the common cold**.
- **Related viruses: This** family also includes **RSV, measles, and mumps**.
- **Season:** This transition **is more commonly seen in winter and early spring**.

Detection and Sensitivity:

- **Discovery:** It was discovered in 2001 by **Bernadette G. Smith. Van den Housen** discovered from the respiratory tract of children in the Netherlands.
- **Sensitive Groups**:
  - o **Children** and **the elderly**.
  - o Individuals with weakened immune systems (such as HIV patients).
  - o Causes 10% to 12% of respiratory illnesses in children.

Symptoms and Transition Period:

- **Symptoms:**
  - o Coughing, runny nose or congestion.
  - o Throat pain, fever and whistling sound in breathing.
- **Incubation period:** Symptoms of infection **appear in 3 to 6 days**.
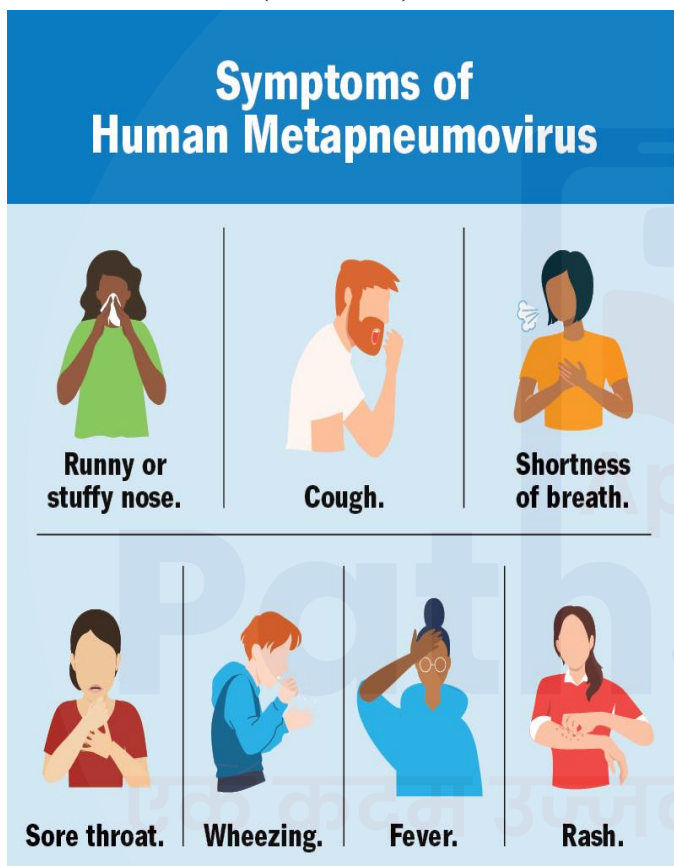
Spread of Infection:

- **How it spreads:**

o By contact with an infected person (coughing, sneezing, or touching).

o **By touching the door handle, phone or keyboard**.

o **A handshake or a hug.**

Complications: Severe cases may require hospitalization. This can cause the following problems:

- **Bronchiolitis**.
- **Bronchitis and pneumonia**.
- **Progression of** asthma **or COPD**.
- **Ear infection (otitis media).**

Symptoms of Human Metapneumovirus

Runny or stuffy nose. | Cough. | Shortness of breath.

Sore throat. | Wheezing. | Fever. | Rash.

Treatment and Prevention:

- **Treatment:**
  o There is no **vaccine** or specific antiviral drug available yet.
  o **Over-the-counter medications** help reduce fever and pain.
  o **Antibiotics** are not effective at this.
- **Prevention:**
  o **Follow hygiene:** washing hands, covering the mouth when sneezing, and maintaining hygiene.
  o **Keep distance:** Do not get close to an infected person.

Caution: People with asthma and COPD should be extra careful.

7.3.7.   What are Nano Catalysts?

Researchers at the Institute of Nano Science and Technology (INST), an autonomous institute under the Department of Science and Technology (DST), have developed a state-of-the-art copper-based catalyst with a unique star-like nanostructure.

Copper-based catalyst

About:

- This catalytic **copper oxide nanostructure** is prepared by growing it on a **sporopollinin template**.
- It **provides a** sustainable **pathway for industrial chemical reactions**.
- It is **considered a** green catalyst because it:
  o Available in abundance.
  o Low toxicity.
  o Efficient and reusable.
- It is efficient without any additives in water and can be reused multiple times.

Applications :

- **Biological reactions:** Helpful in various chemical reactions.
- **Environmental Improvement:** Helpful in reducing pollution.
- **Nanoscale electronics:** useful in microscopic electronic devices.
- **Surface-enhanced Raman spectroscopy (SERS):** important for surface analysis.

Advantages of Copper-Based Catalysts:

- **Abundance and Cost-Effectiveness:**
  o **Easily Available:** Copper is naturally abundant.
  o **Low Cost:** It is a cheaper metal, making it a cost-effective option.
- **Different oxidation states:**
  o **Flexible reactions:** Copper is found in different oxidation states (Cu^0, Cu^+, Cu^{2+}, Cu^{3+}), which enables it to participate in many chemical reactions.
- **Versatile Applications:**
  o **Redox reactions:** widely useful in oxidation-reduction processes.
  o **Carbon monoxide oxidation:** effective in converting CO to CO_2.
  o **Selective Oxidation:** Enables the selective oxidation of biological compounds.
  o **Electrochemical reactions:** Hydrogen plays an important role in production reactions (HER).

Nanotechnology :

About:

- **Nanotechnology** is the technology that controls matter **at the atomic,** molecular, and supermolecular level, ranging in a **range of about 1 to 100 nanometers**.
- A **nanometer (nm)** is one billionth **of a meter** (10^{-9}).
- It is the manufacture and use of such microscopic materials and tools that it is not possible to make it smaller.

Multidisciplinary Approach:

- This includes contributions from a number of sectors, such as:
  - Applied Physics
  - Materials Science
  - Chemistry
  - Biology
  - Surface Science
  - Robotics, Engineering and Biomedical Engineering

Contribution of Physics in Nanotechnology:

- Nanoelectronics
- Nanomechanics
- Nanophotonics
- Nanoionics

Approaches to Nanotechnology:

1. **Bottom-up approach**: In this, materials and equipment **are made from** molecular components, which **are chemically prepared by self-assembling**.
2. **Top-down approach**: In this, nano-objects **are made** from large components, but **there is no atom-level control**.

Basis of Development of Nanotechnology:

- Re-interest in colloidal science.
- Development of new generation analytical tools, such as:
  - **Atomic Force Microscope**
  - **Scanning Tunneling Microscope**

7.3.8.   What are Short Language Models?

Recently, the former chief scientist at OpenAI has suggested that the progress of large language models (LLMs) may be slowing down as their scope for scaling is becoming limited.

Small Language Models (SLMs):

Small language models (SLMs) are AI systems designed for small and specialized tasks that require fewer resources and parameters **than** large language models (**LLMs).**

How short language models work:

- **Trained on** small datasets, which focus on specific tasks.
- **Effective for tasks such as** language translation**,** creating summaries**, or solving domain-specific problems**.
- **Can** be efficiently deployed on devices such as smartphones and IoT systems.

Features of the short language model

1. **Compact size:** fewer parameters than LLMs.
2. **Cost-effective:** Low computational power and training data required.
3. **Deployment to device:** Suitable for functioning locally **without cloud dependency**.
4. **Rapid training:** Quickly training and fine-tuning for special use cases.
5. **Energy Efficient:** Low resource utilization, making it **ideal for areas with low infrastructure**.

Importance of Short Language Model:

1. **Accessibility: Bringing** AI solutions to areas with limited resources**,** such as rural India.
2. **Edge Applications: Enabling real-time functions such as language translation** and **speech recognition** directly on the device.
3. Industry-Specific **Solutions:** Adaptive solutions for sectors such as health, agriculture, and education.

4. **Culture Conservation: Making AI inclusive and promoting cultural heritage** by empowering local languages and dialects.

Reasons for the Emergence of Short Language Model (SLM):

1. **Decreasing Utility in LLMs:**
   o **Performance improvements continue to decrease with the expansion of** Large Language Models (LLMs), while the need for resources increases significantly.
   o This makes the cost-to-benefit ratio less effective.

2. **Special Needs:**
   o **SLMs** are designed for specialized tasks, making them more efficient and economical.
   o These **provide solutions to problems of** limited resources **and** scalability, especially for domain-centric use.

Limitations of SLMs:

1. **Limited Cognitive Ability:** Due to fewer parameters, **SLMs** are not as efficient in complex tasks such as coding or logic-based problem-solving, where **LLMs** excel.

2. **Typical Applications:**
   o **SLMs** are designed only for narrow tasks.
   o They lack the same general intelligence and versatility as LLMs.

3. **Performance Range:**
   o **SLMs do not match** LLMs **in depth and breadth of knowledge**.
   o Limited performance, especially in multi-level and multidisciplinary problems.

Relevance of SLMs in India:

1. **Solving resource constraints: SLMs** are cost-effective and ideal for use in sectors such as healthcare, agriculture, and education, where resources are limited.

2. **Preservation of Linguistic Diversity: SLMs** can be helpful in preserving regional languages and cultural diversity.

7.3.9. Human Brain Transplant by Neuralink

Recently Elon Musk's brain-computer interface (BCI) company, Neuralink has taken another step towards establishing direct contact between the nervous system and

machines by successfully implanting its third human trial of the Neuralink device into the human brain.
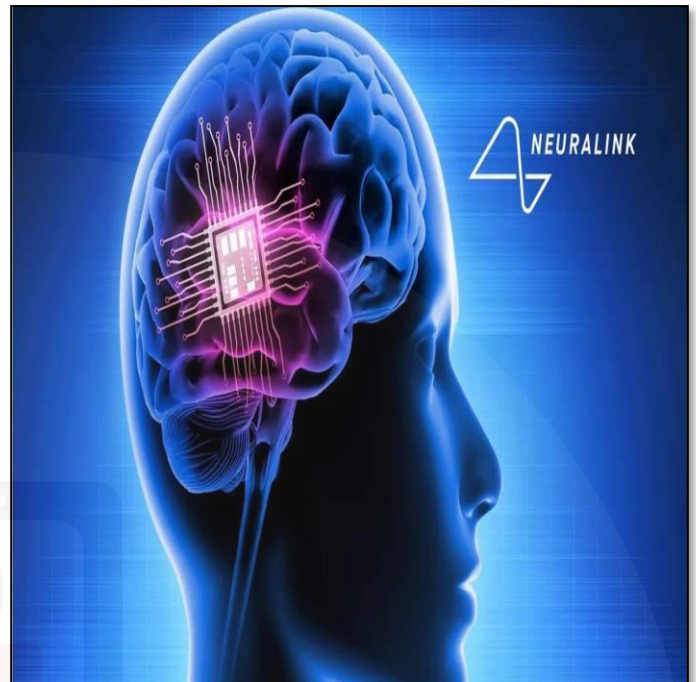
About Neuralink Brain Implant/Chip:

- **Objectives:**
  o The purpose of Neuralink is **to connect the** nervous system to the computer.
  o It focuses on treating neurological disorders, **healing brain injuries**, and other applications.

- **Aim:**
  o Providing the ability to control a computer cursor or keyboard just by thinking.
  o Early users will be those who have **lost the use of their limbs**.

About Neuralink:

- **About:**
  o Neuralink is an **American neurotechnology company** .
  o It **implants the brain-computer interface**.
  o It was founded **in 2016 by Elon Musk**.

- **Objectives:**
  o Through brain implants,
  o **Assisting individuals with** serious injuries to **control computers only through their thoughts**.
  o Addressing neurological disorders such as Parkinson's.

- **The goal: to enhance human abilities** and improve neurological conditions.

Applications of Brain-Computer Interfaces (BCI)

Medical treatment

- o **Treatment of neurological disorders: diagnosis and treatment of brain disorders** such as epilepsy, Parkinson's, and neurodegenerative problems.

- o **Stroke rehabilitation:** Help in the recovery of motor function after a stroke.

Assistive Technology

- o **Control of Devices by the Brain:** Controlling prosthetic limbs, wheelchairs, or robotic devices through thoughts.

- o **Dialogue restoration: Restoring communication in conditions such as locked-in syndrome**.

- o **Mental Health Monitoring: Use in Monitoring and Managing** Mental Conditions Such as **Depression and Anxiety** .

- o **Virtual and Augmented Reality:** Enabling users to interact with the digital environment through their ideas.

Challenges:

1. **Animal rights groups have** objected to the testing on primates on Neuralink.
2. **Security and Reliability:** Its security and reliability are questioned. A malfunction or malfunction can

have serious consequences, so rigorous testing is essential.

3. **Privacy and security:** Data privacy issues can arise from brain implants. It is necessary to prevent access to neural information without permission.

7.3.10.   ISRO's third launch pad

Recently, the Union Cabinet has approved the setting up of the Third Launch Pad (TLP) of the Indian Space Research Organisation (ISRO) at the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh.

Current Background of Indian Space Transportation System:

1. **Dependency on two launch pads:**
   - o At present, the Indian space transportation system is completely dependent on two launch pads:
     - **First Launch Pad (FLP):**
       - It was prepared for PSLV 30 years ago.
       - Provides launch support for PSLV and SSLV.
     - **Second Launch Pad (SLP):**
       - It was installed mainly for GSLV and LVM3.
       - It also acts as a standby for PSLV.

2. **Operational Capability of SLP:**
   - o The SLP has been in operation for the last 20 years.
   - o It has enhanced the launch capacity for national missions like Chandrayaan-3 as well as some commercial missions of PSLV and LVM3.

About Third Launch Pad (TLP):

Objective: **The** third launch pad (TLP) aims to set up advanced launch infrastructure at Sriharikota in Andhra Pradesh.

- It will provide support to ISRO's Next Generation Launch Vehicles (NGLV).
- It will also be a backup to the second launch pad and will boost the launch capability for future Indian manned space flight and space exploration missions.

Key reasons for selecting Sriharikota for TLP:

- **Located on the east coast:** Advantage of the Earth's rotational speed.
- **Near the equator:** increased payload capacity and reduced cost.
- **Safety:** Away from sea and air routes.
- **Uninhabited area:** flight path over the sea, ease of operation.

Implementation Strategy:

- **Universal Design:** The TLP will be designed to support multiple vehicle configurations, including NGLV, semicryogenic stage with LVM3, and upgraded versions of the NGLV.
- **Industry Participation:** Maximum industry participation will be ensured using ISRO's prior launch pad experience in the project.
- **Utilisation of Existing Facilities:** The TLP will make maximum use of the existing launch complex facilities at Sriharikota.
- **Timeline:** The project is targeted to be completed within 48 months (4 years).

Funding: The total cost required for the project is ₹3,984.86 crore, which includes setting up of the launch pad and associated facilities.

Significance:

- Enhances India's ability to launch more frequently.
- Strengthens national infrastructure for human space flight and advanced space exploration missions.
- Promotes the Indian space sector and encourages technology development.

7.3.11. Discovery of the semi-Dirac Fermion

Recently, researchers from Columbia University and Pennsylvania State University have discovered a particle, which is being called **the semi-Dirac fermion**.

Search Process:

1. **Selected material:** The researchers **researched zirconium silicon sulfide (**ZrSiS), which is a flaky crystal material and selected it as the host of unusual particles.

2. **Research Conclusion:** When a strong magnetic field was applied to ZrSiS, the energy of electrons (cyclotron energy) **increased according to the** $B^{2/3}$ scale, which is a characteristic associated with **the semi-Dirac fermion**. This was different from the energy scaling of materials such as graphene, where the energy increases at the $B^{1/2}$ scale.

3. **Quasiparticles:** **Semi-Dirac fermion** is **a** quasiparticle, which is composed of many small particles and behaves like particles, although its mass is abnormal in different directions.

About Semi-Dirac Fermion :

1. **About:**
   o The semi-Dirac fermion is a particle having mass in one direction and massless in a perpendicular direction.
   o This unique feature **was discovered in a crystalline material called zirconium silicon sulfide (ZrSiS)**.

2. **Dirac Firmian vs. Semi-Dirac Firmian:**
   o **Dirac Fermion**:
     ▪ There is mass in all directions.
     ▪ It is distinguished by anti-particles.
   o **Semi-Dirac Fermion**:
     ▪ Some direction axes have masses.
     ▪ Special materials behave differently under different conditions due to their interaction with electrical and magnetic forces.

3. **Quasi-Particles:**
   o Semi-Dirac Firmion **consists** of quasi particles, which:
     ▪ Behave like a single particle under specific conditions.
     ▪ These are made up of many energy packets or particles (e.g. protons).

Standard Model of Particle Physics:

The Standard Model (SM) is a theoretical framework in particle physics that describes three of the four fundamental forces known in the universe – **electromagnetic, weak and strong interactions** – and classifies all known elementary particles.

- Developed in the early 1970s, it has been helpful in explaining a wide range of experimental results and predicting new phenomena.

Fermion and Bosons:

1. **Fermion:**
   o Fermiones (quarks + leptons) are fundamental particles whose spin is half integer.
   o Fermiones are the fundamental building particles of matter.
   o Example:
     ▪ **Electron** (lepton)
     ▪ **Protons** (quarks)

2. **Bosons:**
   o Bosons are those particles that transmit fundamental forces.
   o Each elemental force has its corresponding boson.
   o **Example:**
     ▪ **Photon**: Communicator of electromagnetic force
     ▪ **Gleon**: Communicator of Strong Force
     ▪ **W and Z Bosons**: Communicator of Weak Force

3. **Gravitational force:** This is a suggested force communicator that will transmit the gravitational force, but it has not yet been discovered.

7.3.12. Distributed Ledger Technology (DLT)

The Telecom Regulatory Authority of India (TRAI) will use Distributed Ledger Technology **(DLT) to register the spam preferences of subscribers**. TRAI has indicated that spam rules will be made more stringent, making it easier to trace business messages.

About Distributed Ledger Technology (DLT);

Distributed ledger technology is a digital system in which data or transaction records are stored and shared in multiple locations. This technology is the core of blockchain and is revolutionizing finance, supply chain, healthcare, and many other sectors.

What are spam?

Spam or **Unsolicited Commercial Communications** (UCC) are unsolicited, irrelevant, or inappropriate messages sent over digital mediums such as **email, SMS, social media**, etc. Their main purpose may be advertising, promotion, or fraud.

Tasks involved in spamming:

1. **Bulk Messaging**
2. **System Generated Phone Calls**

3. **Identity Theft**

Effects of Spam:

- Violation of user privacy.
- Risk of cyber fraud and financial loss.
- Increasing unnecessary data traffic on digital platforms.
- Interruption of important information.

Control Measures:

- DND (Do Not Disturb) Services by TRAI.
- Strengthening cyber security measures.
- Expanding spam reporting and consumer awareness campaigns.

About TRAI

- **The Telecom Regulatory Authority of India (TRAI) was** established **under the Telecom Regulatory Authority of India Act**, 1997, which aims to regulate the telecom sector.
- TRAI ensures fair practices **in the industry** and takes measures to combat **Unsolicited Business Communications (UCC)**, commonly **referred** to as spam.

Key Roles of TRAI in Combating Spam

1. **Do-Not-Disturb (DND) Registry (2007):** Provided for telecom customers to opt-out to avoid business calls and messages.
2. **Telecom Commercial Communication Customer Preference Regulation (TCCCPR), 2018:** Penalties are imposed on telemarketers who violate the DND preferences of customers.
3. **Support for Spam Reporting:**
   o The DND **app was developed in collaboration with external agencies** so that users can file spam complaints.
   o **As of 2024**, spam reporting on telecom providers' apps was **made mandatory**.

Distributed Account Technology (DLT):

- The Telecom Regulatory Authority of India (TRAI) has made it mandatory for telecom companies to use blockchain ledgers, also known as distributed ledger technology (DLT).
- Blockchain technology ensures the immutability of data, which means that every stakeholder involved in the transaction receives a trustworthy and tamper-free data version.

Features of DLT:

1. **List of Accepted Senders:** This **will keep a constantly updated list** containing the details of accepted SMS senders.
2. **Message format approval:** Telecom companies will also have to give pre-approval to **specific message formats**.
3. **One of the World's Strictest Rules:** This rule is considered to be one of the world's most stringent measures to fight SMS spam.

Significance of DLT:

1. **Transparency and Responsibility:** This will ensure that telecom companies have a complete record of any message before it is sent to **the SMS** gateway.
2. **Enhanced Security:** It has been implemented to overcome the critical loophole that exists in the system, allowing anyone **to register illegally on the** blockchain system.

7.3.13. What are Scramjet Engines?

Recently, the Defence Research and Development Organisation (DRDO) has successfully conducted a ground test of the state-of-the-art active cooled scramjet combuster for 120 seconds for the first time.
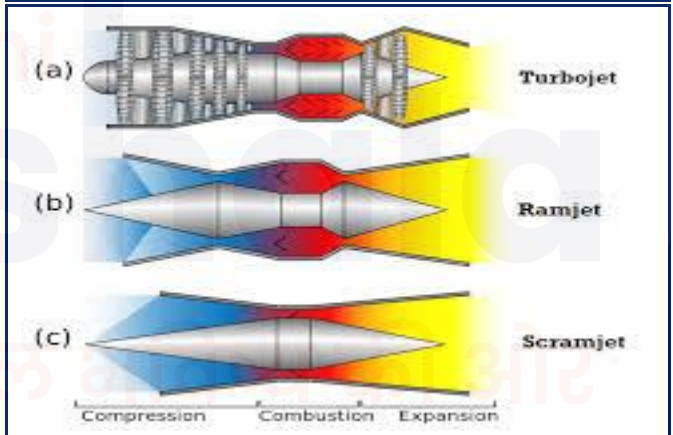

About Scramjet Engine:

1. **Upgraded version of the ramjet:** The scramjet engine is an upgraded version of the ramjet, which generates thrust through super-sonic airflow and combustion.

2. **Hypersonic speed:** This engine operates at hypersonic speeds, speeds greater than Mach 5 (5,400 km/hr).

3. **Hypersonic Missiles:** Hypersonic missiles are state-of-the-art weapons that travel at speeds in excess of Mach 5 and have the ability to bypass **air defense systems**.

4. **Developments around the World: Many countries such as** the USA, Russia, India, and China are actively working on hypersonic technology.

5. **Active combustion:** Scramjets **are** air-breathing engines, which have the ability to sustain combustion at super-sonic **speeds without any moving parts**.

6. **Developer: Defence Research and Development Laboratory (DRDL),** which is **part of** DRDO, is a laboratory located in Hyderabad and has taken the initiative to develop the Supersonic Combustion Ramjet (Scramjet) for hypersonic technology.

How does the scramjet engine work?

1. **Compression of atmospheric oxygen: The** scramjet engine uses the **forward motion** of the vehicle, thereby compressing oxygen from the atmosphere, and this **eliminates the need to carry an oxidizer**.

2. **Mixture of fuel and air:** Fuel is mixed with compressed air, and in the **combustion chamber** it burns, generating thrust at high speeds.

3. **Flame stabilization:** The latest flame stabilization technologies **are used to ensure** ignition **even in extreme conditions**.

Highlights:

1. **Air-breathing engine**: The scramjet engine uses atmospheric oxygen, which reduces **the weight of the propellant**.

2. **Advanced Thermal Barrier Coating (TBC):** Provides high temperature resistance, which increases the performance efficiency of the engine.

3. **Endothermic Scramjet Fuel:** Indigenously developed, it improves **cooling** and **ignition efficiency**.

4. **No moving parts:** This **reduces** mechanical complications, and increases engine reliability.

Significance of Scramjet Technology:

1. **Hypersonic Missiles:** Scramjet technology enables the development of hypersonic missiles, which can bypass air defense systems and deliver rapid, high-impact attacks.

2. **Reusable Launch Vehicle:** It reduces the cost of satellite launches using an air-breathing propulsion system.

3. **Strategic Edge:** It puts India among the select countries (US, Russia, China) that have hypersonic capability.

4. **Reduction in Launch Cost:** Increases the possibility of an affordable and reusable satellite launch system by reducing the weight of the propellant.

5. **Significant breakthroughs in technology:** advances in computational fluid dynamics (CFDs) and materials science, which contribute to aerospace innovation.

7.3.14.   What are antivenoms?

With more than 58,000 snakebite-related deaths reported in India every year, India is considered the 'Snakebite Capital' of the world. Amidst these worrying statistics, the role of antivenom becomes extremely important for the prevention and treatment of snakebite.

Snakebite Envenoming:

Poisoning from snake bites is a serious and potentially life-threatening problem, in which complex medical problems caused by venomous snake bites can lead to death or permanent disability if proper treatment is not received on time.

What is antivenom?

- Antivenom or antivenin are life-saving drugs for the treatment of snake bites.

- It binds to the toxin's specific toxins and neutralizes them, allowing the body's natural immune system to safely eliminate them.

How deadly is snake venom?

Snake venom is highly lethal and contains a variety of venomous proteins:

- **Haemotoxins:** Destroys blood cells and disrupts the clotting process.

- **Neurotoxins :** Cause paralysis by blocking nerve signals.

- **Cytotoxins :** dissolves the tissues of the bitten site.

Production of antivenom:

- Albert Calmette developed antivenom using horses for the first time in the 1890s.

- **Production Process:**

  o Venom is extracted by experts from venomous snakes.

  o The toxin is injected into horses in controlled amounts, causing their immune system to develop antibodies.

  o It is purified by extracting antibodies from the blood of horses.

- **Polyvalent Antivenom (PVA):** The PVA used in India is effective against many snake species, but its effectiveness is limited for some rare species.

Challenges Related to Antivenom in India:

1. **Access to healthcare services:** Getting timely treatment remains a major challenge.

2. **Administrative Problems:** Improper use of medication, inadequate facilities, and cultural beliefs lead to delays in treatment.

3. **Structural Shortage:** Antivenom needs to be stored in cold temperatures, but rural areas lack the necessary infrastructure and power supply.

4. **High cost:** Due to the high cost of production, this drug is less accessible to economically weaker sections.

Antivenom Production and Role of Irula Tribe in India:

1. **Specialization of the Irula Tribe:**
   o The Irula tribe of Tamil Nadu is considered an expert in extracting venom from snakes.
   o They catch snakes by traditional methods and safely extract their venom.
   o The collected toxin is sold to pharma companies, from which antivenom is prepared.

2. **Major antivenom manufacturers in India:**
   o Several companies in India are involved in antivenom production, the major ones are:

   ▪ **Bharat Serums & Vaccines**
   ▪ **Haffkine Biopharmaceutical Corporation**
   ▪ **ViNS Bioproducts**

   o These companies purify the toxin and convert it into antivenom drugs.

India's 'Big Four' Venomous Snakes:

1. **Indian Cobra (Naja naja)**
2. **Common Krait (Bungarus caeruleus)**
3. **Russell's Viper (Daboia russelii)**
4. **Saw-Scaled Viper (Echis spp.)**

8 Indian Art & Culture

8.1. Indus Valley Script: Mysteries and Challenges of Study

Context:

Recently, Tamil Nadu Chief Minister MK Stalin announced a reward of USD 1 million to a person who understands the Harappan (Indus Valley) script of the Indus Valley Civilisation. This initiative has shed light on the centuries-old secrets of the Harappan script, more than 100 attempts have been made by scholars so far to understand the meaning, but they could not achieve success.

What is Indus Valley Script?

- **Introduction**: The Indus Valley script used in today's Pakistan and northwestern India during the Indus Valley Civilization (2600-1900 BCE) is yet to be read.
- **Discovery**: This script was discovered in the 1920s under the leadership of Sir John Marshall, and is mainly inscribed on seals, terracotta strips, and metal, including pictograms and animal or human figures.
- **Writing style**: This was usually written from right to left, and sometimes the Bostrophedon script (change of direction between lines) has been used.
- **Short article**: Most articles are short (5 characters on average), while the longest known text has 26 symbols.

SIGN	IDENTI-FICATION	READING	MEANING
a	fish	mīn	1. fish 2. star
b	3 + fish	mu(m) mīn	three stars (Mrigasiras)
c	6 + fish	caru mīn	six stars (Pleiades)
d	7 + fish	elu mīn	seven stars (Ursa Major)

- **Nature of the script**: It was probably based on a logosyllabic system, which was a combination of pictograms and letters, as in other contemporary scripts.

Purpose of Use of Indus Valley Script:

- This script was used for business, tax records and identification, but there is still ambiguity on its actual purpose.
- Some symbols such as multiples, additions, and swastikas may also have educational or religious significance.

Theories about the language of the Indus script:

- **Dravidian Hypothesis**: Indian researchers such as Asko Parpola and Iravatam Mahadevan believe that this script may be related to the Dravidian languages, and belongs to ancient Tamil.
  - **Usage :** Parpola believes that the symbol of 'fish' in the Indus script denotes "Pisces", which means both "fish" and "star" in the Dravidian languages.
- **Connection to Sanskrit**: Some early scholars such as S.R. Rao have linked it to Sanskrit and described it as belonging to the Vedic period. However, there is a dispute over this theory due to the discrepancy in the timeline between the Harappan and Vedic cultures.
- **Non-Linguistic Symbols**: Critics say that these symbols may not be a language but part of political, economic or religious symbols.

Challenges in Understanding the Indus Valley Script
- **Lack of bilingual texts**: Bilingual texts are needed to understand ancient scripts, just as Egyptian hieroglyphs were helped by Rosetta Stone. There is no comparable record in the Indus script to link it with sounds or meanings.
- **Short and fragmented articles**: Most articles are short, with an average of 5 characters, which makes it difficult to analyze their grammar and syntax.

- **Unknown Language**: The Indus script probably represents a language that has no parallel making it comparatively difficult to study.

- **Symbol Variations**: Different symbols have been proposed in the script by different scholars, leading to confusion.

- **Limited archaeological evidence**: Only 3,500 Harappan seals are available, and the degradation of artifacts is also a major challenge.

- **Technical Barriers**: Although Artificial Intelligence (AI) and Machine Learning are being used, there is difficulty in understanding the Indus script due to the limited data set.

Importance of Understanding the Indus Script:

- **Tracing the Language of Harappan Civilization**: If the language of this script is revealed it can clarify the linguistic history of ancient India.
- **Understanding Harappan Culture**: Understanding the script can reveal the Harappan religious beliefs, social norms, and administrative structures.
- **Global Relevance**: This study can be important for understanding ancient writing systems, the development of human communication, and cultural exchanges between different civilizations.
- **Cultural Continuity**: The cultural and linguistic development of India can be analyzed by establishing relationships between Harappan and later civilizations.

8.2   Preliminary Examination

8.2.1. Establishment of All India Muslim League

On 30 December 1906, the All India Muslim League (AIML) was founded in Dhaka, which played a key role in the partition of India.

About All India Muslim League:

- The All-India Muslim League (popularly known as the Muslim League) was a political party founded in 1906 in British India.
- It was created as an alternative to the Indian National Congress.
- Its purpose was to represent the interests of Indian Muslims.
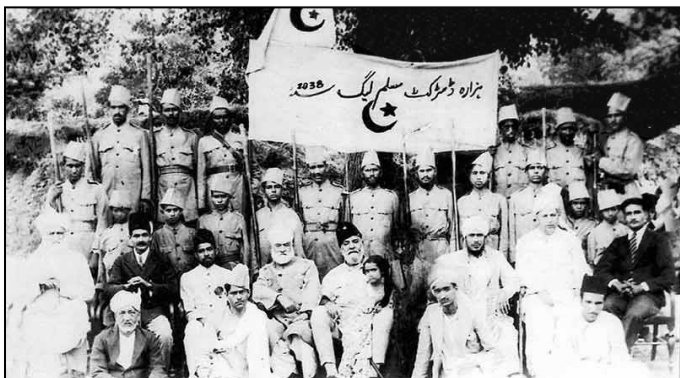
Causes of formation:

1. **Indian National Congress (INC) Response: Due** to the Congress's nationalistic stance, Muslims felt that their cultural, religious, and social identity was not adequately represented.
2. **Decline of Mughal Empire:** Due to the decline of the Mughals and the British colonial policies, the Muslims lost their traditional economic and political dominance.
3. **Establishment of Educational Institutions:** Institutions such as Aligarh Muslim University promoted English education among Muslims.

Key Offers:

1. **Lucknow Pact (1916):**
   - Under the leadership of Bal Gangadhar Tilak, the Congress and Mohammad Ali Jinnah's Muslim League signed the Lucknow Pact.
   - It agreed to a Hindu-Muslim joint political action and a separate electorate for Muslims.
2. **Lahore Resolution (1940):**
   - Under the leadership of Jinnah, the Muslim League transformed into a mass movement.
   - In this session held in March 1940, the demand for an independent state for Muslims was made.
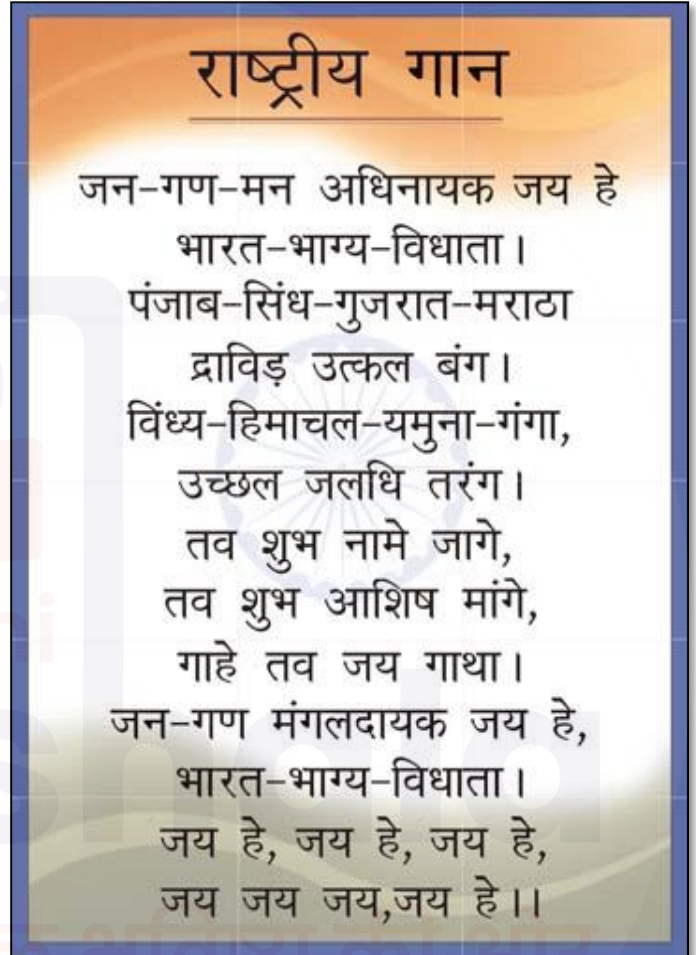
o The resolution said that the Congress will not do justice to Muslims under the domination of "Hindu Rashtra".

Participation in Indian Independence Movement:

1. **Demand for Unity in Independent India:** The Muslim League initially advocated unity in independent India, but they feared that the dominance of Muslims could end due to the Hindu majority population.

2. **Post-World War I (1914-18):** The Muslim League, along with the Congress, demanded Swaraj (Home Rule) under the British Empire.

3. **Jinnah's 14-Point Proposal (1920-30):**
   o Mohammad Ali Jinnah presented a 14-point proposal consolidating the rights of Muslims.
   o This included demands for formation of a federal government and one-third representation for Muslims in the central government.

4. **World War II (1939):**
   o Britain declared war on Germany without India's consent.
   o The Congress opposed it, while the Muslim League, while criticizing the British rule, also supported the war, so as to achieve a better position in the independence negotiations.

5. **'Two Nation Theory' (1940):**
   o Jinnah initiated the demand for a separate Muslim state from the present-day territories of British India.
   o The idea of Pakistan found widespread support among Indian Muslims.

8.2.2. Guidelines regarding playing of the National Anthem

The Tamil Nadu Governor left the Assembly on the inaugural day of the first session of the year without delivering his customary address to the Assembly. They complained that the National Anthem was not played before their scheduled address.

Jana Gana Mana: National Anthem of India

- **Composition:**
  o **Rabindranath Tagore** composed it in Bengali.
  o It was sung for the first time **on December 27, 1911** at the session of the Indian National Congress in Kolkata.

- **Acknowledgement:**
  o It was officially adopted by the Constituent Assembly of India on **January 24, 1950**.
  o The Hindi version contains only the first stanza of Tagore's original five-line poem.
  o The official duration of the anthem **is 52 seconds**.

राष्ट्रीय गान

जन-गण-मन अधिनायक जय हे
भारत-भाग्य-विधाता ।
पंजाब-सिंध-गुजरात-मराठा
द्राविड़ उत्कल बंग ।
विंध्य-हिमाचल-यमुना-गंगा,
उच्छल जलधि तरंग ।
तव शुभ नामे जागे,
तव शुभ आशिष मांगे,
गाहे तव जय गाथा ।
जन-गण मंगलदायक जय हे,
भारत-भाग्य-विधाता ।
जय हे, जय हे, जय हे,
जय जय जय,जय हे ।।

Constitutional Provisions Related to National Anthem:

- **Fundamental Duties (Article 51A(a)):**
  o It is the duty of every citizen to respect the Constitution, the National Flag and the National Anthem.
  o There are no specific rules in the Constitution for the singing or display of the national anthem, but it is governed by statutes and guidelines.

- **Occasions for Performing the National Anthem:**
  o According to the Ministry of Home Affairs, the full version of the National Anthem is played on the following occasions:
    1. **Civil and Military Decorations:** In Honor Ceremonies.

2. **National Salute:** When the "Rashtriya Salami – Salute Arms" is ordered.

3. **Parade:** Whether the aforementioned dignitaries are present or not.

4. **The Arrival and Departure of the President:** At Ceremonial State Ceremonies and Government Events.

5. **President's Address:** Before and after his address on All India Radio.

6. **Arrival and Departure of the Governor/Lt. Governor:** At the ceremonial functions of the state.

7. **During the parade:** When the National Flag or Regimental Colours are presented.

8. **Naval Ceremony:** During the flag hoisting in the Navy.

Code of Conduct for Singing the National Anthem:

- **Careful Posture:** All persons present should stand in a careful posture while singing or playing the National Anthem. Exceptions are allowed for persons with disabilities.

- **News films or documentary films:** If the national anthem is a part of a news film or documentary film, the audience need not stand.

- **Abbreviated Version:** An abridged version of about 20 seconds may be used for formal purposes.

- **Legal Protections:**
  o **Prevention of Insults to National Honour Act, 1971:**
    ▪ Intentionally disrespecting the national anthem or obstructing a group engaged in the anthem is a punishable offence.
    ▪ It is punishable **with imprisonment of up to three years**, a fine, or both.

Important Supreme Court Judgments:

- **Bijo Emmanuel vs. State of Kerala (1986):**
  o The students of Jehovah's Witnesses stood respectfully, refusing to sing the national anthem.
  o The Supreme Court ruled that expelling him was a violation of his religious freedom and conscience (Article 25).
  o The judgement highlighted the importance of tolerance and respect for different faiths.

- **Shyam Narayan Chouksey vs Union of India (2018):**

o **Interim Order (2016):** Ordered playing of the National Anthem before the start of films in cinema halls, with the audience required to stand.

o **Amendment Order (2018):** Playing of the National Anthem in cinema halls has been made optional.

8.2.3.   Venkateswara Temple

Recently, 6 people died **in a stampede at the Tirupati** Venkateswara temple during Vaikuntha Gate darshan.

Stampede: Definition and Facts

Definition: A stampede is a "mass movement of a casual and unruly crowd," often causing injuries and deaths due to suffocation (traumatic asphyxia) or other injuries.

About Vaikuntha Ekadashi:

1. **Importance and Worship:**
   o The festival **is dedicated to** Lord Vishnu, who is worshipped as Lord Venkateswara **in the Tirumala temple**.
   o This day **marks the opening of the** Vaikuntha Dwar (Gate to Heaven), which Lord Vishnu opens for the devotees.

2. **Main Rituals:**
   o **Grand Procession:**
     ▪ Sri Malayappa Swamy, along with Sridevi and Bhudevi, perform the procession in a **golden chariot**.
     ▪ Devotees gather in the lanes of the temple to seek blessings.

3. **Timings:** It is celebrated in **the month of Dhanur** (December or January).

4. **Expansion of Celebration:** Earlier it **was a one-day celebration**, but now it goes on for **10 days** to accommodate more pilgrims.

About Tirumala Venkateswara Temple:

1. **Location:** Tirumala Venkateswara Temple **is located on** the Venkata Hill **of Tirumala Hills**, Andhra Pradesh**, which is one of the Saptagiri** (Seven Hills).

2. **Dedication:** Tirumala Venkateswara Temple **is dedicated to** Lord Sri Venkateswara, who is believed **to be an incarnation of Lord Vishnu**.

3. **Famous Prasad: The Tirupati laddu**, which is given as prasad at the temple, has a **Geographical Indication (GI) tag**.

4. **Historical Significance:** This temple has a rich history, in which South Indian dynasties like **Pallavas, Cholas, and Vijayanagaras** have been a major contributor.
   o It was revived by Saint Ramanuja **in the 12th century**.

Stampede Statistics in India:

- **Impact of religious events: Between** 1954 and 2012, 79% of stampedes in India took place in religious events.
- **Recent Events: The stampede incidents in** Hathras and **Kalkaji Mandir** in **2024** are the latest examples of this.

Human psychology and stampede: cause and effect

1. **Panic Response:**
   o Panic spreads quickly in the crowd.
   o A person moving forward out of fear motivates others to do the same without thinking.
   o This reaction makes the situation uncontrollable and dangerous.

2. **External Triggers:**
   o Loud sounds, such as firecrackers or thunder.
   o Sudden movement or a sign of danger, such as the appearance of fire or smoke.
   o Such incidents promote rumour and chaos in the crowd.

3. **Psychological Factors:**
   o **Collective Behaviour:**
      ▪ Individuals act irrationally under the pressure of the crowd.
      ▪ Contrary to their own interests, they join the crowd movement.
   o **Survival Instinct:**
      ▪ The prioritization of personal safety removes collaborative behavior.
      ▪ An atmosphere of pushback and chaos ensues.

Crowd Management :

Key Points of National Disaster Management Authority (NDMA) Guidelines:

1. **Crowd Management Strategies and Arrangements:**
   o **Capacity Planning:** (Infrastructure Development)
   o **Understanding crowd behavior:** and crowd control (setting limits) to control group behavior.

2. **Risk Assessment and Mitigation:** Identifying and addressing potential hazards.

3. **Information Management:** Clear communication with visitors and other relevant parties.

4. **Safety and security:** CCTV surveillance and emergency evacuation.

5. **Medical Services:** Medical facilities equipped with facilities and trained personnel.

6. **Traffic management:** Efficient transportation and clear route markings.

8.2.4. Makaravilakku Festival

Makaravilakku is a seven-day annual festival of Kerala, held at the Sabarimala temple on the day of Makara Sankranti. On this day, the anniversary of the meeting of Lord Shri Ram and Shabri is celebrated.

About Makaravilakku festival:

- **About:**
  - Makaravilakku is an annual festival, dedicated to Lord Ayyappa at the Sabarimala Temple in Kerala.
  - It is the culmination of a 41-day arduous pilgrimage (which begins mid-November and ends on Makar Sankranti), which is celebrated in honour of Lord Ayyappa.
  - This day is believed to mark the manifestation of Lord Ayyappa in the form of divine light, which symbolizes prosperity and happiness.

Major Rituals of Makaravilakku Festival:

- **41-Day Fasting (Tenacity and Discipline):**
  - **Duration of the fast:** Devotees have to fast for 41 days to participate in the Makaravilakku festival.
  - **Rules of Conduct:**
    - Adherence to celibacy.
    - Fasting.
    - Wearing black or saffron robes.
  - **Significance:** This fast symbolizes self-purification, discipline, and devotion to Lord Ayyappa.
- **Makar Jyoti (Vision of Divine Light):**
  - **Hotspot:**
    - Makara Jyoti is believed to be the divine presence of Lord Ayyappa.
    - This light appears in the evening on the day of Makaravilakku at a specific place near the temple.
  - **Spiritual Significance:** This darshan is a symbol of good luck and blessings for the devotees.
- **Thiruvabharanam Procession (Procession of Royal Ornaments):**
  - **Processional Journey:** The sacred Thiruvabharanam (royal ornament) of Lord Ayyappa is carried in a grand procession from the Pandalam palace to the Sabarimala temple.
  - **Festive Atmosphere:** Bhajans, music, and the presence of devotees make this procession devotional and frolic.

Sabarimala Temple:

- **Dedicated Deities:** Sabarimala Sri Ayyappan Temple is dedicated to Lord Ayyappan (Dharma Shasta).
- **Mythological Belief:** According to Hindu mythology, Lord Ayyappa is the son of Lord Shiva and Lord Vishnu (in Mohan form).
- **Pilgrimage Site:** It is one of the largest annual pilgrimage sites in the world, attracting **about** 10 to 15 million devotees every year.

Female Entry Tradition and Legal Disputes:

- **Tradition:** The entry of women in the age group of 10 to 50 years was prohibited in the temple.
- **Judicial Decisions:**
  - In 2018, the Supreme Court of India declared the ban unconstitutional.

- This decision gave rise to a debate between women's rights and religious traditions.

Case Timeline:

- **2006: Petition:** The Indian Young Lawyers Association filed a Public Interest Litigation (PIL) in the Supreme Court challenging the practice.
- **2008:** The case was referred to a three-judge bench.
- **2017:** The Supreme **Court** indicated to refer it to the Constitution Bench.
- **Order of Judgment:** Constitution of a five-judge Constitution Bench to decide the matter.
  - **2018: Judgment:** By a majority of 4:1, the court declared the ban on women's entry as unconstitutional.

8.2.5. Excavation at Ratnagiri Buddhist Site

The Archaeological Survey of India (ASI) has made significant discoveries during the ongoing **excavation at the historic** Ratnagiri Buddhist site located in Jajpur district of Odisha . These discoveries are providing a new direction in understanding the ancient Buddhist civilization and cultural history of the region.

Major discoveries of Ratnagiri Buddhist site:

1. **Major Excavation Findings:**
   - The ongoing excavations by the **Archaeological Survey of India (**ASI) at the 5th-13th century Buddhist site of Ratnagiri have unearthed several ancient Buddhist relics, including:
     - **Buddhist monastery complex**, which **is said to be of the 8th century AD**.
     - **Huge Buddha heads** and fragmented remains of statues of Buddhist deities, including a **5 feet long palm** , have also been found.
     - Buddha's head is about **3-4 feet** high.
     - **Stone with inscriptions, pottery, beads, stone pillars** , etc.
     - An **ancient brick wall**, believed to be part of a larger structure.

- **A monolithic stone elephant 5 feet long and 3.5 feet high.**

2. **Importance:**
   - These discoveries have **further strengthened the rich heritage of 1,200 years** of Ratnagiri.
   - Experts believe that Ratnagiri could have been a major centre of Buddhist learning on its par with Nalanda University **in Bihar**.
   - This excavation **will contribute significantly to understanding the growth of Buddhism in Odisha** and **its relationship with South-East Asia**.

Excavations in the East:

1. **Previous Major Excavations:**
   - The last major excavation at Ratnagiri **was carried out by Debala Mitra between 1958** and **1961**.
   - The excavations unearthed **brick stupas**, **monastic complexes**, and several **votive stupas** (religious statues).

2. **Understanding the Historical Context:** These earlier efforts laid an important foundation for understanding **the historical context** of the Ratnagiri site, which is aligned with the new information found in today's excavations.

History of Ratnagiri and Buddhism:

1. **Development of Ratnagiri:**
   - Ratnagiri flourished **between the** 5th and 13th centuries, with its construction peaking during the **7th to 10th centuries**.
   - It was **the main center of Mahayana** and **Tantrayana (Vajrayana)** Buddhism.

2. **Rise of Buddhism in Odisha:**
   - Buddhism in Odisha gained **prominence after the Kalinga War (**261 **BCE) during the reign of the Mauryan Emperor Ashoka**.
   - The site of Ratnagiri was probably **a centre of the spread of Buddhism in** South-East Asia, supported by the ancient maritime trade links of Odisha.

Significance of Ratnagiri

1. **Historical Significance:** Ratnagiri had **made its mark as a Buddhist learning center similar to Nalanda**.

2. **Cultural Heritage:** Votive stupas**,** monasteries**,** and religious relics **were found** in Ratnagiri, which exhibit the development of Buddhist art and architecture.

3. **Global Connections:** There is evidence of **trade and religious exchanges** associated with this site, making it **a symbol of close ties with South-East Asia**.

4. **Educational Centre:** Ratnagiri was probably **visited by** the Chinese monk Hiuen Tsang **in 638-639 AD**.

5. **Maritime Heritage:** Ratnagiri **was part of** Odisha's Baliyatra, which **celebrated trade contacts with regions such as Java, Sumatra, and Bali**.

9 Geography & Disaster

9.1. Forest fire in California, USA

Context:

Recently, three wildfires occurred near Los Angeles, California. Seeing the catastrophic impact of the wildfire, the Los Angeles administration declared a state of emergency there, and President Joe Biden announced financial assistance to help with recovery efforts.

Forest fires in California: key points

- The wildfires in California mainly affected Palacidas, Eaton, Hearst, Woodley, Olivas, Lydia and Sunset.
- **The Palacios fire** affected an area of 200 acres, forcing at least 30,000 residents to leave their homes.
- **The** Eaton Fire affected a total of 10,000 acres after spreading to 1,000 acres.
- **The Hearst Fire** began near San Fernando. It affected a total of 850 acres.
- **The Olivas fire** started in Ventura County and spread to a total of 11 acres of land.
- **The Lydia fire** spread to about 350 acres, affecting the flora and fauna there.
- Following the incident, the Los Angeles administration **declared** a citywide state of emergency, affecting more than 10 million people.
- A red flag warning has been issued from central California to the Mexican border.
- Experts say that by 2100, the incidence of forest fires **could increase by 50%.**
- **Since 1970**, the incidence of wildfires in the western region of the United States has increased by **400%.**

Geographical and other causes of wildfires in California

Los Angeles is located in Southern California, nestled between the Pacific Ocean and mountainous regions. Its geographical location, which **is in a semi-desert** climate zone, and the vast forest land located near it make it vulnerable to wildfires.

- **Mountainous region**: Behind Los Angeles are the Santa Monica and **San Gabriel mountains**, which are covered with dry vegetation. These areas are difficult for firefighters, allowing fires to spread rapidly.
- **Forest and Urban Expansion**: Many of Los Angeles' neighborhoods are nestled along forest lands, where forests and urban expansion meet. These areas are more prone to fire because homes and infrastructure are surrounded by highly flammable vegetation.
- **Forest Season**: California has two distinct wildfire seasons. The first occurs from June to September, when hot and dry weather causes forest fires. The second season takes place from October to April, when the Santa Ana winds intensify the fires, especially near urban areas. During this time, the fire spreads three times faster than in the summer months.
- **Climate and Weather**: Los Angeles has a Mediterranean climate, with hot and dry summers and mild, wet winters. Dry weather and high temperatures from spring to fall cause vegetation to dry out, increasing the risk of fires.
- **Santa Ana winds**: Santa Ana winds are one of the major causes of wildfires spreading in California. These winds are hot, dry and can reach speeds of 80 to 100 mph. These winds originate from the Great Basin Desert and move westward, drying out vegetation and increasing the likelihood of fires.

- **Dry Vegetation**: Los Angeles often has long periods of dryness, especially in the summer and fall months. Drought causes vegetation to dry out, making trees, grasses, and shrubs better fuel for wildfires.
- **Human activities**: Many wildfires in Los Angeles are started due to human activities, whether accidental or deliberate. Common causes include campfires, thrown cigarettes, power lines, and arsons.

Impact of Forest Fires in Los Angeles:

- **Seasonal duration of fires**: The fire season is likely to be longer in California and other areas affected by wildfires. Early dry conditions in the summer season and delayed rains in autumn are making fire conditions longer, increasing the risk of extreme heat waves, burning of forests, grasslands and other vegetation.
- **Harsh weather**: Climate change is exacerbating extreme weather conditions, such as strong winds, droughts, and droughts followed by heavy rainfall. These variable weather patterns are increasing the risk of fires, such as the Santa Ana winds in California that help the fires spread.
- **Ecosystem Changes**: Ecosystems are changing due to rising temperatures, making many plant species more vulnerable to fire. Some areas where fires were less frequent earlier are now becoming more vulnerable to non-native species.
- **Impact on Air Quality**: The incidence of fire smoke in forests is increasing due to climate change. Areas that were not previously affected by these conditions are now facing new health problems. This smoke from forests is being seen as a global health threat.

Santa Ana Winds
• Santa Ana winds are strong and **dry winds**, originating from the interior regions.
• It mainly affects coastal **Southern California** and northern Baja California.
• These winds **are catabatic** (blowing downward).
• These winds got their name from **the Santa Ana Valley located in Orange County**, California.
• These winds blow with extremely **low humidity** and **high speed** .
• The intensity of these winds is especially highest in December.
• In addition, these winds spread the spores of the fungus, which **causes a disease called** coccidioidomycosis.

Immediate Measures to Reduce Forest Fires:

- **Not planting specific species**: To reduce the risk of wildfires, highly flammable tree species should not be planted. Choosing fire-resistant plants can reduce the chances of fire spreading, especially in sensitive areas.
- **Control of Human Development Activities**: Urban expansion, deforestation, and inappropriate land use increase the risk of wildfires. Strict monitoring and enforcement of regulations on development near areas affected by fire can ensure that the fire does not reach residential areas.
- **Policies and Planning**: Governments should implement strong fire management policies, including better land use planning and infrastructure development. There is also a need to build fire-resistant walls and increase awareness about forest fires.

9.2. Artesian Well and Tethys Sea in Rajasthan

Context:

Recently, a large amount of water was released from under the ground in Jaisalmer, Rajasthan, which has been connected to artesian wells in India. There is a difference of opinion among experts about the source of this water. Some said it was linked to the ancient Saraswati river, while others believe that this water could be millions of years old and could be related to the Tethys Sea.

What is an artesian well?

- **Natural Water Flow**: An artesian well is a type of well in which water comes to the surface naturally due to pressure without pumping. It occurs when water accumulates in a confined aquifer, and its pressure becomes high.

- **Confessed water**: Water from artesian wells is called "confined" water, because it is stored in layers of permeable rock or sediment located between hard layers.
- **Formation process**: When the borehole of the well passes through these layers, the water starts rising upwards due to pressure.
- **Famous Places**: Artesian wells are found in Australia's Great Artesian Basin, America's Dakota Aquifer, and Africa.
- **Flowing artesian wells**: If the pressure is sufficient, water flows out of the well spontaneously, which is called "flowing artesian wells". If the pressure is low, it is drained from the pump.
- **Difference from tubewell**: Water comes out naturally in artesian wells, while pumping is required to bring out water in tubewells.

Features of Artesian Wells in Rajasthan:

- **Water Explosion**: In the desert regions of Rajasthan, water is accumulated under the geological layer of sandstone. When a hole is drilled in a borehole, the water comes out like a fountain due to pressure.
- **Ancient marine residues**: The water obtained from borewells was found to have high salinity, which is similar to ancient marine or brackish groundwater sources. This water can be considered related to the Tethys Sea, which existed in ancient times.
- **Marine Soil**: Along with this water, Oz (white marine soil with skeletal remains) also came to the surface, indicating that this water could be a relic of the ancient sea.
- **Geological Significance**: The Jaisalmer region was once connected to the Tethys Sea, where fossils of dinosaurs and giant sharks have been found.

The Tethys Sea: A Geological Background
• **Origin and Expansion**: The Tethys Sea was formed in the Mesozoic era, especially during the Triassic period (about 250 million years ago). The sea was located between the landmasses of Gondwana and Laurasia, and extended into today's Europe, Asia, Africa, and the Middle East.
• **Closing**: At the end of the Cretaceous period, the Tethys Sea began to fill due to the shifting of tectonic plates, and it ceased to exist. Today its remains can be seen as far away as the Mediterranean Sea, the Caspian Sea and the Black Sea.
• **Tectonic Significance**: The gradual filling of the Tethys Sea led to the formation of new landmasses, and the Indian subcontinent moving towards the Asian Plate led to the formation of the Himalayan Mountains and the Tibetan Plateau.
• **Fossil Evidence**: A rich diversity of marine life was found in the Tethys Sea, including marine reptiles such as sharks, ammonites, ichthyosaurs, and mosasaurs.
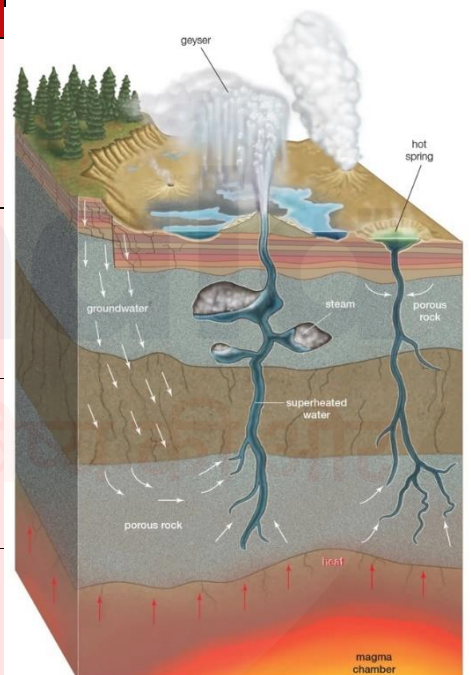
Other examples of water coming from the ground to the surface

- **Hydrothermal vents**: These are hot water glasses that are found near tectonic plates, where hot water and minerals flow out from beneath the earth's crust.
- **Hot springs**: These are glasses of underground water that are heated by geothermal heat and come out of the earth's surface. Examples: Manikaran (Himachal Pradesh), Gaurikund (Uttarakhand).
- **Geysers**: These are geothermal structures from which hot water and steam periodically come out. Example: Yellowstone National Park (US).
- **Mudpots**: These are ponds of punk, which are formed in geothermal zones, where there is a combination of punk and clay.

- **Fumaroles**: These are produced when magma passes through the water table and heats the water, causing steam to be released. Example: Barren Island (Andaman and Nicobar Islands).

Saraswati River: A Historical Perspective

- **Introduction**: The Saraswati River is considered to be the most sacred and prosperous river of the Vedic period. It is mentioned in the Vedas, Mahabharata, and Puranas.
- **Origin and Flow**: The river originated in the Himalayas and flowed through the plains of Punjab, Haryana, Rajasthan and Gujarat before falling into the Arabian Sea.
- **Extinction**: The Saraswati river became extinct about 5000 years ago due to climatic and tectonic changes. It is believed that even today this river is flowing underground.
- **References in Ancient Literature**: The Saraswati River is repeatedly mentioned in the Rigveda, Yajurveda, Manusmriti, Mahabharata, and Puranas. She has been worshipped as the "Paramount Mother" and the "Goddess".

Conclusion: **The** recent incident of eruption of water from the groundwater in Jaisalmer, Rajasthan gave rise to the discussion of the connection between the artesian wells and the ancient Saraswati river. However, according to scientific analysis, this water may be part of the remains of the ancient sea, which is specifically related to the Tethys Sea, and not to the Saraswati River.

9.3 Preliminary Examination

9.3.1. A disaster of a serious nature

The Inter-Ministerial Central Team (IMCT) has termed the landslide in Wayanad as a 'calamity of severe nature'. The announcement comes in view of the widespread damage in the area and the plight of those affected.

Key points on Wayanad landslide:

1. The central government declared the landslide in Wayanad as a 'calamity of severe nature'.
2. **Heavy Casualties**: 254 people died and 128 people are missing in this landslide.
3. **Announcement after five months**: This announcement has been made five months after the event.

Calamity of Severe Nature:

1. **Definition**: Severe natural disasters are catastrophic events that cause large-scale damage to life, property, and the environment.

2. **Natural causes**: These include natural phenomena such as earthquakes, cyclones, or landslides.
3. **Man-made causes**: Industrial accidents or other man-made events can also cause such disasters.

Effects of Declaring Severe Disaster:

1. **Support at the National Level**:
   o Assistance is given to the state government at the national level when a calamity of "rare severity" or "severe nature" is declared.
   o Additional assistance is provided from the central government, notably through the National Disaster Response Force (NDRF).
2. **Disaster Relief Fund (CRF):**
   o The fund is set up in the ratio of 3:1 between the Centre and the State.
   o The fund is used for disaster relief and rehabilitation works.
3. **Additional Assistance**: When the CRF is inadequate, 100% centrally funded assistance is provided from the National Calamity Contingency Fund (NCCF).
4. **Concessions in Loans**:
   o Loan repayment waivers are given to the affected people.
   o New loans are provided on concessional terms.
5. **Faster Decision Process**: Relief and rehabilitation operations are expedited in the affected areas by declaring a "severe nature".
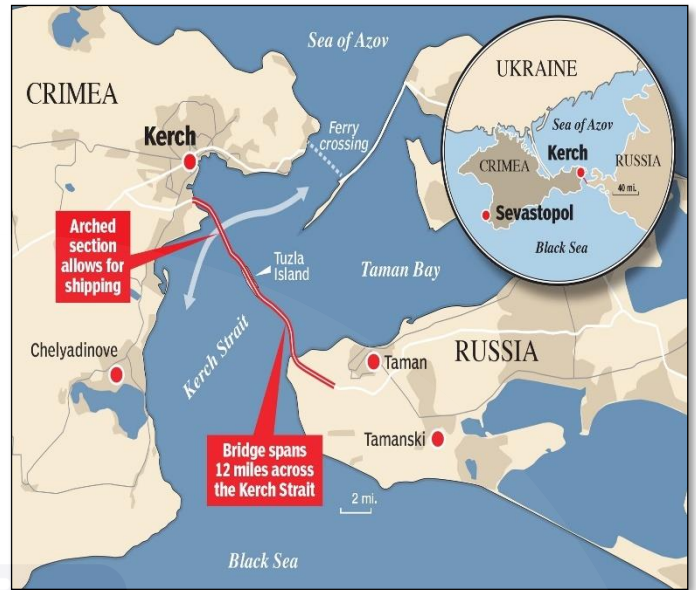
Disasters and their types:

Disasters are sudden events, which cause serious damage to people and property. They can be divided into two types – natural and man-made. The effects can be large or small.

Types of Disasters:

1. **Water related disasters:** floods, hailstorms, cloudbursts, cyclones, heatwaves, cold waves, droughts and hurricanes.
2. **Geographical disasters:** landslides, earthquakes, volcanic eruptions and tornadoes.
3. **Man-made disasters:** urban and forest fires, oil spills, and collapse of buildings.
4. **Biological Disasters:** Virus spread, locust attack, animal epidemic and pest outbreak.
5. **Industrial Disasters:** Chemical accidents, mining fires and oil spills.
6. **Nuclear Disasters:** Nuclear Plant Accidents and Radiation-Related Diseases.

Effects of Severe Natural Disasters:

1. **Social Impact:**
   o Loss of lives and displacement of people.
   o More impact on vulnerable groups such as women and children.
2. **Economic impact:** Damage to infrastructure such as roads, bridges, power systems.
3. **Environmental impacts:** soil erosion, deforestation, and habitat loss.

Government Initiatives

1. **Disaster Management Act, 2005:** Establishment of National Disaster Management Authority (NDMA).

2. **Environment Protection Act, 1986:** Focus on mitigating risks associated with environmental degradation.

3. **Early Warning System:** Use of Indian Tsunami Early Warning System and Doppler Radar.

4. **Immediate Relief and Rehabilitation:** State Disaster Response Fund (SDRF) and National Disaster Response Fund (NDRF).

9.3.2. Oil pollution on the Black Sea coast

The oil spill was caused by tank-damaged oil tankers near the Kerch Strait, causing thousands of tons of heavy fuel oil, called Majut, to spill into the sea.

Oil Spill:

1. **Definition:**
   o An oil spill is an uncontrolled condition when crude oil, gasoline, or other oil products spill into the environment.
   o It mainly affects the oceans.

Oil Pollution:

1. **Sources of Oil Spills:**
   o **Accidental and deliberate:**
     ▪ Oil spills can occur from ships, especially tankers.
     ▪ Leaks can also occur from offshore platforms and pipelines.
   o **Natural Leakage:** Oil spills can occur naturally in the ocean.
   o **Land Based Sources:** Unprocessed sewage, rainwater, rivers, coastal refineries, oil storage facilities, etc. can also cause oil pollution.

Sources of Oil Spills

1. **Accidents of tankers, barges, and other vessels:** **Collisions of** tankers, barges, and other vessels, getting stuck at sea, or malfunctioning of equipment can cause oil spills.

2. **Offshore oil operations:** Drilling rigs, pipelines, and production platforms can have leaks or bloouts, causing oil to leak.

3. **Pipelines:** Oil leaks can occur due to corrosion, ghostly stirring, or construction accidents in pipelines.

4. **Refinery and storage facilities:** Equipment failure, leaks, and leaks may occur during storage or transportation.

5. **Natural Disasters:** Hurricanes, cyclones, and earthquakes can damage the oil structure, causing leaks.

6. **Human errors: Mistakes during** oil transfer, maintenance, or other activities can contribute to oil spills.

Impact of Oil Pollution:
Marine Mammals:

- Exposure to the oil can cause poisoning, hypothermia (drop in body temperature), and damage to the respiratory tract.
- These problems arise by swallowing the oil or by inhaling the oil particles.
- **Coral reefs:** Oil sticks to corals and inhibits their growth, which reduces the process of photosynthesis and eventually kills the corals.
- **Mangroves and Marshes:** The oil sticks to the roots and stems and obstructs the respiration process, causing the plants to stop breathing and die.
- **Fisheries Sector:** Oil pollution affects fish stocks, affecting the ecosystem and livelihoods dependent on fishing.

Health Risks:

- **Direct contact with the oil:** Irritation, burning, and allergic reactions can occur on the skin.
- **Inhalation of toxic smoke:** Damages the respiratory system, which can cause breathing difficulties and other health problems.

Laws on Oil Pollution

1. **International:**
   - Pollution Prevention Treaty from International Ships 1978
   - OPRC (Oil Pollution Preparedness, Response and Cooperation) 1990
   - International Civil Responsibility 1992
2. **National:**
   - Merchant Shipping Act, 1958
   - Environment (Protection) Act, 1986
   - National Oil Spill Disaster Plan

9.3.3. Earthquakes in Tibetan region and Nepal

A powerful 7.1-magnitude earthquake shook **China' s Tibetan region and** parts of Nepal, causing strong tremors in the region. The epicenter of the earthquake **was located about 10 kilometers below the surface in** Tingri County in Shigatse Prefecture. This place is about 80 kilometers north of Mount Everest, the world's highest mountain . The quake was the deadliest earthquake to hit **China** since **2014**.

Causes of Earthquakes in Tibetan Region and Nepal:
Are the Himalayas vulnerable to earthquakes?

1. **Tectonic collision of Indian and Eurasian plates:**
   - The Himalayas lie at the convergence boundary of the Indian and Eurasian plates.
   - Here the Indian plate is buried under the Eurasian plate, generating extreme stress, which is released in the form of earthquakes.
2. **Active Fault Lines:**
   - The Himalayas **have several active fault systems such as Main Central Thrust** and **Main Boundary Thrust**.
   - Earthquakes are caused by sudden sliding or movement over these faults.
3. **Young Mountain Range:**
   - The Himalayas are a geologically young and structurally unstable mountain range.
   - This instability makes seismic activities more intense.

Why is the location of the earthquake important?
Geographical and Cultural Context:

1. **Location of the epicenter:** Tingri County is located in the Shigatse region of Tibet, with an average elevation of 4-5 km and about 8 lakh people.
2. **Cultural Significance:** Shigatse is the residence of the Panchen Lama of Tibetan Buddhism and is a major spiritual center.
3. **Impact on Tourism:** Tingree is famous as the gateway to Mount Everest. The number of tourists is less in winter, but tourism activities in the area were suspended due to the earthquake.

Proximity to Critical Infrastructure:

1. **Lhasa Teren:** The earthquake occurred in the Lhasa Teren, which is an important area for geophysical studies and development projects.

2. **Mega Dam Project:** The region is home to China's ambitious Yarlung Tsangpo River Dam project, the world's largest hydropower project designed to generate 300 billion kWh of electricity per year.

3. **Concerns for India:** The Yarlung Tsangpo River becomes the Brahmaputra River in Arunachal Pradesh and Assam. There are concerns in India about the possible impact on water flow and availability.

Consequences of earthquakes in the Himalayas

1. **Landslides and avalanches:**
   o The steep topography promotes landslides, causing massive damage to infrastructure and loss of lives.
   o Avalanches make the situation more serious in the mountainous areas.

2. **Glacial Lake Eruption Floods (GLOFs):**
   o Earthquakes can destabilize glacial lakes, causing devastating flooding.
   o It causes massive damage to the rivers and nearby areas.

3. **Tectonic Sublimation and Fault:**
   o Sudden elevation changes have a profound impact on ecosystems and human settlements.
   o It can permanently change the regional geography.

4. **Cultural and Heritage Loss:**
   o Ancient monasteries, temples and cultural sites are preserved in this area.
   o Earthquakes can cause serious damage to these historical and cultural heritages.

9.3.4. Rat-hole Mining

Recently, several workers were trapped after water flooded a coal **"rat-hole"** mine in Assam's Dima Hasao district.

What is Rat-Hole Mining?

- **About:**
  o It is a method of coal mining in which narrow, horizontal tunnels are dug into the ground.
  o The tunnels are so wide that only one person can crawl out the coal.

- **Prevalence and Causes:**
  o **Location: Prevalent in** the states of Northeast India, especially Meghalaya and Assam.
  o **The causes:** poverty, lack of other employment options, and economic benefits.
  o The hilly terrain and the nature of coal reserves make conventional mining difficult.
  o Weak enforcement of mining laws also fuels this.

- **Types:**
  o **Side-cutting:** Coal is extracted by digging horizontal tunnels on hill slopes.
  o **Box-cutting:** Coal is accessed by digging rectangular pits.

Causes of Rat-Hole Mining:

1. **Economic Factors:**
   o Poverty and lack of employment are the main reasons why local people are involved in it.
   o Tendency to make quick money from coal mining.

2. **Land Ownership:** Vague land ownership laws encourage mining illegally.

3. **Demand for Coal:**
   o Continued demand for coal, both legal and illegal.
   o Middlemen and illegal traders maintain it.

4. **Policy Flaws:**
   o Weak laws and oversight.
   o Special provisions such as Article 371A impeding the control of mining in Nagaland.

Problems of Rat-Hole Mining:

- **Human Safety:**
  o Narrow tunnels at risk of collapsing.
  o Poor ventilation leads to suffocation and risk of toxic gases.
  o Accidents and diseases due to lack of safety equipment.

- **Environmental Impact:**
  o **Deforestation:** Indiscriminate felling of trees for mining.

- o **Land erosion:** Soil erosion from indiscriminate digging.
  - o **Water pollution: Water source contaminated by** acid mine drainage (AMD).
  - o **Air pollution:** from coal burning and poor ventilation.
- **Social Problems:**
  - o Prevalence of child labour due to small tunnels.
  - o Displacement of local communities and loss of livelihood.

Measures of Regulation:

- **Legal Enforcement:**
  - o **Strictly implement the Mines and Minerals (Development and Regulation) Act, 1957**.
  - o Impose fines and confiscation of equipment for illegal mining.
  - o Perform regular inspections.
- **Eradication of Child Labour:**
  - o **Strictly implement the Child Labour (Prohibition and Regulation) Act, 1986**.
  - o Provide schools and scholarships to promote education.
- **Sustainable Mining Practices:**
  - ▪ Adopt scientific and mechanized mining methods.
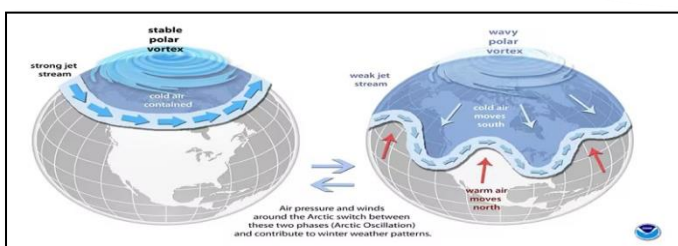 - ▪ Minimize environmental damage and ensure safety.

9.3.5. Polar Vortex

The United States is experiencing severe winter storms as the polar vortex from the Arctic spreads southward, dropping temperatures to -50°C (-60°F).

About Polar Vortex:

Definition: The Polar Vortex is a large low-pressure and cold air system that persists around the Earth's poles.

- It always lives near the poles, strong in winter and weak in summer.
- "Vortex" refers to the anticlockwise flow of air, which confines cold air near the poles.

Types of Polar Vortex:

1. **Tropospheric:** It is found in the lowest atmospheric layer (up to 10-15 km), where most of the weather phenomena occur.
2. **Stratospheric:**
   - o It is found at high altitudes (15-50 km).
   - o It is strongest in autumn and disappears in summer.

Key features of the Polar Vortex:

- **Vortex of the Northern Hemisphere:** Two main centers:
  - o Baffin Island, Canada.
  - o North-Eastern Siberia.
- **Vortex of the Southern Hemisphere:**
  - o Usually located around the South Pole.
  - o It is stronger and more stable than the northern vortex, making it less likely to be unstable.

Causes of Polar Vortex:

- **Stable State:** Under normal conditions, the polar vortex remains strong and confined within the Arctic Circle, restricting cold air to the polar regions.
- **Weakened State:** When warm air rises from the lower atmospheric layer, it disintegrates the rotational flow of the polar vortex, causing the Arctic air to circulate southward.
- **Reasons that contribute to the weakened condition:**
  - o Important weather patterns (such as strong winds in mountainous areas).
  - o Changes in tropical climate systems or sea surface temperatures.
  - o Climate change, especially the impact of uneven heat on the poles, weakens the polar vortex.

Effects of the Polar Vortex
1. **Extremely cold temperatures** : Extremely cold temperatures occur in the mid-latitudes.
2. **Long-term cold waves** – It can disrupt normal activities of life and put pressure on infrastructure.
3. **Increased snowfall** – such as the eastern U.S., Canada and parts of Europe receive more snowfall.
4. **Historical Example (2013-14)** – The Polar Vortex caused record-breaking snowfall and 3% icy cover on Lake Michigan.
5. **Frost damage to crops** – especially in areas that do not experience extreme cold can damage crops; Sowing or harvesting may be delayed.

9.3.6. Greenland

Recently, US President-elect Donald Trump described the **Panama Canal and control of Greenland** as extremely important to **US national security**. He refused to rule out the possibility of using **military force** to take control of these territories.

About Greenland
• **Largest island in the world:** Greenland, which has a population of 57,000, is the largest island in the world. About 80% of it is covered by ice sheets and glaciers.
• **Geographical Location:** Greenland is surrounded by the Atlantic Ocean on one side and the Arctic Ocean on the other. It is the location of the world's northernmost point, Kafeclubban Island.
• **Climate:** The climate here is arctic, which is changed only slightly by the influence of the Gulf Stream in the southwest.

Is the U.S. interested in Greenland ?

- **Strategic Location:** Greenland is located in the North Atlantic Ocean between Europe and North America, and across from Canada to Baffin Bay. It is geographically very important.
- **Military Base:** The US operates a large air base in Greenland, called the Petúfic Space Base (formerly Thule Air Base). It helps monitor and counteract missile threats from Russia, China and North Korea.
- **Mineral wealth:** Greenland is rich in rare minerals, which are essential for the manufacture of electronics, electric vehicles, and weapons.

- **New sea routes:** New shipping routes are opening up in the Arctic as ice sheets melt from global warming. Greenland is key to controlling these waterways, and the U.S. wants to limit the influence of Russia and China here.

Significance of Greenland:

New Shipping Routes:

- Climate change and melting glaciers are opening up new shipping routes in the Arctic Sea.
- These routes can make global trade more efficient.
- **Russia and China:**
  - We are cooperating for the development of new trade routes in the Arctic.
  - **5,600 km long Northern Sea Route:**
    - It stretches from the Barents Sea near Scandinavia to the Bering Strait near Alaska.
  - A subcommittee has been formed for cooperation on this route.

Important Minerals:

- Greenland is rich in minerals, which are essential for modern industries.
- **Findings of the 2025 Survey:**
  - In Greenland, 25 of the 34 important minerals (used in EVs and batteries) were found.
  - The melting of about 28,000 sq km of ice sheets has made it easier to extract oil, gas and other minerals.
- However, Greenland has halted several mining leases since 2021 to avoid environmental and ecological damage.

9.3.7. Sada of Konkan region

The flat-topped lateritic plateaus of the Konkan region, known as SADA, have recently become the subject of biodiversity and ecological studies.

About Sada Region:

Definition and Construction:

- **Sada**: These are flat-topped lateritic regions located in the Konkan region of the Western Ghats, formed over centuries by the process of erosion.
- **Local meaning**: "**Sada** " means **large flat land**.
- It is similar to the plateaus (such as the Kas Plateau) of the Satara district of Maharashtra.

Features of Sada Area:

- **Year-round Barren Condition**:
  - The Sada region remains barren most of the year.
  - During the monsoons these areas **are filled with greenery and** unique species of local plants, such as **Pinda conkanensis**.
- **Biodiversity**: 459 **plant species have been found** in the region, of which 105 are exclusive to the Konkan region only.

Agricultural Practices:

- **Monsoon Farming**:
  - During the monsoon, locals cultivate rice and millets (such as Nachni - Eleusine coracana) on small farms in the Sada areas.
  - **Traditional methods**: Farming is done avoiding the use of chemical fertilizers and pesticides.
- **Permanent Water Sources**:
  - **Water conservation**: The porous laterite soil of SADA effectively conserves rainwater.
  - **Water Availability Throughout the Year**: Water is supplied through open terraced wells, dug wells, springs, and **perpetually flowing rivers**.

About Konkan Region

- **place of origin**
  - **Location**: The Konkan region **lies between the Arabian Sea (west) and the Western Ghats (east) in western India**.
  - **Extent**: It stretches **for about 530 km (330 mi)**, from **the Daman Ganga River (north of Mumbai)** to **the Terekhol River (Maharashtra-Goa border).**

- **Geography:**
  - **Major Areas:** This includes areas like **Thane, Greater Mumbai, Raigad**, and **Ratnagiri**.
  - **Characteristics:** Seasonal rivers, lateritic plateaus, and interchangeable nature of bays and headlands.
- **Economic Activities:**
  - **Agriculture**: Major crops: **Rice, pulses, vegetables, fruits**, and **coconut**.
  - **Other Activities**:
    - Fishing.
    - Salt production.
  - **Mining of iron and manganese**.
- **Historical Significance:**
  - **Famous for the spice trade**: Famous for the spice trade with the Greeks, Egyptians, and Arabs.
  - **Historical Sites**: The center of historical sites like **Elephanta and Kanheri Cave Temple**.

Ecological Significance: Sada:

- **Biodiversity:** The SADA region supports a rich ecosystem, including:
  - **459 species of plants**, of which **105 species** are endemic to the Konkan region.
- **Wildlife Habitat:** This area **provides critical habitat for** sensitive species:
  -
  - **The Indian flapshell turtle (Lissemys punctata**), whose IUCN status **is vulnerable**.
  - Additionally, it is **inhabited by leopards, jackals,** hyenas, barking deer**, and migratory birds**.
- **Cultural significance:** The water bodies of the region are part of the local religious rituals.
  - These water bodies **are protected by rituals dedicated to local deities**.
  - These practices ensure the cleanliness and sustainability **of these natural resources**.

9.3.8.   Siachen Glacier

Recently, a private telecom company in India has launched 4G and 5G services on the Siachen Glacier.

About Siachen Glacier:

- **Location:** It is **the Piedmont Glacier** which is located in the **Karaquorum Range**.
- **The "Third Pole" Zone:** It is located in the Himalayan region which is called the "Third Pole", because the mountain glaciers of this region contain more fresh water than anywhere else on earth, except the polar ice cap.

- **Geographical location:** It is located to the west from **the Saltoro Ridge** (a sub-range of the Karakurum Range) and to the east from the **main Karakorum Range**.
- **Length:** It is the second longest non-polar glacier in the world, after **the Fedchenko Glacier** (Tajikistan).
- **Origin:** It originates **from** Indira Call West, a low point located on **the Indira Ridge**.
- **Strategic Significance:** It is located in such a strategic position that it **controls the Shaksgam Valley** (which was ceded to China by Pakistan in 1963) to the north, **controls the routes from Gilgit Baltistan to Leh** to the west, and also controls **the ancient Qaraqorum Pass** to the east.
- **Source of the river:** It **is the major source of the 80** km long Nubra River, which **is a major tributary of the Shyok River**.
- **Evaluation:** It is considered to be the highest battlefield in the world and India gained control of it from Pakistan under Operation Meghdoot in **1984**.

Significance of Siachen Glacier:

1. **Preventing Infiltration from Pakistan and China:**
   o Siachen serves as a central hub between the Shaksgam Valley, the Qaraqoram Pass, and Aksai Chin.

   o This is important for India to prevent infiltration from both Pakistan and China.
2. **Maintaining Status:**
   o The presence of the Indian Army has helped in maintaining the status quo in the region.
   o This presence has prevented any geographical shift, which could have posed a threat to India's security.
3. **Watershed and Drainage:**
   o The Siachen Glacier acts as a watershed.
   o Its meltwater forms the major source of the Nubra River, which flows into Ladakh.
   o The river joins the Shyok River and eventually falls into the Indus River, which is a major water source for Pakistan.

9.3.9.   About Mount Ibu

One of Indonesia's most **active volcanoes**, **Mount Ibu**, has erupted more than 1,000 times in January 2025. This volcanic activity indicates geological movements and alertness in the area.
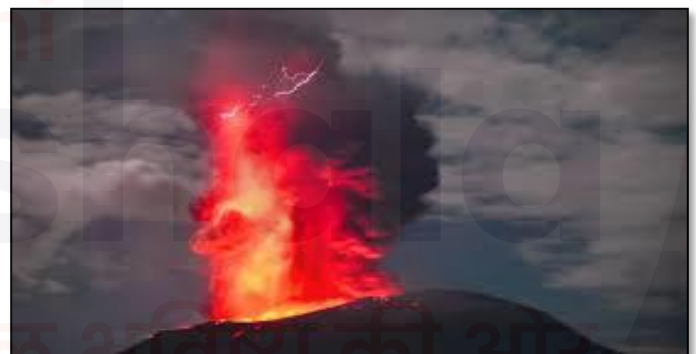
About Mount Ibu
- **Location:** Mount Ibu volcano is an active stratovolcano located on the northwest coast of Halmahera Island, Indonesia.
- It is part of a series of volcanic activity, as Indonesia is located on the Pacific "Ring of Fire" and has 127 active volcanoes.
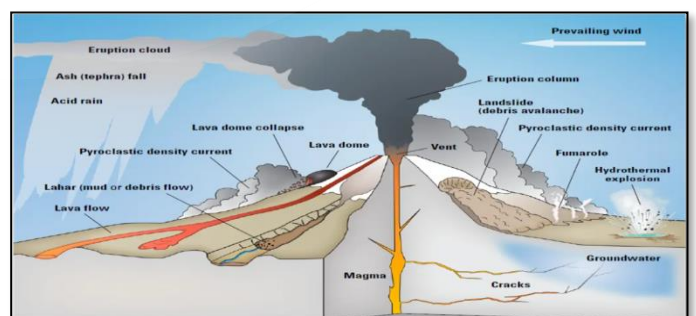
What is Stratovolcano?

- It is also called a composite volcano.

Highlights:

1. **Shape:** These volcanoes are cone-shaped, formed from different layers frozen during consecutive eruptions.
2. **Slope structure:** They are slightly steep at the base, but gain rapid elevation towards the summit, forming higher mountain peaks.
3. **Geo-location:**
   o These are usually found above the subduction zone (where one tectonic plate moves under another).
   o They are more common in large volcanic active areas such as the Pacific Ring of Fire.
4. **Composition:**
   o They are formed by the gradual deposition of layers of lava, ash, and tephra.
   o In it, pyroclastic material and layers of lava are formed one after the other.

Examples of stratovolcanoes:

- **Nevado del Ruiz volcano (Colombia, Andes mountain range).**
- **Ubinas volcano (Peru, Andes mountain range).**

Pacific Ring of Fire:

- The Pacific Ring of Fire, also known as the Circum-Pacific Belt, is a fence zone located around the Pacific Ocean, known for its high seismic and volcanic activity.
- It marks the boundaries of many tectonic plates, where there is an explosion of enormous energy due to subduction and transform movements, causing earthquakes and volcanic eruptions.
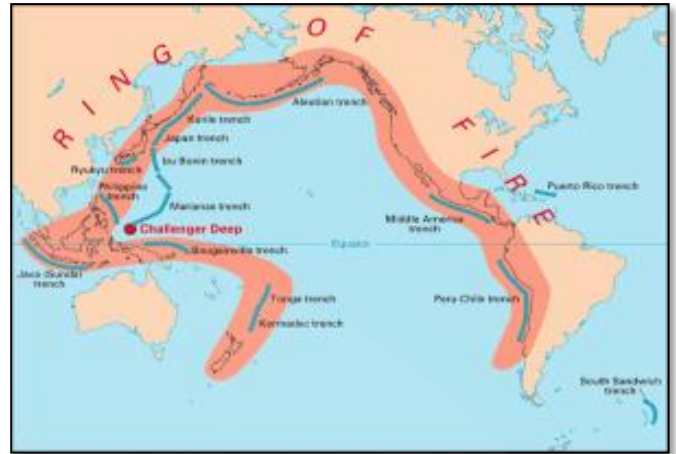
Key facts:

- **Earthquakes:** **About** 90% **of the world's earthquakes** occur around the Ring of Fire.
- **Volcanoes:** It **accounts for 75%** of the Earth's active volcanoes, making it the most volcanically active region in the world.

Physical Significance and Impact:

1. **Tectonic activity:** The interaction of tectonic plates makes this region highly active, causing significant natural disasters such as tsunamis, earthquakes, and volcanic eruptions.
2. **Agricultural Benefits:** The ash from volcanic eruptions enriches the soil, providing fertile ground for agriculture.
3. **Geothermal Energy:** The internal heat generated from tectonic processes provides an opportunity for the use of geothermal energy.

Countries around the Ring of Fire:

- **North America:** US (Alaska), Canada, Mexico
- **South America:** Chile, Peru, Ecuador
- **Asia:** Japan, Philippines, Indonesia
- **Oceania:** New Zealand, Papua New Guinea

10 Ethics

10.1. Illegal Mining: Ethical Dilemmas and the Search for Solutions

Illegal mining in South Africa and India is a complex and sensitive issue, which raises deep questions between economic needs, human rights and environmental protections. *The Vala Umgodi* campaign in South Africa reflects the struggle against illegal mining, while the practice of rat-hole mining in India continues despite the law, highlighting problems of enforcement and accountability. In the context of these two countries, there are many ethical questions associated with illegal mining, such as criminalization, exploitation of marginalized communities, and the responsibility of the government for equitable and sustainable mining practices.

Ethical dilemmas associated with illegal mining

1. **Criminalizing Poverty and Addressing Inequalities**: Criminalizing artisanal miners ignores the socio-economic reasons that attract them to illegal mining. The dilemma focuses on whether to criminalise and punish these activities, or try to address the reasons why mining continues.

2. **Balancing Human Rights and Law Enforcement**: While miners lost many lives due to lack of water and food while mining underground in South Africa, rat-hole mining is common in India. In this context, maintaining a balance between law enforcement and the human rights of miners poses a serious moral challenge.

3. **Environmental Responsibility and Immediate Economic Benefits**: Illegal mining has caused increased environmental damage in South Africa, and rat-hole mining in India is leading to water pollution and destruction of vegetation. The question arises as to how to prioritize environmental protection, while also taking care of the immediate economic needs of miners.

4. **Constitutional Corruption and Transparent Governance**: The connivance of government officials in both countries has led to illegal mining. The solution to this challenge is possible only by bringing transparency and accountability in mining practices, so that corruption can be eliminated and the safety of miners can be ensured.

5. **Balance of Organized Crime and Livelihood Opportunities**: Miners in South Africa are often in the possession of organized criminals, and rat-hole mining in India also has the influence of the local mafia. From an ethical point of view, the challenge is how to dismantle these exploitative networks while providing legitimate and secure livelihood opportunities for miners.

6. **Stigmatizing Marginalized Communities and Perception of the Law**: Criminalising South Africa's *Zama Zamas (illegal artisan miners)* and India's rat-hole miners increases the social stigma against them. The government has to take care that the miners do not become criminals in the eyes of the law and at the same time they get opportunities in a fair manner.

Importance of Controlling Illegal Mining

1. **Economic Justice**: Formalizing artisanal mining gives the government an opportunity to generate revenue and can reduce economic inequality. Legally incorporating miners in South Africa could end illegal networks, and regulating coal mining in India could reduce the poverty of miners.

2. **Protection of Human Rights**: Ensuring the protection and respect of the rights of miners is in line with South Africa's constitutional values and India's labour rights.

3. **Environmental sustainability**: Rehabilitation of mining areas and implementing regulated mining practices can reduce environmental damage.

4. **Empowered Governance**: Making government officials accountable and implementing transparent policies can promote trust and ethical governance in society.

5. **Regional Stability**: Regional cooperation is essential to control the cross-border impacts of illegal mining, thereby reducing the adverse consequences of illegal mining.

Ethical Perspectives and Illegal Mining

1. **Utilitarianism**: The utilitarian approach suggests that by legalizing artisanal mining and formalizing it, the social welfare of miners can be enhanced. It will support the adoption of safe and regulated methods instead of hazardous mining practices.

2. **Deputies and ethics**: Based on Kant's deputy, miners should not only be considered criminals, but their rights and dignity should be respected. Mining laws should be reformed so that the rights of miners are protected.

3. **Virtue-based Ethics**: In a virtue-based approach, the government should act with justice, compassion, and integrity, addressing the causes of illegal mining. This will include rehabilitation of mining areas and dismantling exploitative networks.

4. **Rawls' Theory of Justice**: According to Rawls' theory, the poorest and marginalized communities should benefit from just policies. Revenue-sharing and equality of opportunities can be ensured to improve mining.

Suggestions for Solutions to Illegal Mining
1. **Formalizing Artisanal Mining**: Artisanal miners need clear regulations and accessible licensing to incorporate them into the formal economy. In India, the Supreme Court had directed the Odisha government to formalise artisanal miners.
2. **Rehabilitation of abandoned mines**; Rehabilitation of mines will not only reduce environmental hazards, but it will also ensure the safety of nearby communities.
3. **Empowering Local Communities**: It is imperative to involve local communities in mining decisions, so that appropriate and ethical decisions can be taken while respecting their rights.
4. **Law enforcement against syndicates**: Enforcing stricter laws against organized crime networks will help improve the conditions of miners and reduce exploitation tendencies.
5. **Promoting Regional Cooperation**: Regional cooperation is essential to controlling the cross-border impacts of illegal mining, and this may require international agreements.
6. **Corporate accountability**: Mining companies must be held accountable for their environmental and social impacts, so that they adopt sustainable and ethical mining practices.

Conclusion: The ethical dilemmas associated with illegal mining cannot be resolved by punitive approaches alone. For this, a corrective approach has to be adopted by understanding poverty, environmental damage and failures of governance. By protecting miners' rights and promoting inclusive policies, governments can promote sustainable and just economic growth.

10.2.   Freedom of the media

Media freedom is the foundation of democracy, ensuring accountability in society and informing public discourse. Pulitzer Prize-winning cartoonist Ann Tellness's resignation from The Washington Post because a critical cartoon about Jeff Bezos he produced was disapproved has raised deep ethical dilemmas over the newspaper owner's policies and editorial independence. This incident raises the question of whether corporate ownership affects the moral obligations of the media and what repercussions it has on democracy and public trust.

Ethical Dilemmas in Media Freedom:

1. **Conflict of Interest**: The rejection of cartoons due to criticism by the newspaper owner reflects a conflict of interest within the media. The incident calls into question the legitimacy of editorial freedom, raising concerns about whether the media is prioritizing corporate interests over its moral obligations.

2. **Suppression of Freedom of Expression**: Censorship of dissenting voices violates the democratic principles of freedom of expression. When editorial cartoonists, who undertake to challenge authorities, are suppressed, it undermines the fundamental tenets of democracy.

3. **Lack of Accountability**: The function of the media is to hold the power accountable. When the media suppresses criticism of influential individuals, it affects the process of accountability and the media can be used to promote a certain narrative.

4. **Impact on Public Trust**: When corporate interests are given priority in the media, it weakens public confidence and questions its impartiality, affecting the purpose of the media – to give correct and unbiased information .

5. **Business Pressures**: Dependence on advertising revenues can jeopardize media freedom, as it can put pressure on media reporting to avoid the influence of advertisers, and profit can be prioritized over honesty.

Importance of Free and Unrestricted Media in a Democracy
1. **Ethical Governance**: Independent media are able to expose the unethical practices of power and promote the principles of transparency. For example, the Right to Information (RTI) in India has empowered journalists and citizens to expose government corruption, ensuring greater transparency and accountability.
2. **Journalistic integrity**: Independent media remains free from external pressures and prioritizes truthful and unbiased reporting. For example, investigative journalism in the 2G spectrum scam has proved the integrity of journalism.
3. **Public Welfare**: The media, when prioritizing social welfare, ensures that there is moral alignment in public narratives. For example, the Swachh Bharat Abhiyan increased public awareness and participation through extensive media coverage.
4. **Ethical Accountability**: Independent media promotes transparency in public discourse by openly critiquing governance and policies. The coverage of the Nirbhaya case by the Indian media has strengthened legal reforms and accountability on the issue of women's safety.
5. **Check Power**: The media conducts ethical surveillance of abuse of power. For example, the media's extensive coverage of the coal allocation scam forced the Supreme Court to intervene, and quash the coal block allocation.

Philosophical Perspectives on Media Freedom:

1. **Utilitarianism**: Media decisions should be aimed at maximizing the welfare of society. Suppressing critical journalism

2. Individuals benefit, but it harms social well-being because it limits the debate of information.

3. **Duty Ethics**: The media has a moral duty to uphold truth and independence. Rejecting any content on the basis of subject matter violates this moral responsibility.

4. **Virtue Ethics**: Editorial independence requires adherence to virtues such as courage, honesty, and accountability. Tellness's resignation exposes this moral obligation, in that he prioritized ethical principles over personal or corporate gain.

5. **Rawls's Principle of Justice**: For fairness, all voices should have equal opportunity, including those of dissent. When critical topics are suppressed, it prioritizes powerful interests over the public interest.

6. **Kantian Universalism**: Practices such as censoring criticism of influential individuals are inexcusable when universally applied, as they undermine the basic tenets of a free press and democracy.

Suggestions to Strengthen Media Freedom:

1. **Institutionalizing Editorial Independence**: Media organizations should put in place strong policies that make editorial decisions free from outside influences.

2. **Increasing Transparency**: Making public information about conflicts of interest within media organizations promotes trust and credibility.

3. **Promoting Ethical Journalism**: Ensuring ethical training for journalists and editors, enabling them to maintain professional integrity.

4. **Encouraging Independent Forums**: Supporting independent journalism through alternative media platforms, representing diverse perspectives.

5. **Empowering Public Advocacy**: Through awareness campaigns, citizens can be encouraged to demand accountability from media organizations.

Conclusion:

Ann Tellness's resignation highlights the importance of editorial independence in a democracy. Ethical journalism requires that a commitment to truth and accountability is maintained despite corporate and political pressures. This commitment is essential to maintain public confidence and promote an informed citizenry. A free media strengthens democracy and holds power accountable, thereby ensuring the principles of justice and equality in society.

11 Famous personalities

11.1 162nd Birth Anniversary of Swami Vivekananda

Context:

The 162nd birth anniversary of Swami Vivekananda is celebrated as National Youth Day on 12 January. The day aims to inspire the youth to understand their life objectives and recognise their role in nation building. On this occasion, the Prime Minister participated in the *Vikash Bharat Youth Leaders Dialogue 2025*.

Highlights of National Youth Day

- National Youth Day is celebrated in the memory of Swami Vivekananda, who was born on 12 January 1863.
- According to the National Youth Policy 2014, youth are defined as persons in the age group of 15-29 years, who constitute about 40% of the total population of India.
- This day is organized with an aim to involve the youth in nation building, as the Prime Minister had called upon 1 lakh youth to join politics on Independence Day.

Objective of Developed India Youth Leaders Dialogue 2025

- It is a platform that aims to make the youth active partners in the development of the country.
- The event had 3,000 young participants in the age group of 15-29 years, who were selected through a multi-step process, called the *Developed India Challenge*.
- The young leaders expressed their views on ten themes that were important for India's development in areas such as technology, sustainability, women empowerment, manufacturing and agriculture.

Important facts about Swami Vivekananda

- Swami Vivekananda, who was born on 12 January 1863, was a chief disciple of Ramakrishna Paramahansa.
- He effectively propagated Indian culture and Vedanta philosophy in the Chicago Dharma Mahasabha in 1893.
- In 1892, he spent three days and nights on a huge rock located in Kanyakumari for his sadhana, where he attained enlightenment and became famous as 'Vivekananda'.
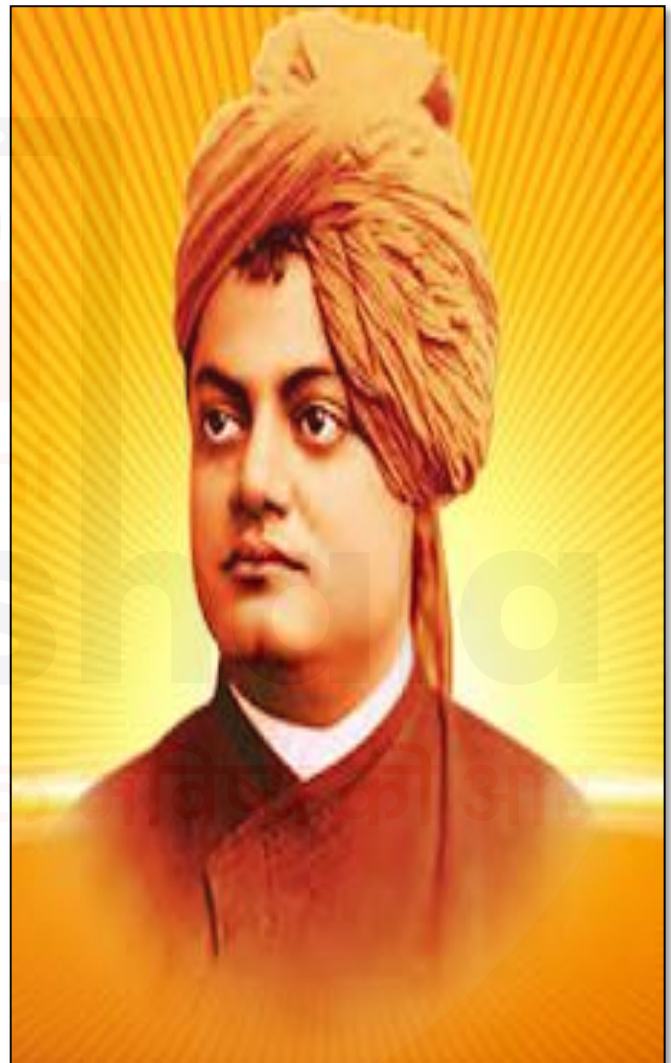
Contribution of Swami Vivekananda

1. **Philosophers**:
   - Swami Vivekananda introduced the Indian philosophies of Vedanta and Yoga to the world.
   - He *preached* Neo-Vedanta, in which Hinduism was interpreted from a western point of view.
2. **Spirituality**:

- Inspired by the examples of Upanishads, Gita, Buddha and Jesus, Swami Vivekananda shared the important teachings of self-realization, compassion and selfless service for the welfare of humanity.
- He went on to say that "serving a living being is akin to worshipping Shiva."

3. **Education and Nationalism**:
   - Swami Vivekananda gave priority to education for the reconstruction of India. He advocated education that emphasized human construction and character building.
   - The basis of his nationalism was humanity and all-encompassing. He believed that political and spiritual freedom could be achieved only through selfless service.

Basic Teachings of Swami Vivekananda:

1. **For Youth**:
   - Swami Vivekananda taught the youth the importance of staying committed to their goals and dedication in the face of challenges.
   - He believed that the youth should be physically and mentally strong.

2. **Morality**: Morality is a code of conduct that guides a person to become a good citizen and reflects our true divine nature.

3. **Religion**: According to Swami Vivekananda, religion is the universal experience of the ultimate truth, free from intolerance, superstition, and priesthood.

4. **Education**: Swami Vivekananda advocated education for students that unleashes their innate wisdom and strength and makes them self-reliant to face the challenges of life.

5. **Rationality**: Swami Vivekananda supported the methods and results of modern science and did not reject reasoning in favor of faith.

6. **Nationalism**: His nationalism was based on concern for the masses, freedom, equality and karma yoga, paving the way for political and spiritual freedom through selfless service.

Some famous quotes of Swami Vivekananda:

- "In a country where millions of people are starving and where some people exploit them instead of helping them, is that religion?"
- "We have poor, ignorant, and illiterate brethren; We should consider them as our brothers."

National Youth Policy (NYP) 2014 and 2024

- **NYP 2014**: The policy seeks to empower Indian youth to achieve their full potential and participate actively in the development of the country.
- **NYP 2024**: The government reviewed and updated the 2014 policy and released a new format for 2024. The draft presents a ten-year vision for youth development, which is in line with the Sustainable Development Goals.
- The five key areas of this policy include **education**, **employment**, **youth leadership**, **health and social justice**, and **social inclusion**.

Major Initiatives

- **Improving** career and life skills, alignment with **National Education Policy 2020**.

- Strengthening leadership and volunteering opportunities using technology.

- **Promotion of health care**, especially **mental health** and **reproductive health**.

- **Promoting sports and fitness** and ensuring safety, justice and support for marginalised youth.

The life and teachings of Swami Vivekananda continue to inspire us, especially the need to involve the youth in the objective of nation-building.

11.2 Netaji Subhas Chandra Bose

Context:

Recently, on 23rd January 2025, the 128th birth anniversary of Subhash Chandra Bose **was observed as "Parakram Diwas"** in India. This day is dedicated to honour his significant contribution to India's freedom struggle and to remember his contribution in shaping the future of the nation.

Life and Background of Netaji Subhas Chandra Bose:

- **Subhash** Chandra Bose was born on **23 January 1897** in Cuttack, Orissa to a Bengali family.
- **Family**: His father, **Janakinath Bose**, was a prominent lawyer and his mother, **Prabhavati Devi**, belonged to an aristocratic family in Kolkata.
  - Bose had 14 siblings but had a special relationship with his elder brother Sharad Chandra Bose.
  - His wife's name was **Emilie Schenkl**. He married Emily in 1942 according to Hindu rituals.
  - His daughter's name **was Anita Bose**.
- **Education**: Initially, he attended the Protestant School in Cuttack, followed by **the Ravenshaw Collegiate School**.
  - At the age of 15, Subhash made an in-depth study of the works of Swami Vivekananda.
  - **In** 1915, he passed his intermediate examination.
  - **In** 1916, he began studying **for a BA** in Philosophy at Presidency College, Kolkata, where he led student movements.

- Initially, he **tried to enlist in the** 49th Bengal Regiment, but was declared physically unfit.
- Later, he enrolled at the **Scottish Church College** and continued his studies and obtained a BA (Hons) degree in Philosophy from the University of Calcutta in **1919**.
- Subhash's father wanted him to join the **Indian Civil Services (ICS)**, but he was torn between his personal beliefs and family expectations. After much deliberation, he decided to take the **ICS examination** in 1919 and went to England. Although he had difficulty finding a school, he eventually **enrolled at** Kids William Hall, where he concentrated on the mental and moral sciences. **In** 1920, he succeeded in the ICS examination and secured the fourth position.

Contribution of Subhash Chandra Bose to India's Freedom Struggle

Subhash Chandra Bose, also known as Netaji, is among the most influential leaders in India's struggle for independence. His contributions were not limited to the military sphere but he also shaped the direction of the country's freedom movement.

- **Jallianwala Bagh Massacre**: The Jallianwala Bagh massacre in 1919 deeply affected Subhash Chandra Bose. This incident prompted him to resign from his prestigious job in the ICS (Indian Civil Service) and return to India in **1921**.

- **Inspired by Mahatma Gandhi**, he worked with leaders like Chittaranjan Das, from whom he sought guidance and who went on to become his political mentor.

- **Entry into the Indian National Congress**: Subhash Chandra Bose participated in the freedom struggle by joining the Indian National Congress (INC) in 1921.

- **President of Youth Congress**: In 1923, Bose was elected President of the All India Youth Congress.

- **Opposition to the Simon Commission:** When the Simon Commission came to India in 1928, Bose campaigned against it in Kolkata and demanded complete independence.

- **Participation in Salt Satyagraha**: In the 1930s, Bose took an active part in the Salt Satyagraha and collaborated in the movements with Jawaharlal Nehru and M.N. Roy in the 1930s.

- **Opposition to Suspension of Civil Disobedience Movement**: In 1931, Bose opposed the suspension of the Civil Disobedience Movement and the signing of the Gandhi-Irwin Pact.

- **Congress President in 1938: In 1938**, Bose won the post of President of Congress in the Haripura session.

- **In 1939,** Bose again took over as the President of the Indian National Congress. At this time, he demanded complete independence and after some time resigned from the post of Congress President.

- **Establishment of the Forward Bloc**: On 3 May 1939, Bose established the "Forward Bloc" at Makar, Unnao, Uttar Pradesh, with the aim of strengthening the leftist political movement in Bengal and gaining significant support.

- **Quit India Movement**: In 1942, Bose appreciated Gandhiji's leadership in the Quit India Movement. Through radio broadcasts from Germany and Japan, he inspired Indians to fight against British rule.

Netaji Subhas Chandra Bose's Military Approach

Subhash Chandra Bose adopted a bold and military approach to get India independence from the British Empire, which was the central part of his strategic thought during World War II.

- **Formation of Azad Hind Fauj (Indian National Army, INA):** In 1942, with the support of Japan, Bose began to form the Azad Hind Fauj to fight against the British colonial rule. The first attempt of the INA took place in South-East Asia under the leadership of Captain Mohan Singh.

- **Role of Subhas Chandra Bose**: In 1943, after the resignation of the initial leaders of the INA, Bose took over the command of the INA. Bose went to South-East Asia and led the INA.

- **Training**: The INA had Indian POWs, captured by the Japanese, and also Indian volunteers, who had come from South-East Asia. There were about 40,000 soldiers in this army, who were actively trained and prepared for war.

- **Slogan "Delhi Chalo"**: A powerful moment of Bose's leadership was his slogan "Delhi Chalo", which became the symbol of a march to free the capital of India from British control. "Give me blood, I will give you freedom", was also very famous.

- **Azad Hind Radio**: Bose started the Azad Hind Radio in 1942, which was started to communicate with Indians worldwide.

- **Proclamation of Azad Hind Government**: On 21 October 1943, Bose announced the formation of the Azad Hind Government in Singapore, in which he appointed himself its head. This government was recognized by many countries including Japan, Germany and Italy and it presented a formal challenge to India against British rule.

- **Symbol of Unity**: The INA's official motto—"**Unity, Faith, Sacrifice**"—was the essence of Bose's vision. They considered unity among Indians as the essential element to defeat the British.

- **Surrender and Consequences**: After some time the course of World War II changed and the Japanese forces were defeated. The fall of Burma and Japanese surrender had a bad effect on Bose's military outlook.

Ideological differences between Mahatma Gandhi and Subhash Chandra Bose

Mahatma Gandhi and Subhash Chandra Bose were two great leaders of the Indian freedom struggle. Both were great leaders, but their views were often diametrically opposed to each other.

- **Nonviolence vs. Military Approach**
  - **Gandhi**: Gandhiji was a firm believer in non-violence and satyagraha (civil disobedience) and believed that peace and non-violence were the only path to India's freedom.
  - **Bose**: Bose did not find Gandhiji's non-violent method effective against the British Empire. He supported military resistance. He believed that only violent actions could drive the imperialist rule out of India.
- **Means and objectives**
  - **Gandhi**: Gandhiji believed that goals are more important than means. They were against the use of any kind of wrong means, no matter how justified the goal.
  - **Bose**: For Bose, the objective was above the means. He showed no hesitation in seeking help from dictatorial rulers like Nazi Germany and Emperor Japan.
- **Form of governance**
  - **Gandhi**: Gandhiji's dream **was of** Ram Rajya, a society based on truth, non-violence and self-regulation. He believed that India did not need a representative government, constitution, army or centralisation of power.
  - **Bose**: Initially, Bose supported the democratic system for India, but later he believed that democracy would not be enough for nation-building and ending poverty and social inequality. He was a supporter of a **centralized approach**.
- **militarism**
  - **Gandhi**: Gandhiji was a staunch opponent of militarism. India, according to him, should be free from military discipline, with an emphasis on self-regulation and truth.

- **Bose**: On the contrary, Bose was an admirer of military discipline and believed that the creation of an armed force was imperative for the fight for freedom.
- **Economic Outlook**
  - **Gandhi**: Gandhiji's economic policy was based on **decentralization**. He wanted economic control in India to be in the hands of local communities, who would focus on self-reliance and handicrafts.
  - **Bose**: Bose was in favour of industrialisation and wanted India to build large industries so that it could compete with the western powers. They believed in the need for a strong industrial base for the progress of the nation.
- **teaching**
  - **Gandhi**: Gandhiji was opposed to the English education system, which he believed was created to perpetuate colonial rule. He emphasized the need for **basic education** and vocational training for all.
  - **Bose**: On the contrary, Bose favoured higher education, especially in technical and scientific fields, to transform India into an industrial power.
- **Attitudes towards Culture, Religion and Development**
  - **Gandhi**: Gandhiji was deeply influenced by Indian culture and spirituality. He advocated living a simple life in line with traditional values. He believed that self-reliance and rural development were essential.
  - **Bose**: Bose was associated with the Indian tradition, but his greater focus was on modernity and industrial development. His approach to culture and religion was more pragmatic.

Impact of Subhash Chandra Bose's Contribution on Indian Freedom Struggle

Subhash Chandra Bose's contributions were important in shaping the direction of the Indian freedom struggle. His bold leadership, strategic thinking and unwavering commitment to freedom inspired millions.

- **Military Activities**: Bose formed the Indian National Army (INA) to challenge the British colonial rule. Though the INA did not achieve military success on the battlefield, it became a symbol of inspiration and pride for many Indians.

- **Leadership**: His personality inspired millions of people, especially the youth, to play an active role in the freedom struggle. His slogans ignited nationalist sentiments and inspired people from every section to join the movement.

- **International Efforts**: Unlike other leaders of the Indian National Congress, Bose attempted to form alliances with foreign powers like Germany and Emperor Japan to obtain military and financial support for India's independence. This approach helped raise international awareness of India's struggle.

- **Empowerment of Women**: Bose believed in the empowerment of women in the freedom struggle. She formed the Rani Jhansi Regiment within the INA, giving women the opportunity to actively participate in military operations.

1. **With reference to the Digital Personal Data Protection Rules, 2025, the following statements are made:**
   I. Under these rules, major tech companies such as Meta and Google are classified as Critical Data Fiduciaries (SDFs).
   II. Data Protection Officer (DPO) should be appointed by all companies that handle personal data, regardless of their size.
   III. The draft rules have focused on ensuring informed consent from individuals and provide mechanisms for citizens to manage their data.

   Which of the following statements are correct?
   A. I, II, and III
   B. I and III only
   C. II & III only
   D. I only

2. **What is the main objective of the Kerala Forest (Amendment) Bill, 2024?**
   A. Extending the jurisdiction of forest laws beyond forest areas
   B. Enhancing the power of forest officials to arrest and detain persons
   C. Creation of new forest reserves in Kerala
   D. Limiting garbage dumping into rivers and other water bodies

3. **Consider the following statements regarding the Great Nicobar Project:**
   I. The project aims to develop the island into a global maritime and tourism hub.
   II. The proposed International Container Transshipment Terminal (ICTT) aims to reduce India's dependence on foreign ports.
   III. The Environmental Impact Assessment (EIA) of the project includes afforestation and marine conservation measures.

   Select the correct statements:
   A. I, II, and III
   B. I and II only
   C. II & III only
   D. I only

4. **What was the significance of the recent outbreak of Avian Influenza (H5N1) in India?**

   A. In India, it is the first instance of species-cross transmission in carnivores
   B. Death of three tigers and a leopard confirmed by H5N1
   C. The outbreak caused a major avian flu crisis in India's poultry farms
   D. India is now under threat of human bird flu outbreak

5. **With respect to the script of Indus Valley Civilization, which of the following statements is true?**
   A. This script has been completely decoded, giving details about its language and society.
   B. This script believes that it has a combination of logogram and syllabic sign, but its full meaning is yet unknown.
   C. This script is only found on ceramics, and not on any seals or planks.
   D. It was probably only a euphemistic script, with no pictorial representation.

6. **Consider the following statements regarding the Rani Durgavati Tiger Reserve under the Forest Rights Act (FRA), 2006 by the Government of Madhya Pradesh:**
   I. The villagers alleged that when the reserve was notified, they were forcibly relocated.
   II. The Ministry of Tribal Affairs directed the state government to address the concerns raised by the affected villagers.
   III. FRA violations pertain to wildlife conservation and forest management.

   What are the correct statements?
   A. I, II, and III
   B. Only I and II are true
   C. II and III are true
   D. Only I is true

7. **Consider the following statements about BRICS:**
   1. Argentina has recently become a full member of the BRICS grouping.
   2. The BRICS grouping basically consists of Brazil, Russia, India, China and South Africa.

   Which of the above statements is/are correct?
   A. Only 1
   B. Only 2
   C. Both 1 and 2

D. Neither 1 nor 2

8. **Where will the Maha Kumbh Mela 2025 be held?**
   A. Haridwar, Uttarakhand
   B. Varanasi, Uttar Pradesh
   C. Prayagraj, Uttar Pradesh
   D. Ujjain, Madhya Pradesh

9. **Consider the following statements about the e-Shram portal:**
   1. It is designed to create a national database for unorganized workers.
   2. The portal now supports all 22 scheduled languages of India.

   Which of the above statements is/are correct?
   A. Only 1
   B. Only 2
   C. Both 1 and 2
   D. Neither 1 nor 2

10. **What is the maximum amount covered for seven days under the cashless treatment scheme for victims of road accidents?**
    A. ₹1.5 Lakh
    B. ₹50,000
    C. ₹1 Lakh
    D. ₹2 Lakh

11. **Consider the following statements about Pravasi Bharatiya Divas (PBD):**
    1. The first Pravasi Bharatiya Divas was celebrated in 2003.
    2. This day is celebrated to honour the contribution of the Indian diaspora community in the development of India.

    Which of the above statements is/are correct?
    A. Only 1
    B. Only 2
    C. Both 1 and 2
    D. Neither 1 nor 2

12. **Who will take charge as the Secretary of the Department of Space and Chairman of ISRO (Indian Space Research Organisation) from 14 January 2025?**
    A. Dr. Ajay Sood MD
    B. Dr. Pawan Kumar MD
    C. Dr. M. S. Ananth
    D. Dr. V. Narayanan

13. **Consider the following statements about the Henley Passport Index:**
    1. The ranking is based on the number of visa-free destinations found with that passport.

2. The index covers 227 travel destinations and 199 passports.
3. India's ranking is 80th in the Henley Passport Index 2025.

   Which of the following statements are correct?
   A. 1 and 2 Only
   B. 1 and 3 Only
   C. 2 and 3 Only
   D. 1, 2, and 3

14. **Which port of India was renamed in 2017 in honour of Pandit Deendayal Upadhyay?**
    A. Jawaharlal Nehru Port Trust
    B. Kandla Port
    C. Chennai Port
    D. Cochin Port

15. **What is the main focus of the National Artificial Intelligence (AI) strategy developed by NITI Aayog?**
    A. Financial Inclusion and FinTech Innovation
    B. Agriculture, healthcare, smart cities and infrastructure
    C. National Defense and Cyber Security
    D. Robotics for Industrial Automation

16. **Which of the following statements are correct about the Ken-Betwa river interlinking project?**
    1. The objective is to link the Ken river, which is over-watered, with the Betwa river to address the water shortage.
    2. This includes the construction of a dam within the Panna Tiger Reserve, which has led to environmental concerns.
    3. The idea of interlinking of rivers was first mooted by Shri M. Visvesvaraya in 1905.
    A. 1 and 2 Only
    B. 2 and 3 Only
    C. 1 Only
    D. 1, 2, and 3

17. **What is the correct definition of Polar Vortex?**
    A. A cyclone in the Arctic that causes heatwaves.
    B. A high-pressure system that traps cold air near the surface.
    C. A large low pressure and cold air system around the Earth's poles.
    D. A hot air system that disrupts jet streams.

18. **Which action has been implemented to improve the Public Distribution System (PDS) in India?**
    A. Direct cash transfers to beneficiaries
    B. Use of Point-of-Sale (POS) Machines
    C. Replacing wheat and rice with nutrient-rich foods

D. Giving universal coverage to all Haushholds

19. Consider the following statements regarding "Pravasi Bharatiya Express":

1. It is designed to connect the Overseas Indians (PIOs) with India's cultural and religious heritage.
2. This train operates under the Pravasi Teerth Darshan Yojana (PTDY).
3. It is open to foreign tourists and government employees.

Which of the above statements is/are correct?

A. 1 and 2 Only
B. 2 and 3 Only
C. 1 and 3 Only
D. 1, 2 and 3

20. Which digital payment platform has partnered with ICICI Lombard General Insurance to provide exclusive insurance for those attending the Mahakumbh Mela 2025?

A. Paytm
B. Amazon Pay
C. Google Pay
D. PhonePe

21. Consider the following statements regarding Uttar Pradesh Open Network for Agriculture (UPONA):

1. It is a state-level AI initiative to support farmers.
2. It was launched in partnership with Microsoft.
3. It aims to provide weather data, market price insights and advisory services to farmers.

Which of the above statements is/are correct?

A. 1 and 2 Only
B. 1, 2 and 3
C. 2 and 3 Only
D. 1 and 3 Only

22. Who has been appointed as the new President of Lebanon in January 2025?

A. Michelle Aoun
B. Najeeb Mikati
C. Joseph Aoun
D. Saad Hariri

23. Consider the following statements about "PARTH Yojana":

1. It was launched by the Government of Madhya Pradesh to provide pre-recruitment training to the youth.
2. The goal of the scheme is to provide training for the Indian Army, police and paramilitary forces.

3. It focuses on providing financial aid for educational purposes.

Which of the above statements is/are correct?

A. 1 and 2 Only
B. 2 and 3 Only
C. 1 and 3 Only
D. 1, 2 and 3

24. Who has been appointed as the International Event Ambassador for the Tata Mumbai Marathon 2025?

A. Usain Bolt
B. Sir Mohd Phareh
C. Eliud Kipchoge
D. Hailey Gebrselassi

25. Which of the following statements is/are correct about the Desert National Park (DNP) of Rajasthan?

1. Desert National Park is located near the city of Jaisalmer in the Thar Desert.
2. The park is famous for dense forests and high rainfall area.
3. The park is home to the nearby endangered Great Indian Bustard (GIB).

Select the answer:

A. Only 1 and 3
B. Only 1 and 2
C. Only 2 and 3
D. 1, 2 and 3

26. Which of the following statements is/are correct about Inland Waterways in India?

1. The National Waterways Act, 2016, declares 111 waterways as National Waterways (NWs).
2. National Waterway-1 (NW-1) runs on the Brahmaputra River from Dhubri to Sadia.
3. The Inland Waterways Authority of India (IWAI) was established under the IWAI Act of 1985.
4. India has a navigating capacity of about 14,500 km of waterways.

Select the answer:

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

27. Which of the following programmes has been launched by NITI Aayog in association with New Shop to empower women entrepreneurs?

A. Women Empowerment Campaign
B. Swachh Bharat Mission
C. EmpowHER Biz

D. Digital India

28. **Which of the following articles of the Indian Constitution deals with financial administration and revenue distribution between the Union and the States?**
   A. Articles 268-272
   B. Articles 202-206
   C. Article 280
   D. Article 282

29. **What is India's rank in the 2024 Global Hunger Index (GHI)?**
   A. 95th
   B. 120th
   C. 115th
   D. 105th

30. **Which of the following statements are correct about Santa Ana Winds?**
   1. Santa Ana winds are hot, dry and strong winds.
   2. These winds are generated due to high pressure systems in the Great Basin.
   3. These winds can exceed 100 mph (mph).

   Select the answer:
   A. 1 and 2 Only
   B. 2 and 3 Only
   C. 1 and 3 Only
   D. 1, 2 and 3

31. **Consider the following statements regarding Neem-Coated Urea in India:**
   I. It was launched to improve nitrogen use efficiency in agriculture.
   II. This reduces the risk of urea for non-agricultural use.
   III. It was launched under the Atmanirbhar Bharat initiative.

   Which of the above statements is/are correct?
   A. Only I and II
   B. II & III only
   C. Only I & III
   D. I, II and III

32. **Which of the following scheme has been implemented to reduce excessive use of conventional urea in India?**
   A. Neem-coated urea
   B. Nano Urea
   C. Nutrient-Based Subsidy (NBS)
   D. Atmanirbhar Bharat Initiative

33. **Which of the following correctly depicts the location and importance of the island of Diego Garcia?**
   A. Located in the Arabian Sea; Known as a UNESCO World Heritage Site.

   B. Located near the Gulf of Oman; Under the joint control of the UK and the US.
   C. Located near Madagascar; Leasing to India for maritime security operations.
   D. Located in the central Indian Ocean; Part of the Chagos archipelago, which is under the BIOT.

34. **Consider the following statements about the Nag Mk-2 anti-tank guided missile:**
   I. It is a fire-and-forget third-generation missile.
   II. It was developed under India's Integrated Guided Missile Development Programme (IGMDP).
   III. It is specially designed only for air-launched platforms.

   Which of the above statements is/are correct?
   A. Only I & III
   B. II & III only
   C. Only I and II
   D. I, II and III

35. **Which of the following is not a feature of the Parbati-Kalisindh-Chambal (PKC) link project?**
   A. It benefits the states of Rajasthan and Gujarat.
   B. It aims to make optimum use of water resources, so as to support irrigation, drinking water and industrial use.
   C. The Central Government funds 90% of the project cost.
   D. It provides water to Rajasthan and Madhya Pradesh.

36. **Which of the following Indian states shares the longest stretch of Indo-Bangladesh border?**
   A. West Bengal
   B. unequal
   C. Tripura
   D. Three

37. **Which of the following is true of India's first private satellite orbit that Pixxel launched?**
   A. There are six communication satellites in orbit.
   B. The chamber provides high-resolution hyperspectral imaging.
   C. The satellites were launched by ISRO.
   D. Its purpose is to provide data for telecommunication purposes.

38. **The India Meteorological Department (IMD) celebrated its 150th Foundation Day in January 2025. Which of the following details is true about IMD?**
   I. It was established in 1875.
   II. It works under the Ministry of Science and Technology.

III. Its main role is to provide meteorological services to the country.

Select the answer:

A. I

B. I & II

C. II & III

D. I & III

39. **The Kumani Bank Mud Volcano originating in 2023 is located in which of the following regions?**

A. Near the west coast of India

B. Caspian Sea, near the coast of Azerbaijan

C. In the Arctic Ocean

D. In the Mediterranean Sea

40. **Which of the following details is true about the National Turmeric Board?**

I. It is headquartered in Nizamabad, Telangana.

II. It functions under the Ministry of Agriculture and Farmers Welfare.

III. Mr. Palli Ganga Reddy is its first Chairman.

Select the answer:

A. I

B. II & III

C. I & III

D. I, II, and III

41. **Which of the following details is/are true about the Indo-Bangladesh border?**

I. The Indo-Bangladesh border is 4,096 km long.

II. The range includes shared rivers such as the Ganges and the Brahmaputra.

III. The border is entirely a terrestrial boundary, with no river areas.

Select the answer:

A. I

B. I & II

C. I & III

D. I, II, and III

42. **Consider the following statements about the Atomic Energy Commission (AEC):**

1. It functions under the Ministry of Science and Technology.

2. It was formally established on 1 March 1958.

3. Its headquarter is located in Mumbai, Maharashtra.

Which of the above statements is/are correct?

A. Only 1

B. 2 and 3 Only

C. 1 and 3 Only

D. 1, 2 and 3

43. **Where is the specific flat-top landscape known as "Sada" found?**

A. Purvanchal region of Assam

B. Vindhya Range of Madhya Pradesh

C. Deccan Plateau of Karnataka

D. Konkan region of Maharashtra

44. **Consider the following factors contributing to 2024 as the warmest year on record:**

1. The reduction in aerosol pollution led to a decrease in cloud cover and an increase in solar radiation absorption.

2. A strong Lanina event increased global warming.

3. The loss of Arctic ice decreased the albedo, increasing the Earth's temperature absorption.

Which of the above statements is/are correct?

A. 1 and 2 Only

B. 2 and 3 Only

C. 1 and 3 Only

D. 1, 2 and 3

45. **Consider the following statements about Purulia Observatory:**

1. It is located in West Bengal and is an important part of the global astronomical observation network.

2. It was established by the **Aribhatta Research Institute** (ARIES).

3. It helps in observing temporary astronomical events and promotes the participation of students.

Which of the above statements is/are correct?

A. Only 1

B. 1 and 3 Only

C. 2 and 3 Only

D. 1, 2 and 3

46. **When is Army Day celebrated in India?**

A. To honour the first Republic Day of India, 15th January.

B. 15 January, commemorating the assumption of charge of Field Marshal K.M. Cariappa as the first Indian Commander-in-Chief.

C. 26 January, as a symbol of the establishment of the Indian Army.

D. February 1, to celebrate the establishment of the Indian Army.

47. **Which of the following cultural factors impedes innovation in India?**

A. Inclusion of Diverse Perspectives

B. Encouraging risk-taking

C. Prioritizing Secure Jobs Over Entrepreneurship

D. Freedom to experiment through foundational initiatives

48. **Which of the following are true about the Startup India initiative?**

I. The Fund of Funds for Startups (FFS) has a corpus of ₹10,000 crore for early-stage funding.

II. As of January 2025, more than 1.59 lakh startups have been recognized by DPIIT.

III. Startups with at least one female director account for more than 50% of the total recognized startups.

Select the answer:

A. Only I and II

B. II & III only

C. Only I & III

D. I, II and III

49. **Which of the following is not a feature of the iGOT Karmayogi platform?**

A. Online Training in Public Administration, Data Analysis, and Digital Technologies

B. Digitization of workflows through e-Office initiatives

C. Training of Government Employees on Cyber Security Measures

D. Streamlining procurement processes through Government e-Marketplace

50. **Consider the following statements that are related to the recent removal of Indian nuclear entities from the US Entity List:**

I. The Bhabha Atomic Research Centre (BARC) was one of the institutions that was removed.

II. The U.S. Entity List prohibits trade and technology exports.

III. The decommissioned entities are related to India's space research programmes.

Select the answer:

A. Only I and II

B. II & III only

C. Only I & III

D. I, II, and III

51. **What is the meaning of Notor land?**

A. Individually owned wasteland for agricultural use.

B. Barren government-owned land that is allocated for agricultural or productive use.

C. Cultivable land purchased by farmers from the government.

D. Agricultural land redistributed under land reform policies.

52. **Which of the following countries is among the Tier 1 allies of the United States that have minimal restrictions on the export of AI technology?**

A. China

B. India

C. Japan

D. Russia

53. **Which plant was successfully germinated under the Compact Research Module for Orbital Plant Studies (CROPS) by ISRO?**

A. wheat

B. a kind of spinach

C. Black-eyed pea (cowpea)

D. Rice cleared of the husk

54. **Which of the following naval groups was inducted into the Indian Navy on the same day?**

A. INS Vikrant, INS Kolkata, and INS Karanj

B. INS Nilgiris, INS Surat, and INS Waghshil

C. INS Talwar, INS Chennai, and INS Sindhughosh

D. INS Shivalik, INS Mysore, and INS Kalvari

55. **Consider the following statements regarding the recent SpaceX Falcon 9 lunar missions:**

I. Blue Ghost, which has been developed by Firefly Aerospace, carries scientific instruments to study the thermal properties of the moon.

II. Resilience, developed by Ispace-Europe, represents Japan's private-sector initiative.

III. Both spacecraft are part of NASA's CLPS program (Commercial Lunar Payload Services), which aims to promote cost-effective lunar exploration.

Which statements are correct?

A. I and II only

B. I and III only

C. II & III only

D. I, II, and III

56. **Who is commonly referred to by the term "Global South"?**

A. Countries with rich industrialization that are located in parts of North America, Europe, and Oceania.

B. Countries that are experiencing rapid industrialization and economic growth.

C. A geopolitical alliance of countries of the Southern Hemisphere.

D. Developing and Least Developed Countries of Asia, Africa, and Latin America.

57. **Consider the following statements regarding the proposals for extended working hours in India:**

I. Business industrialists have proposed a 70-90-hour work week to boost economic growth.

II. This model is inspired by post-war reconstruction strategies in countries such as Japan and Germany.

III. The extended working hours are aimed at reducing the unemployment rate in India.

Which statements are correct?

A. I and II only

B. II & III only

C. I and III only

D. I, II, and III

58. **Consider the following statements regarding India's economic and social development challenges:**

I. India spends inadequately on education and healthcare, which leads to poor outcomes.

II. High positive inequality strengthens the ability of workers to reap the benefits of infrastructure.

III. Infrastructure projects are prioritized over social reforms for short-term political gains.

Which statements are correct?

A. I and II only

B. II & III only

C. I and III only

D. I, II, and III

59. **The recently approved Third Launch Pad (TLP) at Satish Dhawan Space Centre (SDSC), Sriharikota is aimed at which of the following?**

A. Taking the place of the first launch pad for all future missions.

B. Supporting Next Generation Launch Vehicles (NGLVs) and human space missions such as Gaganyaan.

C. Focusing on satellite launches for commercial customers only.

D. Serving as a storage facility for NGLVs and LVM3 vehicles.

60. **Consider the following statements about the effects of the falling rupee price:**

I. The increase in import costs further widens India's current account deficit.

II. Exporters benefit in the long run due to inflationary pressures.

III. Depreciation of the rupee increases the repayment burden of external debt.

Which of the statements given above is/are correct?

A. I and II only

B. I and III only

C. II & III only

D. I, II, and III

61. **With what objective was the India Startup Challenge launched?**

A. Promoting FDI in startups.

B. Recognizing innovations made by Indian startups.

C. To encourage foreign startups to establish themselves in India.

D. Providing government financing to all startups.

62. **Consider the following statements about the Planet Parade:**

I. It refers to the simultaneous visibility of several planets in the night sky.

II. This is due to the harmonious alignment of the planets with their orbit around the sun.

III. These alignments can be seen throughout the year.

Which of the statements given above is/are correct?

A. I and II only

B. II & III only

C. I and III only

D. I, II, and III

63. **Which organization released the "Global Cyber Security Outlook 2025" report?**

A. International Telecommunication Union

B. OECD

C. United Nations development program

D. World Economic Forum

64. **Consider the following statements about the SVAMITVA scheme:**

I. It aims to provide Record of Rights (RoR) for rural properties.

II. It was launched by the Ministry of Panchayati Raj.

III. The scheme benefits only the urban areas.

Which of the statements given above is/are correct?

A. I and II only

B. II & III only

C. I and III only

D. I, II, and III

65. **Who was the leader of Kuka Rebellion?**

A. Guru Gobind Singh

B. Bhagat Singh

C. Satguru Ram Singh

D. Ranjit Singh

66. **In which of the following organizations has Indonesia announced full membership in 2025?**

A. United Nations Security Council

B. G20

C. Shanghai Cooperation Organization (SCO)

D. BRICS

67. Which of the following characteristics are related to Olive Ridley turtles?

I. Olive Ridley turtles are the largest species of sea turtles.

II. They are famous for their synchronous collective nesting process, called **arribadas** .

III. They mainly eat algae, crabs, and jellyfish.

Which of the statements given above is/are correct?

A. Only I and II

B. II & III only

C. Only I & III

D. I, II, and III

68. What are the points included in External Affairs Minister S Jaishankar's 5-point agenda for global cooperation?

I. Expanding independent platforms such as BRICS.

II. Advocating reform of the UN Security Council.

III. To promote the reduction of territorial disputes between countries.

Which of the statements given above is/are correct?

A. Only I and II

B. II & III only

C. Only I & III

D. I, II, and III

69. Where did the multilateral naval exercise named La Perouse 2025 take place?

A. Indian Ocean

B. Arctic Ocean

C. Pacific Ocean

D. Indian and Pacific Ocean

70. Which of the following statements are correct about Konark Sun Temple?

I. It was built by the king of the Ganga dynasty.

II. It is located in Rajasthan and was constructed in the 14th century .

III. The temple is a UNESCO World Heritage Site.

Which of the above statements is/are correct?

A. I only

B. II & III only

C. III only

D. I & III

71. Which of the following statements is correct regarding the controversy over the 38th National Games?

I. Kerala's ancient martial art Kalaripayattu was ignored in sports.

II. Kalaripayattu is a martial art that originates from Tamil Nadu.

III. The controversy erupted due to Kalaripayattu being pulled out of the Games.

Which of the above statements is/are correct?

A. I only

B. II only

C. III only

D. I & III

72. What is the major challenge posed by the futuristic growth of India's urban population by 2030?

I. Pressure on infrastructure

II. Improving Service Delivery

III. Climate Impacts

Which of the above statements is/are correct?

A) I only

B) II only

C) I and III only

D) I, II and III

73. Which of the following initiatives has improved public safety through community-based approaches?

I. Kerala's 'Janmaitari Suraksha' project

II. Delhi's odd-even scheme

III. Waste Management of Indore

Which of the above statements is/are correct?

A. I only

B. I and III only

C. II & III only

D. I and II only

74. Which of the following is not an example of Contract Farming in India?

I. Hyphen Foods collaborates with potato farmers in Gujarat

II. ITC 's e-Choupal initiative for soybean farmers

III. Amul signs milk supply contract with dairy farmers

IV. A sugar mill in Uttar Pradesh for wheat production

Which of the above statements is/are correct?

A. IV only

B. III & IV only

C. II and IV only

D. I, II and III only

75. The Entity Locker platform, which has been developed by the Ministry of Information Technology (MeitY), can be best described as:

I. A secure, cloud-based platform for storing and sharing documents

II. A platform only for large institutions and multinational companies

III. A tool to reduce administrative burden and promote ease of doing business

Which of the above statements is/are correct?

A. I only

B. II only

C. I and III only

D. I, II and III

76. **Which statement is correct about the newly proposed definition of obesity?**

I. Obesity is now recognized as a chronic disease.

II. The determination of obesity in the new definition is based only on the body weight index (BMI).

III. "Early obesity" refers to excess body fat.

Which of the above statements is/are correct?

A. I only

B. II only

C. I and III only

D. II & III only

77. **Which of the following statements are correct regarding the United States from the World Health Organization (WHO)?**

I. The United States' expulsion from the WHO is expected to reduce WHO funding by 20%.

II. The US withdrawal from the WHO will immediately bring an end to ongoing global health programmes.

III. The exit of the US will hinder cooperation between US agencies such as the WHO and CDC.

Which of the above statements is/are correct?

A. I only

B. II only

C. I & III

D. I, II and III

78. **Which technical method is being used for the conservation of the iconic Chinar trees of Kashmir?**

A. Genetic Protection

B. Artificial Intelligence Mapping

C. Geo-tagging and QR codes

D. 3D printing technology

79. **Which of the following statements are correct about the Indus Water Treaty?**

I. India has been allocated water from eastern rivers - Beas, Ravi and Sutlej.

II. Pakistan enjoys exclusive rights over the western rivers - Indus, Chenab and Jhelum.

III. The treaty was mediated by the United States.

Which of the above statements is/are correct?

A. I only

B. II only

C. I & II

D. I, II and III

80. **Which ministry is primarily responsible for the implementation of Beti Bachao Beti Padhao scheme?**

A. Home Ministry

B. Ministry of Women and Child Development

C. ministry of education

D. Ministry of Rural Development

81. **Which of the following statements are true regarding financial irregularities in government schemes related to farmers?**

I. Farmers have submitted false claims for non-existent crops and unclaimed land.

II. False applications were filed without the consent of the farmers due to manipulation by the Common Service Centre (CSC).

III. The misuse of funds in these schemes led to an increase in efficiency in government administration.

Which of the above statements is/are correct?

A. I only

B. II only

C. I & II

D. I, II and III

82. **What is the primary purpose of a supersonic combustion ramjet (scramjet) engine?**

A. Operating at low subsonic speeds

B. Combustion at hypersonic speed (MAK 5+)

C. Use of external fuel sources

D. Operating efficiently at transsonic speeds

83. **Consider the following statements regarding India's coffee exports:**

1. India is the seventh largest producer of coffee in the world.

2. Most of the coffee exported from India is in the form of roasted coffee beans.

Which of the above statements is/are correct?

A. Only 1

B. Only 2

C. Both 1 and 2

D. Neither 1 nor 2

84. **Where does the Indus river originate from?**

A. Mount Kailash

B. Bokhar Chu near Mansarovar Lake

C. Zanskar Ranges

D. Hp

85. Consider the following statements regarding the Global Firepower Index:

1. India is ahead of China and Russia in this index.
2. India ranks fourth in the Global Firepower Index 2025.

Which of the above statements is/are correct?

A. Only 1
B. Only 2
C. Both 1 and 2
D. Neither 1 nor 2

86. Which of the following is true regarding Spotted Hyena?

A. Their ability to see at night is impaired.
B. Males are larger than females.
C. They are more closely related to dogs.
D. They have a female-led social order called "Klan".

87. Consider the following statements regarding Stargardt Disease:

1. It is a genetic disease that gradually affects vision.
2. It affects only one eye and is not bilateral.

Which of the above statements is/are correct?

A. Only 1
B. Only 2
C. Both 1 and 2
D. Neither 1 nor 2

88. Which of the following statements is correct about Stratovolcano?

A. They are mostly found in desert areas.
B. These are made up of layers of lava flows and ash.
C. Their summit is like an open plane.
D. These make up less than 10% of the Earth's volcanoes.

89. Which statement is correct about India's Smart Cities Mission?

I. The Mission aims to transform urban centres into sustainable, innovative, and economically dynamic centres.
II. The government has allocated a sum of ₹48,000 crore for this mission, which will be spent over ten years.
III. The implementation of the mission is carried out by Special Purpose Vehicles (SPVs).

Which of the statements given above is/are correct?

A. I and II only
B. II & III only
C. I and III only
D. I, II, and III

90. What is a key provision of the Uniform Civil Code of Uttarakhand Act 2024?

A. It only provides equal property rights to men.

B. It recognises live-in relationships as quasi-marriage.
C. It allows for external divorce in special cases.
D. It sets the minimum age of marriage at 21 years for women and 21 years for men.

91. What are the true points about snake bite poisoning in India?

I. India produces more than 50% of the world's antivenom.
II. Deaths due to snake bites in India are mainly caused by the "Big Four" snakes.
III. The Irula tribe extracts the toxin for antivenom production.

Which of the statements given above is/are correct?

A. I and II only
B. I & III
C. I, II, and III
D. II & III only

92. Which policy recommendations can be helpful to make bioethanol fuel affordable in India?

A. Provide subsidy and tax exemptions on bioethanol to reduce its production cost.
B. Increase tariffs on bioethanol imports so as to boost domestic production.
C. End government incentives for farmers to grow feedstocks of ethanol.
D. Limit the production limit of ethanol blends to E10 (10% ethanol) so as to reduce the cost.

93. What are the points about the consequences of America's withdrawal from the Paris Agreement?

1. Increase in emissions of greenhouse gases
2. Reduction in climate support to developing countries
3. Rise in global temperature
4. Reduction in U.S. greenhouse emissions

Which of the above statements is/are correct?

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

94. What are the facts about Goa's Civil Code?

I. Goa follows the Portuguese Civil Code of 1867.
II. Goa is the only state in India where personal laws apply equally to all religious groups.
III. The Goa, Daman and Diu Administration Act 1962 allowed this civil code to be implemented in Goa.

Which of the statements given above is/are correct?

A. I and II only
B. I & III

C. II & III only

D. I, II, and III

Answer Key

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(b)	(d)	(a)	(a)	(b)	(b)	(b)	(c)	(c)	(a)	(c)	(d)	(a)	(b)	(b)	(a)	(c)	(b)	(a)	(d)
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
(d)	(c)	(a)	(b)	(a)	(b)	(c)	(a)	(d)	(b)	(a)	(b)	(d)	(c)	(a)	(d)	(b)	(d)	(b)	(c)
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
(b)	(b)	(d)	(c)	(b)	(b)	(c)	(a)	(d)	(a)	(b)	(c)	(c)	(b)	(a)	(d)	(a)	(c)	(b)	(b)
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
(b)	(a)	(d)	(a)	(c)	(d)	(b)	(a)	(d)	(d)	(d)	(c)	(a)	(a)	(c)	(c)	(c)	(c)	(c)	(b)
81	82	83	84	85	86	87	88	89	90	91	92	93	94						
(c)	(b)	(a)	(b)	(d)	(a)	(a)	(b)	(c)	(b)	(c)	(a)	(a)	(b)						

Answer Explanation

1. **Answer**: **(B)** Because statements I and III are correct.
    Explanation:
    - **Statement I is correct**: Under the rules**, major tech companies like** Meta and Google **are classified as Critical Data Fiduciaries (**SDFs), which ensures strict accountability for entities handling personal data.
    - **Statement III is correct**: The draft rules have focused on ensuring informed consent from individuals and **provided mechanisms for citizens to** manage their data, including options for deleting data and appointing digital nominees.
    - **Statement II is incorrect**: Data Protection Officers (DPOs) should be appointed only by the Critical Data Fiduciary (SDF) and not by all companies that handle personal data.
    - **Additional info:**
        o The Digital Personal Data Protection Rules, 2025 are a set of guidelines that **are framed to implement the Digital Personal Data**

Protection Act, 2023, which aims to safeguard the data privacy of citizens and facilitate government monitoring of the use of personal data in India.

2. **Answer**: **(d)** Because the main objective of the Kerala Forest (Amendment) Bill, 2024 is to address environmental challenges, especially problems related to dumping of garbage **in rivers and other water bodies**.
    Explanation:
    - The Bill categorises such activities **as** forest offences, whereby **the jurisdiction of forest laws** can be extended beyond forest areas so as to better protect ecosystems and prevent pollution in forest-related areas.
    - The Bill **empowers** forest officials **to arrest and detain persons suspected of** forest offences, even outside forest boundary.
    - The Bill **increases the penalties for** various forest offences, such as petty offences, from

₹1,000 to ₹25,000, and in some cases the amount may be even higher.

3. **Answer**: **(A)** All statements are correct.

Explanation:

- **Statement I** is correct. The Great Nicobar project aims **to develop** the island **into** a global maritime and tourism hub, with **infrastructure such as ports** and **tourism facilities** being built. Its goal is **to increase the** strategic importance **of this island and encourage economic activities**.

- **Statement II** is true. One of the key features of the project is **the International Container Transshipment Terminal** (ICTT), which will give India the capacity to handle more shipping traffic, thereby **reducing dependence on foreign** ports.

- **Statement III** is true. **Afforestation** (**reforestation of forests) and** marine conservation measures are being undertaken to address **the environmental concerns** associated with the project. All these measures **are part of the** Environmental Impact Assessment (EIA), which is meant to reduce negative impacts on the island's biodiversity and marine life.

4. **Answer**: **(a)** This is the first example of species-cross-transmission in carnivores in India

Explanation:

- Because the recent **outbreak of avian influenza (**H5N1) in India **was the first case of** species-cross transmission, where the virus was previously limited to birds only. The outbreak led to **infection of** carnivores (**such as** tigers **and** leopards), which were found in zoos and wildlife sanctuaries.

Additional info:

- **Avian influenza (H5N1),** also known as bird flu, is a type of **influenza A virus**. The virus **spreads mainly through** the **saliva**, **mucous** and gastrointestinal excretions of infected birds, but it can also be found in the respiratory secretions and other body fluids of infected animals.

- The first human transmission **of H5N1 occurred** in Hong Kong **in 1997**.

- In India, most human cases of H5N1 have been found to have mild symptoms, and widespread **person-to-person transmission** has not been observed.

5. **Answer: (b)** Because **the script of the** Indus Valley Civilization **assumes a combination of logogram** (symbol representing word or morphem) and **syllabic sign** (symbol representing syllable), its full meaning is yet unknown.

Explanation:

- This script **is pictorial** and has not yet been **fully decoded**.

- An important feature of the script is the **Boustrophedon style**, in which the direction of each line changes, from right to left in one line and from left to right in the next.

- The script **originated between about 3500 BCE to 2700** BCE and is found on **earthenware** at sites such as **Ravi** and **Kot Diji**.

- **The Indus Valley Civilization** flourished **between 3300 BCE and 1300** BCE, and was **found in the northwestern regions of** India, especially along the banks of the **Indus River**.

6. **Answer: (B)** Because statements I and II are correct.

Explanation:

- **Statement I** is correct. The villagers alleged that when **the Rani Durgavati Tiger Reserve** was notified, they were **forcibly relocated**. The issue was raised **by** local communities **when the Forest Rights Act (FRA)** was enacted.

- **Statement II** is also correct. **The Ministry of Tribal Affairs** directed the Madhya Pradesh government to address the concerns raised by the affected villagers .

- **Statement III** is incorrect. FRA violations are mainly related **to the recognition of** forest rights and rights of tribal and forest dwellers, and not directly related to wildlife conservation or forest management in this case.

Additional info:

- **Rani Durgavati Tiger Reserve is located in the districts of** Sagar**, Damoh, and Narsinghpur of Madhya Pradesh**.

- The reserve was established in 1997 after the merger of **Nauradehi and Durgavati Wildlife Sanctuaries**.

- It is spread over a total of 2,339 square kilometres, comprising a core area of 1,414 **square kilometres** and a buffer zone of 925.12 **square kilometres**.

- The reserve **falls under the** river basin **of the Narmada** and **Yamuna** rivers.

7. **Answer: (B)** Only statement 2 is correct.
   Explanation:
   - **Statement 2** is correct: BRICS was founded **by Brazil, Russia, India, China, and South Africa**. These countries are **the original members of the BRICS** grouping. It was named BRICS **after South Africa joined in** 2010, earlier it **was called BRIC**.
   - **Statement 1** is incorrect: Argentina **received an invitation in 2023** to become a member of the BRICS group, but Argentina's new President **Javier Maili** has recently **withdrawn plans to join BRICS**. Thus, Argentina has not yet become a full member.

8. **Answer: (c)** Prayagraj, Uttar Pradesh
   Explanation:
   - The Maha Kumbh Mela will be held in Prayagraj**, Uttar Pradesh in 2025**. The fair **will be held at** the Triveni Sangam, where the Ganga, Yamuna and Saraswati rivers meet.
   - The last Maha Kumbh Mela in Prayagraj **was held in 2013**.
   - Maha Kumbh Mela is one of the biggest and most important religious events in India.
   - The fair is held every **12 years** at four different locations - **Haridwar**, **Prayagraj**, **Ujjain**, and **Nashik**.

9. **Answer: (C)** Both statements 1 and 2 are correct.
   Explanation:
   - **Statement 1** is correct: **The e-Shram portal aims to create a** national database **of unorganized workers**. It covers workers from construction, domestic work, agriculture and other sectors. This database helps in providing **social security benefits** to these workers.
   - **Statement 2** is also correct: **The e-Shram portal** has **been upgraded to support all 22** scheduled languages of India, making the portal more accessible to workers across the country, irrespective of their regional language.

10. **Answer: (a)** ₹1.5 lakh
    Explanation:
    - **Under the** cashless treatment scheme, road accident victims **are provided treatment of up**

to ₹**1.5** lakh, which is valid for seven days **from the time of the accident**.

- The scheme is currently implemented in the pilot phase in a few select states such as **Assam**, **Chandigarh**, **Punjab**, **Uttarakhand**, **Puducherry**, and **Haryana** .
- It is planned to be implemented in all states by **March 2025**.
- The scheme is part of technological **safety measures** in the road transport sector, including **features such as** audio warning system**,** electronic stability control, **and** automatic emergency braking, to promote road safety.

11. **Answer: (C)** Both statements 1 and 2 are correct.
    Explanation:
    - **Statement 1** is correct: The first **Pravasi Bharatiya Divas (PBD) was celebrated in 2003** . The day was celebrated to recognise the contribution of the Indian diaspora community.
    - **Statement 2** is also correct: The main objective of Pravasi Bharatiya Divas is to honour the contribution of the Indian diaspora community, which **plays a vital role in the economic, social and cultural development** of India.
    - The theme of Pravasi Bharatiya Divas in 2025 **is** 'Diaspora's Contribution to a Developed Bharat', which means 'Contribution of Overseas Indians to a Developed India'.

12. **Answer: (d)** Dr. V. Narayanan
    Explanation:
    - **Dr. V. Narayanan** has been appointed as the Secretary of the Department of Space and Chairman of ISRO with effect from **14 January 2025**.
    - Currently, Dr. Narayanan is serving as the Director at the **Liquid Propulsion Systems Centre (LPSC), Valiamala, Kerala**.
    - His appointment has been approved by **the Select Committee of the Cabinet**.
    - Dr. Narayanan **has been working** with **ISRO since** 1984 and has played a key role in enhancing India's space capabilities, especially in **cryogenic propulsion technology**.
    - He **is an alumnus of IIT** Kharagpur and holds a **M.Tech in Cryogenic Engineering** and **a Ph.D. in Aerospace Engineering**.Have obtained the degree of.

13. **Answer: (a)** 1 and 2 only
    Explanation:
    - **Statement 1 is correct.** Passports are ranked in the Henley Passport Index based on the number of **visa-free** or visa-access destinations available on it. The more destinations one can reach without a visa, the higher the ranking of that passport.
    - **Statement 2 is correct.** The Henley Passport Index includes **227** travel destinations and **199** passports, which rank passports based on their ability to travel **visa-free**.
    - **Statement 3 is incorrect.** According to the Henley Passport Index 2025, India's ranking is 85th, **not 80th**. India's ranking improved in 2024, but in 2025 it fell again to 85th.

14. **Answer: (b)** Kandla Port
    Explanation:
    - **Kandla Port**, which **is located in** Gujarat, was renamed as Pandit Deendayal Upadhyay Port in 2017 **in honour of Pandit Deendayal Upadhyay**.
    - It is one of the **busiest ports located in the northern and western** part of India.
    - This port **was established in the** 1950s and **is** a tidal artificial port, capable of handling bulk, liquid, and container cargo.
    - It has advanced terminals for various types of goods and helps **to promote international trade as a free trade zone**.

15. **Answer: (b)** Agriculture, health care, smart cities and infrastructure
    Explanation:
    - **The main objective of** the National Artificial Intelligence (**AI) Strategy developed by** NITI Aayog is to focus on sectors that can contribute to social and economic development, such as **agriculture**, **healthcare**, **smart cities**, **infrastructure**, smart mobility and transformative governance.
    - This strategy aims to improve services and industries in these areas using AI technologies.
    - **Additional info:**
    - **NITI Aayog was** established **in 2015**.
    - It is a **think tank** of the Government of India, which works on promoting inclusive growth and cooperative federalism.

    - NITI Aayog **formulates** policies, encourages research and innovation, and monitors the progress of the **Sustainable Development Goals (SDGs).**
    - It encourages competitive **federalism**, develops performance indices, and collaborates with state and union territory governments to achieve better outcomes.

16. **Answer: (a)** 1 and 2 only
    Explanation:
    - **Statement 1 is correct**. The Ken-Betwa river interlinking project aims **to mitigate water scarcity in the Bundelkhand region** by diverting **excess water from** Ken river to the **Betwa river**.
    - **Statement 2 is correct**. The project **envisages the construction of a dam within the** Panna Tiger Reserve, raising concerns about the environmental impact, especially on wildlife and biodiversity.
    - **Statement 3 is incorrect**. The idea of interlinking rivers was first **mooted by** Sir Arthur Cotton in the 19th century, while it **was further refined by Shri M. Visvesvaraya**.

17. **Answer: (c)** A large low-pressure and cold air system around the Earth's poles.
    Explanation:
    - The Polar Vortex is a large **low-pressure system**, made up of cold air and located around the Earth's poles.
    - It acts like **a massive** cyclone, controlled by strong easterly winds, which confine cold air to the polar regions.
    - Sometimes, this vortex breaks off and cold air spreads into the mid-latitudes, creating extreme cold weather conditions in places such as **the United States**.
    - This phenomenon causes extreme cold **even in areas** that are not normally affected by this type of weather.
    - It **also has an effect** on the ozone layer, as the disruption of the vortex leads to the formation of **the ozone hole** in the polar regions.

18. **Answer: (b)** Use of point-of-sale (POS) machines
    Explanation:
    - A point-of-sale (POS) machine is an **electronic device** that customers use to make payments to merchants.

- The POS machines are linked to the Aadhaar database **to authenticate the identity of the beneficiaries**.
- These machines display the price, weight and **consumer certificate**, thereby ensuring correct transactions.
- POS machines **can work both online** and **offline**.
- The use of these machines helps in ensuring that the right food items reach the beneficiaries.
- Through the POS machine, customers **can make payments via** debit card, credit card, prepaid card, or **scanning QR code**.

19. **Answer: (a)** 1 and 2 only

Explanation:

- **Statement 1 is correct**: The Pravasi Bharatiya Express is specifically designed to connect the Overseas Indians (PIOs) with the cultural and religious heritage of India.
- **Statement 2 is correct**: This train operates under the **Pravasi Teerth Darshan Yojana (PTDY).**
- **Statement 3 is incorrect**: This train is not meant for foreign tourists or government employees. This is only for Non-Resident Indians (PIOs).

Additional info:

- **The Pravasi Bharatiya Express** specifically **targets Overseas Indians (PIOs)** in the age group of 45-65 years.
- It's a **14 night, 15 days** tour (total of 17 days with pre/post week activities).
- This train departs from **Safdarjung station in Delhi**.
- The Indian government covers all train expenses and 90% of air travel expenses.
- The tour is organised in collaboration with **the Ministry of External Affairs** and **IRCTC (Indian Railway Catering and Tourism Corporation).**

20. **Answer**: **(d)** PhonePe

Explanation:

- **PhonePe** has partnered with ICICI Lombard General Insurance for the Mahakumbh Mela 2025. This partnership offers special insurance plans, which cover the needs of the participants **such as hospitalization, personal accident, trip cancellation**, and **cremation arrangements**.

Additional info:

- Maha Kumbh Mela 2025 **will be held in Prayagraj, Uttar Pradesh**.
- The fair **will be held at** the Triveni Sangam, where the confluence of Ganga, Yamuna and Saraswati rivers takes place.
- Earlier, the Maha Kumbh Mela was held in Prayagraj **in 2013**.
- Maha Kumbh Mela is one of the biggest and most important religious events in India.
- It **is held every 12** years at four places – **Haridwar, Prayagraj, Ujjain** and Nashik

21. **Answer**: **(D)** 1 and 3 only

Explanation:

- **Statement 1 is correct**: The Uttar Pradesh Open Network for Agriculture (UPONA) is actually a state-level AI initiative to support farmers, using technology for better farming practices.
- **Statement 3 is correct**: The objective of this initiative is to provide farmers with critical **weather data, market price insights**, and **advisory services**, so that they can make better decisions.
- **Statement 2 is incorrect**: UPONA was launched not with Microsoft, but in collaboration with **Google Cloud (India).**

Additional info:

- **Project Name**: Uttar Pradesh Open Network for Agriculture (UPONA).
- **Technical involvement**: Google Cloud.
- **Main objective**: To provide digital solutions, AI-based advisory services, and access to market to farmers.
- **Benefits**: Farmers will receive credit, mechanization assistance and real-time data.

22. **Answer**: **(c)** Joseph Aoun

Explanation:

- General Joseph Aoun **was elected the new President of Lebanon in** January **2025**.
- He previously **served as the chief of the** Lebanese armed forces since **2017**.
- The election came after a long political stalemate that followed the end of Michel Aoun's presidency in **October 2022**.

Additional info:

- **Lebanon** is a country located in West Asia, located on the eastern coast of the Mediterranean Sea.
- It shares borders with Syria **to the north and east** and Israel **to the south**.
- **Beirut**, the capital of the country, is a vibrant cultural and economic center.
- In 2025, the country has an estimated population of around **5.85 million**.
- The country's main languages **are Arabic** and **French**.

23. **Answer: (a)** 1 and 2 only
   Explanation:
   - **Statement 1**: Correct. The PARTH scheme was launched by the **Madhya Pradesh government** to provide pre-recruitment training **to the youth for recruitment in the security forces**.
   - **Statement 2**: Correct. The objective of the scheme **is to provide training for** recruitment in the Indian Army, **police and** paramilitary forces, including preparation for physical and written examination.
   - **Statement 3**: False. The objective of the scheme is not to provide financial assistance for educational purposes. Instead, it focuses on training and skill development **to increase the chances of recruitment**.

24. **Answer**: **(b)** Sir Mo Fereh
   Explanation:
   - **Sir Mo Fereh**, the renowned British long-distance runner, has been appointed as the International Event Ambassador for the Tata Mumbai Marathon 2025.
   - He is a four-time **Olympic gold medallist** and has won multiple World Championship titles in the 5,000m and 10,000m events.

Additional info:
   - The Tata Mumbai Marathon is a prestigious **World Athletics Gold Label** race that is held every year in Mumbai, India.
   - The 2025 edition will **be held on January** 19, covering various race categories, such as **the full marathon**, **half marathon**, **10K run**, **wheelchair race**, and **senior citizens'** run.
   - It is a **platform** to promote fitness and support various **charity causes**.

25. **Answer: (A)** 1 and 3 only
   Explanation:
   - **Statement 1 is correct**: Desert National Park is located near **Jaisalmer** in the **Thar Desert** and is one of the largest national parks in India, covering **an area of over 3160 sq km**.
   - **Statement 3 is correct**: The park is home to the **endangered Great Indian Bustard (GIB)** and also has important geologic formations, including **fossils from the Jurassic period**.
   - **Statement 2 is incorrect**: This park is a **dry and arid** area, where rainfall is very low (less than 100 mm), and not **located in a high rainfall zone**.

Additional info:
   - The Desert National Park is inhabited by various wildlife such as **sandgrouse**, **chinkara**, **fox**, and **Indian wolf** .
   - The climate of the park is extremely hot and dry, with temperatures going above **40°C** in summer.
   - The land here features **sand dunes**, **salt plains**, and **rocky terrain** .
   - **Khejri** trees are found here, which the **Bishnoi community** considers important from a religious point of view and preserves.

26. **Answer: (b)** 1, 3 and 4 only
   Explanation:
   - **Statement 1 is correct**: 111 waterways have been declared as National Waterways (**NWs**) **under the** National Waterways Act, 2016.
   - **Statement 3 is correct**: **IWAI** (Inland Waterways Authority of India) was established **under the IWAI Act**, 1985, which aims to develop and regulate national waterways in India.
   - **Statement 4 is correct**: India has about **14,500 km** of waterways, including rivers, canals, backwaters, and bays.
   - **Statement 2 is incorrect**: National Waterway-1 (NW-1) **runs on the Ganga-Bhagirathi-Hooghly river system** from Haldia to Prayagraj and not **from Dhubri to Sadia**.

27. **Answer: (c)** EmpowHER Biz
   Explanation:
   - **The EmpowHER Biz** programme is a partnership between **NITI Aayog's Women Entrepreneurship Platform (WEP)** and **New Shop** (India's Convenience Retail Chain). This

partnership is part of the **Award to Reward (ATR)** program.

- **EmpowHER Biz – Sapno Ki Udaan** aims to empower women's entrepreneurship by **mentorship**, **training**, and **supporting them in critical areas of business**.

- The main focus of the program is on **retail management**, **digital tools**, **financial literacy**, and **business development**.

- The initiative **targets women in the age group** of 18-35 years, who are keen to start or expand their own business.

- The objective of the programme is to create a strong retail ecosystem that promotes sustainable growth **in the retail sector while empowering women entrepreneurs**.

28. **Answer: (a)** Articles 268-272
   Explanation:
   - **Articles 268-272** **define** the distribution of revenue **between the Union and the States**. These articles refer to taxes that are levied by the Union but which are collected and distributed among the states (e.g. **service tax, excise duty**).
   - **Articles 202-206** define the financial administration of states, particularly their powers relating to taxation, borrowing, and expenditure.
   - **Article 280** stipulates the need for the establishment of a Finance Commission, which makes recommendations for the distribution of taxes every five years.
   - **Article 282** empowers the Union to provide financial assistance to the states for public purposes.

29. **Answer: (d)** 105th
   Explanation:
   - India's rank **is 105 out of** 127 **countries in the** 2024 **Global Hunger Index (**GHI), and India's **GHI score** is 27.3, indicating **a state of serious hunger**.
   - The GHI score is determined based on four key indicators:
     - **Undernourishment:** About 13.7% **of India's** population is undernourished, i.e. a large number of people are not getting enough food to meet their daily nutritional requirements.

   - **Stunting: 35.5%** of children under the age of five are stunted, which reflects chronic malnutrition and has long-term effects on physical and mental development.
   - **Wasting: 18.7%** of children under the age of five suffer from thinness, which indicates acute malnutrition.
   - **Mortality:** 2.9% of children **in India** die before their fifth birthday, which indicates significant health problems related to nutrition, hygiene and health services.

- India's GHI **has improved slightly after** 2016, but it is still high compared to years like 2000 and 2008.

30. **Answer: (b)** 2 and 3 only
   Explanation:
   - **Statement 2 is correct:** The Santa Ana winds **are generated due to** high-pressure systems in the Great Basin **(**where the air rotates clockwise), which push the winds towards the coastal lower pressure areas.
   - **Statement 3 is correct:** Santa Ana winds **can exceed 100 mph**, causing wildfires to spread rapidly in Southern California.
   - **Statement 1 is incorrect:** The Santa Ana winds blow from **the interior** desert regions of California toward the coastal regions, not the other way around.

31. **Answer: (a)** I and II only
   Explanation:
   - **Statement I is correct.** Neem-coated urea reduces nitrogen loss by slowing down the release of nitrogen, thereby improving **nitrogen** use efficiency in agriculture. Neem **acts as** a nitrification inhibitor , which slows down the diffusion of nitrogen from urea. This keeps nitrogen available for a long time.
   - **Statement II is true.** Coating urea with neem makes it unsuitable for industrial uses, such as **making explosives** or adulterating milk.
   - **Statement III is incorrect.** Neem-coated urea **was introduced in** 2015, much before the Atmanirbhar Bharat initiative (2020). The scheme was implemented to prevent the misuse of urea and improve agricultural productivity, and has no connection with the Atmanirbhar Bharat initiative.

32. Answer: (b) Nano Urea

Explanation:

- **Nano urea** is a liquid fertiliser that **was introduced in 2021** to replace some part of conventional urea.
- It is a **nanotechnology-based fertilizer** that provides nitrogen to plants.
- **Nano urea** reduces nutrient deficiencies in the fields.
- It is more than **80% efficient in providing nitrogen to plants**.
- The use of nano urea can reduce the amount of chemical fertilizers in agriculture .
- **Nano urea particles** are 20–50 **nanometers in size**.
- Nano Urea is a **sustainable solution** for farmers for smart agriculture **and** combating climate change .

33. Answer: (d) located in the central Indian Ocean; Part of the Chagos archipelago, which is under the BIOT.

Explanation:

- **Diego Garcia** is located in the **central** Indian Ocean and is part of the **Chagos archipelago**.
- It **is controlled by the British Indian Ocean Territory (**BIOT) and was leased **to the United States in** 1966 **to build a military base**.
- The island has a length of about **38 miles** and a width **of 11 km** .
- Its **lagoon depth is** 10–100 ft.
- The average elevation is **4 feet** above sea level.

34. Answer: (c) I and II only

Explanation:

- **Statement I is correct.** The Nag Mk-2 is **a third-generation** anti-tank guided missile **with fire-and-forget** capability, which means it does not require any additional guidance after launch and locks on to its target using **an advanced Sika**.
- **Statement II is true.** The missile was developed by the **Defence Research and Development Organisation (DRDO)** under India's **Integrated Guided Missile Development Programme (IGMDP)**. It aimed to make India self-reliant in missile technology.
- **Statement III is incorrect.** The NAG Mk-2 is not just **for air-launched platforms**. It **is designed for** multiple platforms, including **land-**based **launchers (Nag Missile Carrier (NAMICA).** It can be used in a variety **of operational** scenarios.
- **Additional information:** The Nag Mk-2 has an estimated **range of between 7 and 10** kilometers, and is capable of attacking targets from **500 meters to 4 kilometers**. NAG Mk-2 is a **lock-on-after-launch** system, designed **for all-weather** operation.

35. Answer: A) It benefits the states of Rajasthan and Gujarat.

Explanation:

- **The Parbati-Kalisindh-Chambal (PKC) Link Project** is **an** intermediate river linking project **designed to benefit the states of** Rajasthan and Madhya Pradesh and not **Gujarat**.
- The project focuses on optimum utilization of water resources to meet **irrigation, drinking water** and **industrial needs**.
- **The central government** finances **90%** of the total outlay of this project, providing significant financial support to make the project **viable**.
- The project **provides** water resources **in** Rajasthan and Madhya Pradesh, which is helpful in meeting their **irrigation** and **drinking water** needs.

Additional info: The Parbati-Kalisindh-Chambal (PKC) Link Project is a river linking initiative, which aims to divert water from **the Parbati, Newaj and Kalisindh** rivers to the Chambal River. The project is part of the National Vision Plan (**NPP) of 1980**.

Components of the Project:

- **Link Canal:** A canal that passes through Madhya Pradesh and Rajasthan.
- **Dam:** Gandhi Sagar **or** Rana Pratap Sagar **Dam on the Chambal River**.
- **Dam: 39 m high** and **1.6 km tall**, which is located near **the village of Dungri**.
- **Barrage:** Ramgarh, Mahilpur, Navnera, Mej and Rathod.
- **Water transport system:** A system will be built in it, which carries water.

36. ANSWER: (D) I, II AND III

Explanation:

- The India-Bangladesh border is **4,096 km** in length, and it passes through five Indian states:

West Bengal, Assam, Tripura, Meghalaya, and Mizoram.

- West Bengal shares the longest border with Bangladesh. West Bengal shares a 2,217-km-long border with Bangladesh .
- Assam shares a 262-km border with Bangladesh.
- Tripura shares a 856-km border with Bangladesh.
- Meghalaya shares a 443-km border with Bangladesh.
- Mizoram shares a 318-km-long border with Bangladesh .

37. **Answer**: **(B)** The chamber provides high-resolution hyperspectral imaging.

Explanation:

- India's first private satellite chamber **was launched by** Pixxel, and included **six hyperspectral imaging satellites**.
- The main objective **of this chamber** is to provide **high-resolution** hyperspectral imaging, which is highly useful for many important processes such as agriculture, mining, environmental monitoring, **defence and resource management**.
- These satellites **were launched by SpaceX**.
- The purpose of the chamber **is to provide** hyperspectral imaging, **rather than** telecommunications, which is intended for Earth monitoring and data collection.
- Pixxel plans **to launch 18 additional satellites by 2029**.

38. **Answer**: **(d)** I and III

Explanation:

- **Statement I is true**. IMD **was established in** 1875, making it one of the oldest meteorological organizations in the world. The IMD was established after some severe weather events, such as a tropical cyclone in Calcutta in 1864 and a failure in the monsoon in 1866 and 1871.
- **Statement II is incorrect**. IMD **works under the Ministry of** Earth Sciences and not the Ministry of Science and Technology. IMD **is also the main government agency for seismology**.
- **Statement III is true**. The main role of IMD **is to provide meteorological services** such as

weather forecasting, climate monitoring, and disaster management support.

39. **Answer**: **(b)** The Caspian Sea, near the coast of Azerbaijan

Explanation:

- **The Kumani bank Mud volcano**, which originated in 2023, **is located in the** Caspian Sea, especially **near the coast of Azerbaijan**.
- This mud volcano is part of a unique geographical phenomenon, which **was temporarily generated due to volcanic activity**.
- It **is an example of** Ghost Island (floating island), which **is formed due to mud volcanoes** and decays and disappears **into the sea over time**.
- The size of this island was about **400 meters** wide.
- The island appeared in satellite images taken **by Landsat 8** and 9.
- **The Kumani Bank Mud Volcano** has erupted several times since **1861**.

40. **Answer**: **(c)** I and III

Explanation:

- **Statement I is true**. **The headquarters of the** National Turmeric Board **is located in Nizamabad,** Telangana, which is famous for turmeric cultivation.
- **Statement II is incorrect**. **The National Turmeric Board** functions under the Ministry of Commerce and Industry and not the **Ministry of Agriculture and Farmers Welfare**.
- **Statement III is true**. **Mr. Palli Ganga Reddy** is the first Chairman of the National Turmeric Board.
- **The objective of** the National Turmeric Board **is to increase awareness about** the health benefits **and** medicinal properties of turmeric, to increase the **production capacity** of turmeric, **to improve** the resource and to strengthen the **supply chain** so that trade can be increased and new markets can be expanded.

41. **Answer**: **(b)** I and II

Explanation:

- **Statement I is true**. The India-Bangladesh border **is 4,096 km** long, which is one of the longest borders between two countries. This border has been the cause of many issues such as

smuggling, illegal migration and human rights violations.

- **Statement II is true**. The Indo-Bangladesh border **covers** important river areas, including **shared rivers such as** the Ganges **and** the Brahmaputra, which play an important role in the geographical and ecosystem of the region. These rivers are part of the **Ganges-Brahmaputra-Meghna (GBM)** basin.
  - o The Ganges **originates in** the Indian state of Uttarakhand and flows in Bangladesh under the name of **Padma**. The Ganga Water Treaty (1996) regulates the water distribution between these two countries.
  - o The Brahmaputra **rises from** Mount Kailash **near Tibet** and flows through India and Bangladesh.
- **Statement III** is incorrect. The Indo-Bangladesh border is not entirely a land boundary. It **also includes important river stretches** along rivers like **the Ganga and the Brahmaputra**. **The Feni River** is a river which is part of the Indo-Bangladesh border.

42. **Answer: (b)** 2 and 3 only

Explanation:

- **Statement 2 is correct:** The Atomic Energy Commission was initially established in August **1948** under the Department of Scientific Research, but formally on **1 March 1958 under the** Department of Atomic Energy (DAE).
- **Statement 3 is correct:** The headquarters of the Atomic Energy Commission **is located in Mumbai,** Maharashtra, which shows the close relationship with India's nuclear institutions, such as **the Bhabha Atomic Research Centre (BARC).**
- **Statement 1 is incorrect**: The Atomic Energy Commission (AEC) **does not function under the Ministry of** Science and Technology, but directly under the **Department of Atomic Energy (DAE).** The DAE has the distinction that it functions directly under the Prime Minister of India.

43. **Answer: (d)** Konkan region of Maharashtra

Explanation:

- **Perpetual** landscapes **are mainly found in** the Konkan region of Maharashtra, particularly **in**

the Ratnagiri district, which lies between the **Arabian Sea** and the **Western Ghats**.

- Perpetual landscapes are flat-topped plateaus, famous for their biodiversity and cultural significance.
- These ecosystems **are rich due to specific** climatic and geographical conditions, in which **many species of local plants and animals** are found.
- The tropical climate and geographical features **of the Konkan region** provide the ideal environment for the formation of these flat-topped landscapes.
- These landscapes are important for ecological conservation due to their distinct biodiversity.

44. **Answer: (c)** 1 and 3 only

Explanation:

- **Statement 1 is correct**: **Aerosols** (tiny particles found in the atmosphere) help to reflect sunlight back into space. The reduction in aerosol pollution reduces the number of reflective particles, leading to a decrease in cloud formation and more solar radiation absorbed by the Earth's surface, which contributes to global warming.
- **Statement 3 is correct**: **Albedo** refers to the Earth's ability to reflect sunlight. The albedo of snow and ice layers is very high, which reflects most **of the solar radiation**. The melting of Arctic ice reduces this reflectivity, allowing more solar energy to be absorbed by deeper ocean waters, leading to more heating.
- **Statement 2 is incorrect**: **Lanina** usually has a cooling effect on global temperatures because it **causes cooler-than-normal sea surface temperatures in the tropical Pacific Ocean**. In 2024, an **El Nino** event occurred, which increased global warming as it raises ocean temperatures and releases more heat into the atmosphere.

45. **Answer: (b)** 1 and 3 only

Explanation:

- **Statement 1 is correct**: The Purulia Observatory **is located in** the **Purulia district** of West Bengal, situated **at an altitude of 600** meters on the Panchet Hill. It **fills a significant** dimensional gap **(86° E) in the global** astronomical observation network, and promotes **international cooperation**.

- **Statement 3 is correct**: This observatory **plays an important role in observing** transient astronomical events, which are important for astrophysical research. At the same time, it provides opportunities for local students **to participate in astronomy research and receive training in this scientific field**, thereby promoting student-participation in science, especially in a backward region.
- **Statement 2 is incorrect**: The Purulia observatory **was not established by the Aryabhatta Research Institute (**ARIES) but **was established by the S N Bose Centre for Basic Sciences (**SNBCBS), which **is functioning under the Department of Science and Technology (DST),** Government of India. ARIES is a separate institute located in **Nainital**.

46. **Answer: (b)** January 15, commemorating the assumption of charge of Field Marshal KM Cariappa as the first Indian Commander-in-Chief.

Explanation:

- **Army Day is celebrated** every year **on 15 January**.
- It commemorates the day when **Field Marshal KM Cariappa** assumed charge as the first Indian Commander-in-Chief of the Indian Army in **1949**.
- Earlier, the post of **Commander-in-Chief** was held by a British officer, and the day marks the full Indian leadership **of the Indian Army after independence**.

47. **Answer: (c)** Prioritizing secure jobs over entrepreneurship

Explanation:

- In India, **there is a strong cultural trend of** preferring secure jobs (**such as jobs in the government sector or public services)** over entrepreneurship.
- This priority is linked to social norms, which place job stability and **economic security** above risk-taking and innovation.
- Due to this, many individuals, especially students and young professionals, **focus on preparing for competitive exams for** government jobs, rather than getting involved in **creative** or **entrepreneurial endeavors**.

- This cultural consideration hinders innovation because it **discourages individuals from stepping into** the uncertain and risky field of entrepreneurship, where new ideas, products, and technologies often arise.
- Social structures that encourage individuals to take risks often reflect greater **creativity** and **entrepreneurship**. For example, **this culture is very prevalent in countries like** the US, where failure is seen as a **learning opportunity**.
- **The freedom to experiment** in initiatives like **Atal Tinkering Labs** fosters innovation, as these initiatives provide individuals, especially those living in rural areas, the freedom to experiment with **new thinking and** ideation.

48. **Answer: (a)** I and II only

Explanation:

- **The Fund of Funds for Startups (FFS)** initiative has a corpus of ₹10,000 crore, which is a major part of Startup India. The fund **was launched in 2016** to provide early-stage funding to Indian startups.
- **As of January** 2025**, more than 1.59 lakh startups have received recognition by** DPIIT, reflecting the rapid growth in the startup ecosystem.
- Although **73,151 startups** have at least one female director, this **is less than 50%** of the total recognized startups, so the figure is not more than 50%.

Additional info:

- **Startup India** is a government initiative designed to promote **entrepreneurship** and innovation in India.
- It was launched in **2016** to create a strong ecosystem for startups and generate employment.
- Under this initiative, resources such as networking **databases,** toll-free helplines**,** and knowledge banks **are provided for entrepreneurs**. In addition, **tax benefits** are also offered.

49. **Answer: (d)** Streamlining procurement processes through the Government e-Marketplace.

Explanation:

- **Government e-Marketplace (GeM)** is a separate initiative that has been created with the objective of making government procurement processes

smooth and transparent. This is not a feature of **the iGOT Karmayogi** platform.

- **The iGOT Karmayogi** platform provides **online training** for government employees, such as **in public administration**, **data analysis**, and **digital technologies**. It is designed to **improve government operations**.

- **The digitization of workflows is** also a separate program under the **e-Office** initiative, but it supports **iGOT Karmayogi**'s digital transformation goals, so it's perfect.

- **Training on cybersecurity** measures is also **part of the** iGOT Karmayogi platform, as it has become very important with **the digitization of government operations**.

- **iGOT Karmayogi** is an online learning platform that aims to hone the skills of Indian civil servants . It is **part of Digital India** and **Mission Karmayogi**.

  - The Government of India launched **Mission Karmayogi** on September 2, **2020**. It is a **national programme** aimed at **capacity building of the civil services**.

50. **Answer: (a)** I and II only
Explanation:

- **BARC** was actually one of the few Indian nuclear entities that were removed from the US **Entity List**. Additionally, **the Indira Gandhi Centre for Atomic Research (IGCAR)** and **Indian Rare Elements (IRE)** were also removed.

- The U.S. **Entity List** is a **trade control measure that prohibits the export of** goods**, technology, and sensitive information to certain entities**. The removal of these Indian entities from **the Entity List has** facilitated **trade and cooperation**.

- **BARC, IGCAR, and IREL** are part of **India's** nuclear energy programmes, not **space research programmes**.

Additional info:

- **The Bhabha Atomic Research Centre (BARC)** is India's premier nuclear research centre, founded **by** Homi Bhabha **in 1954**.

- **The Indira Gandhi Centre for Atomic Research (IGCAR) is a nuclear research centre located in** Kapalakkam, India. It was established **in** 1971 as **the Reactor Research Centre (RRC).**

- **Indian Rare Elements Limited (IREL)** is a government-owned company that mines and processes rare elements (REEs) in India. It is under the administrative control of the **Department of Atomic Energy (DAE).**

51. **Answer: (b)** Barren government-owned land that is allocated for agricultural or productive use.
Explanation:

- **Nautor land** refers to barren or barren land that is under government ownership. This land **can be allotted to individuals for** agricultural or other productive use, provided approvals are obtained from the concerned authorities and certain conditions are met.

- **The purpose of the Notor land** is to legitimize ownership for the local people.

- **The practice of Nautor land is used in Himachal Pradesh** and **Ladakh**.

- This practice **was created in** 1932, by Raja Hari Singh **of Jammu and Kashmir**.

- **Himachal Pradesh** had a Nautor land policy **since 1968**.

- These lands **are outside cities**, protected forest areas and other areas as notified by the state government.

52. **Answer: (c)** Japan
Explanation:

- Tier 1 **allies of the United States** are countries with which **there** are minimal restrictions on the export of AI technology. **The United States'** trade and technical cooperation with these countries deepens, and they are such allies because of their **strategic, economic, and defense partnerships**.

- **Japan is a** Tier 1 **partner of the United States**. **Australia**, **South Korea**, and **the UK** also fall into this category. These countries face **minimal restrictions in the export and use of developed technologies**.

- India **falls in** Tier 2, where **AI technology exports** are banned with special conditions.

- **Countries such as** Russia**,** China, **and** North Korea **are classified in** Tier 3, where **there is a near-total ban on the import of** US AI technology for protectionist reasons.

53. **Answer: (c)** Black-eyed P. (Cowpea)
Explanation:

- **The Compact Research Module for Orbital Plant Studies (CROPS)** is an important initiative of ISRO, which aims to study the growth of plants in **microgravity** (lack of gravity in space).
- This experiment was carried out to understand **the evolution of plants** for space missions, which is extremely important for long-term space missions.
- The **black-eyed pea (cowpea)** pea plant was successfully germinated during this mission. The seeds of this plant **were chosen for space farming** experiments because these plants are fast growing and suitable for these conditions. The seeds **germinated** on the fourth day, and on **the fifth day** their leaves also appeared.

54. **Answer: (b)** INS Nilgiri, INS Surat, and INS Waghshil
Explanation:
- The Indian Navy inducted a **destroyer**, a **frigate** and a **submarine** for the first time on the same day. **INS Nilgiri**, **INS Surat**, and **INS Waghsheel** were commissioned into the Indian Navy on 15 January 2025.
- **INS Nilgiri** - It is a **vigilant frigate** and **the first ship of the** P-17A class, designed for a variety of roles, including **warfare against underwater attack**, **air defence**, and **surface warfare**.
- **INS Surat** - It **is a** P-15B **class** destroyer, known for its **modern survival defence systems**, **advanced weapon systems**, and **state-of-the-art security equipment**.
- **INS Vagsheer** - A Scorpene-class submarine, **developed under Project-75**, and is suitable for **covert operations**, **warfare against opposing ships**, and **stealth information gathering**.

55. **Answer: (a)** I and II only
Explanation:
- Recently, the **SpaceX Falcon 9** rocket launched two spacecraft **Blue Ghost** and **Resilience** under the lunar mission. These two spacecraft were sent under different programs and objectives.
- **Statement I: Correct.**
  - **Blue Ghost**, which **is developed by** Firefly Aerospace (US), has **10 NASA scientific instruments**. These instruments study the **thermal and structural properties** of the Moon, **the Earth's** magnetosphere, and **the** lunar dust. It is also designed to test **new**

navigation and computing technologies in the lunar environment.
- **Statement II: True.**
  - **Resilience**, which **is developed by** Ispace-Europe, represents Japan's private sector initiatives. It **carries the Tenacious** micro rover, which demonstrates Japan's **technological advancements in space exploration**.
- **Statement III: False.**
  - **Blue Ghost** is part of NASA**'** s CLPS program, which promotes **cost-efficient lunar exploration** and carries out lunar missions through commercial partners.
  - **Resilience** is an effort of Japan's private sector. It is not part of the CLPS. It is an independent initiative.

56. **Answer: (d)** Developing and least developed countries of Asia, Africa, and Latin America.
Explanation:
- The term "**Global South**" is used **to refer to developing** and least developed countries, majorly located in **Asia, Africa, and Latin America**.
- These countries are often compared **to** rich countries that **are located in** the Global North, such as **North America, Europe**, and **parts of Oceania**.
- **Common symptoms of countries included in the** Global South are:
  - These are **economically developing or underdeveloped**.
  - These countries **have low GDP** per capita, and weak **modern** infrastructure.
  - These **face challenges in the areas of education, health care, and technology**.
  - **Example: Countries like** India, Brazil, Nigeria, and Indonesia are part of the **Global South**.

57. **Answer: (a)** I and II only
Explanation:
- India's leading business industrialists, such as **Narayana Murthy**, **S.N. Subramanian**, and **Bhavish Aggarwal**, have **proposed extended working hours** to promote **economic growth** and **global competitiveness**.
- **Statement I: Correct.**

o These business leaders have **proposed a 70-90 hour** work week. This **strategy** is inspired by **the** reconstruction models of countries that used increased **labor intensity** in **their** economic reconstruction.

- **Statement II: True.**
  o The proposal **is inspired by** models **of post-war reconstruction in countries such as** Japan **and** Germany, where over-labour played a key role in **rebuilding industries**.

- **Statement III: False.**
  o The main purpose of extended working hours **is not** to decrease the unemployment rate, but to increase **productivity** and **economic output**. Indeed, this model **can lead to an increase in** unemployment, as it can concentrate the workload among a few employees .

58. **Answer: (c)** I and III only
Explanation:

- **Statement I: Correct.**
  o India spends only **3% of its** gross domestic product (**GDP) on education** and **2.1% on** healthcare, which is far lower than the global average. This results **in** poor education outcomes (such as only 20% **of Class** 5 students in rural areas **can read Class 2** level **text, as per the** ASER **report** of 2022**) and health-related** challenges, including weak health infrastructure.

- **Statement II: False.**
  o High positive **inequality** does not **strengthen** the capacity of workers, **but** rather weakens it, preventing **infrastructure** benefits from being reaped equitably. India **ranks 134th in the** 2023 **Human Development Index (**HDI), which shows significant **disparities in education, healthcare,** and access **to** income.

- **Statement III: True.**
  o **Infrastructure** projects, such as expressways, **have immediate benefits** and **job creation**, making them **politically** attractive. In contrast, **social reform** (such as in education and health care) **requires** long-term investments, whose benefits **appear to be less** visible in the short term .

59. **Answer: (b) To support** Next Generation Launch Vehicles (NGLVs) and human space missions such as Gaganyaan.
Explanation:

- The recently approved **Third Launch Pad (TLP),** which **is located at Satish Dhawan Space Centre (SDSC**), Sriharikota, is a significant step to strengthen **India's space exploration capability**.

- This **TLP is** specifically designed to support **Next Generation Launch Vehicles (NGLVs)** and human space missions such as **Gaganyaan**.

- This state-of-the-art infrastructure will enhance India's capability to successfully undertake complex **and** high-risk missions, thereby fulfilling India's space exploration aspirations. This will be especially important for missions of **human space flight** and **advanced payloads**.

- **The TLP** will also act as a standby for the **Second Launch Pad (**SLP), enabling India's space programme to **be completed in a short span of time**.

60. **Answer: (b)** I and III only
Explanation:

- **Statement I**: The increase in the cost of imports increases India's current account deficit. This statement **is correct**. When the rupee weakens, the prices of **imports** such as **crude oil**, electronics, and other raw materials increase as these goods are mostly in **foreign currencies** (mainly dollars). This **leads to an increase in the** import bill, which widens India's **current account deficit**.

- **Statement II**: Exporters benefit in the long run due to inflationary pressures. This statement is **incorrect**. A depreciated rupee **is initially beneficial for** exporters , as Indian textiles become cheaper abroad, **but** the increase in **import prices** due to inflation hurts **exporters in the long run**, as increased costs reduce their competitiveness.

- **Statement III**: Depreciation of the rupee increases the repayment burden of external debt. This statement **is correct**. When the rupee weakens, **loans taken in external currency** (such as in dollars) **become costlier**. This makes

it difficult for the government and businesses **to repay interest** and **debt**.

61. **Answer: (b)** Recognizing innovations made by Indian startups

   Explanation:

   - **The India Startup Challenge** was launched on **the** 9th Foundation Day **of Startup India**. Its main objective is to promote **the spirit of** innovation **and** entrepreneurship among Indian startups.

   - The platform recognizes unique ideas **and** solutions from Indian startups that can contribute to India's **economic growth** and **advancements in technology**.

   - It does not aim **at FDI** (Foreign Direct Investment) or **focus on giving government financing to all startups**. Rather, it is a **competitive platform** that fosters innovation and supports Indian **entrepreneurship**.

   - It contributes towards self-reliance in India and strengthens India's startup ecosystem.

62. **Answer: (a)** I and II only

   Explanation:

   - **Statement I**: **Row of planets refers to** the **simultaneous visibility** of several planets **in the night sky**. This statement is **correct**. When several planets are in **the same place** together and appear together, it is called **a row of planets** or a parade.

   - **Statement II:** This statement is also **correct**. All the planets travel in their orbits around the sun and these orbits **occur on almost the same ecliptic plane**. When the planets are viewed from Earth, they **appear** aligned **on this** plane, leading to the phenomenon of appearing together.

   - **Statement III**: This statement **is incorrect**. **The row of planets** cannot be seen throughout the year. This is a **special phenomenon**, which occurs when the planets are in **a specific** place in their orbits from **the Earth's point of view**. There are variations in the speed of the orbits of the planets and their distance, so that these alignments can only be observed at certain specific times.

63. **Answer: (d)** World Economic Forum

   Explanation:

   - **The World Economic Forum** (WEF), which is an international organization based in Switzerland and works to promote public-private cooperation.

   - WEF released the **"Global Cybersecurity Outlook 2025"** report. The report aims **to address emerging trends in** cybersecurity**,** digital threats **and** cyber resilience, and to help leaders and policymakers address the challenges in the region.

   - These reports are released by the WEF with the aim of preparing organizations and governments for future challenges

   - **The WEF** was founded **in** 1971 **by German economist Klaus Schwab**. Its headquarters is located in **Cologny**, **Switzerland**.

64. **Answer: (a)** I and II only

   Explanation:

   - **Statement I**: **Providing a Record of Rights (**RoR), thereby **establishing legal ownership of** rural properties and property records, is **correct**. The **SVAMITVA scheme** aims to identify **legal ownership** of properties in rural areas, enabling rural property owners to **access financial resources** and ensuring **property documents**.

   - **Statement II:** This statement is also **correct**. **The SVAMITVA scheme** was launched by **the** Ministry of Panchayati Raj (MoPR) **in 2020**.

   - **Statement III**: This statement **is incorrect**. **The SVAMITVA scheme** is not **only for** urban areas, but it specifically benefits rural areas. The scheme is aimed at empowering rural property owners and promoting rural economic development.

65. **Answer: (c)** Satguru Ram Singh

   Explanation:

   - **Satguru Ram Singh** was the leader of the Kuka Rebellion.

   - He **was the founder of the Namdhari sect** and led this revolt against the British rule.

   - The Kuka Rebellion **was a political and religious upheaval** against British rule in Punjab in the **1870s**.

   - The Kuka community got its name from their **style of reciting Gurbani** (sermons of the Gurus) in a loud voice.

- The Kuka Movement was a **religious reform** and **resistance movement**, aimed at challenging British authority and promoting social reforms in the Punjab.
- **The leadership of Satguru Ram Singh** played a central role in the activities of this movement.

66. **Answer: (d)** BRICS

Explanation:

- **Indonesia** became a full member of the BRICS group in **2025**.
- **BRICS** stands for **Brazil**, **Russia**, **India**, **China**, and **South Africa**.
- The term BRICS was coined **by** Goldman Sachs **economist** Jim O'**Neill in 2001**.
- South Africa was added to the group in 2010.
- The headquarters of **BRICS is located in Shanghai**.
- The BRICS summit is held each year in one of the member states.
- It is a group of emerging **economies** that unite to influence global affairs, promote economic growth, and promote cooperation in areas such as trade, finance, and security.

67. **Answer: (b)** II and III only

Explanation:

- **Olive Ridley turtles** are known for building organized collective nests, called **arribadas** . During this event, thousands of female turtles come together on the beach and lay eggs.
- This behavior is especially seen on the beaches of countries such as India, Mexico, and **Costa Rica**.
- Olive Ridley turtles **are** omnivores, i.e. they eat a variety of foods such as algae, crabs, and jellyfish.
- **Leatherback sea turtles** are the largest species of sea turtles, reaching up to 2.4 **meters in length**. Olive Ridley turtles are relatively small, and have an average length of about **70 centimeters**.

68. **Answer: (a)** I and II only

Explanation:

The main components of S Jai Shankar' s 5-point agenda are:

- Expanding independent platforms such as BRICS. This is important on the agenda because it provides a platform for developing countries

that are not controlled by dominant powers **in global systems**. It provides an alternative platform to developing countries.

- Advocating reform of the UN Security Council. Jaishankar said global institutions need to be reformed to **better reflect current global** realities. This includes **the expansion and reform of the** Security Council so that it is more inclusive and there is a better balance between **developed and developing countries**.

69. **Answer: (d)** Indian and Pacific Ocean

Explanation:

- **La Perouse 2025** naval exercise is a multilateral exercise held **in the strategic strait connecting the Indian Ocean** and **the Pacific Ocean**.
- The exercise is hosted by France and involves naval powers of several countries.
- It aims to promote cooperation **and** security **in these critical maritime areas**.
- These exercises are of utmost importance for global trade, and the aim of this exercise is to strengthen **naval diplomacy** and **naval security** among partner nations.

70. **Answer: (d)** I and III

Explanation:

- **The Konark Sun Temple** was built by King Narasimha Deva I of the Ganga dynasty.
- This temple was built in the **13th century (between 1238–1264 AD)**.
- This temple is **located in Konark**, **Odisha**.
- The temple **is dedicated to the** Sun God and symbolizes the cultural and power of the **Ganga Kingdom**.
- Konark Sun Temple is recognized as a UNESCO **World Heritage Site due to its art and cultural significance**.

71. **Answer: (d)** I and III

Explanation:

- The exclusion of Kalaripayattu **from the 38th National Games** led to a controversy.
- Kalaripayattu is an ancient and revered martial art of Kerala.
- Kalaripayattu is one of the oldest and most popular martial arts in India.
- It **originated in** Kerala between **the 3rd century BC** and **the 2nd century AD**.

- Kalaripayattu is practiced **in a** kalari, which means "**gymnasium**" or "battlefield".
- This martial art was included in the Khelo India Youth Games in 2021.
- Kalaripayattu emphasizes **meditation**, calmness, and **developing mental** clarity.
- Kalaripayattu also includes activities such as chattam (jumping), ottam (running), and marichill (acrobatics).

72. **Answer: (c)** I and III only

Explanation:

- **Pressure on infrastructure** is one of the major challenges of future population growth. The futuristic growth in India's urban population will lead to greater demand for **housing**, **transport**, **water supply**, sewage systems and other essential services, putting pressure on existing infrastructure.
- **Climate impact** is also a significant challenge. As urban areas grow, **emissions** of greenhouse gases from **transport,** industry**, and** energy consumption will increase, which will fuel climate change. In addition, **changes in land use** can also exacerbate environmental problems.
- **Additional info:** India's urban population as of 2023 was 522,939,628, up from just 62.4 million in 1951.
- **According to the** United Nations, India's urban population is projected to grow from 410 million in 2014 to **814** million **by 2050**.

73. **Answer: (a)** I only

Explanation:

- **Kerala's 'Janamaitari Suraksha'** project is an initiative that **focuses on improving public safety** through community-based **approaches**. The project **promotes** community order, which promotes **empathy-based** interaction between the police **and the public**.
- **The main objective of** Delhi's odd-even scheme **is to reduce** traffic congestion **and** air pollution, while **the main focus of** Indore's waste management initiative **is on cleanliness** and **sustainability**.

74. **Answer: (a)** IV only

Explanation:

- **A sugar mill in** Uttar Pradesh is not part of **wheat production,** contract farming. Sugar mills

usually do contract farming for the production of sugarcane.
- **Hyphen Foods** ' collaboration with potato farmers, **ITC** 's **e-Choupal initiative**, and **Amul's milk supply contract** are examples of agricultural contracts.
- In these, the companies **provide** seeds**,** materials**,** training**, and** price guarantees to the farmers, thereby providing a stable income to the farmers.

75. **Answer: (c)** I and III only

Explanation:

- **Entity Locker** is a **cloud-based platform designed for** storing, sharing**, and** verifying **business documents**.
- It **is designed** to ensure secure **and** efficient **document management** for various MSMEs**,** startups**, and other organizations** .
- One of its major objectives is **to reduce** the administrative burden **in business and** promote the adoption of simple procedure in doing business.
- It is not only for large entities, but is also available for small and mid-scale enterprises.

76. **Answer: (c)** I and III only

Explanation:

- According to the new proposed definition, **obesity** is no longer just identified as excess body fat but also as a chronic disease that affects the function of organs.
- **"Early obesity"** means having excess body fat, in which the function of the organs is not affected.
- The new definition **does not solely determine** BMI, but takes a more comprehensive approach.
- Obesity is **also called adiposity-based chronic disease (ABCD).**
- It's a **complex** disease.
- Some of the diseases associated with obesity are: heart disease, diabetes, osteoarthritis, liver disease.
- **According to the WHO (**World Health Organization **),** a person is considered **overweight** if their BMI is between 25 and 30**,** and they are considered obese if their **BMI** is more than 30.
- **Body weight index (BMI)** is a common way to measure obesity. **BMI** is calculated by dividing

the weight (in kilograms) of individuals by the square of their height (in meters).

- **According to the** World Obesity Federation, more than **one billion** people worldwide were obese in **2024**.
- This includes about **880 million adults** and **159 million children and adolescents (5 to 19 years).**

77. **Answer: (c)** I and III

Explanation:

- The United States has historically been one of the largest contributors to the World Health Organization, providing about 20% **of funding to the WHO**.
- The reduction in U.S. funding will affect global health programs.
- The Centers for Disease Control and Prevention (CDC), based in the US, has been a key partner of the WHO in areas such as disease surveillance, pandemic preparedness, and technical expertise .

Additional info:

- The World Health Organization (WHO) is a **United Nations agency** concerned with public health. It was founded in **1948** and is headquartered in **Geneva**, Switzerland.
- **What does the WHO do?**
  o **Setting standards**: The WHO sets standards for health care, disease control, and medicines.
  o **Conducting research**: The WHO conducts research and education programs, and publishes scientific papers and reports.
  o **Providing Technical Assistance**: The WHO provides technical assistance to countries.
  o **Monitoring Health Trends**: The WHO monitors and evaluates health trends.

78. **Answer: (c)** Geo-tagging and QR codes

Explanation:

- The iconic Chinar trees of Kashmir are being conserved using modern technological methods including **geo-tagging** and **QR codes** .
- This approach serves the dual purpose of digital protection and better monitoring.
- Information on the tree's age, history, and health status can be obtained through the QR code.

Additional info:

- Poplar trees, whose scientific name **is Platanus orientalis**.
- They are often found in the Kashmir Valley, especially in the **Mughal Gardens**.
- Poplar trees have a long lifespan and can live for several centuries.
- They are found in areas with a cold climate and an adequate water supply.
- Poplar trees take about 30 **to 50 years to reach their mature height**.
- Trees need about 150 **years to grow to their full size**.

79. **Answer: (c)** I and II

Explanation:

- **Under the Indus Water Treaty of** 1960, India was given control over the waters of the eastern rivers – **Beas, Ravi and Sutlej**. This control is mainly for unrestricted use for irrigation, agriculture and power generation.
- **The treaty allocates waters of the western rivers** – **Indus, Chenab and Jhelum** – to Pakistan. Whereas India can use these water for non-consumable purposes such as **hydropower generation**.
- **The Indus Waters Treaty was brokered by the** World Bank which was signed between India and Pakistan in 1960.

80. **Answer: (b)** Ministry of Women and Child Development

Explanation:

- The Beti Bachao Beti Padhao scheme is primarily aimed at addressing gender bias and promoting the rights, survival, and education of the girl child.
- **The Ministry of Women and Child Development** is responsible for implementing the scheme, as it focuses on women empowerment and welfare of children, especially girls.
- The scheme was launched in **January 2015** by the Ministry of Women and Child Development **with the goal of improving the Child Sex Ratio (CSR)** and promoting gender equality.
- **The Ministry of Health and Family Welfare (MoH&FW)** has been entrusted with the important responsibility of capacity building and quality control.
- **The Ministry of Human Resource Development (MoHRD)** plays a key role in

developing the educational components of the scheme.

81. **Answer: (c)** I and II
    Explanation:

    - Financial irregularities have been found **in government schemes related to farmers**. Farmers have submitted false claims on unauthorised land such as non-crop lands, government plots and petrol pumps. It creates obstacles in the implementation of government schemes designed by the government to support the farmers .

    - **Misuse by the Common Service Centres (CSCs)** has also come to light in some cases. These CSCs filed false applications using fake documents without the consent of the farmers.

    - Efforts made by the government to the real beneficiaries are failing due to bogus claims and irregularities.

82. **Answer: (b) Combustion at** hypersonic speed (MAK 5+).
    Explanation:

    - A **scramjet engine** (supersonic combustion ramjet) is designed to operate at hypersonic speeds.

    - It has been developed as Mach 5 (more than five times the speed of sound) exceeds the speed of sound.

    - Scramjet engine is a type of **jet engine** that operates at supersonic speeds.

    - It is a **combination of a ramjet** and **turbofan** engine.

    - Scramjet technology helps in developing advanced hypersonic missiles, which are designed to carry out quick and powerful strikes in air defence systems.

    - This gives India **a strategic advantage among countries such as the United States**, **Russia and China with hypersonic capabilities**.

    - The advancement of scramjets **promotes computational fluid dynamics** (CFD) and aerospace technology.

83. **Answer: (a)** Only 1
    Explanation:

    - India is **the seventh largest producer of coffee in the world**. India is an important contributor to the global coffee trade.

    - Most of the exports from India are in the form of **unroasted coffee beans**.

    - The main coffee producing states in India include **Karnataka, Kerala, and Tamil Nadu** .

    - Coffee is grown in the hilly regions of the southern part of India, where climate, rainfall, altitude and sloping hills are favourable for it.

84. **Answer: (b)** Bokhar Chu near Mansarovar Lake
    Explanation:

    - The origin of the Indus river **is from a place called Bokhar Chu near Mansarovar Lake in the Tibet region**.

    - This place is located near the Kailash mountain range, which is considered sacred in many religions.

    - The river starts from the Tibetan plateau and enters India and then flows into Pakistan.

    - **Mansarovar Lake** is a high-altitude freshwater lake, which is religiously and geographically significant.

85. **Answer: (b)** 2 only
    Explanation:

    - India **ranks fourth in the Global Firepower Index 2025**.

    - The first three places in this list are America, Russia and China respectively.

    - India has **14.55 lakh** active soldiers, 11.55 lakh reserve troops, and 25,27,000 paramilitary personnel.

    - The Indian **Air Force was** established on October 8, **1932**.

    - The foundation of the Indian Navy was laid in the seventeenth century.

    - The headquarters of the Indian Navy **is in New Delhi**.

86. **Answer: (D)** They have a female-led social order called "Klan".
    Explanation:

    - The spotted hyena, also known as the "laughing hyena", is found in the open grasslands and semi-desert regions of Africa.

    - It follows a social order led by females, called the "Klan".

    - Females are larger and more dominant than males.

- They are mainly nocturnal and have a very good night vision ability.
- Hyenas are more closely related to cats than dogs.
- The scientific name of the spotted hyena **is Crocuta crocuta**.
- The spotted hyena originated in Asia.

87. **Answer: (a)** Only 1

Explanation:

- Stargardt's disease **is** a genetic eye disease **caused by mutations in the ABCA4 gene**.
- This disease **causes** vision loss, especially affecting central vision, while peripheral vision remains preserved.
- It is a bilateral disease that affects both eyes.
- Stargardt's disease is **also called fundus flavimaculatus**.

88. **Answer: (b)** These are made up of layers of lava flows and ash.

Explanation:

- Stratovolcanoes, also known as composite volcanoes, consist **of several layers of lava and ash**. Their eruptions release ash, pyroclastic flows, and volcanic gases.
- These are usually **vertical cone-shaped** .
- These are found in active tectonic zones, such as the Pacific Ring of Fire.
- Stratovolcanoes make up about **60% of the Earth's volcanoes**.
- These **are the highest volcanoes**.
- These consist **of eruptions of andesite** and **decite** lava.
- Some examples of strato volcanoes:
  - Mayon and Pinatubo volcanoes, Philippines
  - Tambora, Merapi, and Sinabung volcanoes, Indonesia
  - Mount Rupehu and Mount Taranaki, New Zealand

89. **Answer: (c)** I and III

Explanation:

- India's **Smart Cities Mission** was launched **in** 2015, with the aim of building **100** smart cities that are **technologically** advanced.
- The mission aims to make urban centres **sustainable**, innovative, and **economically** dynamic to address problems such as

urbanization, **environmental crises**, and inadequate infrastructure **at the earliest**.

- An allocation of ₹48,000 **crore has been made** for this mission, which is set to be spent in the entire five years.
- Special Purpose **Vehicles (SPVs)** have been entrusted with the implementation of this mission in each city.

90. **Answer: (b)** It recognises live-in relationships as quasi-marriage.

Explanation:

- The Uniform Civil Code Act **2024 of Uttarakhand** has brought many important changes.
- This Act makes **the state** the first state in independent India to implement the **Uniform Civil Code (UCC)**.
- The Act recognises live-in relationships **as quasi-marriages** and legitimises children born out of those relationships.
- Additionally, it provides equal property rights to women, so that they **can have equal opportunities in** inheritance **and** property.
- The Act **prohibits polygamy,** nikah**,** child marriage **and external divorce**.

91. **ANSWER: (C)** I, II AND III

Explanation:

- India is the world's largest **antivenom** producer, and its contribution **is more than 50%.**
- Deaths from snake bites in India are mainly caused by **the "Big Four"** snakes:
  - Common crate (Bungarus caeruleus)
  - Indian Cobra (Naja naja)
  - Russell's Viper (Daboia russelii)
  - Saw-scaled viper (Echis carinatus)
- **The Irula tribe**, which inhabits Tamil Nadu and Kerala, has long been engaged in **safely extracting** venom from snakes, which gives them a special identity.

92. **Answer: (a)** Provide subsidy and tax exemptions on bioethanol to reduce its production cost.

Explanation:

- Subsidies **and** tax breaks **to make bioethanol cheaper** will reduce the cost of production, making it more competitive than conventional fuels.

- **Limiting blends such as** E10 will not reduce costs, but rather more ethanol blends, such as **E85** (85% ethanol), can reduce costs if the production of bioethanol is increased.
- India's **"National Biofuel Policy"** 2018 sets a target of 20% ethanol blending **in petrol by 2025**.

93. **Answer: (a)** 1, 2 and 3
    Explanation:

    - The Paris Agreement is an important **environmental treaty**, which **was adopted by most countries in 2015** to combat climate change.
    - It aims to limit the global temperature rise **to 2**°C above pre-industrial levels, and subsequently target to lower it further to 1.5°C.
    - For this, countries will have to reduce their greenhouse gas emissions.
    - India **was a signatory to the Paris Agreement in 2016** and has set a target to reduce **the emissions intensity of its GDP by** 33-35% **from 2005** levels by **2030**.
    - Further, India has set a target of carbon reduction equivalent to 2.5-3 billion tonnes of carbon dioxide from additional forest and tree cover by 2030.

- After the US pulls out of this agreement, **fossil fuel** production may increase, as the Trump administration has prioritized energy independence and oil, gas, coal industries, which are bound to result in an increase in emissions of greenhouse gases.
- Since pulling out of the Paris Agreement, the U.S. has influenced **climate** aid and future programs to developing countries.

94. **Answer: (b)** I and III
    Explanation:

    - Goa **follows the Portuguese Civil Code of** 1867, which ensures equality in the laws of marriage, divorce, and succession.
    - This code applies to all Goans, irrespective of their religion.
    - After **Goa's** merger with India, **the Goa Daman and Diu Administration Act 1962** allowed the Code to remain in force, making this civil code still in force today.
    - At present, Goa and Uttarakhand are the two states in India, where laws like Uniform Civil Code have been implemented

GS FOUNDATION *For*

UPSC & STATE PSC

- ECONOMY ○ POLITY
- HISTORY ○ GEOGRPHY

1500X4
₹~~6000/-~~ ₹4500/-

- ✓ DAILY LIVE CLASSES
- ✓ WEEKLY TEST
- ✓ CLASSES PDF (HINDI+ENGLISH)
- ✓ LIVE DOUBT SESSIONS
- ✓ DAILY PRACTICE PROBLEM

COURSE VALIDITY 1 YEAR

GS FOUNDATION *For*

UPSC & STATE PSC

IF ANYONE INTRESTED IN ONLY

ECONOMY

FEE ₹ ~~2000/-~~

₹1499/-

- ✓ **DAILY LIVE CLASSES**
- ✓ **WEEKLY TEST**
- ✓ **CLASSES PDF (HINDI+ENGLISH)**
- ✓ **LIVE DOUBT SESSIONS**
- ✓ **DAILY PRACTICE PROBLEM**

COURSE VALIDITY 1 YEAR