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A. Polity & Governance

1. Uttarakhand's Uniform Civil Code (UCC)

Uttarakhand has become the first state in the country to have passed the Uniform Civil Code (UCC) in the Legislature.

What is the Uniform Civil Code (UCC)?

1. There are 2 types of laws:
   a. **Civil Laws:** Civil laws govern disputes between individuals or entities such as property disputes and issues related to marriage, divorce and inheritance.
   b. **Criminal Laws:** Criminal laws govern offences against society and provide prosecution by the government such as theft, murder, etc.
2. UCC refers to the idea of having a single set of civil laws that apply to everyone in a country, regardless of their religion or background.

Background:

1. **Article 44** of the Constitution also puts the responsibility on the State to bring UCC.
2. Various Supreme Court judgments have discussed the balance between fundamental rights and Directive Principles, emphasizing the importance of a UCC.
3. Hence, a **5-member committee** was set up to draft the UCC legislation **in Uttarakhand.**

Highlights of the Bill:

1. **Significance:**
   a. It aims to promote gender equality by treating men and women equally in inheritance and marriage matters.
   b. It seeks to provide Muslim women with an equal share of property, compared to the current 25% share under Muslim personal laws.
2. **Exemptions**:
   a. Scheduled tribes (STs) are exempted from the bill's provisions.
   b. This exemption addresses concerns from the tribal population, about their special status.
3. **Concerns**:
   a. It maintains the **minimum marriage age** at 18 for women and 21 for men.
   b. It makes it mandatory to register live-in relationships. Forcing people to register their live-in relationships and punishing them if they don't might take away their freedom to choose how they live.

Important Cases related to UCC:

Shah Bano Begum vs. Mohammad Ahmed Khan (1985)	The Supreme Court ruled that a Muslim woman could claim maintenance from her husband even after the Iddat period, under Section 125 of the Criminal Procedure Code. ("Iddat" is an Islamic term referring to the waiting period that a woman must observe after the death of her husband or after a divorce, during which she cannot remarry.) It also suggested that implementing a Uniform Civil Code (UCC) could resolve ideological contradictions.
Sarla Mudgal vs. Union of India (1995)	The Supreme Court decided that a Hindu husband couldn't convert to Islam and marry another woman without divorcing his first wife. It highlighted that a UCC might prevent such fraudulent conversions and bigamous marriages.
Shayara Bano vs. Union of India (2017)	The Supreme Court declared triple talaq unconstitutional, citing it as a violation of Muslim women's dignity and equality. It urged Parliament to enact laws regulating Muslim marriages and divorces.

Uniform Civil Code in Goa

1. Goa is the only state in India that has a uniform civil code regardless of religion.
2. It is based on the Portuguese Civil Code of 1867, which continues to influence Goa's legal system.

Benefits of UCC	Challenges of Implementation
Promotes equality by providing a uniform set of laws	Resistance from religious and cultural groups
Ensures secularism by separating religion from law	Difficulty in harmonizing between diverse religious practices
Simplifies legal procedures, reducing complexity	Lack of political consensus and willpower
Protects women's rights by abolishing discriminatory practices	Concerns regarding the violation of cultural autonomy.
Reflects modern societal norms and values	Possible backlash from conservative elements

Future Prospects

1. **Other States:** Madhya Pradesh and Gujarat considering similar initiatives.
2. **Central Government:** Strong advocacy from the central government, emphasizing the need for a UCC.

Conclusion:

In short, the UCC offers the potential to make society fairer and clearer by treating everyone equally under the law. However, it faces challenges like resistance from some groups and political hurdles. Despite these obstacles, UCC remains a crucial step towards ensuring justice and equality for all.

2. Supreme Court Declares Electoral Bonds Scheme Unconstitutional

Recently, the Supreme Court of India declared the electoral bonds scheme unconstitutional.

What is the Electoral Bonds Scheme?

1. Former Finance Minister Arun Jaitley introduced the Electoral Bonds Scheme in **2018.**
2. Electoral bonds are **financial instruments** similar to promissory notes, available for purchase by both individuals and companies in India.
3. These bonds can be donated to a political party, which can then be redeemed only in its designated bank account.
4. Individuals, whether **alone or jointly** with others, can buy these bonds.
5. Interestingly, an electoral bond does **not reveal the identity** of the buyer or payee.
6. Electoral bonds are issued by the State Bank of India (SBI) and its designated branches and are sold in **multiple denominations** of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore.
7. Electoral bonds have a life of **only 15 days** during which they can be used for making donations to political parties.
8. There is **no cap** on the number of electoral bonds that a person or company can purchase.

What are the Reasons behind Introducing the Electoral Bonds Scheme?

1. **Transparency**: Electoral bonds were introduced to establish a transparent route for political parties to collect funds.
2. **Mitigation of Misuse:** The scheme aims to reduce the likelihood of misuse by providing a limited timeline for bond sale. This makes it challenging to misuse the bonds for unlawful purposes.
3. **Anonymity Protection**: Electoral bonds offer anonymity to donors, shielding them from potential intimidation or harassment by political opponents after elections, thereby protecting their privacy and safety.
4. **Enhanced Political Accountability**: Political parties are mandated to disclose details of contributions received via electoral bonds to the Election Commission, ensuring accountability and transparency in their financial dealings.
5. **Curbing Black Money in Political Funding**: The Electoral Bond scheme reduces the permissible cash donations from anonymous sources from Rs 20,000 to Rs 2,000, aiming to diminish the influence of black money in elections and promote clean and fair political financing practices.

Who can receive funding via electoral bonds?

1. Political parties must be registered under **Section 29A** of the **Representation of the People Act, 1951.**
2. They must have received **at least 1% of the votes** polled in the most recent general election to either the House of the People or the Legislative Assembly of the State.

Criticism of Electoral Bonds

1. **Violation of Right to Information**: Electoral bonds hide the identity of donors and recipients, compromising citizens' "Right to Know" under Article 19(1) of the Constitution. Previously, political parties were required to disclose donors contributing more than Rs. 20,000, but this transparency is compromised by electoral bonds.
2. **Information Asymmetry:** While electoral bonds ensure anonymity for donors, the ruling government can access donor details from the State Bank of India (SBI), creating an information imbalance. This empowers the ruling party to intimidate donors supporting opposition parties.
3. **Transparency Concerns with Corporate Donations:** The removal of transparency requirements from the Companies Act 2013 raises concerns about black money in political funding through shell companies. Previously, companies could only donate if their net average profit met certain criteria, ensuring transparency.
4. **Shareholder Rights Compromise:** The electoral bonds scheme allows companies to contribute to political parties without shareholder oversight, denying shareholders, who are the company owners, the right to determine their company's political involvement.
5. **Questionable Donor Anonymity**: Historical corporate donations to political parties suggest that donor anonymity may not be effective. Instances of donors funding rival parties without repercussions undermine the argument for donor anonymity.
6. **Potential for Crony Capitalism**: Electoral bonds could facilitate the conversion of cash from tax havens to political favours through shell companies, fostering crony capitalism and undermining democratic principles.
7. **Increase in Corporate Donations**: Despite the intention to allow easy funding by common people, the majority of electoral bonds have been of the highest denomination (Rs. 1 crore), indicating a dominance of large corporate donations.
8. **Passage as Money Bill**: The passage of the Electoral Bonds scheme as a money bill circumvented Rajya Sabha scrutiny, raising questions about the democratic process and accountability.
9. **Undermining Free and Fair Elections**: Electoral bonds undermine free and fair elections, a fundamental aspect of the constitution's basic structure, by compromising transparency in political funding, as repeatedly emphasized by the Supreme Court.

Proposed Solutions for Reform:

1. **Partial State Funding of Elections**: -The **Indrajit Gupta Committee** has advocated for partial state funding of recognized political parties, a strategy proven effective in countries like **Germany, Japan, Canada, and Sweden.**
2. **National Electoral Fund Exploration**: -Considering alternatives to electoral bonds, establishing a National Electoral Fund could allow all donors to contribute, with funds allocated to parties based on their electoral performance. This system would safeguard donor anonymity and curb black money in political financing.
3. **Limiting Anonymous Donations**: -The Law Commission of India's 255th Report proposes capping donations from anonymous sources at Rs. 20 crores or 20% of a party's total funding, promoting transparency in funding sources.
4. **Ban on Cash Donations**: -To enhance transparency, a complete prohibition on cash donations from individuals or companies to political parties should be implemented. Currently, parties can accept cash donations below Rs. 2000.
5. **Mandatory Audit of Political Party Accounts**: -Following the recommendations of the **Venkatachaliah Committee Report (2002),** strict regulatory frameworks for auditing and disclosing party income and expenditure are essential for accountability.

6. **Adopting Global Best Practices**:
   a) Publicity Act (USA), Elections and Referendums Act 2000 (UK), and EU regulations, which impose restrictions on political party donations and mandate source disclosure.
   b) Following France's lead in banning corporate funding in 1995 and capping individual donations.
   c) Brazil and Chile implemented a ban on corporate donations following a string of corruption scandals associated with corporate funding.

Conclusion:

Many developed countries in the West have established robust mechanisms to ensure transparency in their political systems. As India aims to achieve developed country status by 2047, it must also strive for similar standards of transparency in the political arena.

3. 10% Reservation For Maratha Community

In February 2024, the Maharashtra State Assembly passed a bill to give **10% reservation** to the **Maratha community** in educational institutions and government jobs in Maharashtra.

Who are the Marathas?

1. The Marathas are a large group of people in Maharashtra.
2. Historically, they were known as a **warrior caste** with lots of **land**.
3. They make up about **1/3rd** of the state's population.
4. While most Marathas speak **Marathi**, not everyone who speaks Marathi is Maratha.

Timeline of Maratha Reservation Demand

1980	**Annasaheb Patil**, an MLA from the Congress party, demanded reservations on economic parameters.
1982	Patil **killed himself** as his demand was not accepted by Maharashtra Government
2014	**Prithviraj Chauhan**-led Congress government in Maharashtra brought an **ordinance** to provide **16% reservation** to Marathas in educational institutions & government jobs. But the **Bombay High Court** put a **stay** on the ordinance.
2015	**Devendra Fadnavis**-led BJP-Shiv Sena coalition government passed a bill in the assembly to make the same ordinance an **act**. But the **Bombay High Court** put a **stay** on the same.
2017	The Maharashtra government set up the **Gaikwad Commission** which highlighted the **backwardness** of the Maratha committee in its report.
2018	**Devendra Fadnavis**-led BJP-Shiv Sena coalition government brought **Maharashtra's Socially & Educationally Backward Class Act, 2018**. This act provided **16% reservation** to Marathas in educational institutions & government jobs. But the Bombay High Court changed this quota to: **1. 12%** in Educational Institutions **2. 13%** in Jobs
2021	**Supreme Court cancelled** the reservation to the Maratha Community altogether, highlighting that the Maratha community is **part of the mainstream** and is **politically dominant.** Also, the Maharashtra government could not provide **justifiable data** to cross the **50% limit** of reservation in the state. (In the 1992 **Indira Sawhney case**, the Supreme Court said that the reservation quota should be limited to 50%. However, in some exceptional cases, this rule can be relaxed.)
2023	**Eknath Shinde**-led government formed the **Justice Shukre Panel** to do a large survey. The panel came up with **data** which justifies the backwardness of Marathas.

Highlights of the Justice Shukre Panel Report:

1. **84%** of the total Maratha population in Maharashtra is **backward**.
2. Due to such a high population, they cannot be given reservations under the **OBC quota**.
3. The **reasons** for their backwardness include:

a. Extreme Poverty
b. Decline in Agricultural Income
c. Fragmentation of land into smaller units

4. Marathas contribute up to **94%** of the **farmer suicides** in Maharashtra.
5. They have **inadequate representation** in all sectors of public services and have remained "**completely out of the mainstream**".
6. Hence, a **10% separate reservation** should be provided to Marathas.

Constitutional Background of Reservation in India

1. Articles Providing for Reservation in Education:

Article 15(4)	Allows the State to make special provisions for the **advancement of socially and educationally backward classes,** including **Scheduled Castes (SCs) and Scheduled Tribes** (STs).
Article 15(5)	Allows the State to make reservations in **educational institutions for SCs, STs, and socially and educationally backward classes**, excluding the **creamy layer.**
Article 15(6)	**Inserted by the 103rd Constitutional Amendment**, it provides for reservations for economically weaker sections **(EWS)** in **educational institutions.**

2. Articles Providing for Reservation in Jobs:

Article 16(4)	Allows the State to make provisions for the reservation of appointments or posts **in favour of any backward class of citizens** which, in the opinion of the State, **is not adequately represented in the services under the State.**
Article 16(6)	Inserted by the 103rd Constitutional Amendment, provides for reservations **for economically weaker sections (EWS) in government jobs.**
Article 335	Provides for the **consideration of the claims of SCs and STs** in making appointments to services and posts in connection with the affairs of the Union or of a State. However, the efficiency of administration should be maintained.

Judicial Background:

1. **Mandal Case (Indra Sawhney vs. Union of India, 1992):** The **9-judge Bench** of the Supreme Court in the Indira Sawhney Case (1992) set a maximum **limit of 50% on reservations under Article 16(4).**
2. **Supreme Court's Scrutiny:** The Supreme Court has consistently emphasized the need for reservations to be based on objective criteria and supported by quantifiable data to ensure that they meet the constitutional mandate of equality and social justice.

Reservation Statistics in Maharashtra

1. **SC**: 13%
2. **ST:** 7%
3. OBC: 19%
4. Vimukt Jati: 3%
5. Nomadic Tribe B: 2.5%
6. Nomadic Tribe C: 3.5%
7. Nomadic Tribe D: 2%
8. Special Backward Classes: 2%

Additional Reservations:

1. 10% for Economically Weaker Sections (EWS)
2. The addition of 10% for Marathas will raise the **total reservation in Maharashtra to 72%.**

Conclusion

The constitutional provisions related to reservation aim to address historical injustices and socio-economic disparities. However, their implementation and judicial scrutiny ensures that they are in line with the principles of equality, efficiency, and social justice enshrined in the Constitution.

4. Muslim Women's Right to Maintenance under Section 125 of the CrPC

The Supreme Court of India is examining whether divorced Muslim women **can claim maintenance** under **Section 125 of the Criminal Procedure Code (CrPC)** against their ex-husbands.

What is a Maintenance?

- Maintenance is the financial support one person gives to another, typically during divorce, to help cover living expenses like housing and food.

Background:

1. A Muslim man challenged a **Telangana High Court's directive** to pay ₹10,000 interim maintenance to his ex-wife.
2. He argued that **maintenance should be governed by the Muslim Women (Protection of Rights on Divorce) Act, 1986**, as it prevails over Section 125 of the CrPC.
3. The Supreme Court observed that the 1986 Act does not explicitly stop a divorced Muslim woman from filing a petition under Section 125 of the CrPC.

About Muslim Women (Protection of Rights on Divorce) Act, 1986:

1. Each religious community in India is governed by its own set of **personal laws** in matters such as **marriage, divorce, inheritance,** and **maintenance**. Hindu law governs Hindus, Muslim personal law applies to Muslims, and the Special Marriage Act covers inter-religious marriages.
2. Earlier, Muslim women could ask for maintenance but not beyond the **period of iddat** as per the personal laws of Muslims.
3. The period of iddat is a time when a Muslim woman waits after her marriage ends. It lasts for about 3 months or until she has her period 3 times. During this time, she cannot marry again.
4. Iddat provides time for emotional adjustment after divorce, ensures financial support, and helps determine the father of a child.
5. But, in the **Shah Bano case (1985)**, the Supreme Court ruled that Muslim women can get maintenance beyond the iddat period under **Section 125 of CrPC** as it is a secular law applicable to everyone.
6. Later, the government passed a law called the **Muslim Women (Protection of Rights on Divorce) Act, 1986** overturning the Supreme Court's ruling. It restricted Muslim women's right to seek maintenance to only the iddat period.

The Muslim Women (Protection of Rights on Marriage) Act 2019:

A Muslim woman who is divorced by her husband by pronouncing talaq can seek maintenance allowance under **the Muslim Women (Protection of Rights on Marriage) Act 2019.**

a. It makes the practice of instant triple talaq (divorce) among Muslims illegal.
b. The Act declares any pronouncement of talaq by a Muslim husband upon his wife, by words, either spoken or written or in electronic form or in any other manner whatsoever, to be void and illegal.
c. The law ensures that divorced Muslim women and their dependent children get financial support from their husbands.
d. The Act is a special law that overrides the provisions of **Section 125 of the Code of Criminal Procedure, 1973**, which deals with the maintenance of wives, children and parents.
    - However, a divorced **Muslim woman can choose to not be governed by the Act and opt for other remedies** available under any other law or custom.

Views of Judiciary:

2001	In the **Daniel Latifi case**, the Supreme Court reaffirmed the right of Muslim women to seek maintenance **beyond the iddat period** under Section 125 of CrPC.
2019	The **Patna High Court** said that divorced Muslim women can ask for maintenance under **both** Section 125 of the CrPC and the 1986 Act.
2022	In the **Mujeeb Rahiman vs Thasleena case**, the **Kerala High Court** ruled that a Muslim woman is entitled to claim maintenance from her husband **even after the iddat period** under Section 125 of the CrPC.
2023	In the **Noushad Flourish v. Akhila Noushad (2023) case**, a Muslim wife who obtained divorce by **khula** could not claim maintenance under Section 125 of the CrPC. Khula is a procedure in Islamic law where a woman initiates divorce from her husband by seeking his consent and offering him compensation or the return of the dowry (mahr) that he provided at the time of marriage. Both husband and wife have to agree to the divorce for it to happen.

2024	The recent case from Telangana for which the Supreme Court is examining the maintenance issue.

Conclusion

The Supreme Court's decision on which law prevails will have significant implications for the rights of divorced Muslim women and the interplay between personal and secular laws in India.

5. Right To Adopt: Not A Fundamental Right

In February 2024, the Delhi High Court ruled that the **right to adopt a child** is **not considered a fundamental right under Article 21** of the Constitution.

- **Article 21** provides the **right to life and personal liberty**. It means everyone has the right to live and be free, and the government can't take that away without valid legal reasons.
- But this article has been **broadly interpreted** by the judiciary to include many rights such as the right to privacy, living with dignity, having a place to live, a clean environment, and more.

What is the case?

1. In **2017**, the **Union Ministry of Women and Child Development** introduced the Adoption Regulations. These regulations restricted **couples with 3 or more biological children** to adopt **only special needs** or **hard-to-place** children.
   a. A **biological child** is a child who is genetically related to their parents.
   b. **Special needs children** may include those with physical disabilities, developmental delays, medical conditions, or behavioural challenges that require additional support and care.
   c. **Hard-to-place children** may include those who face difficulties in finding adoptive families due to various reasons. For example, Sibling groups who need to be adopted together, Children from minority ethnic or cultural backgrounds, Children with complex medical needs, etc.
2. In **2022,** the ministry adopted new rules which extended this condition to **couples with 2 or more biological children.**
   - However, several couples with 2 biological children applied for the adoption of a third child as per the **Juvenile Justice (Care and Protection of Children) Act, 2015.**

Concerns of Prospective Adoptive Parents (PAPs):

1. PAPs are individuals undergoing the **process of becoming adoptive parents**, including those filing or intending to file adoption petitions under the Adoption Act.
2. **PAPs** with 2 **biological children** challenged the 2022 regulations in the High Court.
3. They argued that the retrospective application of the new rules was arbitrary and **violated Article 14 of the Constitution**, which ensures **equality before the law.**

Retrospective application of law means applying a new law to things that happened in the past, even before the law existed. It's often seen as unfair because it can change the rules after people have already acted. While there might be exceptions, most legal systems try to avoid applying laws retroactively to maintain fairness and predictability.

What did the Delhi High Court say?

1. The court said that the right to adopt a child is not that important. But, the welfare of children is more important than the right to adopt.
2. The judge mentioned that people wait for a long time for adoption. Also, while many couples want to adopt a "normal child," the chances for specially-abled children to be adopted are low.
3. So, the 2022 regulations intend to prioritise the adoption of special needs or hard-to-place children.
4. Also, there are many couples with no biological child who face a long wait because there aren't enough "normal" children available for adoption compared to the number of parents who want to adopt them.

Who regulates adoption in India?

1. **Central Adoption Resource Authority (CARA)** regulates and monitors the adoption process in India.
2. CARA operates under **the Ministry of Women and Child Development** as a **statutory body.**

3. It serves as the **central authority for the adoption of Indian children**, overseeing both **in-country** and **inter-country adoptions**.

a. **In-country adoption** is when an individual or couple who are Indian citizens and residents are willing and able to take in a child.

b. **Inter-country adoption** is when the **adopters and the child are not nationals of the same country**, and their habitual residences are in different countries.

6. Governor's Role in Indian Federalism

At the Jaipur Literature Festival, a discussion talked about how the central and state governments should work together. Experts highlighted the importance of Governors to stay neutral in Indian Federalism.

What is Federalism?

1. Federalism is a system of government where **power is shared** between a central authority and smaller political units like states.
2. Each level of government has its own set of powers and responsibilities.
3. In the context of **India**, federalism aims to maintain a balance between the need for a **strong central government** and the **autonomy of the states**, which balances diversity with the need for National unity.

What is the role of the Governor in Indian federalism?

1. The Governor has to serve as the **constitutional head** of each state as well as act as a **representative of the central government** in each state.
2. Some important **constitutional provisions** about the Governor's role are:

Article 163	1. The Governor has to act according to the **aid and advice** received from the Council of Ministers led by the Chief Minister. 2. But sometimes, the Governor can use the **discretionary powers**. Discretionary powers are like special abilities given to someone to make decisions based on their own thoughts, not just following set rules.
Article 164	1. The **Chief Minister** has to be **appointed** by the Governor and the other **Ministers** have to be appointed by the Governor on the **advice of the Chief Minister.** 2. These ministers can serve **as long as** the Governor wants them to.
Article 174	1. The governor can **start or stop sessions** of the Legislative Assembly and can also decide to **dissolve** the Legislative Assembly. 2. "Dissolution of assembly" means ending the term of the Legislative Assembly before its normal expiration date. 3. Usually, the Governor makes decisions based on what the Council of Ministers **advises, as long as** they have the s**upport of the Assembly.**
Article 200	When a **bill** is passed in the Assembly, the Governor has **4 options**: 1. Agree to the bill (**assent** to it) 2. Decide not to agree to the bill (**withhold assent**) **3. Reserve** the bill for the President's consideration 4. Send the bill **back to the legislature** and ask them to think about it again

What are the challenges or criticisms related to the role of the Governor?

1. **Neutrality:** It is argued that Governors, who are appointed by the central government, show **bias** by favouring the political party in power at the Centre.
2. **Misuse of Discretion:**
   - The Governor can recommend the imposition of **President's Rule** under **Article 356** of the Indian Constitution. But, its **misuse** is visible as it has been used over **120 times since 1950.**
   - In the **Shamsher Singh case of 1974**, the Supreme Court highlighted that Governors **shouldn't misuse** their powers by **withholding assent or returning bills** to the State Legislature. The case also pointed out that Governors **often ignored the**

advice of the State Cabinet. The reason behind this phenomenon is that the Constitution doesn't set a **time limit** for Governors to give assent to bills.

What are the recommendations in regard to the Governor?

Sarkaria Commission	1. The President should appoint a **non-political person** as Governor. **2. Chief Ministers** should be **consulted** before the appointment of Governors. 3. Governors should decide whether to agree or not on bills as per the **advice of the Council of Ministers**. **4. Discretion** should be exercised only in the **rarest of rare cases**. 5. If the President **withholds assent**, **reasons** must be communicated to the State Government.
Punchhi Commission	1. Governors should decide whether to agree or not on **bills** within **6 months**. 2. Governors should be removed through **impeachment** by the **State Legislature.**

Conclusion: The Governor should act as a **Friend, Philosopher and Guide** for the State government and balance the Federal structure of Indian polity.

7. Rajya Sabha Elections

Recently, elections were scheduled for the **56 seats** in the Rajya Sabha. However, only **15** seats from **Uttar Pradesh**, **Karnataka** and **Himachal Pradesh** had real competition among candidates because the rest were elected unopposed.

What is Rajya Sabha?

1. The Rajya Sabha is one of the two houses of the Parliament of India, the other being the Lok Sabha.
2. It is often called the **Upper House** or the **Council of States**, which is headed by the **Vice President** of India.
3. It represents the states and union territories of India.

Maximum Strength of Rajya Sabha (As per **Article 80** and **Schedule 4** of the Constitution)	**250**	238 representing States & Uts
		12 Nominated by President (members with special knowledge or experience in fields such as science, art, literature, and social service)
Present Strength of Rajya Sabha (As per the **Representations of People Act, 1951**)	**245**	229 representing States & 4 representing UTs
		12 Nominated by President
Term of the members	**6 Years**	1/3rd of the total members retires every 2 years and new members are elected. Hence, the Rajya Sabha is never dissolved like the Lok Sabha, making it a **permanent House.**

How does the Election for Rajya Sabha take place?

1. The **elected MLAs** of state legislative assembly and assemblies of UTs vote in the Rajya Sabha elections.
2. The elections take place as per the system of proportional representation by means of a single transferable vote with an open ballot system.
3. **System of proportional representation:**
   a. Seats are allotted to the states and UTs based on their population. For example, UP has 31 seats, whereas Tripura & Goa have 1 seat each.
   b. Seats are distributed to parties or candidates based on the **proportion of votes** they receive. This ensures fair representation, unlike the Lok Sabha election in which one who gets more votes in the constituency wins the election.
4. **Single transferable vote:**
   a. Voters can choose candidates from different parties. They rank candidates in order of preference on the ballot.

b. Candidates need to secure a certain **quota** of votes to be elected, calculated based on total valid votes cast and available seats.

c. **Quota** = $\frac{\text{Total Valid Votes}}{\text{No.of Seats to be filled + 1}} + 1$

d. Surplus votes from candidates who exceed the quota are transferred to the next preferences on the ballot until all seats are filled.

e. If no candidate meets the quota initially, the candidate with the fewest votes is eliminated, and their votes are transferred to the next preferences. This process repeats until all seats are filled.

5. **Open Ballot System:**
   a. These elections are conducted through **open ballot**, but it is a limited form of openness. To check cross-voting, each party MLA shows his or her marked ballot to the party's authorized agent before they are put into the ballot box.
   b. Showing a marked ballot to anyone other than one's own party's authorized agent will make that vote invalid.
   c. The open ballot system was upheld by the Supreme Court in **Kuldip Nayar Case (2006)**.
6. The MLAs can vote in the Rajya Sabha elections, even if they have not taken the oath.
7. The **'None of the above (NOTA)'** option is **not applicable** in Rajya Sabha polls.
8. **Violet ink** has to be used to mark the vote on the ballot.

Does Anti Defection Law apply in the Rajya Sabha Elections?

1. Not voting for the party candidate will **not attract disqualification** under the **Anti-Defection Act of 1985**.
2. The recent disqualification of 6 MLAs of Himachal Pradesh was on the grounds that they abstained from voting on the cut motion and finance bill in the Assembly against the party whip.
3. "Whip" refers to the official instruction or directive issued by the leadership of a political party. The party can call for the disqualification of such an MLA if he/she goes against the whip under the Anti-Defection Act of 1985.

8. Criminal Cases Against Rajya Sabha Candidates: ADR

The **Association for Democratic Reforms (ADR)** and the **National Election Watch (NEW)** have found that **36%** of the newly elected Rajya Sabha candidates have declared **criminal cases** against themselves.

Important facts highlighted by ADR and NEW:

Newly elected Rajya Sabha candidates with declared criminal cases	36%
Newly elected Rajya Sabha candidates facing serious criminal charges	17%
Newly elected Rajya Sabha candidates with cases related to attempted murder	1 candidate
Newly elected Rajya Sabha candidates with assets exceeding Rs 100 crore	21%
Newly elected Rajya Sabha candidates belonging to the 51-70 age group	76%
Newly elected Rajya Sabha candidates who are women	19%

Political Party-wise Analysis:

1. The analysis provides a **breakdown of candidates** with criminal cases based on their political affiliations (relation), revealing varying proportions across parties.

Party	How many candidates have criminal cases?	Out of the Total Rajya Sabha Candidates
BJP	27%	30
Congress	67%	9
TMC	25%	4
SP	67%	3
YSRCP	33%	3
RJD	50%	2
BJD	50%	2
BRS	100%	1

Why does Criminality persist in Indian politics?

a. **Political Patronage:** Politicians with criminal backgrounds get support from political parties.
b. **Slow Legal Processes:** Legal proceedings take a long time, and the justice system is ineffective, leading to delays in punishing criminal politicians.

c. **Election System Loopholes:** Loopholes in how elections are conducted allow candidates with criminal records to stand for elections.
d. **Limited Voter Information:** Voters struggle to check if candidates have criminal cases against them, even though candidates are supposed to disclose this information.
e. **Identity-based Voting:** Parties use factors like caste, religion, or region to win votes, sometimes ignoring whether the candidate is honest.

Measures Taken to Address Criminalization in Politics

Laws:

1. **Representation of the People Act, 1951**: Specifies grounds for disqualifying individuals convicted of certain crimes from contesting elections.
2. **Conduct of Election Rules, 1961**: Requires candidates to disclose pending criminal cases and convictions in affidavits, improving transparency.
3. **Indian Penal Code, Chapter IX A**: Defines and penalizes electoral offences like bribery, discouraging criminal behaviour during elections.

Establishment of Special Courts:

1. **Judicial Mechanisms**: Special courts expedite cases against legislators, ensuring swift justice.
2. **Tackling Impunity**: Prosecution of politicians accused of crimes reduces impunity and upholds the rule of law.

Major Judicial Interventions:

Cases	Key Outcome
Union of India vs. Association for Democratic Reforms (2002)	The court said voters have the right to know if candidates in elections have criminal records. Candidates must disclose this information.
Lily Thomas vs. Union of India (2013)	The court said lawmakers convicted of crimes cannot stay in office while their appeals are pending. It stressed the need for honesty in public office.
People's Union for Civil Liberties vs. Union of India (2013)	SC ruled voters, with the choice to express their dissatisfaction, could reject all candidates using NOTA in electronic voting machines (EVMs).

9. Floor Test

Context: Recently, Chief Minister **Champai Soren**-led new government of **Jharkhand** and **Nitish Kumar-led** government in **Bihar** won the floor test in their respective state legislative assembly.

What is a Floor Test?

1. A Floor Test is a parliamentary procedure used in the context of a vote of confidence.
2. A **vote of confidence** is a procedure where members of a legislative body express their support for the government or a particular leader through physical or electronic voting.
3. If the government wins the vote, it demonstrates that it has the **confidence of the majority** of the legislators and can continue governing.
4. However, if the government loses the vote, it may be required to **resign**.
5. In case of resignation, the President/Governor invites the leader of the second-largest party to prove the majority and form a government.
6. If multiple leaders claim to form the government, a **composite floor test** is conducted where voting takes place for all the leaders claiming the majority.
7. In the above case, the proceedings of the house are taken up by the **Speaker**. But, in the case of a newly elected Lok Sabha or State Assembly, the House is presided over by a **Speaker Pro-tem**.
    1. The Speaker Pro-tem is a temporary speaker appointed by the President of India or the Governor of a state.
    2. He/She presides over the **first meeting** of the newly elected Lok Sabha (House of the People) or Vidhan Sabha (Legislative Assembly) until a permanent Speaker is elected by the members.
    3. He/She administers the **oath of office** to the newly elected members

What are the Constitutional Provisions for the Floor Test in India?

Article 75(3)	The **Council of Ministers** at the Centre is **collectively responsible** to the **Lok Sabha** and stays in power as long as they have the **support of the majority** of the members of the Lok Sabha.
Article 85	The **President** has 3 main powers regarding Parliament: 1. To call the meeting (**summon**) of each house 2. To end the session (**prorogue**) of each or both houses 3. To formally **dissolve** the **Lok Sabha**
Article 164(2)	The **Council of Ministers** at the State Level is **collectively responsible** to the **Legislative Assembly** and stays in power as long as they have the **support of the majority** of the members of the Legislative Assembly.
Article 174	The **Governor** has 3 main powers regarding the state legislative assembly: 1. To call for its meeting (**summon**) 2. To end its session (**prorogue**) 3. To formally **dissolve** the Legislative Assembly itself

10. Motion Of Thanks

In February 2024, Prime Minister Narendra Modi replied to the **Motion of Thanks** on the **President's address to Parliament.**

What is the Motion of Thanks?

1. The Motion of Thanks is a **formal procedure in parliamentary systems** where members of a legislative body express gratitude or appreciation for a speech given by the head of state or government.
2. **The President's address, drafted by the Government,** outlines policy directions, reviews the past year's government achievements, and details future plans on significant national and international matters.
3. It is similar to Britain's "Speech from the Throne".
4. **Constitutional Basis (Article 87):** It says that at the start of each year's first Parliament session, the President gives a speech to both Houses assembled together.
5. **Amendments to the Motion:**
   a. Changes can be suggested to the Motion of Thanks. If these changes are accepted, the motion is passed with the amendments included.
   b. These suggested changes can cover both the subjects mentioned in the President's speech and any important topics that were left out but are considered important by members of Parliament.
6. During the debate, members are not allowed to discuss matters outside the central government's jurisdiction or mention the President's name directly.
7. The discussion concludes with a response from the Prime Minister or another Minister, followed by the handling of amendments, voting, and adoption of the Motion of Thanks.
8. The Motion of Thanks must be passed; failure to do so is considered a government defeat, reflecting the Lok Sabha's no-confidence.

Historical Facts about the Motion of Thanks

1. **Inaugural Address:** Dr. Rajendra Prasad, as India's first President, initiated this tradition with his first address to Parliament, setting a precedent for future sessions.
2. **Indira Gandhi and the Motion of Thanks:** In 1978, for the first time in Indian parliamentary history, the government faced defeat on an amendment to the Motion of Thanks. This was significant as it reflected the political turbulence of the time.

Key Highlights of the President's Address?

1. **Economic Growth Leadership:** The President highlighted India's status as the fastest-growing major economy, with a growth rate exceeding 7.5% across two consecutive quarters amidst global challenges.
2. **FDI Increase:** Foreign Direct Investment in India saw a remarkable rise, with inflows reaching a record $83.6 billion in 2021-22, and $71 billion (provisional) in 2022-23, marking consistent growth over eight years.
3. **Indigenous Industry Support:** The sales of Khadi and Village Industries products saw a fourfold increase from 2013-14 to 2022-23, highlighting successful support for local industries.

4. **Income Tax Compliance Growth:** The number of income tax return filings increased from around 3.25 crore in 2013-14 to about 8.25 crore in AY 2023-24.
5. **Forex Reserves Strength:** India's forex reserves have crossed $600 billion, reflecting strong financial health.
6. **Macro-Economic Transformation:** India's shift from being part of the 'fragile five' to ranking among the top five economies is attributed to the government's dedication to macroeconomic stability, which mitigates external shocks and fosters sustainable growth.
7. **Agricultural Support via PM-Kisan:** The PM-Kisan Samman Nidhi Yojana has disbursed over Rs 2.8 lakh crore to farmers, reinforcing the government's commitment to agriculture.
8. **Increased Farmer Loans:** The past decade has seen a threefold rise in accessible bank loans for farmers, enhancing the agricultural sector's financial security.
9. **Crop Insurance Scheme Effectiveness:** The success of the Pradhan Mantri Fasal Bima Yojana was underscored, with farmers receiving claims worth Rs 1.5 lakh crore against premiums of Rs 30,000 crore.
10. **Cultural Heritage Promotion:** The construction of the Ram Temple in Ayodhya was noted as a significant cultural achievement, fulfilling a centuries-old goal and boosting heritage tourism, as evidenced by the attendance of 13 lakh devotees during the temple's consecration ceremonies.

Other motions in the Indian Parliament:

Adjournment Motion	1. Calls for a debate on an urgent public matter needing immediate attention, with the Speaker's approval. 2. Requires at least 50 members' support to proceed and interrupt regular House proceedings. 3. Exclusive to the Lok Sabha, indicating serious critique of the government but not necessitating resignation.
Closure Motion	1. Aims to end a debate on a topic swiftly, leading to an immediate vote if approved. 2. Utilized to expedite decisions on various matters within the House.
Motion with a Vote	1. Introduced under Lok Sabha Rule 184, enabling debate and vote on specific issues. 2. Binding on the government to adhere to Parliament's decision if passed. 3. Employed sparingly for issues of great national significance
Short Duration Discussion	1. Governed by Lok Sabha Rule 193 and Rajya Sabha Rule 176, allowing for a focused debate without a vote. 2. Discussions are time-bound, generally not surpassing two hours, to spotlight pressing public concerns.
No-Confidence Motion	1. Filed in the Lok Sabha to assess the government's parliamentary support. 2. Activation requires backing from 50 members, leading to government resignation upon passage. 3. Marks critical political junctures, reflecting the government's potential loss of majority backing.
Confidence Motion	1. A way to check if the government has enough support. 2. If the government loses a Vote of No Confidence, it has to resign or call new elections.
Privilege Motion	1. Initiated when a member perceives a minister's actions as breaching House or member privileges, particularly through misinformation. 2. Serves to censure and critique the concerned minister's conduct.
Cut Motion	1. Proposes budget demand reductions, with Lok Sabha approval indicating lack of confidence in the government. 2. Potentially triggers government resignation upon successful passage.

11. Caste Census

Recently, the Chief Minister of **Jharkhand** approved a **caste survey** in the state, following a trend seen in Bihar. This decision highlights the increasing pressure on the central government from state governments to conduct a socio-economic caste census.

What is a Census?

1. It is a comprehensive survey, started in **1881**, and conducted **every 10 years** by the **Union Ministry of Home Affairs** to learn about the different caste groups in the country.
2. It is a tool used by the government, policymakers, academics, and others to count the population, allocate resources, track social changes, and set electoral boundaries.
3. The Census falls under the **Union List** (Entry 69), meaning that the Parliament has the authority to enact laws related to the census.
4. The Parliament, hence, enacted the **Census Act of 1948** and kept the data collected through the Census confidential.

What is the Caste Census?

1. Caste census means counting people based on their caste. It is done by adding the castes of the population in census data.
2. In **1952**, the first separate data for Scheduled Castes (SCs) and Scheduled Tribes (STs) was published in the census.
3. However, the government decided not to provide caste data for the entire population because they were worried it might make caste divisions stronger.
4. Even though the **2011 census** included caste data, the information gathered was **not made public.**

What is the Socio-Economic and Caste Census (SECC)?

1. It is a comprehensive survey that not only captures caste data but also collects information on various **socio-economic indicators** such as income, education, housing conditions, and access to basic amenities.
2. Such data is important for deciding who should receive or not receive benefits from government policies, schemes, subsidies, etc.
3. The SECC 2011 data, excluding caste data, has been published by the **Ministry of Rural Development** and the **Ministry of Housing and Urban Affairs**.

What is a Caste Survey?

1. **State governments** conduct caste surveys to gather information about the **caste demographics within their regions.** Demographics refer to statistical data relating to the characteristics of a population, such as age, gender, race, ethnicity, education, income, occupation, marital status, and household composition.
2. These surveys focus on understanding the socio-economic status, education levels, employment patterns, and other relevant indicators of different caste groups.
3. The data collected from these surveys helps state governments make informed decisions and policies to address caste-based inequalities within their states.
4. But, they do not have specific legal backing.

Why is a caste census needed?

1. **Targeted Welfare Programs:** Caste census data allows for more precise targeting of welfare programs towards the most disadvantaged caste groups, ensuring that resources are allocated where they are most needed.
2. **Rationalizing Reservation:** Understanding the true numbers helps make reservation policies fairer by dividing castes into smaller groups (i.e. sub-categorisation within the caste). This way, we can see if everyone in a community benefits equally from the reservation or if only a few rich individuals, known as the Creamy Layer, get most of the benefits.
3. **Constitutional Mandate:** The constitution supports conducting a caste census through **Article 340.** It empowers the **President** of India to appoint a **Commission** to investigate the conditions of socially and educationally backward classes and recommend measures for their advancement.
4. **Comprehensive Understanding of Indian Society:** The caste census gives a good picture of how society is made up, helping us understand each other and work together.
5. **Breaking Myths and Propaganda:** Caste surveys help dispel myths and propaganda surrounding caste-based discrimination and inequalities.

Arguments against the Caste census:

1. **Political Mobilization:** The caste census can sometimes be used by politicians to gather support based on caste identities, which can lead to division and conflict in society.
2. **Hampering National Integration:** Focusing too much on caste can divide people along caste lines, making it harder for different communities to come together as one nation.
3. **Demands for More Reservations:** Revealing the exact population shares of certain caste groups could lead to demands for increasing reservation quotas, which may create tension and challenges in the implementation of existing reservation policies.
4. **Complex Data Collection:** Conducting a caste census is a complex task due to the vast number of castes and sub-castes in India. Defining these categories clearly can be difficult and may result in disputes and confusion.
5. **Reinforcing the Caste System:** Critics argue that focusing on caste identities through a caste census may reinforce the caste system, which goes against the principles of equality and individual rights.

Way Forward:

1. **Conduct Independent Studies:** District and state-level studies can be conducted independently to gather data on castes and subcastes. This approach ensures **accuracy** and **relevance** to local contexts.
2. **Utilize Technology:** Using technologies like Artificial Intelligence and machine learning can help in analysing the data efficiently.
3. **Avoid Political Misuse:** It's crucial to ensure that the collected data isn't misused for political gains, which could deepen societal divides. Instead, the focus should be on promoting unity and ensuring fair representation in a diverse democracy.

12. Karnataka's Temple Tax Bill

The **Karnataka Hindu Religious Institutions and Charitable Endowments (Amendment) Bill, 2024**, passed in both the State Legislative Assembly and State Legislative Council of Karnataka. The Bill aims to amend provisions in the **Karnataka Hindu Religious Institutions and Charitable Endowments Act (KHRI& CE), 1997**.

Historical Background of State Regulation of Temples:

1. The British government passed the **Religious Endowments Act of 1863** to secularize temple management by transferring control to local committees.
2. In **1927**, the **Justice Party** enacted the **Madras Hindu Religious Endowments Act**, one of the earliest efforts by an elected government to regulate temples.
3. The **Law Commission of India** recommended legislation in 1950 to **prevent the misuse of temple funds**, leading to the enactment of **The Tamil Nadu Hindu Religious and Charitable Endowments (TN HR&CE) Act, 1951**.
4. This act established the **Department of Hindu Religious and Charitable Endowments** to administer, protect, and preserve temples and their properties.
5. The TN HR&CE Act faced a constitutional challenge before the Supreme Court in the **Shirur Mutt case (1954)**. While the court upheld the law, it struck down some provisions.
6. A **revised TN HR&CE Act** was passed in **1959** to address the court's concerns.

Gross income refers to the total earnings before any deductions or taxes are taken out. This includes salaries, wages, bonuses, tips, and any other sources of income. **Net income**, on the other hand, is the amount of money you have left after deducting taxes and other expenses from your gross income. It is essentially what you take home after all deductions have been made.

Key Highlights of the Bill:

1. **Alteration of Taxation System**
   a. The bill aims to **change the taxation rules for Hindu temples**.
   b. It proposes diverting **10% of gross income from temples** earning over Rs 1 crore annually to a common pool for temple maintenance.
   c. Previously, **10% of net income** was allocated for temples earning over Rs 10 lakh annually.

d. Additionally, the Bill suggests allocating **5% of income from temples'** earnings between Rs 10 lakh and Rs 1 crore to the common pool.
e. These changes would **generate an extra Rs 60 crore** from 87 temples with incomes over Rs 1 crore and 311 temples with income exceeding Rs 10 lakh.

2. **Utilisation of Common Fund**
   a. The common fund pool was created in 2011 through amendments to the 1997 Act.
   b. It can be used for **religious studies**, **temple maintenance**, and **charity**.
3. **Composition of Committee of Management**
   a. The bill proposed the **addition of a member** skilled in **Vishwakarma Hindu temple architecture and sculpture** to the temple "committee of management."
   b. Temples and religious institutions are required to form a **9-member 'committee of management.'**
   c. It includes a **priest**, a **member of Scheduled Caste or Scheduled Tribe**, **two women**, and **a local member**, as per **Section 25 of the KHRI& CE 1997 Act**.
4. **Rajya Dharmika Parishat**
   a. It empowered the **Rajya Dharmika Parishat** to appoint committee chairpersons and resolve religious disputes, manage temple affairs, and appoint trustees.
   b. It authorised the formation of **district and state committees** to oversee infrastructure projects for temples with annual earnings exceeding Rs 25 lakh.

Management of Religious Institutions in India:

Places of Worship Act, 1991	a. Enacted to maintain the status of religious places as they were on August 15, 1947. b. Prohibits conversion of places of worship and ensures their religious character. c. Excludes (leaves) ancient monuments governed by the **Ancient Monuments and Archaeological Sites and Remains Act, 1958**.
Constitution of India	a. **Article 26** grants religious groups the right to establish and manage institutions for religious and charitable purposes. b. Allows them to manage their religious affairs and administer property. c. Muslims, Christians, Sikhs, and others use these rights to manage their institutions.
Shiromani Gurdwara Parbandhak Committee	a. Manages **Sikh Gurdwaras** in India and abroad. b. **Elected directly by Sikh voters** above 18 years old, registered under the **Sikh Gurdwaras Act, 1925**.
Waqf Act of 1954	a. Established the **Central Waqf Council** advising the Central Government on waqf administration. b. **State Waqf Boards** oversee mosques, graveyards, and religious waqfs. c. Ensures proper management and utilisation of waqf properties and revenue. d. Waqf refers to the permanent dedication of properties for religious or charitable purposes recognised by Muslim Law.

Temple Revenue Management in Different States:

1. **Telangana's Approach:**
   a. Telangana's system is similar to Karnataka's, creating a **'Common Good Fund'** under **Section 70** of the **Telangana Charitable and Hindu Religious Institutions and Endowments Act, 1987**.
   b. Temples earning over Rs 50,000 annually must give **1.5%** of their income to the state government.
   c. These funds are used for temple maintenance, renovations, religious schools, and building new temples.

2. **Kerala's System:**
   a. Kerala manages temples mainly through **state-run Devaswom (temple) Boards**.
   b. The state has **5 autonomous Devswom Boards** overseeing 3,000+ temples, with board members usually chosen by the ruling government.
   c. Each board gets a budget from the state government and isn't required to disclose revenue figures.

13. Places of Worship Act, 1991

Context: The Places of Worship Act of 1991 has been in the news recently as some MPs in parliament gave a call for its removal.

What is the Places of Worship Act of 1991?

1. It was passed in 1991 by **PV Narasimha Rao**-led government to keep **Places of worship** unchanged as they were on **August 15, 1947**.
2. Places of worship are **sacred places** where people practice their religion, like temples, mosques, churches, and other places where individuals come together to worship and express their faith.
3. It **stops any conversion** of any place of worship to maintain its **religious character.** Religious character means the unique features, rituals, and importance connected to a place of worship, showing the beliefs and practices of a religious community.
4. The act says that **no new case** for conversion of any place of worship **can be filed.**
5. Also, it **cancels all the pending cases** of conversion before August 15, 1947.
6. The act provided **exceptions** to
   a. **Babri-Masjid Ram Janmabhoomi dispute** because it was already under judicial consideration.
   b. Ancient monuments, archaeological sites, or remains protected by the **Ancient Monuments and Archaeological Sites and Remains Act of 1958.**
   c. Cases **already settled,** disputes resolved by mutual agreement, or conversions took place before the Act was enforced.

Which places of worship are still being discussed for conversion?

Places of worship	Issue	Why Court is considering the case?
Gyanvapi mosque, Varanasi	In **1991**, cases were filed claiming that this place actually belonged to **Lord Vishweshwar** and the ancient temple was demolished by Emperor **Aurangzeb in 1669**.	**Allahabad High Court** said that the Places of Worship Act of 1991 does **not** specifically **define** the term '**religious character'** and this case is filed to claim the **right to worship the Hindu deities** and not to convert the place of worship
Shahi Idgah mosque, Mathura	The mosque is located beside the **Krishna Janmabhoomi Temple**. Despite the dispute, the 2 parties i.e. Hindus & Muslims decided to **compromise through a decree**. A decree is a formal order issued by a court. Later on, Hindu groups said the decree was **fraudulent** because not everyone from both sides agreed to it.	The district court said that only the **compromise degree** is being considered in this case and the decree came **before the 1991 act** making it inapplicable.

Why is the Places of Worship Act criticised?

1. **No Judicial Review:** This act stops judges from reviewing the cases which affect the larger public.
2. **Arbitrary Date:** Choosing the date August 15, 1947, is considered arbitrary and doesn't help people who lost places of worship before that date.

3. **Violation of the Right to Religion:** It violates the religious rights of Hindus, Jains, Buddhists, and Sikhs. It makes it hard for them to get back to their places of worship, stopping them from practising their religion freely.
4. **Violation of Secularism:** It gives unfair advantages to some religions over others, which goes against the principle of Secularism. Secularism in Indian contexts means the government cannot favour one religion over others.
5. **Exclusion of Ayodhya Dispute:** Some argue that the exception to the Ayodhya dispute might set a bad example for how religious sites are handled.

14. Judicial Processes And Their Reforms Report

Recently, the **Standing Committee on Personnel, Public Grievances, and Law and Justice** submitted a report on Judicial processes and reforms.

Key Observations and Recommendations of the Report:

1. **Regional Benches of the Supreme Court:** The Committee understands that people from far-away places find it hard to reach the Supreme Court in Delhi. To fix this, it proposes creating courts in different regions. These courts can deal with some types of cases, while important Constitutional cases stay in Delhi.
2. **Social Diversity in Judge Appointments:** The report emphasizes the lack of diversity in the higher judiciary, particularly in terms of representation from Scheduled Castes, Scheduled Tribes, Other Backward Classes, Women, and Minorities. It recommends the appointment of a more diverse range of judges by the Collegiums of the Supreme Court and High Courts.
3. **Retirement Age for Judges:** Raising the age at which judges retire to match longer life expectancies and medical progress. Currently, Supreme Court judges step down at 65, and High Court judges at 62. It also recommends evaluating judges' performance before extending their time in office.

Article 130, Constitution of India 1950

The Supreme Court shall sit in Delhi or in such other places or places, as the Chief Justice of India may, with the approval of the President, from time to time, appoint.

4. **Mandatory Declaration of Assets:** While other government officials must declare their assets annually, judges are not required to do this. The Committee suggests implementing a law requiring judges to disclose their assets and liabilities annually.
5. **Vacations in the Supreme Court and High Courts:** The report emphasizes that when all judges take a vacation together, it causes big backlogs of cases and problems for people involved in lawsuits. It suggests that judges should take vacations at different times to lessen the number of pending cases and make things easier for those involved in legal matters.
6. **Annual Reports of High Courts:** The Committee emphasizes the importance of High Courts publishing annual reports to assess their performance. It suggests the Department of Justice encourage all High Courts to prepare and publish annual reports, similar to the Supreme Court's practice.

Challenges in the Indian Judicial System	Reforms Needed
1. **Shortage of Judges**	Increase recruitment drives to fill vacant positions
2. **Opaque Appointment Process**	Introduce transparent appointment procedures
3. **Pendency of Cases**	Implement measures to expedite case disposal
4. **Poor Infrastructure**	Allocate more funds for improving judicial facilities
5. **Human Resource Challenges**	Enhance recruitment and training of support staff
6. **Gender Diversity Deficit**	Encourage diversity in judicial appointments
7. **A High Percentage of Undertrials**	Review bail procedures to reduce the undertrial population
8. **Procedural and Legislative Outdatedness**	Amend outdated laws to streamline legal processes
9. **Extrajudicial Work Burden**	Delegate non-judicial tasks to support staff

Previous Significant Judicial Reforms:

1. **National Mission for Justice Delivery and Legal Reforms (2011)**: Launched to enhance access, reduce delays, and improve accountability through structural changes.
2. **Filling up Vacant Positions in Judiciary (2014-2022)**: Appointed 46 judges to the Supreme Court and 769 new judges to High Courts.
3. **Alternative Dispute Resolution (ADR)**:
   a. Utilizing Lok Adalats, Gram Nyayalayas, and Online Dispute Resolution for timely justice.
   b. Commercial Courts Act 2015 mandates pre-institution mediation for commercial disputes.
   4. **Initiatives to Fast Track Special Cases:** Establishing fast-track courts for expedited justice in cases involving heinous crimes, senior citizens, women, and children.
5. **Leveraging Information and Communication Technology (ICT):**
   a. Virtual court system for conducting proceedings through videoconferencing.
   b. e-Sewa Kendras for e-filing services, bridging the digital divide.
   c. National Judicial Data Grid (NJDG) for case and order information.
   d. National Service and Tracking of Electronic Processes (NSTEP) for technology-enabled summons.
6. **Secure, Scalable & Sugamya Website as a Service (S3WAAS)**: A divyang-friendly website in 13 languages for the e-committee.

15. Swayam Plus Platform

1. In February 2024, the Ministry of Education launched the **SWAYAM Plus platform**, operated by **IIT-Madras**.
2. SWAYAM Plus aims to enhance the **employability** of **working professionals.**
   a. SWAYAM stands for **Study Webs of Active Learning for Young Aspiring Minds**.
   b. **SWAYAM** is a Massive Open Online Course (MOOC) platform which provides educational opportunities to a vast number of learners. It was **launched** by the Ministry of Education **in 2017.**
3. **Objectives:**
   a. SWAYAM is designed to achieve the **3 principles of Education Policy: Access, Equity, and Quality.**
   b. Targeting learners from **tier 2 and 3 towns** with vernacular language courses.
   a. **Vernacular** is a term for a type of speech variety, generally **used to refer to a local language or dialect**
   c. Offering mentorship, scholarships, and job placements.
   d. Facilitating **upskilling** and **re-skilling** at all levels.
   e. **Multilingual Content:** Encourages diversity in audience selection.
   f. **AI-enabled Chatbot:** Assists students in choosing appropriate courses.
   g. **Credit Recognition:** Allows students to earn credits for degree requirements.

Some Digital e-learning initiatives in India

1. **Digital India Campaign**: promoting the use of technology in education.
2. **National Digital Library (NDL)**: Provides digital storage of educational resources, including textbooks, articles, and videos.
3. **DIKSHA Platform**: A national platform for teachers that offers digital content for in-class teaching and self-learning.
4. **e-Pathshala**: An initiative providing e-books and educational resources for school students.
5. **NPTEL:** The National Programme on Technology Enhanced Learning offers online courses in engineering, science, and humanities.
6. **Virtual Labs**: Virtual Labs facilitate online practical experiments in various science and engineering disciplines.
7. **e-Yantra**: Encourages hands-on learning of robotics through online courses.
8. **Swayam Prabha**: A group of DTH channels for broadcasting educational content for school and university students.
9. **AICTE Training and Learning (ATAL) Academy**: Offers online faculty development programs for technical institutes across India.
10. **SATHEE Platform:** In December 2023, the Department of Higher Education, Ministry of Education, with IIT Kanpur, introduced the SATHEE (Self-Assessment, Test and Help for Entrance Examination) portal.

B. INTERNATIONAL RELATIONS

1. INDIA-UAE Signed Bilateral Investment Treaty

1. India and the UAE signed a Bilateral Investment Treaty (BIT), during an official visit of Prime Minister of India to UAE.
   a. **Bilateral Investment Treaties (BITs)** are reciprocal agreements between two countries to promote and protect foreign private investments in each other's territories.
      - **Indian Model BIT of 1993:** India had signed BITs with 83 countries of which 74 were in force till 2015.
      - **India revised its Model BIT in 2016**. Since 2015, India has signed new BITs only with four countries and is negotiating with 37 countries and terminated its older BITs with 77 countries
   b. India has signed both **Comprehensive Economic Partnership Agreement (CEPA)** and **BIT** with UAE.

Other Key Agreements

1. **Inter-governmental Framework Agreement**: Aims **Cooperation for Empowerment** and **Operation of India-Middle East-Europe (IMEC) Economic Corridor**.
   a. IMEC aims at a **sea-land connectivity project** linking India with West Asia and Europe.
2. MoU on **Development of National Maritime Heritage Complex (NMHC)** to build **Maritime Heritage Complex** at Lothal, Gujarat.
3. **Agreement on Interlinking Payment Platforms (UPI and AANI):** Enables seamless cross-border transactions between India and the UAE.

4. **Agreement on Interlinking Domestic Debit/Credit Cards (RuPay and JAYWAN):** Enhances financial sector cooperation and universal acceptance of RuPay in the UAE.
5. **Cooperation Protocol between National Archives:** Facilitates extensive cooperation in archival material restoration and preservation.
6. **Cooperation in Electricity Interconnection and Trade:** Expands collaboration in energy, focusing on energy security and trade.
7. **Cooperation in Digital Infrastructure Projects:** Establishes a framework for investment and knowledge sharing in digital infrastructure.

India-UAE Relations

1. **Economic:** UAE is India's **second-largest export destination** and **third-largest trading partner** with total trade standing at $85 billion.
   a. **UAE's investment in India** stands at around US$ 20-21 billion, with US$ 15.5 billion in FDI and the rest in portfolio investments between 2000-23.
   b. **Annual remittances** from the large Indian community in UAE, estimated at around 3.5 million, are among the highest globally, contributing **18% to India's total remittances**.
   c. Both countries are part of various plurilateral platforms such as **BRICS**, **I2U2** (India-Israel-UAE-USA), and **UFI** (UAE-France-India) **Trilateral**.
   d. To boost trade, an MoU between the RBI and the Central Bank of UAE was signed for the establishment of a **Local Currency Settlement System** to promote the use of INR and AED for cross-border transactions.
2. **Energy:** Recently, both countries signed a long-term contract for the supply of LNG. The UAE's role in India's energy security is significant, with strategic oil reserves stored in India.
3. **Defense:** They conduct joint military exercise **Desert Cyclone**.
4. **Cultural Relations:** Over 3 million Indians reside in the UAE, where both Indians and Emiratis embrace and appreciate **Indian culture**. **Indian cinema**, TV, and radio channels enjoy wide accessibility and viewership there.
   a. Commercial Hindi, Malayalam, and Tamil films are regularly screened in major theatres and cinema halls across the UAE.
   b. The Emirati community actively participates in India's annual **International Day of Yoga events**, with numerous yoga and meditation centers operating successfully in the UAE.

2. UAE'S First Hindu Temple Inaugurated

1. PM Narendra Modi inaugurated **Abu Dhabi's first Hindu stone temple**, describing it as a symbol of the shared heritage of humanity and thanked the UAE for scripting a new golden chapter of human history.
2. He also inaugurated the **BAPS Swaminarayan temple** in Abu Dhabi.
   - It is the first Hindu temple in the Gulf nation. The foundation stone-laying ceremony took place in 2019.
   - The BAPS Mandir has already won several accolades, including the **Best Mechanical Project of the Year 2019**, at the **MEP Middle East Awards, Best Interior Design Concept of the Year 2020**, Best Architecture Style and Best Traditional Nagar Style.
   - The temple has been built by the **Bochasanwasi Akshar Purushottam Swaminarayan Sanstha (BAPS)**, a denomination of the Swaminarayan Sampradaya, a Vaishnav sect of Hinduism.

Features of the Temple

1. The temple is built in the traditional **Nagara style.**
2. The Abu Dhabi temple is a traditional stone Hindu temple with **7 shikhars (seven Emirates of the UAE).**

3. The temple is spread over 27 acres, the temple complex is on 13.5 acres, with a parking area of 13.5 acres that can accommodate around 1,400 cars and 50 buses.
4. The 13.5 acres of land for the temple was gifted by Sheikh Mohammed Bin Zayed Al Nahyan, the President of the UAE in 2019.
5. The height of the temple is **108 feet, length 262 feet and width 180 feet**.
6. On the top left of the temple is a stone carving of the scene of **Pramukh Swami Maharaj** envisioning the temple in Abu Dhabi in 1997.
7. No ferrous material (which is more vulnerable to corrosion) has been used in the temple.
8. The temple houses seven shrines, each dedicated to different deities hailing from the North, East, West and South parts of India.
    - Deities from all four corners of India have been featured in the temple. These include **Lord Ram, Sita, Lakshman and Hanuman, Lord Shiv, Parvati, Ganpati, Kartikeya, Lord Jagannath, Lord Radha-Krishna**, Akshar-Purushottam Maharaj (Bhagwan Swaminarayan and Gunatitanand Swami), Tirupati Balaji and Padmavati and Lord Ayappa.

Architectural Delicates

1. The external facade uses pink sandstone from Rajasthan, the interior uses Italian marbles.
2. More than $108 million (more than 700 crore) was spent on the temple's construction.
3. The temple has two central domes, **Dome of Harmony** and **Dome of Peace**, emphasising human coexistence through the carvings of earth, water, fire, air, and plants.
4. **A Wall of Harmony**, one of the largest **3D-printed walls in the UAE**, features a video showcasing key milestones of the temple's construction.
5. The word **'harmony'** has been written in 30 different ancient and modern languages.

Other features

1. Among the key architectural features are 96 bells and **gaumukhs** installed around the path leading to the temple. These 96 bells are a tribute to Pramukh Swami Maharaj's 96 years of life.
2. **Pillar of Pillars:** While many different types of pillars can be seen in the temple, such as circular and hexagonal, there is a special pillar, called the 'Pillar of pillars', which has around 1,400 small pillars carved into it.
3. **Holy River:** The temple also has some special features, like a 'holy river' surrounding it, for which waters from Ganga and Yamuna have been brought in. The river Saraswati has been depicted in the form of white light.
    - **Ghats:** A Varanasi-like ghat has been created where the 'Ganga' passes.

About BAPS

1. The organisation is named after Bhagwan Swaminarayan, a religious leader who lived in the late 1700s.
2. BAPS has a network of around 1100 temples across the world, including the Akshardham temples in New Delhi and Gandhinagar, and Swaminarayan temples in London, Houston, Chicago, Atlanta, Toronto, Los Angeles, and Nairobi.
3. It also runs 3,850 centres globally.

3. 9th Raisina Dialogue

The **9th edition** of Raisina Dialogue, held from February 21 to February 23, 2024 in New Delhi.

It is an important moment in the **global discussion on geo-economics and geopolitics**.

Prime Minister of the Hellenic Republic (Greece), Kyriakos Mitsotakis, joined inaugural session as the Chief Guest

a. The conference, **jointly** organized **by the Indian Ministry of External Affairs and the Observer Research Foundation**, has emerged as a significant platform since its inception in 2016.

b. **The Observer Research Foundation (ORF),** an **independent global think tank** based in Delhi, plays a crucial role in providing valuable inputs for policymakers in the Indian government, as well as the political and business communities of India.

The **8th edition, held in 2023,** focused on topics such as **neo-insurgency, amoral mosaics, anarchic codes, dangerous passports and gray rhinos. Italian Prime Minister Giorgia Meloni** attended the event as the chief guest.

Aspect of Raisina Dialogue 2024	Summary
Venue	New Delhi, India
Organizer	Observer Research Foundation (ORF) and Ministry of External Affairs
Key Theme	Geopolitics and Geo-economics
Inaugurator	Prime Minister Narendra Modi
Notable Speakers	External Affairs Minister S Jaishankar, Various International Dignitaries
Discussions	Engaging Russia, Global Diplomacy, Regional Stability
Special Focus	India's Diplomatic Relations, Geopolitical Shifts

Theme of Raisina Dialogue 2024

The theme **"Chaturanga: Conflict, Contest, Cooperate, create"** highlights the dynamic nature of global interactions, focusing on the need for **navigating conflicts, promoting cooperation, and innovating for a better future.**

Thematic Pillars

1. **Tech Frontiers:** Examining the impact of technology and regulations on societies and economies.
2. **War & Peace:** Addressing contemporary security challenges and strategies for peace-building.
3. **Peace with the Planet:** Balancing economic development with environmental sustainability through innovation.
4. **Decolonizing Multilateralism:** Reflections on the emerging landscape of global governance and the imperative of inclusivity.
5. **Defending Democracy:** Analyzing challenges to democratic values and institutions and strategies for safeguarding sovereignty.
6. **The Post 2030 Agenda:** Planning for the future beyond 2030, focusing on human development and inclusive growth.

Inaugural Session Highlights:

1. During the inaugural session, Prime Minister Modi and Greek Prime Minister Mitsotakis emphasized the strengthening ties between their nations as **"civilized states"**, focusing on **shared values and ancient history**.
2. Indian Foreign Minister Dr. S. Jaishankar chaired the session, highlighting the importance of enhancing economic, investment, and **defense cooperation between India and Greece.**

Strengthening India-Greece relations:

Mitsotakis emphasized advancing the **India-Middle East Economic Corridor (IMEC)** despite regional conflicts. Both leaders explored enhancing cooperation in **trade, defense, and migration to strengthen ties.**

India's leadership in key areas:

The Greek leader praised India's leadership in various areas, including **climate change partnerships, digital innovation, globalization leadership and economic development initiatives, as Chair of the G20** and the voice of developing countries.

Scope for Further Cooperation:

The visionary addresses highlighted potential areas for future **India-Greece cooperation, including security in the Mediterranean and Indo-Pacific, policy exchanges on the blue economy**, infrastructure development, public health initiatives, immigration frameworks, and cultural promotion.

Diverse Participation:

With representatives from **around 115 countries and over 2,500 delegates from various fields including**

former heads of state, ministers, technology leaders, military strategists, journalists, scholars and thinker.

Conclusion

In an era of complex global challenges, the Raisina Dialogue serves as a **beacon of hope**, **promoting dialogue, collaboration and solutions**. Focusing on conflict resolution, cooperation and innovation, the conference aims to contribute to a more resilient, equitable and sustainable world order.

4. Mission Aspides

1. In February, 2024 European Union launches non-military naval mission **'Mission Aspides'** to protect Red Sea vessels from **Iran-backed Houthi attacks**.
2. It **aims to preserve** freedom of navigation, provide maritime situational awareness, accompany ships and protect them from possible multimodal attacks at sea.
3. Its area of operation will include Bab Al Mandeb and Strait of Hormuz, as well as international waters in Red Sea, Gulf of Aden, Arabian Sea, Gulf of Oman and Arabian Gulf.

Key Facts about Red Sea

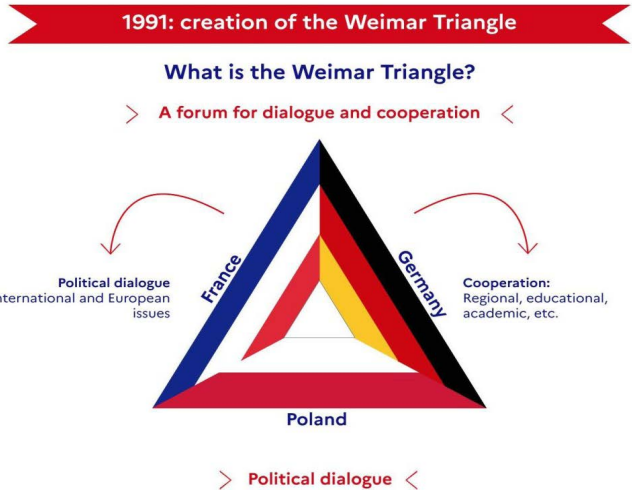
1. It is a semi-enclosed inlet (or extension) of the Indian Ocean between the continents of Africa and Asia. It is one of the world's warmest seas.
2. It is **connected to** the **Arabian** Sea and the **Indian Ocean** to the south through the Gulf of Aden and the narrow strait of Bab El-Mandeb.
3. The northern portion of the Red Sea is **bifurcated by the Sinai Peninsula** into the Gulf of Aqaba and the Gulf of Suez, where it is connected to the Mediterranean Seavia the famous Suez Canal.
4. **Bordering Countries**:
   - Yemen and Saudi Arabia border the Red Sea to the east.
   - It is bordered by Egypt to the north and west and by Sudan, Eritrea, and Djibouti to the west.
5. This sea has a surface area of roughly 438,000 km2 and is about 2,250 km in length.
6. The maximum width of the sea is 355 km, and the sea's deepest point is 3,040 m at the central Suakin Trough, with the sea's estimated average depth being 490 m.
7. **Islands**: Some well-known islands include Tiran Island, which is located near the mouth of the Gulf of Aqaba, and Shadwan Island, which is located at the entrance of the Gulf of Suez.

5. The Weimar Triangle

In February, 2024 Foreign Ministers of Germany, Poland, and France have met to revive the Weimar Triangle.

About

- Weimar Triangle is a regional group **created in 1991**, to develop a shared vision for Europe and forge closer ties between these three countries' societies.
- The Triangle was initially the key forum for supporting German-Polish reconciliation after World War II.
- The group takes its name from the city of Weimar, Germany, where the initial meeting took place.
- They conduct **joint military exercises**, share intelligence, etc., to tackle common challenges and enhance stability in Europe, under **NATO's framework**.



C. SECURITY

1. High-Altitude Pseudo Satellite Vehicle (HAPS)

1. In Feb 2024, the **Council of Scientific and Industrial Research (CSIR) - National Aerospace Laboratories (NAL)** conducted successful tests on a **High-Altitude Pseudo-Satellite (HAPS)**
   a. This marks a notable advancement in UAV technology.
2. Scientists at CSIR-NAL tested a UAV named **High Altitude Pseudo-Satellite (HAPS)** in Challakere, Karnataka.
   a. The trial version was a scaled-down model with a **12-meter wingspan**.
   b. It flew for **8.5 hours** at an altitude of **3 km above sea level**.
   c. The full-scale model will have a **30-meter wingspan** and weigh **150 kg**.
   d. It will move slowly at a speed of **80-100 km per hour** and can fly for **90 days** at an altitude of **17-20 km**.
   e. The UAV will be capable of carrying a payload weighing **15 kg**.
3. **About High Altitude Pseudo-Satellite (HAPS)**
   a. HAPS is a **solar-powered Unmanned Aerial Vehicle (UAV)** that can stay airborne for months or even years.
   b. It operates in the **stratosphere**, flying at altitudes of **18-20 km**, which is much **higher than commercial airplanes**.
   c. It allows HAPS a satellite-like **surveillance capabilities**.
   d. HAPS is mainly designed for continuous surveillance, communication, and specialized scientific missions.
   e. India's successful test flight of HAPS puts it among a select few countries experimenting with this technology.
4. **Need**
   a. The need for development of HAPS arose from the desire to have continuous surveillance of border areas to detect changes or movements, particularly in the wake of the **Doklam standoff in 2017**.
   b. Previous challenges with battery-powered UAVs and satellites led to the focus on solar-powered UAVs.
   c. Operating HAPS is much **cheaper than traditional satellites** as it doesn't require expensive rocket launches.
5. **Versatility and Applications**
   a. HAPS can be used in emergencies to establish mobile communication networks, including 5G, in remote areas where regular networks are damaged.
   b. They serve as aerial platforms offering more flexibility than satellites and capable of aerial mapping.
6. **Challenges**
   a. **Climatic Factors:** Challenges include dealing with the jet stream in northern regions and navigating through monsoon clouds since HAPS are positioned in the Stratosphere.
   b. **Solar Films:** The solar films powering the plane are very thin. Only one or two companies worldwide have the capability to manufacture solar-cell films of such thinness.
7. **About CSIR- NAL**
   a. **NAL** is a part of CSIR was founded in 1959 in Bengaluru.
   b. It's the sole government aerospace research and development (R&D) lab in India's civilian sector.
   c. It focuses on advanced aerospace disciplines and contributes significantly to Indian aerospace programs.
   d. CSIR-NAL's mission is to develop aerospace technologies with a strong scientific foundation, design and construct small and medium civil aircraft and support national aerospace initiatives.

2. INS Sandhayak

The INS Sandhayak is a new version of a previous ship with the same name that served in the Indian Navy from 1981 to 2021.

The new INS Sandhayak is the **first of four advanced Survey Vessels**.

INS Sandhayak is the lead ship of her class of survey ships. It is a hydrographic survey ship built by Garden Reach Shipbuilders and Engineers (GRSE) Kolkata for the Indian Navy.

1. **Event:** Commissioning of INS Sandhayak
2. **commissioned:** February 3, 2024
3. **Location:** Naval Dockyard, Visakhapatnam
4. **Commissioned by:** Defence Minister Rajnath Singh
5. **Specifications:** Displacement of 3,400 tonnes, length of 110 meters, and a beam of 16 meters.
6. **Speed:** Capable of achieving over 18 knots.

Importance of INS Sandhayak

1. **First and Largest Survey Ship: First in a series of four SVL ships** Marks a significant enhancement in the Indian Navy's survey capabilities.
2. **Strengthening Naval Power:** Increases the Indian Navy's operational strength and self-reliance.
3. **Marine Data Analysis**: Assists in the detailed analysis of marine data, critical for maritime security and navigation.

Capabilities and Equipment

1. **State-of-the-Art Hydrographic Equipment:** Including Deep Water Multibeam Echo-Sounders, Underwater Vehicles, Data Acquisition and Processing System, Autonomous Underwater Vehicle, Remotely Operated Vehicle, DGPS Long-range positioning system and Digital side-scan sonar.
2. **Indigenous Content**: Features 80% indigenous technology, showcasing India's progress in self-reliance in defense technology.
3. **The ship is capable of:**
   a. Full-scale coastal and deep-water hydrographic surveys of port and harbor approaches
   b. Determining navigation channels and routes
   c. Carrying a helicopter
   d. Participating in low-intensity combat
   e. Functioning as a hospital ship during wartime or emergencies.
   f. Performing search and rescue and disaster relief

Mission and Usage

1. **Safe Maritime Navigation:** Aims to conduct extensive hydrographic surveys for safe navigation, covering ports, channels, and deep seas.
2. **Dual Objective:** Supports both information gathering about the oceans and defense missions.

Strategic Significance

1. **Security in Indian Ocean:** Enhances India's role as a primary security responder in the Indian Ocean.
2. **Addressing Maritime Threats:** Aids in safeguarding important maritime trade routes against threats like piracy.

3. India's 1st Ammunition Missiles Complex In Kanpur

1. In February 2024, **India's 1st & South Asia's largest** ammunition, missiles complex opened by Adani Defence and Aerospace in Kanpur, Uttar Pradesh.
2. Situated in the **Defense Industrial Corridor (DIC)** of Uttar Pradesh (UP), this facility underscores the nation's commitment to boost indigenous defense production.

Key highlights of the manufacturing facility

1. **Geographical Significance**: The facility's location within the Defense Industrial Corridor of UP highlights the strategic placement of such infrastructure.
2. **Historical Shift**: The opening up of the defense industry to **100% Indian private sector** participation since 2001 reflects a pivotal moment in India's defense policy.
3. **Global Standing:** India's ranking as the world's **3rd-largest military spender** underscores the necessity for self-sufficiency in defense production.
4. **Financial Optimization:** Reducing the share of defense expenditure from the total government budget is crucial for fiscal discipline.
5. **Export Potential:** Surplus production capabilities facilitate defense exports, aligning with ambitious targets set for **2024-25.**

Challenges associated with the manufacturing facility and potential solutions

Challenges	Solutions
1. Quality Control	Implement strict quality control measures and standardized testing protocols to ensure the safety and effectiveness of ammunition and missile production.
2. Regulatory Compliance	Develop a comprehensive regulatory framework and oversight mechanism to regulate private sector involvement in defense manufacturing, ensuring adherence to safety standards and accountability.
3. Technology Transfer	Establish guidelines for technology transfer that strike a balance between encouraging private sector innovation and safeguarding sensitive defense technologies.
4. Supply Chain Management	Strengthen supply chain management systems to ensure the timely procurement of raw materials, components, and equipment required for ammunition and missile production, minimizing disruptions and delays in manufacturing processes.
5. Export Regulations and Market Access	Streamline export regulations and enhance market access for defense products manufactured by the private sector, facilitating international trade agreements and diplomatic efforts to expand export opportunities and reach new markets.

Government Initiatives for Indigenous Production

The government has instituted various measures to promote indigenous defense manufacturing.

1. **Domestic Procurement Priority:** Capitalizing on the **Defense Acquisition Procedure (DAP)-2020** emphasizes sourcing from domestic suppliers.
2. **FDI Liberalization:** The relaxation of Foreign Direct Investment (FDI) policies aims to attract investment and technological expertise.
3. **Innovation Schemes:** Initiatives like **Innovations for Defence Excellence (IDEX)** foster innovation and collaboration.
4. **Indigenization Portal**: The **SRIJAN portal** facilitates indigenous production, particularly for MSMEs.
5. **SAMAR Certification**: The recent certification under the SAMAR (System for Advance Manufacturing Assessment and Rating) program reflects strides in assessing defense manufacturing capabilities.
   a. **DRDO Collaboration:** Collaboration between DRDO and the Quality Council of India (QCI) has led to the development of SAMAR.
   b. **Assessment Criteria:** SAMAR serves as a benchmark for evaluating the competency of defense manufacturing enterprises.
   c. **Widespread Applicability:** Its applicability to all defense manufacturing enterprises ensures uniform standards.
   d. **Validity and Oversight:** The two-year validity period underscores the need for continuous improvement and oversight.

Conclusion:

Inaugurating the first private sector facility for ammunition and missile manufacturing demonstrates India's dedication to being self-reliant, innovative, and in control of its defense production. As India strengthens its defense capabilities, strong policies and careful oversight are essential.

4. VSHORADS: India's Indigenous Missile System

In February,2024 Defense Research and Development Organization **(DRDO) successfully executed 2 flight trials of the Very Short-Range Air Defense System (VSHORADS)** missile from Integrated Test Range (ITR), **Chandipur, Odisha.** February,2024.

Target Interception: The tests were conducted **against high-speed unmanned aerial targets**, simulating various interception scenarios.

VSHORADS Missile:

1. **Development:** VSHORADS is a **Man Portable Air Defense System (MANPAD)** developed indigenously by Research Center Imarat **(RCI)** in collaboration with other **DRDO laboratories and industry partners.**
2. **Propulsion:** Powered by a **dual-thrust solid motor**, the missile is **designed to counter low-altitude aerial threats** within short ranges.

Technological Advancements:

1. **Innovative Features:** Incorporating advanced technologies such as **Short Reaction Control System (RCS)** and **integrated avionics**, the VSHORADS missile has **demonstrated** its efficacy during test trials.

Benefits for India:

1. **Portability:** Significantly **lighter** and **more portable** compared to other missile systems in the Army's arsenal, the VSHORADS can be deployed, particularly in **mountainous regions near the Line of Actual Control (LAC).**
2. **Strategic Importance:** Filling a gap in the **Army's inventory** for **man-portable air defence missiles**, especially along the **eastern and northern borders**, the VSHORADS enhances India's air defence capabilities.
3. **Mountain Warfare:** Designed for **mountain warfare scenarios**, VSHORADS will be invaluable to infantry units and stationary formations, providing strong air defense capabilities even in **challenging terrain.**
4. **Strategic Considerations:** In light of the recent developments on the **northern borders**, the **Ministry of Defense** emphasizes the importance of **acquiring effective**, **quickly deployable air defense systems like VSHORADS** to strengthen India's security position.

Conclusion:

The successful flight tests of VSHORADS represent a significant achievement for DRDO and highlight India's progress in **indigenous defense technology.** With its **lightweight design, advanced features and strategic relevance,** VSHORADS is set to strengthen India's air defense capabilities, especially in mountainous areas and challenging terrain along the borders.

5. EXERCISE/OPERATIONS IN NEWS

Name	Participants/ Organizer	Type	Key Points
Vayushakti	Indian Air Force	Air	In February 2024, Held at the Pokhran Air to Ground Range, near Jaisalmer
Sada Tanseeq	India and Saudi Arabia	Military Exercise	From 29th January to 10th February 2024 the inaugural (1st) edition of this exercise helt at Rajasthan.
MILAN 2024	Multilateral/ held under the aegis of the Eastern Naval Command,India	biennial Naval Exercise	1. **Edition:** 12th 2. **Held at:** Visakhapatnam, under the aegis of Eastern Naval Command. 3. **2024 exercise consisted of 2 phases:** Harbour Phase and Sea Phase 4. MILAN' **means** 'a meeting of confluence and its motto – **'Camaraderie Cohesion Collaboration'** symbolises the enduring spirit of international maritime cooperation
Exercise 'DOSTI-16'	India, Maldives & Sri Lanka (trilateral exercise)	biennial Naval exercise	1. Indian Coast Guard ship Samarth and ICGS Abhinav participated in the exercise. 2. **Observer:** Bangladesh.
Exercise Steadfast Defender 24	NATO Countries and its allies	military exercise	1. largest exercise conducted by the alliance since the Cold War 2. **Conducted in 2 parts** — the **1st phase** began January end and will last till mid-March and focus on maritime reinforcement across the Atlantic and in the Arctic. 3. The **2nd phase** (mid-February to end of May) will focus on using deployed reinforcements across all domains, from the Arctic to the Eastern Flank.

D. ECONOMY

1. INTERIM BUDGET 2024

"Viksit Bharat by 2047"

WHY THERE IS NO ECONOMIC SURVEY THIS YEAR?

In January,2024 The Finance Ministry released a report titled **'Indian Economy Review 2024,'** which was prepared by the Chief Economic Adviser's office.

- Usually, the government presents an **Economic Survey a day before the budget**, but this year, it won't happen on January 31 because of the election year.
- This is **not the Economic Survey** of India prepared by the Department of Economic Affairs.
  - Economic Survey will come before the full budget after the general elections.

Indian Economic Review 2024: Presented through two main chapters, each discussing different facets of India's economic progress, challenges, and resilience.

Chapter	Description
Chapter 1: Indian Economy- Past, Present, and Future	1. This section looks at India's economic journey since independence. 2. Topics include the initial emphasis on industrialization and economic challenges in subsequent decades. 3. It discusses reforms during various periods and financial/policy shifts in the 2000s. 4. The impact of recent global events, like the pandemic, is also highlighted. 5. The section outlines significant reforms and strategies implemented in the last decade, contributing to India's transformative growth.
Chapter 2: What Made the Indian Economy Resilient?	1. Explores the factors that made the Indian economy resilient amid recent global challenges. 2. Examines policy measures, reforms, and initiatives in finance, manufacturing, digital infrastructure, and public welfare. 3. Spotlights government efforts for sustained economic growth. 4. Addresses how these strategies helped India navigate complex global scenarios effectively. 5. Emphasizes the role of the government in ensuring the country's economic stability and growth.

1. **On 1 February 2024**, Finance Minister Nirmala Sithamran presented her **6th** budget.
   - Her budget speech was all of 5,244 words and **shorter** in comparison to the **5 speeches** she gave before this one.
2. She has announced that the capital expenditure outlay for the next year is being increased by **11.1 per cent** to **Rs. 11,11,111 crores**, which would be **3.4 per cent of the GDP**.
3. **Theme Budget 2024 -** *"Viksit Bharat Budget 2024".*
4. **Four pillars** of the Viksit Bharat Budget 2024 are:
   a. Garib' (Poor),
   b. 'Mahilayen' (Women),
   c. 'Yuva' (Youth) and
   d. 'Annadata' (Farmers)

Vision and Development Mantra

1. **Vision:** The goal is to build a prosperous India that balances economic growth with natural harmony, offering modern infrastructure and equal opportunities for everyone.
2. **Development Mantra:** "Sabka Saath, Sabka Vikas" (Together with All, Development for All) is the guiding principle, promoting comprehensive development.
3. **Strategy:** The strategy emphasizes unity in India's diverse demography, democratic values, and diverse cultures, supported by a collective effort termed "Sabka Prayas" (Everyone's Effort).

People-Centric Inclusive Development

1. Focus on **enhancing** all types of infrastructure: **physical, digital, and social**.
2. Promotion of **Digital Public Infrastructure** (DPI) to support formalization and financial inclusion.
3. Expansion and deepening of the tax base with the Goods and Services Tax (GST).

What is Interim Budget?

1. An interim budget is submitted by a government in transition or its final year of power before general elections.
2. The ruling government presents an interim budget that includes
   - **a.** estimates of its expenditure,
   - **b.** revenue deficit,
   - **c.** fiscal deficit, and
   - **d.** financial performance,
   - **e.** expectations for the future fiscal year.

Highlights of Interim Budget 2024

1. Budget Size: The total size of the budget is **47.66 lakh crore.**

2. Gross Tax Revenue:

a) The total gross tax revenue is **38.31 lakh crore**, which is the sum of different taxes collected by the government.

b) Breakdown of Gross Tax Revenue:

- **a. GST:** 10.68 lakh crore
- **b. Union Excise Duties:** 3.19 lakh crore
- **c. Customs:** 2.31 lakh crore
- **d. Taxes on Income:** 11.56 lakh crore
- **e. Corporation Tax:** 10.43 lakh crore
- **f. Others** (including taxes on Union Territories): 0.14 lakh crore

3. Net Tax Receipts:

A. After transferring the State's share and adding other taxes, the net tax receipts are 26.02 lakh crore.

4. Non-Tax Revenue:

A. The total **non-tax revenue is 4.00 lakh crore**, which includes income not generated from taxes.

B. Breakdown of Non-Tax Revenue:

- **a. Interest Receipt:** 0.33 lakh crore
- **b. Dividend & Profit:** 1.5 lakh crore
- **c. Others:** 2.17 lakh crore

5. Capital Receipts:

A. The total **capital receipts** amount to **17.64 lakh crore.**

B. Breakdown of Capital Receipts:

- **a.** Debt Receipts: 16.85 lakh crore (which includes market loans and other debts)

b. Non-Debt Capital Receipts: 0.79 lakh crore (which could include proceeds from the sale of capital assets or recovery of loans)

6. Other Financing Sources:

A. **Small Savings** & State Provident Fund & Others: 4.57 lakh crore

B. **Market Loans:** 12.28 lakh crore

C. **National Small Savings Fund** (NSSF) and Other Receipts: 0.79 lakh crore

Indian government's expenditure profile in lakh crore. It BREAKS down the budget allocation into various categories:

Sr. No	Particulars	Description
1	**Scheme Expenditure (19.96 lakh crore):**	a) **Central Sector Schemes:** 14.94 lakh crore. b) **Centrally Sponsored Schemes**: 5.02 lakh crore.
2	**Economic Services (7.88 lakh crore):** **Includes spending on general economic services and various subsidies.**	**Subsidy:** a. **Fertilizer:** 1.64 lakh crore. b. **Food:** 2.05 lakh crore. c. **Petroleum:** 0.12 lakh crore. d. **Others:** 0.28 lakh crore. e. **General Services:** 2.15 lakh crore. f. **Social Services:** 0.47 lakh crore. g. **Others:** 0.35 lakh crore.
3	**Transfers, Establishment, and Other Expenditure (27.70 lakh crore):**	Establishment Expenditure: 7.68 lakh crore, which includes: a. **Salary:** 1.59 lakh crore. b. **Pension:** 2.40 lakh crore. c. **Interest Payment**: 11.90 lakh crore. d. **Transfers to States:** 4.82 lakh crore. e. **Finance Commission Transfers:** 1.32 lakh crore. f. **Other Transfers:** 3.50 lakh crore. g. **Other Central Expenditure:** 15.19 lakh crore, which includes spending on autonomous bodies (1.29 lakh crore) and others (2.0 lakh crore).

Information on India's deficit statistics and the sources of financing the fiscal deficit.

1. Fiscal Deficit: This is the difference between the government's total income and total expenditure.

- It is reducing over the years, with a projection of ₹16,85,494 crore for 2024-2025, which is lower than previous years.

2. Revenue Deficit: Indicates the shortfall of the government's revenue compared to its revenue expenditure.

- It shows a decreasing trend, suggesting improving revenue management.

3. Effective Revenue Deficit: This is the revenue deficit adjusted for grants for the creation of capital assets.

- A decreasing effective revenue deficit is a positive sign, implying that the government's revenue is getting closer to covering its operational expenses.

4. Primary Deficit: The fiscal deficit minus interest payments.

- It is significantly lower for the year 2024-2025, indicating the government's plan to reduce its borrowing needs excluding interest obligations.

Sources of Financing Fiscal Deficit:

1. **Debt Receipts (Net):** Represents the net amount that the government borrows. It's a major part of how the fiscal deficit is financed.
2. **Market Borrowings:** Borrowing from the market, usually through government securities. It is a significant source of deficit financing, showing an increasing trend.
3. **Short-term Borrowing:** Money borrowed for a short period, often within a year. There's a large increase projected for 2024-2025.
4. **Securities against Small Savings:** Loans taken against the collected small savings. An increase is also projected for 2024-2025.
5. **State Provident Funds:** Funds from state employee savings. There's an expected decrease in 2024-2025.
6. **Other Receipts (Internal Debts and Public Account):** Other forms of income including internal debts. The figures show variability across the years.
7. **External Debt:** Borrowings from outside India. It is relatively small compared to other sources.
8. **Drawdown of Cash Balance:** The use of the government's cash reserves. This figure fluctuates, with a notable drawdown in 2023-2024.

This presents a detailed financial picture of how the Indian government plans to manage its budget deficit, highlighting reliance on market borrowings, adjustments in provident funds usage, and a strategic approach to utilizing cash balances.

Government's finances, particularly focusing on receipts (money received) and expenditures (money spent) over two fiscal years (2022-23 and 2023-24).

Sr. No	Particulars	Description
1	**Revenue Receipts: (Earnings):** Revenue Receipts are the money the government gets from taxes and other sources without borrowing. There's a planned increase each year.	———
2	**Non-Tax Revenue:** Income from sources other than taxes, like profits from public sector enterprises, also shows an upward trend.	a. **2022-23 (Actuals):** The government received 23.8 lakh crore. b. **2023-24 (Budget Estimate, BE):** They expected to receive 26.3 lakh crore. c. **2023-24 (Revised Estimate, RE):** The estimate was revised to 27.0 lakh crore. d. **2024-25 (BE):** The government plans to receive 30.0 lakh crore.
3	**Capital Receipts: (Investments and Loans)** Capital Receipts are mainly from loans or selling government assets. The government expects to receive less in 2024-25 compared to 2022-23.	a. **2022-23 (Actuals):** The government received 18.1 lakh crore. b. **2023-24 (BE):** They expected to receive 18.7 lakh crore. c. **2023-24 (RE):** The estimate was revised down to 17.9 lakh crore. d. **2024-25 (BE):** They plan to receive 17.6 lakh crore.
4	**Revenue Expenditure:** Revenue Expenditure is the money spent on running government services and providing grants. It's increasing every year.	a. **2022-23 (Actuals):** The government spent 34.5 lakh crore. b. **2023-24 (BE):** They budgeted to spend 35.0 lakh crore. c. **2023-24 (RE):** The estimate was revised to 35.4 lakh crore. d. **2024-25 (BE):** They plan to spend 36.5 lakh crore.

5	**Effective Capital Expenditure:** Effective Capital Expenditure is the money spent on long-term investments like infrastructure. It fluctuates but is generally increasing.	a. **2022-23 (Actuals):** The government spent 10.5 lakh crore. b. **2023-24 (BE):** They budgeted to spend 13.7 lakh crore. c. **2023-24 (RE):** The estimate was revised to 12.7 lakh crore. d. **2024-25 (BE):** They plan to spend 15.0 lakh crore.

"Achievements of Taxation Reforms"

Direct Tax Collections

a. Collections have increased more than **threefold** over the **last 10 years.**

b. The number of tax return filers has **grown to 2.4 times.**

Faster Refunds and GST Impact

a. Processing time for tax returns has dropped from 93 days in 2013-14 to **10 days** in 2023-24.

b. Monthly Gross GST collections have **doubled to ₹1.66 lakh crore** in the financial year 2024.

c. Tax buoyancy of state revenue has improved significantly after the implementation of GST.

Import and Export Efficiency

a. Since 2019, there's been a significant reduction in import release times at container depots, air cargo complexes, and sea ports.

Tax Proposals

a. **Continuity in taxation:** Extension of certain tax benefits for start-ups and foreign investments.

b. **Retention of tax rates:** No change in direct and indirect tax rates; corporate tax rates remain at 22% for domestic companies and 15% for new manufacturing firms.

c. **Tax exemption:** No tax for individuals earning up to ₹7 lakh under the new tax regime.

Allocation for Specific Ministries

Ministries	Budget Allocations (in ₹ Lakh Crore)
1. Ministry of Defence	6.2
2. Ministry of Road Transport and Highways	2.78
3. Ministry of Railways	2.55
4. Ministry of Consumer Affairs, Food & Public Distribution	2.13
5. Ministry of Home Affairs	2.03
6. Ministry of Rural Development	1.77
7. Ministry of Chemicals and Fertilizers	1.68
8. Ministry of Communications:	1.37
9. Ministry of Agriculture and Farmer's Welfare	1.27

Allocation of funds to major schemes in India

Scheme	2023-24 (BE)	2024-25 (BE)
Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS):	₹60,000 crore allocated.	₹86,000 crore allocated.
Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (PMJAY):	₹72,000 crore allocated.	₹75,000 crore allocated.
Production Linked Incentive Scheme:	₹4,645 crore allocated.	₹6,200 crore allocated.

Modified Programme for Development of Semiconductors and display manufacturing ecosystem:	₹3,000 crore allocated.	₹6,900 crore allocated.
Solar Power (Grid):	₹4,070 crore allocated.	₹8,500 crore allocated.
National Green Hydrogen Mission: ***Received largest allocation***	₹297 crore allocated.	₹19,700 crore allocated.

Analysis of Budget Allocation to Foreign Governments

The Indian government has allocated a total of ₹5,700 crore in the 2024 budget as loans and grants to various foreign governments.

A. **Bhutan:** The **largst allocation** with ₹2,398.97 crore
B. **Maldives:** Receives ₹770.90 crore
C. **Nepal:** Given ₹650 crore
D. **Myanmar:** ₹370 crore allocated,
E. **Bangladesh:** ₹130 crore,
F. **Seychelles:** ₹9.91 crore,

Resilient Performance of the Indian Economy

1	**Declining CAD as % of GDP:**	The Current Account Deficit (CAD) as a percentage of GDP has been decreasing over the years. It started at above 2% in FY14 and dropped to around 1% by H1 FY23, indicating an improvement in the country's trade balance.
2	**Declining Unemployment Rate:**	The unemployment rate has been falling over the years: A. **2021-22:** 4.1% B. **2022-23:** 3.2% This trend shows that more jobs are being created, or more people are engaged in gainful employment.
3	**Declining GNPAs as % of Gross Advances:**	The percentage of Gross Non-Performing Assets (GNPAs) in the banking system has been **decreasing**, indicating an improvement in the quality of the bank's loan assets: A. **FY22:** 5.8% B. **H1 FY23:** 3.2% This shows the banking sector's improving capacity to recover loans.
4	**Rising Volume of Digital Transactions:**	There has been a significant increase in digital transactions: A. **FY22:** Close to 12,000 crore B. **FY23:** Over 14,000 crore C. **FY24:** The volume is projected to increase further. This reflects the growing comfort and trust in digital financial services.
5	**Rise in Average Monthly Gross GST Collections:**	Monthly GST collections have shown an upward trajectory, indicating improved tax collection efficiency and compliance: A. **FY22:** 1.2 lakh crore B. **FY23:** 1.5 lakh crore C. **FY24:** Projected to rise to 1.7 lakh crore.
6	**Fall in Headline Inflation:**	The rate of inflation has generally been on a declining trend, although with some ups and downs: A. **FY21:** 6.2% B. **FY22:** 5.5%

A lower inflation rate suggests that price rise is under control, which is crucial for economic stability. These data points give an insight into the economic health of India, showing positive trends in trade, employment, banking, digital economy, tax collection, and inflation control.

Viksit Bharat by 2047

Momentum to Nari Shakti

1. 30 crore Mudra Yojana loans disbursed to women entrepreneurs
2. Female enrolment in higher education increased by 28 per cent in 10 years
3. Female constitute 43 per cent of enrolment in STEM courses, one of the highest in the world
4. 1 crore women assisted by 83 lakh SHGs to become Lakhpati Didis

Welfare of Farmers-Annadatas

1. Direct financial assistance to 11.8 crore farmers under PM-KISAN
2. Crop Insurance to 4 crore farmers under PM Fasal Bima Yojana
3. Integration 1,361 mandis under e-NAM, supporting trading volume of ₹3 lakh crore
4. Increased procurement of Wheat and Rice in the year 2023-24

Empowering Amrit Peedhi, the Yuva

1. 1.4 crore youth trained under Skill India Mission
2. 43 crore loans sanctioned under PM Mudra Yojana
3. Number of AIIMS increased from 7 in 2014 to 22 in 2022
4. IITs increased from 16 in 2014 to 23 in 2023

Garib Kalyan, Desh ka Kalyan

1. DBT of ₹34 lakh crore using PM-Jan Dhan accounts; 2.7 lakh crore saved due to avoidanace of leakages
2. Credit assistance to 78 lakh street vendors under PM-SVANidhi, out of which 2.3 lakh received credit for the third time

Sunrise Technologies

1. During the Interim Budget 2024-25 presentation, Finance Minister Nirmala Sitharaman revealed a plan to create a corpus of Rs **1 lakh crore.**
2. The goal is to encourage private investment in sunrise technologies and usher in a “golden era for our tech-savvy youth”.

Boost to Agriculture and Food Processing

1. Application of Nano-DAP to be expanded in all agro-climatic zones
2. Atmanirbhar Oilseeds Abhiyaan to be formulated to achieve **atma nirbharta** for oilseeds
3. Allocation for PM-Formalisation of Micro Food Processing Enterprises scheme increased from 639 crore in 2023-24 to ₹880 crore in 2024-25

Inclusive Development across sectors

1. Enrolments under PMJJBY **(Pradhan Mantri Jeevan Jyoti Bima Yojana)** in Aspirational Districts increased from 1737 per lakh population in 2018 to 13195 per lakh population in October 2023
2. ag cover under Ayushman Bharat scheme to be extended to all ASHA, Angawadi workers & helpers
3. PM Awas Yojana (Grameen) close to achieving target of 3 crore houses; additional 2 crore targeted for next 5 years

Infrastructure and Investment

1. Increase in Capital Expenditure by 11.1% to 1,11,111 cr
2. FDI Inflow doubled from 298 USD Billion during 2005-14 to 596 USD Billion during 2014-23
3. Length of National highways increased from 97,991 kms in FY15 to 1,44,634 kms in FY22
4. Electrified rail route more than doubled, from 22,224 kms in FY15 to 50,394 kms in FY22

Sustainable Development

1. New scheme of biomanufacturing and bio-foundry to be launched to support environment friendly alternatives
2. Adoption of e-buses for public transport
3. Increase in non-fossil fuel installed electricity capacity from 32.3% in 2014 to 43.9% in 2023

Rooftop solarization

1. 1 cr households will be able to get up to 300 units free electricity every month

2. Savings up to 15 to 18 thousand rupees annually for households

Rise in Female Labour Force Participation Rate (LFPR) leading to women-led development.

Resilient Performance of the Indian Economy

1. Unemployment Rate declined from 6.1% in 2017-18 to 3.2% in 2022-23
2. More than 6-fold increase in Digital Transactions from FY18 to FY24
3. Rise in average monthly gross GST collections from 0.9 lakh cr in FY18 to 1.7 lakh cr in FY24
4. Headline Inflation moderated to 5.5% in FY24

Research & Innovation for catalyzing development

1. A corpus of rupees one lakh crore to be established with fifty-year interest free loan for boosting private investment in sunrise technologies
2. A new scheme to be launched for strengthening deep-tech technologies for defence purposes and expediting **'atma nirbharta'**

Railways

1. Three major economic railway corridor programmes will be implemented
2. Energy, Mineral and Cement Corridors
3. Port Connectivity Corridors
4. High Traffic Density Corridors
5. **40,000** normal rail **bogies** will be **converted** to the **Vande Bharat** standards

People-Centric Inclusive Development

1. Multipronged economic management
2. Robust gateway for global capital and financial services **via GIFT IFSC**
3. Proactive Inflation management
4. Active participation in economic growth of all regions of the country
5. Deepening and widening of tax base via GST.
6. Substantive development of Physical, Digital and Social infrastructure
7. Promoted formalisation and financial inclusion via Digital Public Infrastructure
8. Savings, credit and Investment back on track by strengthening of financial sector

Indian Economy maintaining robust Macroeconomic Fundamentals

1. India's Real GDP projected to grow at 7.3 per cent in FY 2023-24
2. Fiscal deficit to reduce below 4.5 per cent by 2025-26
3. Capital Expenditure outlay for the next year increased by 11.1 per cent to Rs. 11,11,111 crore
4. Allocation of Rs. 1.3 lakh crore in BE 2023-24 towards fifty-year interest free loans to the states to boost capital expenditures

Green Energy Moving towards commitment of 'Net-zero' by 2070

1. Viability gap funding for offshore wind energy for initial capacity of one giga-watt
2. Coal gasification & liquefaction capacity of 100 MT to be set up by 2030
3. Phased mandatory blending of compressed biogas (CBG) in compressed natural gas (CNG) for transport and piped natural gas (PNG) for domestic purposes
4. Financial assistance to be provided for procurement of biomass aggregation machinery

Focus on a more comprehensive 'GDP"

1. 'Governance, Development and Performance'
2. Transparent, accountable, people-centric and trust-based administration
3. Macro-economic stability and all-round development in all sectors
4. Increasing average real income, empowerment of people and timely delivery of programmes

Enhancing Tourism across the nation

1. A framework for rating iconic tourist centres based on quality of facilities & services to be established
2. Long-term interest free loans to be provided to states to encourage comprehensive development of tourist centres
3. Projects for port connectivity, tourism infrastructure, and amenities to be taken up in islands, including Lakshadweep.

2. Annual Survey Of Industries Results For 2020-21 And 2021-22

1. The **Ministry of Statistics and Programme Implementation (MoSPI)** published the **Annual Survey of Industries (ASI)** for **2020-21 and 2021-22**.
2. **The Annual Survey of Industries (ASI)** serves as the primary source of **Industrial Statistics** in India. It is conducted under the **Collection of Statistics (COS) Act, 2008**.
   (a) Encompasses all factories registered under the **Factories Act, of 1948**. Additionally, includes units under the **Bidi and Cigar Workers (Conditions of Employment) Act, 1966**.
   (b) ASI aims to provide insights into the dynamics of **manufacturing industries**, covering output, employment, and capital formation.
   (c) Results contribute to **national account statistics** and are prepared at both **state and major industry levels**. Investment figures in ASI surveys are in **current price terms**.

Gross Fixed Capital Formation (GFCF)

1. GFCF measures the value of acquisitions of new or existing fixed assets by the **business sector, governments,** and **households,** minus disposals of fixed assets.
2. **Components of GFCF:** It includes **land improvements cost,** purchases of **plant, machinery, and equipment,** and the construction of **roads, railways,** and other **infrastructure** such as **schools, offices, hospitals,** private residential dwellings, and **commercial and industrial buildings**. Net acquisitions of **valuables** are also considered capital formation.
3. **Exclusions from GFCF:** It excludes all kinds of **financial assets,** as well as **stocks of inventories** and other **operating costs.** Land sales and purchases are also not included.

Net fixed capital formation

1. **Net fixed capital formation** is the difference between gross fixed capital formation and the consumption of fixed capital.
2. **Net fixed capital formation** includes the depreciation of existing assets from the figures for new fixed investment.

Gross capital formation (GCF)

It is the total value of the following for a unit, an institutional sector, or the whole economy: **Gross additions to fixed assets, Increase in stocks of inventories, Net acquisition of valuables**.

Key Highlights of the Survey

1. **Employment and Jobs:** In the pandemic-affected year 2020-21, **jobs** declined but **rebounded in 2021-22**, surpassing pre-pandemic levels.
   (a) **Employment:**
   - **2020-21: Decreased** to 1.60 crore from 1.66 crore in 2019-20,
   - **2021-22: Rose** to 1.72 crore, with a CAGR of 1.7% from 2019-20.

   (b) **Workers:**
   - **2020-2021: Decreased** to 1.26 crore from 1.31 crore in 2019-2020.
   - **2021-22: Rose** to 1.36 crore, with a CAGR growth of 2.1% over these two years.

   (c) **Corporate sector: Employment rose by 1.6%** (Compound Annual Growth Rate) to over 1 crore in 2021-22, compared to slightly over 97 lakh in 2019-20.
   (d) **The top five states in employment** are **Tamil Nadu**, Gujarat, Maharashtra, Uttar Pradesh, and Haryana.
2. **Gross fixed capital formation: Declined by 11%** from pre-pandemic levels,
   (a) **2020-21: Fell** to Rs 3.14 lakh crore from Rs 4.17 lakh crore in 2019-20.
   (b) **2021-22: Picked up marginally**, rising about 5% from 2020-21 to Rs 3.30 lakh crore.
3. **Net fixed capital formation: Declined by 54%** in 2021-22 compared to the pre-pandemic year of 2019-20.
4. **Gross capital formation: Grew 29.5%** to Rs 7.02 lakh crore in 2021-22, including outlays in addition to fixed assets and net change in inventories.
5. **Profits: Grew sharply**, **rising by 42.3%** (Compound Annual Growth Rate) to Rs 9.51 lakh crore in 2021-22 from Rs 4.70 lakh crore in 2019-20.

6. **Gross Value Added (GVA):**
   (a) **2020-21: Grew by 8.8%** in current prices over 2019-20, driven by a sharp fall in input (4.1%) offsetting an output contraction (1.9%).
   (b) **2021-22: Grew significantly by 26.6%** over 2020-21, riding on high growth in industrial output, which grew by more than 35% in value terms.
   (c) **Gujarat remained the top state in Gross Value Addition**, followed by Maharashtra, Tamil Nadu, Karnataka, and Uttar Pradesh.
   - **Gross Value Added (GVA)** is the value that producers have added to the goods and services they have bought.
7. **The manufacturing sector showed resilience post-pandemic**, driven by the manufacture of Basic metal, Coke & Refined Petroleum Products, Pharmaceutical Products, Motor vehicles, etc.

Manufacturing Sector of India

1. **Manufacturing** is becoming increasingly crucial to India's economic growth, driven by sectors like **automotive, engineering, chemicals, pharmaceuticals**, and **consumer durables**.
1. Contributing to about **17% of the nation's GDP** and employing over **27.3 million workers**, the manufacturing sector holds substantial importance in the Indian economy.
2. India now possesses both physical and digital infrastructure to increase the manufacturing sector's share in the economy and compete for a prominent position in **global supply chains**.
3. Potential of India's Manufacturing Sector
   (a) The **National Manufacturing Policy (NMP) of India** aims to increase the share of manufacturing in the country›s GDP to **25% by 2025**. The policy also **aims to create 100 million jobs** by 2022.
   (b) With key industries such as **electronics, industrial machinery**, and **textiles**, India targets reaching a **USD 1 trillion milestone** by **2028**.
   (c) Factors like **power growth**, **long-term employment prospects**, and **skill development** offer significant potential for India to engage in **international markets**.

Government Initiatives

1. **National Manufacturing Policy, 2011**
2. **Make in India initiative, 2014**
3. **PM Gati Shakti National Master Plan, 2021**
4. **Others**: Production Linked Incentive scheme, Industrial Corridor Development Programme, etc.

   (d) Global value chains can benefit from India's advantages in **raw materials, industrial expertise,** and **entrepreneurship**.
   - These advantages allow for the exploitation of opportunities in **expanding exports, localizing imports, internal demand,** and **contract manufacturing**.
   (e) The shift towards **automated and process-driven manufacturing** is expected to **enhance efficiency and production** in the manufacturing industry.
4. **Challenges Faced by the India's Manufacturing Sector and their solutions:**

Challenges	Solutions
Lack of infrastructure in transportation, power, and telecommunications.	Implement **infrastructure development projects** to improve transportation, power, and telecommunication networks.
Shortage of skilled labor due to the education system's inability to adapt to changing economic needs.	**Enhance vocational training programs** and educational curriculum to align with the demands of the manufacturing sector.
Complex regulatory environment posing challenges for businesses intending to establish manufacturing units.	**Streamline regulations** and create a more **business-friendly environment** to attract investment and facilitate ease of doing business.
Insufficient innovation hampering competitiveness with products from other countries.	**Promote a culture of innovation** through research and development incentives, technology partnerships, and collaboration between academia and industry.

Conclusion

1. Despite challenges, India's manufacturing industry is striving for **self-reliance**, experiencing changes post-pandemic.
2. Initiatives like **Make in India**, **National Manufacturing Policy**, and the **PLI scheme** for manufacturing propel India towards **Industry 4.0**.
3. India's economy is on track to becoming the **third-largest** globally by **2030**, fuelled by aspirations to become a **major global manufacturing hub**.

Question: Annual Survey of Industries (ASI)

[Q] "Annual Survey of Industries (ASI)" is recently seen in news is released by?

[A] Ministry of Labor

[B] NITI Aayog

[C] Ministry of Statistics & Programme Implementation

[D] Ministry of Industries

[ANS] C

[SOLN]

Key Facts

Annual Survey of Industries (ASI)

The **Ministry of Statistics and Programme Implementation (MoSPI)** published the **Annual Survey of Industries (ASI)** for **2020-21 and 2021-22**.

Annual Survey of Industries (ASI) serves as the primary source of **Industrial Statistics** in India. It is conducted under the **Collection of Statistics (COS) Act, 2008**.

- Encompasses all factories registered under the **Factories Act, 1948**. Additionally, includes units under the **Bidi and Cigar Workers (Conditions of Employment) Act, 1966**.
- However, **excludes defence establishments**, **oil storage**, and **distribution depots**.
- ASI aims to provide insights into the dynamics of **manufacturing industries**, covering output, employment, and capital formation.
- Results contribute to **national accounts statistics** and are prepared at both **state and major industry levels**. Investment figures in ASI surveys are in **current prices terms**.

Question: Annual Survey of Industries (ASI)

[Q] Consider the following statements with reference to Annual Survey of Industries (ASI):

1. It is conducted under the Collection of Statistics (COS) Act, 2008.
2. It encompasses all factories registered under the Factories Act, 1948 and includes units under the Bidi and Cigar Workers (Conditions of Employment) Act, 1966.
3. It also includes defence establishments, oil storage, and distribution depots.

How many of the above statements are correct?

[A] Only one

[B] Only two

[C] All three

[D] None

[ANS] B

[SOLN]

Key Facts

Annual Survey of Industries (ASI)

The **Ministry of Statistics and Programme Implementation (MoSPI)** published the **Annual Survey of Industries (ASI)** for **2020-21 and 2021-22**.

Annual Survey of Industries (ASI) serves as the primary source of **Industrial Statistics** in India. It is conducted under the **Collection of Statistics (COS) Act, 2008**. **Hence, statement 1 is correct.**

- Encompasses all factories registered under the **Factories Act, 1948**. Additionally, includes units under the **Bidi and Cigar Workers (Conditions of Employment) Act, 1966**. **Hence, statement 2 is correct.**
- However, **excludes defence establishments**, **oil storage**, and **distribution depots**. **Hence statement 3 is incorrect.**
- ASI aims to provide insights into the dynamics of **manufacturing industries**, covering output, employment, and capital formation.

Results contribute to **national accounts statistics** and are prepared at both **state and major industry levels**. Investment figures in ASI surveys are in **current prices terms**.

Hence correct answer is option B.

3. India's Poverty Levels Below 5%: HCES

According to the **All-India Household Consumption Expenditure Survey (HCES),** less than 5% of Indians are now expected to be below the poverty line.

What is the Household Consumption Expenditure Survey (HCES)?

1. The Household Consumption Expenditure Survey (HCES) is conducted once every five years by the **National Statistical Office (NSO).**
   a. The National Statistical Office (NSO) is the central, autonomous, and statutory entity responsible for all fundamental statistical tasks.
2. The government **dismissed the findings of the 2017–18** survey due to data quality concerns.
3. The **last survey** on consumer spending happened during the 68th round from July **2011 to June 2012**.
4. This data is crucial for reviewing economic indicators like **Gross Domestic Product (GDP),** poverty levels, and **Consumer Price Inflation (CPI).**
5. **Coverage:**
   a. Covers all of the Indian Union except a few hard-to-reach villages in the Andaman and Nicobar Islands.
   b. The collected data shows **average spending on goods and services** and helps estimate **Monthly Per Capita Consumer Expenditure (MPCE)** and its distribution among households.
   c. It gathers information on **both urban and rural households' expenditure** on **goods and services**.
6. The data collected in HCES is used to calculate a variety of other macroeconomic indices, including GDP, poverty rates, and CPI.

Significance of Consumer Expenditure Survey (CES)

1. **Gauging (measure) Demand Dynamics:** Monthly per capita consumption estimates are crucial for understanding **economic demand dynamics** and **changes in spending priorities**.
2. **Assessing Growth Trends:** CES helps assess **living standards and growth trends** across different segments of society.
3. **Analytical and Forecasting Tool:** It serves as an important analytical and forecasting tool for policymakers, helping them **identify and address potential demand shifts** and anomalies (deviation).
4. **Informing Policy and Economic Indicators:** CES data is used by the government to **update and adjust key economic indicators** like GDP.

Consumer Price Inflation	Gross Domestic Product (GDP)
1. The CPI is a tool used to **calculate retail inflation** in India. It's also known as the **market basket**. 2. CPI is calculated for a fixed set of items, including food, transportation, medical care, education, etc.	1. GDP is defined as the sum of the **final prices of goods and services** generated in an economy over a certain period. 2. GDP refers to the **value of economic activity** inside a country.

Key highlights- HCES 2022-2023

1. **Consumption Expenditure: Increased** by more than **2.5 times** since 2011-12, with **faster growth in rural areas** than urban areas.**Average MPCE of Bottom 5%**
   a. The **bottom 5%** of the **rural population** has an average MPCE of ₹1,400, compared to ₹2,000 for the **urban** bottom 5%.
   b. The **top 5%** of **rural and urban population** has an average MPCE of ₹10,500 and ₹20,800, respectively.
2. **Share of Expenditure on Food**
   a. In 2022-23, **rural** India spent **46%** (₹1,750) on food, while **urban** India spent **39%** (₹2,500).
   b. In 2011-12, it was **53%** in **rural** India and **42%** in **urban** India, impacting **consumer price index-based inflation**.
      - Expenditure on cereals, pulses, and vegetables **decreased** during this period.
      - Rural households spending on food dropped below 50% of total expenditure for the first time.

- Consumption of high-value items like eggs, fish, and fruits increased in rural areas.

MPCE

1. MPCE measures the average monthly spending on various goods and services, including home-grown or produced items, gifts, loans, and exchanges of goods and services.
2. It is based on **Modified Mixed Reference Period (MMRP)** which considers household spending over different timeframes.
3. MMRP is a method for collecting data.
4. It was recommended by the **Rangarajan Committee** in **2014** as an alternative to the Mixed Reference Period (MRP).

3. **Consumption Expenditure on Non-Food Items**
   a. Spending on **non-food items increased** in both **rural** (54%) and **urban** (61%) areas, driven by conveyance (process of transporting), consumer services, and durable goods.
4. **Comparison Among States**
   a. **Sikkim** has the **highest MPCE** for both rural (₹7,700) and urban (₹12,100) areas.
   b. **Chhattisgarh** has the **lowest MPCE**, with ₹2,500 for rural households and ₹4,500 for urban households.
5. **Comparison Among UT**
   a. **Chandigarh** has the highest rate (Rural Rs. 7,467 and Urban Rs. 12,575).
   b. **Ladakh and Lakshadweep** have the lowest rates (Rs. 4,035) and Rs. 5,475, respectively.
6. **Rural-urban disparity:** The state with the greatest rural-urban disparity in average MPCE is Meghalaya (83%), followed by Chhattisgarh (82%).
7. **Income Disparity**
   a. **Top 20%** account for **46% of total consumption**, while bottom 20% only 9% of total consumption.
   b. A significant gap exists between the rich and the poor in both rural and urban areas.
   a. **The richest 5% spend 8-10 times more** than the poorest 5%.
   b. **Urban** households have **higher average MPCE** than rural.
8. **Improved Rural Income**
   a. The **gap** between rural and urban MPCE has **reduced**, indicating **successful government policies** for boosting rural incomes.

Poverty-line in India

1. India proposed but has not yet adopted an official poverty line.
2. In simple terms, the poverty line is the monetary income that one must have to **afford the basic amenities** of life. Globally, the poverty line is set at $2.15 per day. This amount was recently updated by the **World Bank** in 2022.
3. Depending upon the country's social and economic status required to attain basic needs, the poverty line may **vary from one country to another**.
4. In India, the poverty line lies at **1,286 rupees per month for urban** areas and **1,059.42 rupees per month for rural area**s.

4. World's Largest Grain Storage Plan

1. In February, 2024 PM Narendra Modi inaugurated the **World's largest grain storage plan** in the cooperative sector **to ensure Food security** in India.
2. The Grain Storage Plan was launched in 11 **Primary Agricultural Credit Societies (PACS)** of 11 states.

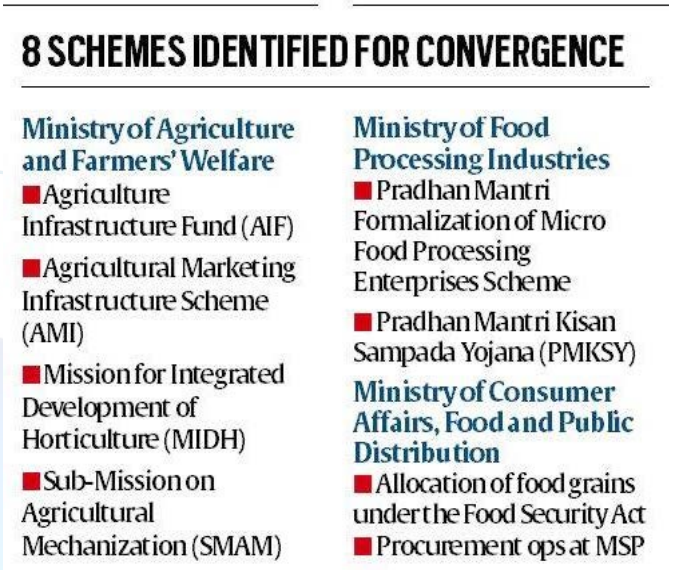
What is Primary Agricultural Credit Societies (PACSs)?

1. Primary Agricultural Credit Societies are the grassroots components of the short-term cooperative credit structure.
2. PACS are the lowest tier of the country's Short-Term Cooperative Credit (STCC) structure, led by State Cooperative Banks (SCB) at the state level.
3. The first PACS was founded in 1904.
4. The Union Budget 2023-24 earmarked Rs 2,516 crore for computerizing 63,000 PACS over the next five years.
5. **Functions of PACS:**
   a. PACS works directly with rural (agricultural) borrowers to provide loans, collect loan repayments, and carry out distribution and marketing services.

b. It serves as the ultimate link between borrowers and higher-level finance authorities, specifically Scheduled Commercial Banks and the RBI/ NABARD.

What is Grain Storage Plan?

1. The Prime Minister of India launched the World's largest Grain Storage Plan in 2024.
2. The grain storage plan entails creation of various Agri-infrastructure at PACS level, through convergence of various existing schemes of the Government of India (GoI).
3. The plan targets the creation of 700 lakh metric tonnes of storage capacity with an estimated investment of ₹1.25 lakh crore over the next five years.
4. **Aims: -**
   a. To integrate PACS' godowns with the food grain supply chain,
   b. To fortify food security and fostering economic development with support of NABARD and National Cooperative Development Corporation (NCDC).
5. **Objectives**: -
   a. Benefits of Decentralised Grain Storage in India at the PACS Level.
   b. Reduce post-harvest losses from the current 6%.
   c. Significant decrease in handling and transportation costs.
   d. Preventing farmers from selling in distress at low rates.
   e. Decentralised procurement by the FCI/State Government.
   f. Storage-based "Hub" and "Spoke" models.
6. **Implementation Plan:**
   a. The Grain Storage Plan combines initiatives including the Agriculture Infrastructure Fund (AIF) and Agriculture Marketing Infrastructure (AMI).
   b. The Minister of Cooperation leads the Inter-Ministerial Committee (IMC). The committee is made up of the
      i. Ministers of Agriculture and Farmers Welfare,
      ii. Consumer Affairs,
      iii. Food and Public Distribution,
      iv. Food Processing Industries,
      v. related Secretaries.



7. **Benefits of the Plan:**
   a. To addresses the shortage of agricultural storage infrastructure by building godowns at the PACS level.
   b. To reduce food grain waste and improve national food security.
   c. To reduce transportation expenses between procurement centres, warehouses, and FPS.
   d. To strengthens PACS by diversifying their activities and raising farmer incomes.
8. **Funding Details:**
   a. Financial outlay of Grain Storage Plan is 1 trillion rupees.
   b. PACS can receive subsidies and interest subventions for building storage facilities and other agricultural infrastructure.
   c. NABARD provides financial support to PACS by refinancing them at subsidised rates of roughly 1%.
      - This includes the benefits of 3% interest subvention under the AIF plan for projects up to Rs. 2 crores.

Why Grain Storage is needed in India?

1. **Commitment towards Sustainable Development Goals**
   a. World's largest Grain Storage plan will ensure India's commitment to achieving the Sustainable Development Goals including the following:

SDG	Description	Goal
SDG 1:	No Poverty	End poverty in all its forms everywhere.
SDG 2:	Zero Hunger	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
SDG 12:	Responsible Consumption and Production	Ensure sustainable consumption and production patterns.

2. **Transforming PACS:**
   a. The cornerstone of this monumental endeavor lies in empowering Primary Agricultural Credit Societies (PACS).
   b. The plan envisions converting PACS into multipurpose hubs encompassing:
      i. Modern Warehouses: To safeguard the quality of stored grain.
      ii. Custom Hiring Centers: Providing farmers with affordable access to agricultural equipment.
      iii. Processing Units: Facilitating value addition to crops and boosting farmers' incomes.
      iv. Fair Price Shops: Ensuring food security for vulnerable populations.
3. **Shortage of Storage Capacity**
   a. India accounts for 11% of the world's total cultivable area and 18% of the total population.
   b. This indicates that India has only 11% of cultivable land to cover the food requirements of the world's 18% population.
   c. According to the FAO Statistical Data 2021, total food grain production in India is 311 MMT, whereas total storage capacity is just 145 MMT.
   d. This has resulted in a storage shortage of 166 MMT (47% capacity shortage)

Significance of World's largest Grain Storage Plan

The benefits of India's grain storage plan will extend far and wide:

1. **Storage and Supply Chain:**
   i. World's largest Grain Storage Plan is a strategic response to the long-standing challenge of insufficient storage, which leads to significant food wastage and hinders farmers' ability to earn fair prices for their produce.
   ii. The Plan will provide farmers with state-of-the-art storage solutions, enabling them to hold their grain until market conditions improve, thereby enhancing their incomes.
2. **Farmer Empowerment:** Farmers will have greater control over the sale of their produce, leading to increased bargaining power and improved livelihoods.
3. **Food Security and Price Stability:** Robust storage infrastructure will strengthen India's food security and help combat price volatility.
4. **Reduced Food Wastage:** Preventing post-harvest losses will ensure that more food reaches consumers.
5. **Rural Development:** The creation of infrastructure and jobs in rural areas will spur economic growth.
6. **Global Significance:** India's success in this area can offer valuable lessons and best practices for nations striving to enhance food security, address post-harvest losses, and support their farmers.
7. **Digital Empowerment:**
   i. The plan incorporates computerization of PACS, facilitating digital payments and promoting better record keeping.
   ii. This digital transformation will be a significant step towards streamlining India's agricultural supply chain.

Food Security in India

1. **Food security** goes beyond just having enough food to eat. It exists when all people, at all times, have both physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and preferences for a healthy and active lifestyle.
2. India faces unique challenges with its large population and diverse agricultural landscape.

3. Despite significant progress, India still faces challenges in achieving complete food security. Issues like poverty, climate change, inefficient supply chains, and limited food diversity remain.

Challenges	Solutions
• Increasing demand for food.	• Increase food production and Reduce food waste
• Changing weather patterns, extreme weather events like droughts and floods, and rising sea levels.	• Adopt climate-resilient agricultural practices • Invest in research and development
• Wars, civil unrest, and political instability	• Investing in diplomatic solutions and addressing the root causes of conflict.
• Unsustainable Agricultural Practices	• Climate-smart practices, Organic farming, Promoting crop diversification etc.
• Inadequate infrastructure for transporting and storing food.	• **Invest in infrastructure development** • Connecting small-scale farmers to markets through improved infrastructure.
• Increasing Urbanization	• Promote urban agriculture. • Develop shorter, more efficient food supply chains.
• Women face discrimination in accessing land, resources, and education.	• Empower women farmers access to land, credit, training, and decision-making power. • Addressing discriminatory practices and ensuring that women have equal opportunities.

4. **India's Initiatives for Food Security:** - Here are key ways the government is working to ensure food security:
   a. **Public Distribution System (PDS):** PDS is a vast network of fair price shops that distribute subsidized food grains, primarily rice and wheat, to a significant portion of the population, especially those below the poverty line.
   b. **National Food Security Act (NFSA):** This act provides legal entitlement to subsidized food grains for around two-thirds of India's population.
   c. **Buffer Stock Management:** The government maintains reserves of food grains to stabilize prices and ensure availability during shortages or emergencies.
   d. **Mid-Day Meal Scheme:** This program provides free school lunches to millions of children, ensuring nutrition and encouraging school attendance.
   e. **Minimum Support Price (MSP):** The government sets a guaranteed minimum price for certain crops to protect farmers from market fluctuations and ensure they receive a fair price.

SMART FOOD GRAIN STORAGE SYSTEM (SAFEETY) TECHNOLOGY

1. In February 2024, The Ministry of Electronics & IT (MeitY) transferred the **'Smart Food Grain Storage System'** (SAFEETY) technology to Paras Defense and Space Technology Ltd.
2. **Development of SAFEETY Technology**
   a. SAFEETY technology was developed by the Society for Applied Microwave Electronics Engineering and Research (SAMEER).
   b. SAMEER is an autonomous R&D institution under the Ministry of Electronics and Information Technology (MeitY).
   c. SAMEER is engaged in active research in the broad area of microwaves and undertakes various state-of -the-art and challenging projects.
3. **Features of SAFEETY:**
   a. Features conveyorized loading & unloading of grain bags equipped with RFID for traceability.
   b. Incorporates online weight and moisture measurement capabilities.

c. Utilizes radio frequency-based removal of moisture from grain.
d. This advanced system can handle nearly one truckload (approximately 28 tons) of grains in just 40 minutes.
e. The transfer signifies progress towards realizing the Innovation, Science, and Technology theme of Viksit Bharat @2047.
f. It highlights collaboration between government entities and the private industry to leverage technology for national progress and development.

Why is there a need for a Smart Food Grain Storage System (SAFEETY)?

1. **Limited Agricultural Output:** India represents 18% of the global population but utilizes only 11% of available arable land.
2. **Insufficient Storage Capacity:** India's storage facilities accommodate only 145 MMT of food grain, covering 47% of the total 311 MMT production.
3. **Food Security Challenges:** The FCI exceeds its buffer capacity, necessitating a reliable network of food grain storage facilities.
4. **Economic Sustainability of Agriculture:** Effective storage solutions will minimize waste, stabilize agricultural prices amidst market variations, and boost food grain exports.
5. **Enhanced Preservation Techniques:** Develop and implement improved preservation techniques to extend the shelf life of stored grains, reducing spoilage and ensuring food security for longer durations.
6. **Climate Resilient Infrastructure:** Construct climate-resilient storage infrastructure equipped to withstand extreme weather events and environmental conditions, safeguarding stored grains against damage and loss due to adverse climate impacts.

Conclusion

The implementation of the world's largest grain storage plan marks a significant milestone in India's agricultural trajectory. This transformative plan demonstrates the government's unwavering commitment to safeguarding the interests of farmers and ensuring the nation's food security.

5. UPI Goes Global

1. In February 2024, the PM of India jointly launched UPI services in Mauritius and Sri Lanka and also launched RuPay card services in Mauritius.
2. Recently, **NPCI International Payments Ltd (NIPL)** and **Fonepay Payment Service Ltd** have officially launched **UPI for cross-border transactions** between India and Nepal.
   - This initiative aims to facilitate **QR-code-based person-to-merchant (P2M)** UPI transactions.
   - **Person-to-merchant (P2M)** payments are when a customer uses UPI to make payments **to a merchant** for goods and services
   - **Person-to-person (P2P)** payments are transactions between **2 parties with different bank accounts.** P2P payments are made directly between individuals, without the need for intermediaries like banks or credit card companies.

About Unified Payment Interface (UPI)

1. It is a real-time payment system developed by the **National Payments Corporation of India (NPCI).**
2. It **facilitates instant fund transfer between two bank accounts** on a mobile platform, without requiring any details of the beneficiary's bank account.
3. UPI has gained significant popularity in India due to its simplicity, convenience, and interoperability across different banks and financial institutions.

How UPI Works?

1. **Mobile Application:** Users need to have a **mobile banking application that supports UPI.** These apps could be provided by banks or third-party service providers.
2. **Registration:** Users need to register their bank accounts with the UPI-enabled app. During registration, they create a **Virtual Payment Address (VPA)** which serves as a unique identifier for their bank account.
3. **Transaction Initiation:** To initiate a transaction, the user selects the **'Send Money'** option in the UPI app, enters the recipient's VPA, and the amount to be transferred.

4. **Authorization:** The user needs to authenticate the transaction using a **UPI PIN**, which is set up during the registration process. This PIN ensures the security of transactions.
5. **Transaction Settlement:** Once authorized, the transaction details are sent to the payer's bank, which then communicates with the recipient's bank through the NPCI's UPI platform to facilitate the transfer of funds.
6. **Notification:** Both the sender and the recipient **receive instant notifications** confirming the success or failure of the transaction.

Advantages of UPI:

1. UPI eliminates the need to remember or share bank account details for fund transfers. A simple VPA or mobile number is sufficient.
2. No transaction fees.
3. Transactions processed instantly.
4. Encourages Digital Payments
5. UPI transactions are secured through multi-factor authentication, including the use of a unique UPI PIN for each transaction.
6. Transactions can be initiated and processed at any time of the day **(24x7)**.
7. Apart from VPA, UPI allows users to initiate transactions using other identifiers such as Aadhaar number, mobile number linked to the bank account, or even through QR codes.
8. **Bill Payments and Merchant Transactions:** UPI can be used for paying bills, making merchant payments both online and offline, and even for requesting money.

News Rules and Regulations of UPI: RBI

In January 2024, the Reserve Bank of India (RBI) has announced new rules and regulations to enhance the scope of Unified Payments Interface (UPI) payments.

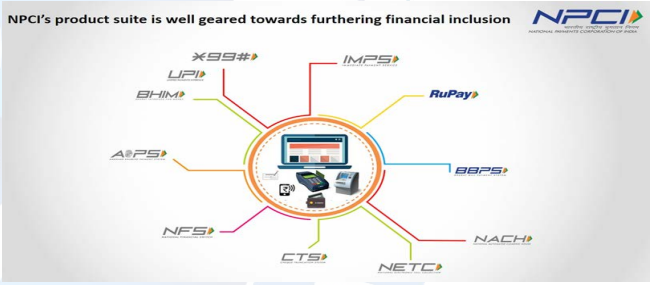
a. The **limit for UPI payments** to **hospitals and educational institutions** has increased to **Rs 5 lakh** from Rs 1 lakh.
   - Except for certain categories like Capital Markets, Collections, and Insurance, the **general UPI transaction limit remains Rs 1 lakh**, while it's **Rs 2 lakhs** for these **specified categories**.

b. The **National Payment Corporation of India** (NPCI) mandates **deactivation of inactive UPI IDs** after one year,
   - Asking users on platforms like Google Pay and PhonePe to verify and maintain their IDs active.

c. RBI plans nationwide rollout of **UPI ATMs**, facilitating cash withdrawal through QR code scanning, with Hitachi Payment Services introducing the **country's first UPI-ATM** in partnership with NPCI.

d. RBI proposes a 4-hour window for **first-time payments** over ₹2,000 to new recipients, allowing users to reverse or modify transactions for added control and security.

An Introduction to NPCI And Its Various Products



1. **National Payments Corporation of India (NPCI)** is an initiative of the **Reserve Bank of India (RBI)** and the **Indian Banks' Association (IBA)** established under the **Payment and Settlement Systems Act, 2007.**
2. It operates retail payments and settlement systems in India, aiming to create a robust Payment & Settlement Infrastructure.
3. NPCI aims to transform India into a **'less-cash' society by providing accessible payment services to every Indian**, thereby advancing its vision to become the best payments network globally.
4. NPCI is registered as a "**Not for Profit**" Company under the provisions of **Section 8 of the Companies Act 2013.**
5. Its objective is to provide infrastructure for **both physical and electronic payment** and settlement systems in India.

List of countries that accept UPI & RuPay: -		
S.No.	**UPI**	**Rupay**
1.	Bhutan **(1st country to adopt UPI payments outside India)**	Bhutan **(1st country to adopt and issue RuPay bank cards)**
2.	Nepal	Nepal
3.	Mauritius	Mauritius
4.	Singapore	Singapore
5.	UAE (3rd-largest trade partner of India)	UAE
6.	Sri Lanka	-
7.	France (E-commerce) (1st country in the European region to access UPI payments)	-

6. RBI Directs Visa And Mastercard Regarding Business Payments

1. In February 2023, the Reserve Bank of India (RBI) instructed Visa and Mastercard to cease (stop) card-based business-to-business payments channelled through fintech companies.
   a. Fintech is a combination of the terms **'financial' and 'technology'** which refers to businesses that use technology to enhance or automate financial services and processes.
2. This directive specifically targets business payments facilitated (done) through certain **third-party services** and does not affect other card transactions.
3. In India, several fintech firms fall under the category of **Business Payment Service Providers (BPSPs)**.
   a. BPSP enables corporate credit card companies to make **significant payments** directly to vendors' or merchants' bank accounts.
   b. They transfer funds to these suppliers using standard bank channels like NEFT and RTGS, functioning as intermediaries.
   c. This operational model faces regulatory scrutiny.
   d. The RBI's action is in line with its broader goal of ensuring regulatory compliance in the fintech sector.
   e. It aims to prevent fraudulent or unauthorized transactions in digital platforms.
   f. BPSPs are regulated and authorized by the **RBI** following the **PA-PG (Payment Aggregators and Payment Gateways)** guidelines.
4. **Reasons for Halting Commercial Card Transactions**
   a. There are concerns regarding transactions occurring without proper invoicing or **KYC protocols** due to incomplete merchant details.
   b. Instances of unauthorized card-to-peer or card-to-business payments like bills or rent arise when merchants are either unregistered businesses or violating regulations.
   c. Some payments are sent to a main merchant and then split and sent separately to other merchants, which contradicts rules stating cards should only be used for **point-of-sale transactions**.

About PA-PG

1. Online **Payment Aggregators** are companies that facilitate online payments by acting as intermediaries between the customer and the merchant.
2. The RBI introduced Guidelines for Regulating PAs and **Payment Gateway** in March 2020.

7. RBI'S Directions To Paytm Payments Bank

In February 2024, the Reserve Bank of India (RBI) restricted Paytm Payments Bank Limited (PPBL) from accepting deposits, top-ups, and other credits into customer accounts and wallets from March 15, 2024 onwards (Earlier the date mentioned by RBI was February 29, 2024).

What is the difference between Paytm and Paytm Payments Bank?

Paytm	Paytm Payments Bank
1. Paytm started as a **digital wallet** and payment **platform**. 2. It allows users to make payments for various services like mobile **recharges**, bill payments, online **shopping**, and more using their app or website.	1. Paytm Payment Bank is a **separate entity** like a **regular bank** formed in **2018** but all **online**. 2. Customers can open a savings account, get a **debit card**, and earn interest on their **savings** but this bank **cannot** give you **loans** or **credit cards.**

What are the RBI's Directions?

1. Paytm Payments Bank cannot accept deposits or top-ups in any customer account, wallet, FASTags, National Common Mobility Card (NCMC), etc from March 15, 2024, onwards.
2. Customers' accounts with Paytm Payments Bank will be closed.
3. Customers can still use or withdraw their money as long as they don't cross the available balance limit.

Why did RBI give such directions to Paytm?

1. **KYC Compliance:** Paytm hasn't fully followed the Know Your Customer (KYC) norms since 2018. KYC norms are rules banks follow to confirm their customers' identities and prevent fraud.
2. **Foreign Entity Ownership:** Paytm's parent company, **197 Communications**, has had problems with keeping customer information safe in the past. It was recently found that a **China-based company** holds some stakes in Paytm's parent company 197 Communications. The access to the data of millions of customers to this foreign entity has raised **security concerns**.

What are the Payment Banks?

1. The idea of Payment Banks was first given by **Nachiket Mor Committee** in 2014.
2. Payment banks are banks that focus on providing basic financial services like deposits and payment services, especially to people in **remote areas** who may not have access to traditional banks.
3. The first such bank was created in **2017** named Airtel Payments Bank. Presently, there are **11** such banks in India.
4. It is registered as a company under the **Companies Act of 2013** and is regulated by
   - RBI Act of 1934
   - Banking Regulations Act of 1949
   - Payment Services & Settlement Act of 2007

What are the features of a Payment Bank?

1. **Limited Banking Tasks:** They can perform basic banking functions such as accepting deposits and facilitating payments, but they cannot issue loans or credit cards.
2. **Deposit Limit:** One can deposit up to Rs 1 lakh per person in a payment bank.
3. **Prohibitions:**
   - **No NBFC Conversion:** Payment banks can't turn into Non-Banking Financial Companies (NBFCs) which are financial companies that offer services like loans and investments but don't have a banking license.
   - **No NRI Deposits:** Non-resident Indians (NRIs) cannot deposit money. NRIs are individuals who are Indian citizens but reside outside India for employment, business, or other purposes.
4. **Interoperability:** Payment banks let you access your money through different ATMs and service providers, even if they're not from the same bank.
5. **Investment Restrictions:** Funds held by payment banks can be invested in government securities only. Government securities are like loans you give to the government. They are safe because the government promises to pay them back with interest.
6. **Minimum Capital Requirement:** Payment banks need at least 100 crore rupees to start operating.

What are the Advantages of a Payment Bank?

1. **Financial Inclusion:**
   - Payment banks offer **easy access** through digital platforms, making banking convenient for remote areas.
   - With **low minimum balance requirements**, they enable more people, including those with limited resources, to join the formal banking sector,
   - It facilitates services to marginalized groups like small businesses, women, and tribal communities.
2. **Cost-Effectiveness:** Due to minimal capital requirements, it's easier to establish payment banks, leading to increased competition and innovation in the banking sector, ultimately benefiting customers and the economy.
3. **Regulatory Oversight:** Payment banks operate under strong regulation by the Reserve Bank of India (RBI) and other relevant laws, ensuring customer protection and safety.

What are the Challenges associated with a Payment Bank?

1. **Limited Services:** They offer only basic banking services and no loans, which may not meet the needs of all customers.
2. **Deposit Limits:** There's a maximum deposit limit per person, restricting customers with larger savings.
3. **Limited Investment Options:** Payment banks can only invest in government securities, providing lower returns and fewer investment choices.
4. **Low Coverage and Profitability:** Exclusion of NRIs and limited customer base result in lower profitability and restrict overall growth potential.
5. **Technological Dependence:** Payment banks heavily depend on technology which makes them vulnerable to cyber threats and service disruptions.

8. DPI Can Drive India's $1 Trillion Digital Economy By 2030: NASSCOM

1. In February 2024 NASSCOM (National Association of Software and Service Companies) released the **'Digital Public Infrastructure (DPI) of India - Accelerating India's Digital Inclusion'** report.

Highlights of the Report

2. It suggests that **DPIs** could drive India towards a **$1 trillion digital economy by 2030**, aiding its growth to an **$8 trillion economy**.
   a. **DPI** is a digital network that helps countries deliver social services and economic opportunities to residents.
   b. India's own foundational DPI, the **India Stack**, comprises 3 layers: - digital identity (Aadhaar), Payments, and Data.
      - India Stack is a set of digital infrastructure components that allow governments, businesses, and individuals to conduct transactions electronically.
3. By 2030, DPIs are expected to significantly enhance citizen services and promote social development, particularly in **financial inclusion**.
4. Mature DPIs along with **Aadhaar**, **UPI**, and **FASTag** have witnessed exponential (very large) adoption by 2022 and within the next 7-8 years, provide an opportunity for further scalability.
   a. Mature DPIs have contributed **$31.8 billion**, around **0.9% of India's GDP**.
   b. By 2030, DPIs could **increase economic value by 3 times** to **3-4% of GDP**.
5. **Emerging digital entities** like **ABDM** (Ayushman Bharat Digital Mission) and **ONDC** (Open Network for Digital Commerce) are also ready for mass adoption after successful proof of concept.
   a. ABDM is a digital initiative by the Indian government to transform the country's healthcare sector.
   b. ONDC is a platform that promotes open e-commerce. Its goal is to promote fair competition, enhance user convenience, and promote innovation.
6. Currently, over 30 countries are either adopting or considering implementing India's DPI framework.
7. **Key Digital Public Infrastructures (DPIs):**
   a. **Aadhaar:** Provides a unique digital identity for each resident.
   b. **UPI:** Enables real-time cash transfers.
   c. **ESign:** Offers digital signatures for online authentication.
   d. **DigiLocker:** A platform for storing and sharing virtual documents.
   e. **API (Application Programming Interface) Gateway:** Provides standardized access to government records and services.
8. **Significance/Achievements**
   a. **E-Governance and Transparency**
      - **Improved Service Delivery:** DPIs streamline government services, reducing manual processes and corruption, leading to improved performance and transparency.
      - **Citizen-centric:** Empower citizens with better access to government services, information, and opportunities, promoting participation and accountability.
      - **Reduced Corruption:** Online services and digital transactions reduce opportunities for corruption, promoting better governance.

b. Economic Impact

- **Financial Inclusion:** DPIs like Aadhaar and UPI enhance financial inclusion, providing easier access to credit and financial services.
- **Boost to Digital Economy:** Boost digital transactions, e-commerce, and online business, accelerating economic growth and creating new opportunities.

c. Social Impact

- **Improved Public Health:** Aid in healthcare delivery, disease surveillance, and telemedicine, improving access to quality healthcare, especially in remote areas.
- Initiatives like Ayushman Bharat Digital Mission and National Health Mission leverage DPIs in healthcare.
- **Education and Skill Development:** Ease online learning, digital content access, and skill development programs, promoting knowledge distribution and enhancing employability.

d. Additional Benefits

- **National Security:** Strong DPIs aid in e-surveillance and intelligence gathering, contributing to national security.
- **Disaster Management:** DPIs facilitate early warning systems, resource allocation, and communication during natural disasters, enhancing response effectiveness.

Challenges	Solutions
1. Unequal access to the internet and digital literacy prevent digital adoption.	1. Initiatives like PM Gramin Digital Literacy Mission aim to bridge the digital divide.
2. Concerns about statistics misuse and breaches require strong safeguards.	2. Strengthening data security frameworks and ensuring responsible governance. • Enactment and implementation of **Data Protection Act**, as emphasized in the **Puttaswamy judgment, 2027**.
3. Ensuring seamless operation of different DPI components is crucial.	3. Increasing adoption and encouraging innovation in DPI's use.
4. Training government officials and citizens to effectively use DPIs is essential.	4. Exploring applications in areas such as public health, education, and agriculture.

About NASSCOM

1. Nasscom, a not-for-profit industry association, is the apex body over $250 billion technology industry in India.
2. Established in 1988 and ever since, nasscom's relentless pursuit has been to constantly support the technology industry.
3. Nasscom is focused on building the architecture integral to the development of the technology sector through policy advocacy.
4. It helps setting up the strategic direction for the sector to unleash its potential and dominate newer frontiers.

9. FATF Removes 4 Countries From 'Grey List'

1. In February, 2024 United Arab Emirates (UAE), Gibraltar, Barbados, and Uganda were **removed from the grey list** of the Financial Action Task Force (FATF).
2. However, Kenya and Namibia have been added to the Grey List.

Implications of Delisting from Grey List:

1. **Enhanced Reputation**: Improved standing in the international community.
2. **Boosted Investor Confidence**: Increased trust in the financial system and more investments.
3. **Lower Transaction Costs:** Smoother financial transactions.
4. **Expanded Market Access:** Better access to global financial markets.
5. **Avoidance of Sanctions**: Evading potential punitive measures from other jurisdictions.

About FATF

1. FATF, or the Financial Action Task Force, is an international organization that works to combat money laundering, terrorist financing, and other threats to the global financial system.
2. It was **established in 1989 by the G7** to examine and develop measures to combat money laundering.
3. There are **currently 39 members** of the FATF.

FATF's Lists: -

The Financial Action Task Force (FATF) maintains **2 main lists** to monitor and address global financial risks related to money laundering and terrorist financing:

1) '**Jurisdictions under Increased Monitoring' (**often externally **referred to as the grey list.):** It indicates that a country needs to take immediate action to address the strategic deficiencies in their anti-money laundering and counter-terrorism financing regimes.

Note: - At present (February 2024) **21 countries** are mentioned in the FATF list

2) **'High-Risk Jurisdictions subject to a Call for Action' (**often externally **referred to as the black list.)**: This list includes jurisdictions or countries that FATF considers non-cooperative in combating money laundering and terrorist financing activities. Being on the blacklist means there are serious deficiencies and a lack of commitment to international standards. These countries may face severe repercussions, such as international sanctions and restrictions on financial transactions with other countries.

Note: - At present (February 2024), only the Democratic Republic of North Korea, Iran and Myanmar are mentioned in the FATF blacklist.

Concerns about FATF:

1. **Effectiveness**: Critics doubt if FATF's efforts effectively combat changing financial crimes.
2. **Transparency:** Some demand clearer processes on how countries are judged and listed on watchlists for more fairness.
3. **Impact on Developing Countries**: FATF's rules might be harder for poorer countries to follow, which in turn slows their growth.
4. **Stifling Innovation**: Following FATF's rules could limit new financial ideas, especially in areas like digital money (cryptocurrency).

10. High Duties Strategy To Curb Import From China

1. Various government branches have begun criticizing the Centre's gradual increase in customs tariffs, especially targeting imports from China.
2. While India's trade share in China is minimal (barely 3% of Chinese exports), it constitutes 14% of India's imports.
   a. These imports include inputs for domestic industries like electronics, pharmaceuticals, textiles, and leather, along with capital goods.
3. There is an **increase in the average tariffs** to 18% in 2022 from 13% in 2014.
   a. **Quality Control Orders (QCOs)** were imposed to reduce cheap imports from China, impacting MSMEs' access to necessary materials.
   b. Over 500 major item categories have seen tariff hikes since 2016.
   c. Some proposed customs duty hikes have raised concerns as they exceed the **WTO-mandated 'bound rates**.
      - **Bound rates** are the maximum customs duty rates a country commits to under the most favoured nation (MFN) principle.
      - The Most Favored Nation (MFN) principle is a status or level of treatment given by one state to another in international trade.
      - It means that the country receiving this treatment must receive equal trade advantages as the "most favoured nation".
4. **India's tariffs** are among the highest globally, exceeding those of South East Asian and African countries.
   a. While developed nations negotiate Free Trade Agreements (FTAs) with maximum tariffs around 60%, India's highest tariffs reach up to **150%**.
   b. High tariffs are affecting sectors like **electronics** and **pharmaceuticals** which are causing either a decline in domestic production or making Indian

exports less competitive due to high production costs.

c. Industries warn that using high tariffs as a **protectionist measure** could have **detrimental (harmful) effects**.
   - Protectionist measures are government policies that restrict international trade to benefit domestic industries.

d. India's **high tariffs discourage companies** from diversifying their supply chains away from China.

e. Consequently, countries like **Vietnam**, **Thailand**, and **Mexico** offer lower tariffs on components to attract businesses shifting from China.

5. The **Ministry of Commerce** rejects claims of increased duties being '**protectionist**.'
   a. India's tariff policy aligns with global trends, with a focus on bilateral FTAs rather than joining large regional agreements like RCEP.
6. It's economically sensible to lower tariffs gradually and engage more with global markets before negotiating FTAs.
   a. Protectionism doesn't equal nationalism and can lead to inefficiency without benefiting consumers.
   b. Despite nearly 8 years of protectionist measures and incentives like tax advantages, India's manufacturing share of GDP remains around 15%.
   c. India should use tariffs strategically to support its manufacturing goals, including schemes like Production Linked Incentive (PLI), or risk undermining its progress.
7. Ministry of Electronics and Information Technology proposed reducing duties by around 20% on items like circuit boards, chargers, and phones, which was partially accepted.
   a. The government reduced duties on various IT goods before the Interim Budget 2024.
8. **These gradual changes in duty rates will:**
   a. Assist domestic industry in expanding capacity,
   b. Ensure a fair competition environment,
   c. Ease constraints in the supply of raw materials, and
   d. Improve the ease of doing business.

India-China Trade

1. In 2022, **trade between India and China** reached a record high of $136 billion.
2. However, **New Delhi's trade deficit** with Beijing crossed $100 billion for the 1st time.
3. China stands as India's **top trade partner** for 2022.
4. India's increasing imports from China shows dependence on essential goods.
5. However, it also indicates a positive aspect of the Indian economy importing more intermediate goods.

11. India Ranks 42 Out Of 55 In The IIP Index 2024

1. In February 2024 the US Chamber of Commerce released the **12th edition** of its International Intellectual Property (IIP) Index.
   - The IIP Index, 2024 assesses intellectual property systems in the world's leading **55 economies** using 50 distinct criteria.
   - Through this data, economies can identify ways to enhance innovation and creativity driven by IP and reveal trends in global IP protection.

Highlights of the Index

1. 20 economies improved their overall scores, signalling optimism for global IP policy's future, but work remains.
   - **Top gains:** Saudi Arabia (+6.04%), Brazil (+4.50%), and Nigeria (+3.00%) showcase policy-driven innovation investments.
2. According to the Index 2024, **India** maintained its **42nd position** with a **score of 38.64%, unchanged** since 2022.

Top 3 Countries in IIP Index,2024		
Rank	**Countries**	**Score (in %)**
1	United States	95.48
2	United Kingdom	94.12
3	France	93.12

What is Intellectual Property?

1. **Definition:** Intellectual Property (IP) encompasses creations originating from the intellect, such as inventions, literary and artistic endeavours, symbols, names, and commercial images.
2. **Protection:** IP is safeguarded by Intellectual Property Rights (IPR), granting legal protection to individuals or entities over their creative and innovative outputs.
3. **Legal Framework:** The rights associated with IP are detailed in **Article 27 of the Universal Declaration of Human Rights**, emphasizing the global recognition of these protections.

Types of Intellectual Property

1. **Patents**: Granted for new inventions, offering exclusive rights to the invention's use and commercialization.
2. **Trademarks**: Used for branding, distinguishing goods or services in the marketplace.
3. **Copyrights:** Protect artistic and literary works, providing control over reproduction, distribution, and public performance.
4. **Trade Secrets:** Cover confidential business information, safeguarding competitive advantage.
5. **Industrial Designs**: Concerned with the aesthetic aspects of products, protecting their unique appearance.

India's IPR Framework

1. **World Trade Organization Membership**: India aligns with the TRIPS Agreement, demonstrating its commitment to international intellectual property standards.
2. **World Intellectual Property Organization Affiliation**: As a participant, India supports global efforts to safeguard intellectual property rights.
3. **National IPR Policy 2016:** This strategic document, introduced in May 2016, aims to shape the future direction of IPR development in India.
4. **Policy Motto:** Embracing the slogan "Creative India; Innovative India," the policy encourages a culture of innovation and creativity."

IPR Challenges in India

Challenges	Solution
1. India faces ongoing issues with piracybacklog in processing patent applications presents a considerable obstacle	1. needs to strengthen its IP enforcement mechanisms, including increasing resources and expertise for enforcement agencies, improving coordination between different agencies, and streamlining legal procedures for IP disputes.
2. lack of comprehensive knowledge of intellectual property rights	2. Encouraging Innovation and awareness Many businesses and individuals in India

12. 1ST Skill India Centre In Odisha

1. In February 2024, the Minister of Education and Skill Development & Entrepreneurship launched the **1st Skill India Centre (SIC)** in Sambalpur, Odisha.
2. The SIC aims to **enhance the skills of youth**, with a focus on new job roles.
   a. It marks an important step in upgrading the skills of Indian youth.
   b. It allows access to quality education and establishes a level playing field for aspiring youth.

c. It is equipped with the required infrastructure, advanced technologies, and modern facilities.

d. Transforms India's skilling landscape by providing enhanced accessibility, personalized learning experiences, and better career guidance.

e. It **offers courses** in fields like Media & Entertainment, Leather, Tourism & Hospitality, and IT-ITeS.

f. It utilizes **demographic dividends** to promote rural development, support local entrepreneurship, and drive socio-economic growth.

3. The SIC initiative supplements the **Kaushal Rath program** which delivers skill training and certification across Odisha's districts.

a. The **National Skill Development Corporation (NSDC)** will manage training programs to ensure quality and oversee the centre's operations.

b. NSDC is a **Public-Private Partnership (PPP)** under the **Ministry of Skill Development & Entrepreneurship (MSDE)** that drives the skilling ecosystem.

c. NSDC collaborates with the private sector to execute the **Skill India Mission** which focuses on effective vocational training.

13. T-50: India's Longest Transportation Tunnel

1. On February 20, 2024, **country's longest transportation tunnel namely 'T-50'** on **Udhampur-Srinagar-Baramulla Rail Link (USBRL)** was dedicated by Prime Minister Narendra Modi when he flagged off the **first electrified trains of the Kashmir valley.**
2. The T-50 tunnel, **12.77 kilometers**, has been completed after **14 years.**
   - In addition to the T-50 tunnel, **PM Modi inaugurated the 48.1 km long Banihal-Khari-Sumber-Sangaldan section**.

The other noteworthy tunnels on the project are:

1. **Tunnel T48** – 10.20 km between village Dharam-Sumber station (Jammu & Kashmir)
2. **Tunnel T15** – 11.25 km between Sangaldhan – Basindhadar station ((Jammu & Kashmir)
3. **Pirpanjal Tunnel** – 11.2 km between Banihal – Qazigund station (Jammu & Kashmir)

Virtual Flag-off of Electrified Trains:

1. As part of the inauguration ceremony, PM Modi virtually flagged off **2 electrified trains**, symbolizing a new era of modern rail transport in the region.
   - **One train** started its journey from **Srinagar to Sangaldan**, while the other one traveled in the opposite direction.

E. Science & Technology

1. Three Space Facilities And Astronaut Wings

1. In February, 2024 the PM Narendra Modi inaugurated **3 space infrastructure projects:**
    1. SLV Integration Facility (PIF) at Satish Dhawan Space Centre, Sriharikota;
    2. Semi-cryogenics Integrated Engine and Stage Test (SIEST) facility at ISRO Propulsion Complex, Mahendragiri; and
    3. Trisonic Wind Tunnel at Vikram Sarabhai Space Center, Thiruvananthapuram.
2. In addition, the PM unveiled the names of the **4 pilots** selected for the Gaganyaan mission and presented them with **'Astronaut Wings.'**
    1. The designated pilots include Group Captain **P Balakrishnan Nair**, Group Captain **Ajit Krishnan**, Group Captain **Angad Pratap**, and Wing Commander **S Shukla.**
    2. According to ministry, the **final manned mission**, in which **3 astronauts** will go to space for **7days** to experience space effects and perform **zero gravity experiments**, is scheduled to be launched next year**, in 2025.**

Aim of the Projects

1. These projects aim to enhance India's technical capabilities in the space sector and contribute to its vision for space exploration.
2. The **PIF is expected to increase** PSLV launches from 6 to 15 annually, supporting SSLV and other small launch vehicles.
3. The **SIEST facility will focus** on developing semi-cryogenic engines, thereby enhancing payload capacity, with the capability to test engines up to 200 tons of thrust.
4. The **Trisonic Wind Tunnel** represents a significant milestone in aerodynamic testing for rockets and aircraft, playing a crucial role in the Gaganyaan Mission.

The Gaganyaan Mission

1. Gaganyaan aims to launch India's 1st **crewed orbital spacecraft**, making it the 4th **nation** to achieve this extraordinary feat after the Soviet Union (later Russia), the United States, and China.
2. Gaganyaan will be lifted into space by the powerful LVM-3.
    3. LVM3 full form is Launch Vehicle Mark-III. Previously known as Geosynchronous Satellite.
    4. LVM3 is India's heaviest space launch vehicle.

Gaganyaan Mission Objectives

The primary objective is to demonstrate India's capability to send humans into low Earth orbit (LEO) and return them safely. This ambitious endeavor serves several purposes:

1. **Technological Advancement:** Developing the complex technologies required for human spaceflight will push the boundaries of India's engineering and scientific expertise.
2. **Scientific Opportunities:** A crewed mission will enable astronauts to conduct experiments in microgravity, potentially leading to breakthroughs in medicine, materials science, and other fields.
3. **National Prestige:** A successful Gaganyaan Mission will cement India's position as a global leader in space exploration and technology.
4. **Inspiration for Future Generations:** This mission aims to serve as a beacon of inspiration for young Indians, encouraging them to pursue careers in science, technology, engineering, and mathematics (STEM) fields.

The Spacecraft

The Gaganyaan spacecraft consists of 2 main modules:

1. **Orbital Module:** This houses the crew during their 3-to-7-day mission in low Earth orbit. It provides life support systems, communication, and navigation equipment.

2. **Crew Module:** The capsule-shaped crew module is where the astronauts will reside. For re-entry, it detaches from the orbital module, enduring the fiery descent through the atmosphere and ultimately splashing down in the designated area of the Indian Ocean.

Astronaut Selection and Training

Intensive selection processes identified **4 Indian Air Force pilots as the 1st astronauts for the Gaganyaan Mission.** These astronauts have undergone rigorous training in Russia, collaborating with Roscosmos, Russia's space agency. Their training has included:

1. Physiological and psychological preparation
2. Mission-specific simulations
3. Exposure to microgravity environments
4. Spacecraft systems operation

Mission Timeline

The Gaganyaan Mission timeline is evolving but it's structured as follows:

- **Uncrewed Missions:** Two uncrewed test flights are planned before the actual crewed mission. These flights will validate the spacecraft's systems and ensure the safety of the astronauts.
- **Crewed Mission:** The landmark crewed mission is tentatively scheduled for late 2024 or early 2025. The mission will see an Indian crew of three astronauts launched into orbit, where they will conduct scientific experiments and experience life in space.

Gaganyaan Mission Challenges and Solutions

Challenge	Solution
Crew Escape System: Building a reliable system to safely separate the crew module from the launch vehicle in case of emergencies.	ISRO is developing a launch abort system that will pull the crew module away from the rocket and parachute it to safety.
Life Support System: Creating a system that provides a habitable environment with breathable air, water, and waste management for astronauts.	ISRO is focusing on indigenous development of this system, ensuring it can sustain the crew throughout the mission.
Crew Training and Selection: Selecting and training astronauts for the physical and psychological demands of spaceflight.	India has conducted rigorous pilot selection and partnered with Roscosmos for astronaut training, including physiological and psychological conditioning, microgravity simulations, and spacecraft system operation training.
Technology Development: Several key technologies, like crew suits and advanced life support systems, require further development.	ISRO is leveraging existing expertise, collaborating with international partners where necessary, and encouraging private sector participation to address these technological gaps.
Budgetary Constraints: Balancing the mission's ambitious goals with available resources.	The Indian government is committed to providing adequate funding, and ISRO is also exploring cost-effective solutions and public-private partnerships.

About Vyommitra

Isro's woman robot astronaut **'Vyommitra'** will fly into space ahead of its ambitious "**Gaganyaan**" manned mission, and the humanoid mission launch is scheduled for **this year.**

1. **Vyommitra,** designed and **developed by** the Indian Space Research Organisation (**ISRO**) at a robotics laboratory in the **Vikram Sarabhai Space Centre.**
2. Vyommitra is a humanoid robot with a female appearance, developed to function onboard the Gaganyaan, ISRO's crewed orbital spacecraft. It's termed a **half-humanoid** because it includes a head, two hands, and a torso, lacking lower limbs.
3. The name Vyommitra combines two Sanskrit words: **"vyoma"** (space) and **"mitra"** (friend), signifying a space friend.

Purpose of Developing a Humanoid

1. **Milestone Goal:** ISRO's aims to send a human into space **for the 1st time**, necessitating the development of a crew module and rocket systems for safe travel and return.

2. **Testing Methodology:** Using Vyommitra, ISRO intends to test the **GSLV Mk III (also known as LVM-3)** rocket's capability to transport humans to space and back safely, a method previously approached by other countries **through animal testing.**

Tasks of Vyommitra in Space

1. **Functionality and Role:** Vyommitra will test the crew module's systems essential for the survival and safe travel of astronauts. Drawing a parallel with **TARS robot** from the film "**Interstellar**," Vyommitra will serve as a basic artificial intelligence and robotics system, capable of:
   - **a.** Using spacecraft equipment, like safety mechanisms and switches.
   - **b.** Receiving and acting on commands from ground stations.
   - **c.** Managing launch and orbital postures.
   - **d.** Responding to environmental changes and generating warnings.
   - **e.** Replacing carbon dioxide canisters and operating switches.
   - **f.** Monitoring the crew module, receiving voice commands, and responding in speech (bilingual).
2. **Reporting:** Vyommitra will relay back to Earth the crew module's conditions during spaceflight, such as heat radiation levels, aiding ISRO in ensuring the required safety standards for future manned missions.

Conclusion: Gaganyaan mission is really a big deal in India's space travel. This shows how far we have come and how smart our scientists and engineers are. We're not just going to the moon, but planning to set up our own space station and become a major player in the space game. This mission is going to change everything! It will inspire people for generations to come and help us learn and do amazing things in space.

2. GSLV-F14/INSAT-3DS Successfully Launched

1. Satellite **INSAT-3DS** on **launch vehicle GSLV-F14**, **fully funded by the Ministry of Earth Sciences (MoES)**, was **successfully** launched by the Indian Space Research Organisation **(ISRO)** from the **Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh.**
2. The vehicle has successfully placed the **satellite into the intended geosynchronous transfer orbit.**
3. In its **16th mission**, the GSLV aims to deploy the INSAT-3DS meteorological satellite into the Geosynchronous Transfer Orbit (GTO).

GSLV-F14

1. Geosynchronous Satellite Launch Vehicle **(GSLV)** is a **3-stage 51.7 m long** launch vehicle with a **liftoff mass of 420 tonnes.**
2. **The 1st stage (GS1)** comprises a **solid propellant**.
3. **The 2nd stage (GS2)** is also an **earth-storable propellant stage** loaded with **40-ton propellant.**
4. **The 3rd stage (GS3)** is a **cryogenic stage** with a **15-ton** propellant loading of **liquid oxygen (LOX)** and **liquid hydrogen (LH2).**
5. During the atmospheric regime, the Satellite is protected by **Ogive payload fairing.**
6. GSLV can be used to launch a variety of spacecraft capable of performing **communications, navigation, earth resource surveys,** and any other proprietary mission

INSAT-3DS

1. INSAT-3DS satellite is a follow-on mission to the **third-generation meteorological satellite from geostationary orbit.**
2. It is designed for **advanced meteorological observations** and monitoring of **land and ocean surfaces for weather prediction** and **disaster warning.**
3. This satellite will also enhance **meteorological services** along with the currently operated INSAT-3D and INSAT-3DR satellites.
4. Indian industries have made significant contributions to the manufacturing of satellites.

Who will use INSAT-3DS satellite data?

- Various departments of the Ministry of Earth Sciences (**MoES**) such as India Meteorological Department (**IMD**), National Center for Medium-Range Weather Forecasting (**NCMRWF**), Indian Institute of Tropical Meteorology **(IITM)**, National Institute of Ocean Technology (**NIOT**), Indian National Ocean Information Service Center (**INCOIS**) and various other agencies and institutions **will use INSAT-3DS satellite data to provide better weather forecast and meteorological services.**

The primary objectives of the mission are:

1. To monitor the **Earth's surface and its environment**, conducting **marine observations** in various spectral channels of meteorological importance.
2. To provide a **vertical profile of various meteorological parameters** of the atmosphere.
3. To provide **satellite aided search** and **rescue services.**

Satellite salient features

Mission	Meteorological services Data relay and Satellite Aided Search & Rescue services
Payloads	6 channel Imager 19 channel Sounder Data Relay Transponder (DRT) Satellite Aided Search & Rescue transponder (SAS&R)
Orbit	Geostationary orbit
Structure	I-2k platform
Thermal	6 channel Imager Passive and active thermal control system Bi-annual yaw flip to reduce the thermal load on the passive coolers
Power generation	42 V Sunlit regulated single bus Power generation 1505W (Equinox) I-2k Solar panels and Li-Ion 100Ah Battery for eclipse support
Launch vehicle	GSLV with 4 m diameter. Ogive Payload Fairing Standard 937mm diameter. interface

3. India's 1St Hypervelocity Expansion Tunnel Test Facility

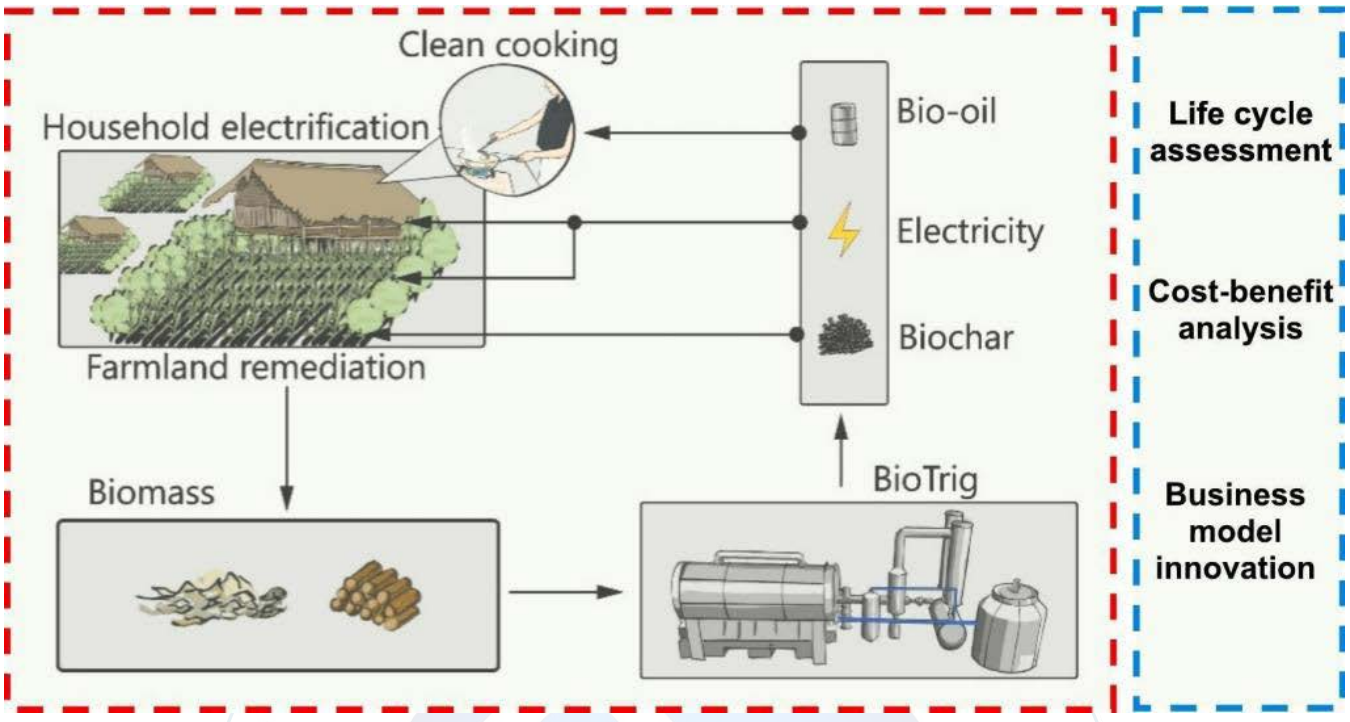
1. The S2, nicknamed **'Jigarthanda'**, is a 24-meter-long facility located at IIT Kanpur's Hypersonic Experimental Aerodynamics Laboratory (**HEAL**) within the **Department of Aerospace Engineering.** This initiative reflects a significant leap towards achieving technological independence in critical areas, aligning with the **Prime Minister's vision** for a **scientifically advanced nation**.
2. The facility is capable of **generating flight speeds ranging from 3 to 10 km/s,** simulating hypersonic conditions, which is crucial for various applications such as atmospheric entry of vehicles, asteroid entry, scramjet flights, and ballistic missiles.

Key points:

1. **Significance**: India's goal of **self-reliance** (**Atmanirbhar Bharat**).
2. **Achievement**: India joins a select group of countries with **advanced hypersonic testing capabilities.**
3. **Developer**: Indian Institute of Technology, Kanpur (**IIT Kanpur**).
4. **Funding**: The Department of Science & Technology (DST) supported the project.
5. **Purpose**: It supports **ISRO** and **DRDO** missions, including **Gaganyaan**, **Reusable Launch Vehicle (RLV)**, and **hypersonic cruise missiles**.
6. **Components**: The facility comprises a free piston driver, a compression tube, a shock/acceleration tube, and a test section with a **high vacuum system** for creating hypersonic flow.
7. **Impact**: Enhances India's capacity in hypersonic research, aiding in the optimization of current and future defense and space missions.
8. **Global Positioning:** Establishes India as a leader in experimental hypersonic research, advancing the country's space and defense capabilities.

4. BioTRIG: New Waste Management Technology

1. A recent study highlights the potential of a new waste management technology, **BioTRIG**, to revolutionize life in rural India.
2. By using **pyrolysis at the community level**, this innovative system aims to **reduce indoor air pollution**, **enhance soil health and provide clean electricity**, providing multiple benefits to below poverty line (BPL) rural communities.
    a. **Pyrolysis is a process that involves heating organic materials in the absence of oxygen.**



Technology Overview:

1. **BioTRIG utilizes pyrolysis**, a form of chemical recycling, to convert organic waste into useful components like bio-oil, syngas, and biochar fertilizer.
2. Pyrolysis involves heating waste in an oxygen-free chamber at temperatures exceeding 400 degrees Celsius, producing valuable chemicals.
3. The study highlights the potential of these pyrolysis by-products to improve soil fertility, replace traditional cooking fuels, and generate clean energy for rural households.

BioTRIG Implementation:

1. Based on survey findings, **researchers designed the BioTRIG system** to utilize locally generated waste for pyrolysis.
2. **Syngas and bio-oil** generated from the process can power the system in subsequent cycles, with surplus electricity powering local homes and businesses.
    a. **Syngas, or synthesis gas,** is a mixture of **hydrogen and carbon monoxide**. The gas often contains **some carbon dioxide and methane**. It is principally used for producing ammonia or methanol. Syngas is **combustible and can be used as a fuel.**
    b. **Bio-oil** is a liquid product that's created by **rapidly heating organic material in a low oxygen environment.** It's also known as **pyrolysis oil or bio-crude.**
3. **Clean-burning bio-oil** can replace polluting cooking fuels, while **biochar improves soil fertility** and **stores carbon.**

Potential Impact

1. Computer simulations show that widespread **adoption of BioTRIG could significantly reduce greenhouse gas emissions** and improve public health in rural India.
2. The technology aligns with **United Nations sustainable development goals**.

Business Models for Adoption:

2 novel business models are proposed to facilitate BioTRIG adoption:

- Private sector partnerships providing seed funding in exchange for social benefits and job creation.
- Villagers contributing **waste feedstocks for free in exchange for free biochar** and **discounted bio-oil, resulting in cost savings.**

Conclusion

BioTRIG offers a promising solution to address the multifaceted challenges facing rural India, including climate emissions, public health and agricultural sustainability. With a scalable business model and government support, BioTRIG has the potential to transform the lives of millions of people in rural India while contributing to global sustainability efforts.

5. Cabinet Approves Amendment To Space Sector's FDI Policy

1. In February 2024, the Union Cabinet approved an amendment in **the Foreign Direct Investment (FDI)** policy on the space sector.
2. Under the existing policy, **Foreign Direct Investment (FDI)** is allowed for the establishment and operation of satellites solely through the **government approval route**.
3. But, under the amended FDI policy, up to **100% FDI is allowed in the space sector**, with **different entry routes** for various activities.

Amendments in the FDI Policy

A. Liberalization of Space Sector:

1. The space sector has been liberalized for foreign direct investment in prescribed sub-sectors/ activities, dividing the **satellites sub-sector into three activities** with **defined limits** for foreign investment in each.
2. The reform is expected to enhance the **Ease of Doing Business,** leading to **greater FDI inflows** and contributing to growth in investment, income, and employment.

B. FDI Policy Changes:

1. Activities like satellites manufacturing and operation, satellite data products, and ground segment/user segment allow **up to 74% FDI under the automatic route.**
2. Launch vehicles, creation of spaceports, and manufacturing of components/systems for satellites **allow up to 49% FDI under the automatic route.**
3. Manufacturing of components/systems/sub-systems for satellites, ground segment, and user segment **allows up to 100% FDI under the automatic route.**

C. Indian Space Policy 2023:

1. The Indian Space Policy 2023 was notified to unlock India's potential in the space sector through **enhanced private participation**.
2. It aims to augment space capabilities, develop commercial presence, drive technology development, pursue international relations, and create an ecosystem for effective space application implementation.

D. Consultation and Stakeholder Involvement:

1. The **Department of Space** consulted with internal stakeholders like **IN-SPACe, ISRO, NSIL, and industrial stakeholders.**
2. **Non-Governmental Entities (NGEs)** are expected to benefit from increased investment, leading to sophistication of products, global scale operations, and a larger share of the global space economy.

E. Reforms and Entry Routes:

1. The proposed reforms aim to liberalize FDI policy provisions in the space sector by prescribing **liberalized entry routes** and **providing clarity** for FDI in various sub-sectors/activities.

Advantages of Liberalizing FDI in the Space Sector:

1. **Attracting Potential Investors**: The revised policy aims to draw potential investors to inject funds into Indian space companies by providing **more accessible entry routes**.
2. **Improving Ease of Doing Business (EoDB)**: The reformed FDI policy is set to enhance the Ease of Doing Business in the nation, facilitating **increased FDI inflows** and fostering investment and income growth.
3. **Expanding Global Market Share**: By liberalizing FDI, India may seize a **larger portion** of the global space market, a realm where it currently holds merely 2 percent.
4. **Generating Employment Opportunities**: Enhanced investments and sector growth are anticipated to fuel **employment generation**, potentially alleviating the current employment count of approximately 50,000 individuals.

5. **Technology Assimilation**: With heightened FDI and private sector collaborations, the space sector can **absorb cutting-edge global technologies**, thereby fostering self-reliance.
6. **Integration with Global Supply Chains**: A more open FDI regime would integrate Indian firms into global value chains, empowering them to establish manufacturing facilities domestically, thereby promoting the **'Make in India'** and **'Atmanirbhar Bharat'** initiatives.

Conclusion:

The recent Cabinet approval of amendments to the Foreign Direct Investment (FDI) policy for the Space Sector reflects a commitment to realizing an **Atmanirbhar Bharat**.

By liberalizing FDI in key space sub-sectors, the government aims to boost **investment, income, and employment opportunities** while fostering **self-reliance** and integration into **global value chains**.

These reforms align with the **Indian Space Policy 2023** and support the broader **'Make in India'** and **'Atmanirbhar Bharat'** initiatives.

6. BharatGPT Group Unveils 'Hanooman'

1. In February, 2024 the **BharatGPT group**, led by **IIT Bombay** and seven others, revealed plans to introduce its first ChatGPT-like service.
2. They developed the **'Hanooman'** series of Indic language models with **Seetha Mahalaxmi Healthcare (SML)**. The initiative is supported by Reliance Industries Ltd and the Department of Science and Technology.
3. **Hanooman** consists of large language models (LLMs) that can **communicate in 11 Indian languages** like Hindi, Tamil, and Marathi. There are plans to extend its capabilities to over 20 languages.
   a. Its applications span across **healthcare, governance, financial services,** and **education** sectors.
   b. Hanooman is more than just a chatbot; it's a **multimodal AI tool**.
   c. One customized version, **VizzhyGPT**, is specifically tuned for healthcare using extensive medical data.

Generative Pre-trained Transformers (GPTs)

1. GPTs are **large language models (LLM)** that use **transformer neural networks** to generate human-like text.
2. Trained on vast amounts of unlabeled (data with no labels/tags) internet text data, GPTs understand and generate coherent (logical and well-organized) and relevant text.
3. They can be adapted for various tasks like **language generation, sentiment analysis, machine translation**, and **text classification**.
4. GPTs utilize self-attention mechanisms to focus on different text parts, capturing more context and enhancing performance in **natural language processing (NLP)** tasks.
   - Natural language processing (NLP) is a computer program's ability to understand spoken and written human language. NLP is a part of artificial intelligence (AI).

Large Language Models (LLMs)

1. **LLMs**, utilize deep learning methods to process vast amounts of text data.
2. They analyze large text datasets to grasp the structure and meaning of the text and draw insights from it.
3. LLMs are trained to identify meanings and connections between words, enhancing their text comprehension and generation abilities.
4. The effectiveness of LLMs increases with the amount of training data they receive.
5. Training data for LLMs includes sources like Wikipedia, OpenWebText, and the Common Crawl Corpus, providing extensive text information for the models to learn and generate human-like language.

Applications of LLM

1. **Medical:** Aid in tasks like protein structure prediction for disease pattern recognition and outcome prediction.
2. **Retail:** Enhance customer experiences through interactive chatbots.
3. **Software:** Assist in writing software and teaching robots physical tasks.
4. **Finance:** Summarize earnings calls and generate transcripts of important meetings.
5. **Marketing:** Organize and analyze customer feedback.

Challenges in Developing LLMs

1. Require significant **capital investment, large datasets, technical expertise**, and **computing infrastructure**.
2. Sourcing quality datasets in Indian languages poses a major obstacle.

GPT vs LLM

1. GPTs, a type of LLM, use deep learning to generate human-like text.
2. They are "generative," "pretrained," and based on a transformer neural network architecture for text processing and generation.

What is ChatGPT?

1. ChatGPT is an advanced natural language processing (NLP) model made by OpenAI.
2. It's a version of GPT-3 (Generative Pretrained Transformer 3), trained extensively on text data to mimic human-like responses.
3. The chatbot's responses aim to be technical but clear, avoiding complex terms.
4. It enables natural conversation between users and the virtual assistant.

[Q] Consider the following statements about 'Hanooman', the AI model developed by the BharatGPT group:

1. **It is a series of large language models (LLMs) proficient in Indian languages.**
2. **It is a multimodal AI tool, capable of generating text, speech, videos, and more across various domains.**
3. **The size of these AI models ranges from 1.5 billion to an impressive 40 billion parameters.**

Which of the above statements are correct?

[A] 1 and 2 only
[B] 2, and 3 only
[C] 1 and 3 only
[D] All of the above

'Hanooman' is indeed a series of large language models (LLMs) proficient initially in 11 Indian languages, with plans to expand to over 20 languages, including Hindi, Tamil, and Marathi. **Hence, statement 1 is correct.**

'Hanooman' serves as a multimodal AI tool, capable of generating text, speech, videos, and more across various domains such as healthcare, governance, financial services, and education. **Hence, statement 2 is correct.**

The size of these AI models ranges from 1.5 billion to an impressive 40 billion parameters, reflecting their robustness and complexity. **Hence, statement 3 is correct.**

'Hanooman' has been developed by a consortium led by IIT Bombay, in collaboration with seven other IITs, and is backed by the Department of Science and Technology, Seetha Mahalaxmi Healthcare (SML), and Reliance Jio.

Therefore, all of the above statements are correct, and the answer is: D) All of the above

7. Dual Use Goods & Technologies

The Central Government is currently reviewing an Indian technology company that has been sanctioned by the EU and the U.S. due to its "close connections" with Russian firms. Also, there have been allegations that they were exporting the Dual Use Goods & Technologies to Russia.

What are Dual Use Goods & Technologies?

1. Dual-use goods and technologies are things that can be used for both regular civilian purposes and for military or harmful purposes.

Dual-Use Goods/ Technologies	Civilian Applications	Military/ Security Applications
Uranium	Generating electricity in nuclear power plants	Production of nuclear weapons
Chlorine	Water purification	Chemical weapon (chlorine gas)
Artificial Intelligence Facial recognition software	Unlocking smartphones	Surveillance of people and hijacking privacy
Vaccines	Preventing infectious diseases	Potential for biowarfare (biological agents as weapons to harm)

Drones	Photography	Military surveillance and security
Satellites	Communication	Surveillance and intelligence gathering

If such goods or technologies get into the hands of the wrong people like terrorists, they will be misused. Hence, it becomes important to regulate them strictly.

What are the Challenges faced by countries in regulating them?

1. **Determining End-Use:** It can be challenging for authorities to accurately determine the intended use of certain items, especially when they have legitimate civilian applications but can also be diverted for military or illicit purposes. For example - silicon, nuclear technology, etc
2. **Complex Laws and Suspicion:** Companies face complex regulations and export controls, often leading to delays, compliance burdens, and a very high level of scrutiny due to the potential for misuse.
3. **Rapid Technological Advances:** Technology keeps on advancing with time. Keeping up with new technology is tough because it's always changing, making it harder to control the spread of dual-use tech.
4. **Complex Global Supply Chains:** A global supply chain covers all the steps involved in manufacturing and delivering a product or service when those steps take place in more than one country. For example, a semiconductor chip originates from Vietnam. It moves into India and finally, from India, it is being used in Sweden and it is nearly impossible to identify its end use.

International Agreements to control such goods & technologies:

Year	Agreement	Description
1970	**Nuclear Non-Proliferation Treaty (NPT)**	1. The treaty aims to prevent the spread of nuclear weapons to countries that don't already have them (**Non-Proliferation**). 2. It encourages countries that do have nuclear weapons to reduce and eventually eliminate their nuclear arsenals (**Disarmament**). 3. The treaty also promotes the **peaceful use** of nuclear energy for things like generating electricity or medical purposes.
1975	**Nuclear Suppliers Group (NSG)**	1. The NSG sets **guidelines and rules** for its member countries regarding the **export** of nuclear-related items. 2. This includes things like nuclear reactors, fuel, and technology.
1985	**Australia Group**	1. Similar to the NSG for nuclear materials, the Australia Group sets **guidelines and regulations** for its member countries regarding the **export** of materials and technologies that could be used to develop **chemical or biological weapons.**
1987	**Missile Technology Control Regime (MTCR)**	1. The MTCR aims to prevent the **spread of missiles** capable of delivering **weapons of mass destruction**, like nuclear, chemical, and biological weapons. 2. It does this by regulating the transfer of **missile-related technology, drone technology,** etc.

1996	**Wassenaar Arrangement**	1. The Wassenaar Arrangement sets guidelines for member countries on exporting **conventional weapons**, like firearms and military equipment. 2. It also regulates **Dual-Use Goods and Technologies.**

Note:

1. India is part of Australia Group, MTCR and Wassenaar Arrangement but not of NPT & NSG.
2. India regulates some items under the **SCOMET List.**
   - **SCOMET stands for** Special Chemicals, Organisms, Materials, Equipment, and Technologies which have potential dual-use applications.

Conclusion: Dual-use goods and technologies offer both opportunities and risks. Responsible management and international cooperation are key to ensuring their positive impact.

8. NexCAR19: India's 1st Indigenously-Developed CAR-T Cell Therapy

1. **NexCAR19**, India's first domestically developed **CAR-T cell therapy**, represents a significant advancement in the fight against blood cancers, such as **leukemia** and **lymphomas**.
2. **In October 2023,** Central Drugs Standard Control Organisation **(CDSCO)** approved commercial **use** of **NexCAR19** (A CAR-T cell therapy).
3. The launch of NexCAR19, including clinical trials that showed promising results, especially in patients with **Acute Lymphocytic Leukaemia**.
4. This innovative therapy offers new hope to patients who have exhausted other treatment options, providing a more accessible and cost-effective solution.

Development and Collaboration:

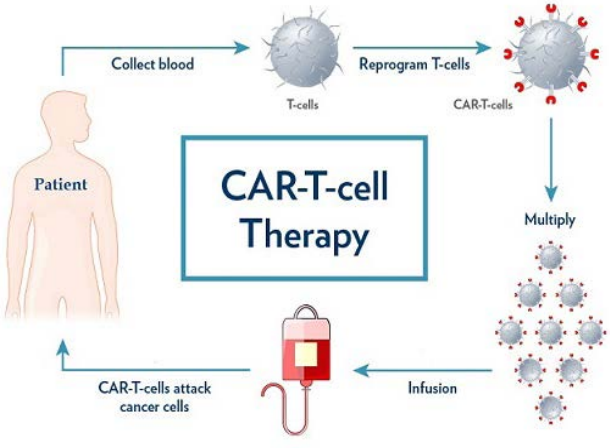
1. Developed through a collaborative effort between **ImmunoACT** at the Indian Institute of Technology Bombay **(IIT-B)**, and **Tata Memorial Hospital**.
   a. NexCAR19's development highlights the importance of collaboration between **academic institutions** and **healthcare providers** in advancing cancer treatment.

Cost and Accessibility:

1. As of November 2023, NexCAR19 costs between **30–40 lakh rupees per patient**, which is about **1/10th of the cost of other approved therapies**. The company's goal is to reduce the cost to 10–20 lakh rupees.

What is CAR-T cell therapy?

1. CAR-T cell therapy stands for **chimeric antigen receptor T cell** therapy.
2. We have some immune cells in our body that act as the **soldiers of our body's defence system**. They work to protect us from harmful invaders like bacteria, viruses, and other foreign substances.
3. Some of these soldiers are the white blood cells called **B cells and T cells.**
4. **B cells** are like the "**factories**" that make special **weapons** called **antibodies**. These antibodies can recognize and attack specific invaders like bacteria and viruses.
5. **T cells**, on the other hand, are more like the "**soldiers**" that **directly fight against infected cells**.
6. CAR-T cell therapy involves modifying a patient's own immune cells, specifically T-cells, to target and destroy cancer cells.The therapy targets cells expressing the **CD19 protein**, a common marker on cancer cells, facilitating the precise elimination of cancer cells.



How does CAR-T cell therapy work?

1. The therapy involves extracting a patient's **white blood cells**, genetically modifying them to **recognize** and **destroy** cancer cells, and then **reintroducing** these enhanced cells back into the patient through a single intravenous infusion following **chemotherapy**.
2. This process has been successfully administered to patients within India, marking a new era in cancer care.
    a. **Chemotherapy** is the use of drugs to destroy cancer cells. This type of cancer treatment works by keeping cancer cells from growing, dividing, and making more cells.

Comparison with Traditional Therapies

1. **Advantages Over Chemotherapy and Immunotherapy:** Unlike traditional therapies that **extend life by months or years** while CAR-T therapy aims for a curative approach with the potential for **lifelong benefits through a one-time treatment.**

Features of NexCAR19 Therapy

1. **Indigenous Development:** India positions itself among the **first developing nations** to create its own **CAR-T** and **gene therapy platform**.
2. **Application:** It is specifically **designed** for patients with **B-cell lymphomas** who have not benefited from standard treatments.

Conclusion:

NexCAR19's introduction is a critical step forward in cancer treatment in India, offering a groundbreaking and affordable option for blood cancer patients. This achievement not only improves patient outcomes but also positions India as a leader in the global effort to combat cancer through innovative therapies.

9. India's 1st Cancer Patient Declared 'Cancer-Free' with Indigenous CAR-T Cell Therapy

India marks a significant milestone in cancer treatment with the **first patient successfully** declared **'cancer-free'** after receiving the **indigenous CAR-T cell therapy**, **NexCAR19**. Developed by **ImmunoACT** and **Tata Memorial Hospital**.

Cost-Effective Treatment:

1. The therapy was accessed at a cost of **INR 40 lakh**, a small part of similar treatments cost abroad, where prices can reach up to **INR 4 crore**.
2. This affordability makes cutting-edge cancer treatment more accessible to Indian patients, reducing the financial burden associated with such therapies.

Patient Success Story:

1. **Dr. (Col) V K Gupta,** a Delhi-based gastroenterologist and **a veteran of the Indian Army**, is the **first patient to achieve a cancer-free status with NexCAR19 therapy**.
2. This achievement is particularly significant, considering the advanced stage of cancer he was battling. His treatment at Tata Memorial Hospital has been a testament to the potential of **NexCAR19** in providing effective cancer care.

Treatment and Development:

NexCAR19 involves genetically reprogramming a patient's immune system to identify and eliminate cancer cells, focusing on treating B-cell cancers such as **leukaemia** and **lymphoma**. The approval by the Central Drugs Standard Control Organisation (**CDSCO**) for commercial use in October 2023 has paved the way for its availability across more than 30 hospitals in over 10 cities in India.

Eligibility and Impact:

Patients aged above 15, suffering from B-cell cancers, are eligible for this transformative treatment. The therapy offers better survival chances and lower remission rates, especially for those in the early stages of cancer. However, it's noted that years of data are needed to fully understand potential relapse timelines for treated patients.

Conclusion:

NexCAR19's development and successful application highlights India's capabilities in medical innovation and its commitment to providing affordable, cutting-edge healthcare solutions. This not only signifies a achievement in cancer treatment within the country but also sets a new benchmark for global cancer care.

10. SUCHETHA: 1st Indigenously Built Hydrogen Fuel Cell Ferry Boat

Prime Minister Modi inaugurated India's first indigenously built hydrogen fuel cell ferry boat named **'Suchetha'** at Kochi Harbor in Kerala.

What is a hydrogen fuel cell ferry boat?

1. A hydrogen fuel cell ferry boat is a boat that **runs on hydrogen instead of gasoline** or diesel.
2. It uses a special type of technology called a fuel cell to turn hydrogen into electricity, powering the boat without emitting pollution.

Indigenous Technology:

1. **Suchetha's fuel cells** and **electric motors** are developed domestically as part of the Kochi International Water metro project.
2. Collaboration between Cochin Shipyard Limited (CSL), L&T, Indian Register of Shipping, and other stakeholders emphasizes the government's vision of **"Aatmanirbhar Bharat".**

Benefits of hydrogen fuel cell ferry boat:

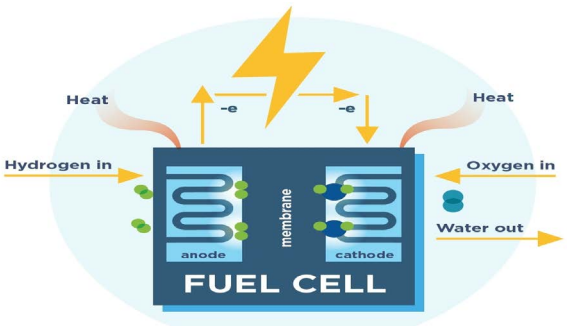
1. Experts See cleaner ferry transit across India's canal networks, **reducing congestion**, **noise, and air pollution**, especially in urban areas.
2. The project creates high-skilled employment opportunities and enhances domestic technical capabilities in sustainable marine technologies.

Future Prospects:

1. Cochin Shipyard plans to construct **7 more hydrogen fuel cell boats** of varying passenger capacities, aiming to tap into the international market for **clean marine technologies.**
2. Expansion of low-cost, **zero-emission ferry systems** across India under **public and private partnership models.**

About Fuel Cell Technology:

1. Fuel cells run like batteries but they do not need recharging. They can produce electricity constantly.
2. A fuel cell consists of several key components:



   a. **Anode**: Think of the anode as the starting point in a circuit. It's where a chemical reaction happens that releases electron. In a fuel cell, hydrogen gas is usually supplied to the anode. Here, hydrogen molecules split into positively charged ions (protons) and negatively charged electrons.
   b. **Cathode**: The cathode is like the endpoint in a circuit. It's where the electrons released at the anode flow, creating an electric current.
   c. The **electrolyte** is a substance that helps ions (charged particles) move between the electrodes. The electrons produced in the anode cannot pass through the electrolyte; instead, they travel through an external circuit, creating an electric current. This flow of electrons is what generates electricity.
3. Simultaneously, oxygen (usually from the air) is supplied to the cathode. At the cathode, oxygen molecules (O2) combine with electrons from the external circuit and protons migrate through the electrolyte to form water (H2O).
4. Hence, it converts chemical energy into electrical energy and water is a byproduct.

Advantages of Fuel Cell:

1. **Clean and Efficient Energy:** Fuel cells produce electricity through electrochemical reactions, emitting only water and heat as byproducts when using hydrogen as fuel. This makes them environmentally friendly.
2. **Reliable Backup Power:** Fuel cells can provide reliable backup power in areas prone to grid outages or where access to electricity is limited. They can serve as uninterrupted power sources for critical infrastructure such as hospitals, data centres, and telecommunications facilities.

3. **Energy Storage:** Some fuel cells can store excess energy for later use, helping to manage power supply and demand.
4. **Fuel Flexibility:** While hydrogen is the most commonly used fuel for fuel cells, it can also operate using other fuels such as natural gas, methanol, and biofuels.

Challenges:

1. **High Costs:** Fuel cell systems can be expensive to install initially, which can create obstacles in its widespread adoption.
2. **Need for Hydrogen Infrastructure:** The lack of infrastructure for producing, storing, and distributing hydrogen makes it difficult to use fuel cells widely.

Government Initiatives and Policies for Fuel Cell:

Initiatives	Details
National Hydrogen Energy Mission	Launched in 2021 to promote cost-competitive green hydrogen production.
National Hydrogen Energy Road Map	Announced in 2022 to scale up hydrogen infrastructure.
Research and Development Facilities	Establishment of the National Hydrogen Energy Board and Centre of Excellence for developing cost-optimized fuel cells.
Subsidies and Tax Exemptions	Provided for local manufacturing of fuel cell components.
Import Policies	Allowed import of Green hydrogen until local production increases.

Conclusion: In conclusion, fuel cells offer a promising pathway towards sustainable energy solutions, supported by ongoing technological advancements and policy initiatives worldwide.

11. India Should Switch To Hybrid Vehicles

A recent study suggests India should switch to hybrid vehicles in the next 10 years before fully transitioning to electric vehicles.

What are Hybrid Vehicles?

1. Hybrid vehicles are vehicles that use a combination of 2 or more power sources.
2. We generally use vehicles with **Internal Combustion Engine (ICE)** which burn fuel (such as petrol or diesel) within the engine to produce power.
3. Hybrid Vehicles can use both ICE and an electric motor that uses a battery to supply power.
4. Hybrids are a middle path for people who aren't ready for electric cars yet.

What are the different types of Hybrid Vehicles?

Type of Hybrid Vehicles	What it includes	Description
Full Hybrid Electric Vehicles	1. **Battery** to provide energy to the **Electric Motor** 2. **Fuel Tank** to provide fuel for **Internal Combustion Engine (ICE)**	The Battery **cannot be charged by plugging** it into an external source but only by Regenerative braking. **Regenerative braking** works like this: When you press the brake in a car, the car's special system turns some of that energy into electricity.
Plug-In Hybrid Electric Vehicles	1. **Battery** to provide energy to the **Electric Motor** 2. **Fuel Tank** to provide fuel for **Internal Combustion Engine (ICE)**	The battery **can be charged** by plugging it into an external source. Also, **Regenerative braking** can work in these vehicles.

Battery Electric Vehicles	Only a **Battery** to provide energy to the **Electric Motor**	The battery can be **charged by plugging** it into an external source. Also, **Regenerative braking** can work in these vehicles.
Alternative Fuel Vehicles	Use fuels other than petrol/ diesel such as hydrogen, natural gas, ethanol, and biodiesel to provide energy to the **Fuel Cell** which further gives power to the **Electric motor**	These vehicles do **not** rely on external **plug-in** charging. But, some vehicles use a **Regenerative braking** system.

What are the Advantages of Hybrid Vehicles?

1. **Energy Transition:** Hybrid Vehicles will help in the smooth transition from fossil fuels to clean energy sources, which will reduce the cost of importing fossil fuels.
2. **Environmental Benefits:** Hybrids lessen air, particle, and noise pollution, improving air quality and public health. They help combat global warming by reducing greenhouse gas emissions. Greenhouse gases are gases in the earth's atmosphere that trap heat.
3. **Durability:** Hybrids often have longer lifespans, reducing environmental impact from manufacturing and disposal.
4. **Efficient Energy Use:** The energy which is usually wasted is utilised using the Regenerative Braking system.
5. **Lightweight Design:** Their lighter weight increases fuel efficiency and performance.
6. **Increased Space:** Hybrid car designs often offer more interior space for greater comfort and utility.
7. **Status Symbol:** They symbolize environmental consciousness and progressive thinking, contributing positively to the owner and societal image.

What are the Disadvantages of Hybrid Vehicles?

1. **Temporary Solution:** They're seen as a temporary solution until fully electric cars become common in the market.
2. **Pollution:** Despite being cleaner, they still add to pollution during manufacturing and battery disposal.
3. **High Purchase Price:** Their initial cost is often higher than traditional vehicles, making them less attractive to Indian consumers.
4. **Battery Replacement Costs:** Replacing hybrid batteries would be expensive.
5. **Performance Limitations:** They may have inferior performance due to added weight from batteries and electric components.
6. **Mechanic Availability:** Finding mechanics skilled in hybrid maintenance may be challenging, leading to longer repair times and higher costs.
7. **Battery Disposal:** Disposing of hybrid batteries requires proper recycling due to hazardous materials.

Conclusion: Hybrid vehicles offer a balance between traditional and electric cars, bringing environmental benefits. They are a promising step towards a greener future for transportation in India.

12. India's New Semiconductor Projects

1. Recently, **PM Narendra Modi laid the foundation stone of three semiconductor projects worth about Rs 1.25 lakh crore through virtual medium.**
2. These projects are set to:
   a. Transform India into a global semiconductor hub.
   b. Boost economic growth.
   c. Boost innovation in the country.

The Three Semiconductor Projects

1. **Dholera Special Investment Region (DSIR) in Gujarat**
   a. Semiconductor fabrication facility
   b. Expected to commence chip production **by 2026**
   c. Established by **Tata Electronics Private Limited (TEPL)** in partnership with **Taiwan's Powerchip Semiconductor Manufacturing Corporation (PSMC)**
   d. Powered by **renewable energy**
   e. Dedicated water supply from **Narmada River canal**
2. **Morigaon, Assam**
   a. Outsourced Semiconductor Assembly and Test (OSAT) facility
   b. Developed by **Tata Electronics Private Limited (TEPL)**
   c. Will serve to electric vehicles, automotive, mobile phones, and power devices
3. **Sanand, Gujarat**
   a. Outsourced Semiconductor Assembly and Test (OSAT) facility
   b. Set up by **CG Power and Industrial Solutions Limited** under the Modified Scheme for Semiconductor Assembly, Testing, Marking and Packaging (ATMP)

India's Semiconductor Mission

1. All 3 projects are being incentivized **under the India Semiconductor Mission.**
2. India Semiconductor Mission has an outlay of Rs **76,000 crore.**
3. This mission aims to position India as a **prominent global center** for:
   a. Semiconductor design
   b. Manufacturing
   c. Technology development

Employment Opportunities

1. These semiconductor facilities are **expected to generate employment** opportunities for India's youth.
2. These 3 plants will create jobs, both directly and indirectly.

Dholera Plant Details

1. The Dholera plant, jointly established by Tata Group and Taiwan's Powerchip Semiconductor Manufacturing Corporation **(PSMC),** aims to have its chip ready for production **by the end of 2026.**
2. The plant will commence operations by manufacturing **28 nanometer chips** and is poised to attain a **total capacity of 50,000** wafer starts per month (WSPM).
   a. Wafer starts per month (WSPM) is a **measurement of the output of a semiconductor wafer plant.**

The chips produced at the Dholera facility will serve 7 broad sectors:

1. High-power computing
2. Electric vehicles
3. Telecom
4. Defence
5. Consumer electronics
6. Automobile
7. Power electronics

What is a Semiconductor?

1. A **conductor** is a material that **allows electricity** to flow through it easily like metals. On the other hand, an **insulator is a material** that **does not conduct electricity** well like rubber, plastic, etc.
2. **A semiconductor** is a material that **lies in between a conductor and an insulator**. It conducts electricity but only under certain conditions.
   - Hence, it can be manipulated to control the flow of electric current.
3. They form the foundation of modern electronics and are used in various applications, from smartphones and computers to solar cells and medical devices.

Why is the Government trying to manufacture semiconductors indigenously?

1. **Driver of Technological Advancement:** Semiconductors are a key material in driving the **4th Industrial Revolution**. The 4th Industrial Revolution is a big change in how we make things and do work.
   - It's happening because of new technologies like artificial intelligence, robotics, and the Internet of Things.
2. **Geopolitical Significance:** Semiconductors are **made up of critical minerals** like Silicon, Germanium, etc which are not available uniformly throughout the world.

- China has such critical minerals in abundance. Also, some countries dominate the manufacturing of Semiconductors such as Taiwan and South Korea.

3. **Reducing Dependency:** India heavily depends on imports (countries like China and the USA) for semiconductor products. Developing domestic manufacturing capabilities reduces dependency and enhances self-reliance.
4. **Economic Growth:** Building a strong semiconductor industry boosts innovation, creates jobs, and helps the economy grow.

Government Initiatives and Way Forward:

1. **Financial Support:** Schemes like the **Design-Linked Incentive Scheme** and **Production-Linked Incentive Scheme** provide financial assistance and incentives to encourage investment in semiconductor design and manufacturing.
2. **Ecosystem Development:** The **India Semiconductor Mission** and schemes for promoting electronics manufacturing aim to create a sustainable ecosystem conducive to semiconductor production.
3. **Cluster-Based Development:** Cluster-based development refers to a strategy where related industries and businesses are grouped together in geographic proximity to foster collaboration, innovation, and efficiency.
   - Initiatives like Electronics Manufacturing Clusters facilitate collaborative efforts and infrastructure development similar to Silicon Valley.
4. **Foreign Investment Promotion:** Events like **Semicon India** and partnerships with foreign entities facilitate technology transfer, expertise sharing, and foreign investment attraction.
5. **Skill Development:** Programs like the **SMART Power Skill Development Program** focus on reskilling technicians with advanced semiconductor manufacturing skills to meet industry demands.

13. Roadmaps For Critical Tech Sectors

Ministry of Electronics and Information Technology introduced a **draft roadmap to conduct indigenous research** and development:

1. **cyber forensics**
2. **quantum computing technologies**
3. **mobile security**
4. **cryptography**
5. **Internet of Things (IoT) security**

The roadmap prepared by the **Center for Development of Advanced Computing (C-DAC)** aims to address a number of issues over different time periods between now and 2047.

What are Critical Technology Sectors?

1. Critical Technologies are technologies that are identified as 'important' by the government:
   a. a nation's future economic growth
   b. national security
   c. technological advancement
2. These often involve:
   a. cutting-edge research
   b. innovation
   c. strategic importance
3. These sectors generally receive more oversight from the government and a better technology investment climate.
4. They are important for the state's critical infrastructure:
   a. As they offer **safe, cost-effective**, and **reliable service** and can act as a **predictive tool for forecasting potential failures**
5. **Examples** of Critical Technology Sectors include**:**
   a. Artificial Intelligence (AI)
   b. Quantum computing
   c. Internet of Things
   d. Blockchain

Roadmaps for Critical Tech Sectors:

1. The cybersecurity roadmap aims to develop **"social media analytics" by 2026**, while **"dark web forensics"** has **until 2030 to complete.**
2. **Detecting child exploitation** and **human trafficking** have been identified as ongoing efforts that will begin in 2027 and continue beyond 2047.

3. **GPS and vehicle forensics** will be completed by 2027 and 2029 respectively.
4. **Banking fraud** and **UPI payment forensic solutions** are due by 2029 and 2030 respectively.
5. On the **quantum computing side**, the roadmap says that research and development **efforts to develop quantum computers will continue until 2034.**
6. On the other hand, the mobile security roadmap aims to promote "**enterprise-grade**" security systems.

About Centre for Development of Advanced Computing (C-DAC):

1. C-DAC is the premier **R&D organization of the Ministry of Electronics and Information Technology (MeitY)** for carrying out R&D in IT, Electronics and related areas.
2. C-DAC was **established in 1988 to manufacture supercomputers** in the context of the **United States' refusal to import supercomputers.**
3. Since then, **C-DAC has produced several generations of supercomputers, beginning with the PARAM 8000 in 1991.**

About PARAM 8000:

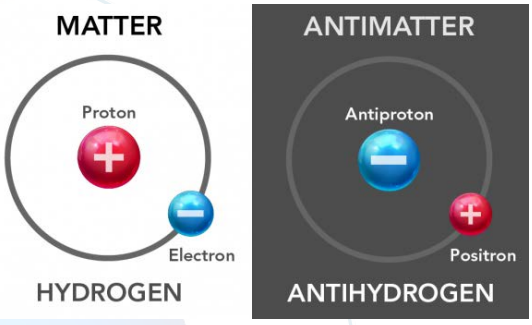
1. This is **India's first supercomputer.**
2. The **PARAM 8000 is the first machine** in the PARAM supercomputer series which was **redesigned in 1991.**
3. All the chips and other elements used in the manufacturing of **PARAM were purchased from the open domestic market.**
4. **Applications: long-range weather forecasting, remote sensing, drug design** and **molecular modeling.**

14. Laser Cooling Of Positronium

1. The AEgIS (**Anti-hydrogen Experiment: Gravity, Interferometry, Spectroscopy**) collaboration operating at the **European Organisation for Nuclear Research, more popularly known as CERN**, in Geneva has achieved an unprecedented milestone.
2. This milestone is the demonstration of **laser cooling of positronium**, which is a significant **advance in antimatter research.**

Key Highlights:

1. AEgIS, which involves **physicists from Europe and India**, aims to study **anti-hydrogen atoms** and **measure Earth's gravitational acceleration on anti-hydrogen.**
2. Positronium **(Ps)**, **discovered in 1951**, is the **lightest known atom**, consisting only of an **electron (e−)** and **a positron (e+)**. Positronium is an **unstable atom made up of an electron and its anti-particle, a positron, that are bound together.**



3. In modern physics, **matter is made up of atoms** and has **2 fundamental properties: mass and volume**. Antimatter is matter with the **same mass as matter, but with opposite charges, parity, and time.**
4. Laser cooling, a method **based on particles absorbing and emitting photons**, was chosen to **slow down the highly unstable positronium particles** for more precise measurements.

Laser Cooling Method:

1. Laser cooling involves **particles absorbing photons** and **emitting them in random directions**, thus **slowing down their momentum.**
2. Experimentalists successfully **cooled Positronium atoms from ~380 Kelvin to ~170 Kelvin using an alexandrite-based laser system.**

Conclusion

The success of the AEgIS experiment in laser cooling **positronium represents a significant leap forward** in **antimatter research**, offering possibilities for future discoveries and applications.

15. World's 1st Pigeon Pea Speed Breeding Protocol

1. In February 2023, Hyderabad-based **International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)** has introduced the new protocol.
2. A **new protocol** has been introduced to accelerate the development of **pigeon pea varieties** with desired traits, aiming to provide food to dryland communities more quickly.
   a. The protocol reduces breeding time and enhances control over factors like **photoperiod, temperature, humidity,** and **breeding cycle**, completing the process in 2 to 4 years.
      - **Photoperiod** refers the period of time in a day that an organism is exposed to light.
   b. Traditional **pigeon pea breeding** typically takes up to **13 years**.
   c. The extended growth cycle and sensitivity to day length of pigeon peas have historically slowed breeding efforts.
   d. This results in the release of only around **250 varieties** globally over six decades.
3. The **new speed breeding protocol** directly tackles these challenges. It helps create pigeon pea varieties **resilient to climate**, **more nutritious**, and **produce higher yields**.
   a. The **new protocol** is a major step forward for regions where pigeon peas are grown.
   b. It opens doors to **self-sufficiency** in pulse production.
   c. This advancement is **crucial for meeting dietary needs** in countries like India, Myanmar, Kenya, Tanzania, and Mozambique.

About Pigeon pea

1. It is also known as '**arhar**' and '**tur**' in India, is a **vital legume crop** and a **significant source of protein**, commonly consumed as dal.
2. **Growing Conditions**

Rainfall	**600-650mm of annual rainfall**
Temperature	**between 26°C to 30°C** during the rainy season and **17°C to 22°C** from November to March.
Soil	**sandy loam or loam soil** is preferred
Radiation Sensitivity	Sensitive to **low radiation during pod development**, leading to poor pod formation during monsoon and cloudy weather.

3. **Cultivation Practices:** Pigeonpea is commonly intercropped with a wide range of crops. In India, it was estimated that 80 - 90 % of the Pigeonpea were intercropped.
4. **Diseases:** The important diseases of Pigeon pea are **Wilt, Sterility mosaic disease, Phytophthora blight, Alternaria blight** and **Powdery mildew** etc.
5. **Health benefits:** It has low glycaemic index and is rich in thiamine, riboflavin, niacin, vitamin B-6, folate, vitamin A, calcium, zinc, iron, magnesium and phosphorus.
6. **Major Pigeon pea producing states:** Uttar Pradesh, Madhya Pradesh, West Bengal, Bihar and Jharkhand.
7. It has long been a **major dietary staple** across the Indian sub-continent and other subtropical regions, providing vital nutrition to millions. India is the **world's top producer of pigeonpea**.

About ICRISAT

ICRISAT is a research institute focusing on agriculture in dryland areas, aiming to support small-scale farmers and ensure food security.

a. Established in **1972** in Hyderabad, Telangana, with the support of the **Food and Agriculture Organization of the United Nations (FAO)** and the **United Nations Development Programme (UNDP)**.
b. **ICRISAT** has made significant contributions to dryland agriculture, including:
   - The 1st of its kind mapping of the genome code for cultivated groundnut.
   - Introducing the 1st commercial pigeonpea hybrid in India.
   - Developing biofortified pearl millet in Africa.

16. India's Largest Solar-Battery Project: Chhattisgarh

1. In February, 2024 **India's largest** Battery Energy Storage System **(BESS)**, which stores energy using solar energy, unveiled at Chhattisgarh.

2. This project **commissioned by** the Solar Energy Corporation of India Limited **(SECI)**, under the aegis of the Ministry of New and Renewable Energy.

What is a BESS?

1. A Battery Energy Storage System (BESS) acts as a giant rechargeable battery that stores excess electrical energy for later use.
2. It comprises multiple battery units connected together, along with sophisticated control and management systems.

Why are BESS crucial?

BESS **play a vital role in** the transition towards clean and renewable energy sources **like solar and wind**. Here's why: -

a. Renewable sources like solar and wind are intermittent, meaning their production fluctuates based on weather conditions.
- BESS bridge this gap by storing excess energy generated during peak production periods (sunny days for solar) and releasing it when demand is high or generation is low.

b. By absorbing and releasing energy, BESS help maintain grid stability by smoothing out fluctuations in supply and demand.
- This prevents sudden drops or surges in voltage, ensuring reliable power delivery.

c. **Peak Demand Management:** During peak demand periods, BESS can supplement the grid with stored energy, reducing the strain on traditional power plants and potentially leading to lower electricity costs.

d. **Renewable Energy Integration:** BESS facilitate greater integration of renewable energy by providing flexibility and dispatchability, meaning the stored energy can be released on demand. This allows for a higher penetration of renewables in the overall energy mix.

Challenges in BESS Development

Despite its immense potential, BESS development faces several challenges:

1. **Cost:** Currently, the initial cost of setting up a BESS is relatively high compared to traditional power plants.
2. **Safety Concerns:** Large-scale BESS installations raise safety concerns, primarily related to thermal runaway, which is the uncontrolled heating of batteries that can lead to fires or explosions. Careful design, safety protocols, and monitoring systems are crucial to mitigate these risks.
3. **Environmental Impact:** While ultimately contributing to a cleaner environment by promoting renewables, some aspects of BESS production and disposal require responsible management. This includes minimizing the environmental impact of battery materials and ensuring proper recycling practices.
4. **Policy and Regulatory Framework:** BESS are a relatively new technology, and the policy and regulatory frameworks are still evolving in many countries. Clear and supportive policies are essential to encourage investment and facilitate the widespread adoption of BESS.

Challenges	Solution
High Cost: initial cost of setting up a BESS is relatively high compared to traditional power plants	Provide subsidies, reduce or minimize cost, low interest rate on dues or EMIs etc.
Safety concern: primarily related to thermal runaway, which is the uncontrolled heating of batteries that can lead to fires or explosions	Careful design, safety protocols, and monitoring systems are crucial to mitigate these risks.
Environmental Impact: some aspects of BESS production and disposal require responsible management.	ensuring proper recycling practices.

Key Features of India's BESS

1. **Capacity:** Capacity of 40 MW / 120 MWh, making it the largest system of its kind in India.
2. **Integration:** Strategically coupled with a 152.325 MWh solar photovoltaic (PV) plant that has a dispatchable capacity of 100 MW AC (155.02 MW peak DC).
3. **Location:** Situated in **Rajnandgaon, Chhattisgarh**, the system revitalizes previously unused land, exemplifying strategic infrastructure development.

Significance and Benefits

India's largest BESS delivers a multitude of advantages critical to the nation's sustainable growth:

1. **Grid Stability:** BESS plays a pivotal role in stabilizing the electricity grid, a key concern for incorporating intermittent renewable sources like solar and wind. This system stores energy during peak generation and releases it when demand surges, ensuring consistency in supply.
2. **Peak Demand Management:** The system helps manage peak energy demand, reducing strain on traditional power generation sources, particularly during evening hours.
3. **Renewable Energy Integration:** By providing energy storage and dispatch capabilities, the BESS significantly enhances the integration of solar power into the grid, unlocking India›s vast solar potential.
4. **Environmental Impact:** This initiative furthers Chhattisgarh›s and India›s commitment to reducing carbon footprints, promoting a cleaner and sustainable energy mix.

Technological Innovations

1. **Bifacial Modules:** These modules capture sunlight from both sides, maximizing energy generation.
2. **Land Optimization:** The intelligent siting of the project on formerly unused land showcases resourceful land-use practices for sustainable energy generation.

Other Major schemes to promote batteries and e-vehicles in India

Battery Storage	Electric Vehicles (EVs)
National Mission on Transformative Mobility and Battery Storage: This mission aims to develop a comprehensive strategy for promoting battery manufacturing, creating an ecosystem for battery storage solutions, and lowering cell costs. It includes developing gigafactories for battery production.	**FAME India Scheme (Phase II):** Faster Adoption and Manufacturing of Electric Vehicles offers demand-side incentives for purchasing EVs, such as upfront discounts and tax benefits. It also supports the development of charging infrastructure. • Recently, The Indian government introduced a new initiative **'EMPS Scheme for the year 2024'** to promote the sale of electric 2 and 3 wheelers.
Production Linked Incentive (PLI) Scheme for Advanced Chemistry Cell (ACC) Battery Storage: This scheme provides financial incentives to companies establishing domestic manufacturing capacity for ACC batteries. The goal is to lower battery costs and make energy storage more affordable.	**Production Linked Incentive (PLI) Scheme for Automobile and Auto Components** This scheme encourages domestic manufacturing of electric and hydrogen fuel cell vehicles, along with their key components.
Modified Special Incentive Package Scheme (M-SIPS): M-SIPS provides incentives for investments in the electronics sector, including the manufacture of batteries and other components essential for battery storage systems.	**State-level EV policies:** Many states in India have their own EV policies, offering additional incentives such as road tax exemptions, registration fee waivers, and subsidies for EV purchases and charging infrastructure development.

Impact of These Schemes

These schemes and initiatives have had a significant effect on India's electric mobility sector:

a. Increased EV adoption

b. Growth of domestic manufacturing

c. Development of a robust ecosystem

Guaranteeing Energy Security for India through Renewables

India's dependence on fossil fuels exposes it to vulnerabilities like price fluctuations and supply disruptions. Shifting to renewable energy sources is crucial for ensuring sustained energy security and mitigating these risks. Here's how renewable energy can empower India:

1. Domestic Resource Potential: Unlike fossil fuels which are geographically limited, India has abundant renewable resources:

a. **Solar:** With abundant sunshine, India can harness solar power across vast lands, rooftops, and deserts.
b. **Wind:** Strong wind belts along the coasts and in central India offer immense potential for wind energy generation.
c. **Hydropower:** While large-scale projects are limited, India can explore small-scale and micro-hydropower options.
d. **Bioenergy:** Utilizing agricultural residues and waste efficiently can contribute to bioenergy production.

2. **Reducing Dependence on Imports:** Replacing fossil fuels with domestically produced renewable energy reduces dependence on imports, shielding India from price volatility and geopolitical risks associated with traditional energy sources.
3. **Enhancing Grid Stability:** Renewable sources like solar and wind are inherently variable. BESS (Battery Energy Storage Systems) coupled with renewable energy projects can store excess power and release it when needed, ensuring grid stability and reliable electricity supply.
4. **Price Competitiveness:** As renewable energy costs continue to decline and become increasingly competitive with fossil fuels, India can benefit from long-term cost savings and energy independence.
5. **Environmental Security:** Transitioning to renewables minimizes carbon emissions and air pollution, fostering environmental security and contributing to climate change mitigation efforts.

India's Commitments under Paris Agreement and COPs

India is a signatory to the **Paris Agreement** and actively participates in **COP (Conference of the Parties)** meetings. Here are some key commitments:

Paris Agreement

- **Nationally Determined Contribution (NDC) Targets:** India aims to achieve 40% of its installed electric power capacity from non-fossil sources by 2030 and reduce the carbon intensity of its GDP by 33-35% compared to 2005 levels by the same year.
- **International Cooperation:** India seeks technology transfer and financial support from developed nations to facilitate its green transition.

COP Commitments

- **COP26 (2021):** India pledged to achieve net-zero emissions by 2070 and increase its non-fossil fuel capacity to 500 GW by 2030.
- **COP27 (2023):** India reiterated its commitment to net-zero by 2070 and emphasized the need for greater financial and technological support from developed nations to accelerate its clean energy transition.

Despite these challenges, India's commitment to renewable energy presents a unique opportunity to achieve energy security, environmental sustainability, and economic growth. By addressing existing hurdles and capitalizing on its vast renewable resource potential, India can lead the way towards a clean and secure energy future.

17. Neurovascular Tissues

1. In February 2024, scientists at **Post Graduate Institute of Medical Education & Research (PGIMER)** in Chandigarh developed a new model to create **neurovascular tissues or neurovascular organoids (NVOEs)** from a person's own blood.
   a. This marks a unique way to make **neurovascular tissues**.
   b. **Organoids** are **tiny, self-organized 3-dimensional tissue cultures** that are derived from stem cells.
      - **Stem cells** are cells with the potential to develop into many different types of cells in the body. They serve as a repair system for the body.
2. **About Neural Organoids**
   a. Neural organoids, or cerebral organoids, are 3D in vitro culture systems derived from human pluripotent stem cells (hPSCs).

- In vitro culture is a technique for maintaining or cultivating cells or tissues from a living organism in a culture medium (artificial medium).
- Pluripotent stem cells are cells that can develop into many different types of cells or tissues in the body. They can undergo self-renewal and can give rise to all cells of the tissues of the body.

b. They mimic (copy) the developmental processes and organization of the human brain, offering a relevant model for studying neurological development and diseases unique to the human nervous system.

c. Neural organoids are valuable for studying human brain development and disorders like schizophrenia.

- Schizophrenia is a serious mental illness that affects how a person thinks, feels, and behaves.

3. Traditional neural organoids lack **blood vessels**, which limits their usefulness in studying brain function and diseases**.**

a. Previous methods like combining blood vessel organoids with cerebral organoids (relating to the brain) didn't work well because there was no active blood flow and it was laborious and costly.

b. **Neural organoid research** is progressing rapidly, offering hopes for better understanding brain development, modeling diseases, discovering drugs, and providing transplant sources.

c. Existing models lack **vascularization**.

· **Vascularization** is the process of growing blood vessels into a tissue to improve oxygen and nutrient supply.

4. Neurovascular Tissues/Organoids

a. PGIMER researchers created **self-organizing Neural Voltage Oscillatory Events (NVOEs)** from a person's own blood without genetic changes or extra supplements.

- **Neural oscillations** are electrical activities in the brain that are rhythmic and repetitive. They can be observed throughout the central nervous system at all levels.

b. Using autologous blood, which means a person donates their own blood, like before surgery.

c. This method grows functional embryoids (multicellular structures that contain embryonic cell types) with blood vessels without needing special conditions, making it cost-effective and accessible.

d. They confirmed the organoids' blood vessels work by detecting haemoglobin signals using **BOLD** (Blood-Oxygen-Level-Dependent) imaging.

- BOLD imaging is a technique that is commonly used for measuring brain activity in humans using magnetic resonance imaging (MRI).

5. Implications of Neural Organoids in Neuroscience

d. Neural organoids have significant implications for **studying neurological diseases, nerve regeneration**, and **treating tumors** and **autoimmune conditions**.

- An autoimmune disease is a condition where the body's immune system attacks healthy cells, tissues, and organs. They can affect any part of the body and can weaken bodily function or even turn life-threatening.

e. They aid in understanding genetic **causes of hearing loss and language difficulties in children** with Sensorineural Hearing Loss (SNHL).

- SNHL is a type of hearing loss caused by damage to the inner ear.

f. Research on children with additional conditions like autism aims to improve communication outcomes.

- Autism spectrum disorder (ASD) is a developmental disability that affects how people interact, communicate, and learn.

g. Studying Neural Voltage Oscillatory Events (NVOEs) helps investigate how altered brain activity affects sensory processing.

h. Functional MRI (fMRI) isn't suitable for these children due to cochlear implants or hyperactivity.

- A cochlear implant is a small, complex electronic device that can help people who are deaf or severely hard-of-hearing to sense sound.
- **Hyperactivity** can mean a person has increased movement, impulsive actions, a shorter attention span, and being easily distracted.

18. Guinea Worm Disease (GWD)

Recently, the World Health Organization (WHO) announced that the world is very near to eradicate the Guinea Worm Disease (GWD).

Details of Guinea Worm Disease (GWD):

1. **About:** It is also known as **'dracunculiasis'.** It's an infection **caused by a parasitic worm called Dracunculus medinensis.**
2. **Cause:** It is caused by **drinking water contaminated** with Guinea worm larvae. When a person drinks this contaminated water, the larvae can grow into adult worms inside the body.
3. **Symptoms:** The most common symptom is the emergence of a **pain on the lower limbs**, which gradually develops into a long worm over several days to weeks. This worm causes a burning sensation and can lead to secondary infections.
4. **Transmission:** The transmission occurs when people consume water containing the larvae of the Guinea worm. Once inside the body, the larvae mature into adult worms and mate. After mating, female worms migrate through the body, usually towards the legs or feet, where they create painful blisters to release their larvae into water sources.
5. **Prevention:** It involves **educating communities** about filtering drinking water or treating water to kill the larvae, and preventing infected individuals from entering water sources to prevent contamination.
6. **Treatment:** There is **no specific medication** to treat Guinea worm disease. Instead, the traditional method of treatment involves slowly pulling the worm out of the body by winding it around a stick. This process can take weeks and requires careful attention to prevent the worm from breaking, as it can lead to complications.
7. **Eradication Efforts:** The eradication of this disease has been a long-term goal of governments around the world. Measures such as providing clean drinking water sources, health education, and community-based surveillance are important in reducing the number of cases globally. **India was successful in eradicating GWD in 2000.**

Prelims Ques:

Consider the following statements about Guinea Worm Disease (GWD):

1. It is caused by Virus.
2. India was successful in eradicating GWD in 2000.

Which of the above statements is/are correct?

A] 1 only
B] 2 only
C] Both 1 & 2
D] Neither 1 nor 2

Ans. B

19. 'Juice Jacking' Cyberattack

The Reserve Bank of India (RBI) has issued an alert to mobile phone users regarding the **emerging threat of "juice jacking"**, a form of cyberattack targeting **devices charged through public USB ports**.

- This advisory aims to raise awareness about potential risks to financial and data security.

Attackers use USB Charging ports available at public places to install malware, steal data or even take complete control of your device.

What is Juice Jacking?

1. Juice jacking involves **hackers manipulating publicly accessible USB charging stations,** such as those found in airports and malls, to install malware or hardware modifications.
2. When users connect their devices to these ports, sensitive data including contacts, photos, emails, and financial information can be copied within minutes.
3. Extracted data may be **exploited by cybercriminals** for identity theft, banking fraud, and other scams.

Recent Incidents and Impact:

1. Instances of juice jacking attacks have been reported worldwide, including in India where the Mumbai Police cyber cell uncovered illicit data extraction operations at public charging stations.
2. Over 50 victims in Mumbai had their data compromised, raising concerns of larger **identity theft and financial fraud operations.**

RBI's Advisory on Safeguarding Data	Risk Mitigation Measures for Users
1. RBI advises against using **public charging ports and recommends personal chargers instead**.	1. Users can protect by **avoiding charging devices at public USB ports**.
2. Additional precautions include avoiding financial transactions over **public Wi-Fi**.	2. Regularly updating phone operating systems and software ensures the **latest security patches** are in place to defend against evolving threats.

Conclusion

RBI's advisory and implementing precautionary measures, individuals can safeguard their personal and financial data from the growing menace of juice jacking and other cyber threats targeting mobile devices.

20. India's 1st septic tank cleaning robot

1. India has introduced **1st septic tank cleaning robot**, **Homosep Atom,** to combat **manual scavenging as part of the Swachh Bharat campaign.**
2. A septic tank is like a big underground container that holds all the waste from your home. Bacteria inside break down the waste.
3. Developed by **Solinas**, **integrated with Artificial Intelligence**, it's deployed in **16 cities**, reducing costs and promoting **robotic cleaning**.
4. Solinas is **a startup from IIT Madras** which focuses on **technological** solutions **for water and sanitation challenges**.
5. Collaboration with **Chennai Metro** and **SIDGCL** (Sewerage & Infrastructural Development Corporation Of Goa Ltd) has helped identify and resolve pipeline issues, improving water access and integrity.

F. GEOGRAPHY & ENVIRONMENT

1. 5 New Indian Ramsar Sites

1. On the occasion of **World Wetlands Day (WWD), 2024 (2 february)**, India has added **5 more wetlands** to its list of Ramsar sites (Wetlands of International Importance), increasing the total to **80**.

- The theme of WWD-2024 is **'Wetlands and Human Wellbeing'.**
  - **i) 3 of these sites located in Karnataka:**
    - **a.** Ankasamudra Bird Conservation Reserve
    - **b.** Aghanashini Estuary
    - **c.** Magadi Kere Conservation Reserve.
  - **ii) 2 of these sites located in Tamil Nadu:**
    - **a.** Karaivetti Bird Sanctuary
    - **b.** Longwood Shola Reserve Forest.

2. **Now, Tamil Nadu have** maximum number of Ramsar Sites (**16 sites**) followed by **Uttar Pradesh (10 sites**).
3. With the **addition of these 5** wetlands to Ramsar sites, the **total area covered** under Ramsar sites is now **1.33 million ha** which is an increase of 5,523.87 ha from existing area (of 1.327 million ha).
4. **Largest Ramsar Site in India:** Sunderbans, West Bengal; Smallest: Vembannur Wetland Complex, Tamil Nadu.
5. **Largest Ramsar Site in the World:** Pantanal, South America.

Ramsar Convention:

1. An intergovernmental treaty, adopted on 2nd February 1971, in the Iranian city of Ramsar, focused on the conservation of wetlands.
2. India joined the convention in 1982.
3. World Wetlands Day is celebrated on February 2nd, highlighting the importance of wetlands for humanity and nature.

New Ramsar Sites Details

1. **Ankasamudra Bird Conservation Reserve, Karnataka:** An ancient irrigation tank, important for bird conservation.
2. **Aghanashini Estuary, Karnataka:** A vital estuary with diverse ecosystem services including flood mitigation and biodiversity.
3. **Magadi Kere Conservation Reserve, Karnataka:** A man-made wetland important for several bird species.
4. **Karaivetti Bird Sanctuary, Tamil Nadu:** Utilized for agriculture, it is home to many bird species.
5. **Longwood Shola Reserve Forest, Tamil Nadu:** Contains tropical rainforests critical for endangered bird species.

Conservation Efforts

1. **Global Level:** Montreux Record and World Wetlands Day.
2. **National Level:** Wetlands (Conservation and Management) Rules, 2017; National Plan for Conservation of Aquatic Ecosystems (NPCA); Amrit Dharohar Scheme; National Wetland Conservation Programme (NWCP).

2. Odisha Declares Gupteswar Forest As Its 4th Biodiversity Heritage Site

1. According to a recent government notification, the **ancient Gupteshwar Forest** adjacent to the **Gupteshwar Shiva Temple in Odisha's Koraput district** has been **declared the 4th Biodiversity-Heritage Site (BHS) of the state.**

2. This site is spread over a demarcated area of 350 hectares.
3. Odisha now has **4 BHS with prior declaration of biodiversity-rich areas like Mandsaru, Mahendragiri, and Gandhamardan.**

What are Biodiversity-Heritage Sites (BHS)

1. Under **Section 37 of India's Biological Diversity Act 2002**, **state governments, in consultation with local governing bodies**, can designate **unique and fragile ecosystems as Biodiversity Heritage Sites** (BHS).
   a. National Biodiversity Authority **(NBA) advices the State Government in the selection** and management of heritage sites **under section 37.**
   b. NBA is an **Autonomous and Statutory Body of MoEFCC**. NBA (Headquartered in Chennai) was established in 2003 by Central Government to implement India's Biological Diversity Act, 2002.
   c. As per National Biodiversity Authority (NBA), **India has a total of 45 BHS as of February 2024.**
2. BHS can be **terrestrial, coastal, inland waters, or marine areas** that **exhibit rich biodiversity, including:**
   a. abundance of wild and domesticated species
   b. **high endemism**
   c. rare and **endangered species**
   d. keystone or **evolutionarily important species**
   e. wild **ancestors of cultivated varieties**
   f. **fossil beds** reflect past biological importance
   g. significant **cultural, ethical, or aesthetic** values
3. In some cases, **BHS retain a long history of human habitation as well as cultural diversity**

Biodiversity of Gupteswar Forest

1. The biodiversity inventory and survey conducted by the **Odisha Biodiversity Board shows the presence of rich flora and fauna in the area.**
2. **This includes at least 608 faunal species such as:**
   a. 28 mammal species
   b. 188 bird species
   c. 18 amphibian species
   d. 48 reptile species
   e. 45 fish species
   f. 141 butterfly species
3. **Significant faunal species documented here include:**
   a. **Mugger crocodile**
   b. **Kanger Valley** rock gecko
   c. **Sacred grove bush frog**
   d. **Black baza**
   e. **Jerdon's baza**
   f. **Malabar trogon**
   g. White-bellied woodpecker
4. The limestone caves of Gupteshwar provide shelter to **8 of the total 16 bat species found in southern Odisha.**
5. Two species - **Hipposideros galeritus and Rhinolophus rouxii** - are classified as **near-threatened.**
6. **The site has abundant floral diversity as well with:**
   a. 182 tree species
   b. 76 shrub species
   c. 177 herb species
   d. 69 climber species
   e. 14 orchid species and
   f. threatened medicinal plants
7. Many agriculturally and industrially important **microorganisms also exist in this ecosystem**

Conservation and Development

1. Declaring Gupteshwar as a Biodiversity Heritage Site **(BHS) will promote the conservation of biodiversity and strengthen the cultural ties** of local communities.
2. The Government of Odisha has **allocated Rs 35 lakh for the preparation of a conservation action plan** and community awareness activities.
3. Eco-tourism and **non-timber forest products can support local livelihoods.**

3. 5th Cycle Leopard Population Estimation Released

1. The National Tiger Conservation Authority **(NTCA)** and the Wildlife Institute of India **(WII)** have **jointly released** a comprehensive report on the **status of leopards in India**.
2. This report provides information about **leopard distribution, population trends, and conservation**

challenges based on data collected during the **5th cycle of leopard population** estimation conducted in **2022.**

3. Madhya Pradesh has the **largest population** of leopards in the country - 3907 (2018: 3421**)**, followed by **Maharashtra** (2022: 1985; 2018: 1,690), **Karnataka** (2022: 1,879; 2018: 1,783) and **Tamil Nadu** (2022: 1,070); 2018:868)

1. Scientific name: **Panthera pardus orientalis**
2. Lifespan: 12 – 17 years
3. Class: **Mammalia**
4. Status: Listed in **Schedule I** of the **Indian Wildlife (Protection) Act, 1972** and included in **Appendix I of CITES.** Listed as **Vulnerable on the IUCN Red List**
5. Habitat And Distribution: Tropical rainforests to temperate deciduous and alpine coniferous forests. It is also found in dry scrubs and grasslands, **the only exception being desert and the mangroves of Sundarbans**. It **shares its territory with the tiger in 17 states.** Its range extends from the **Indus River in the west** to the **Himalayas in the north** and the lower **reaches of the Brahmaputra in the east.**

Survey Methodology:

1. The leopard census was conducted as part of the **quadrennial (period of four years) survey** aimed at **monitoring tigers**, **co-predators, prey,** and their habitats across **18 tiger states** in India.
2. Field teams extensively covered **forest habitats, walking over 641,000 kilometers** of trails to estimate **leopard signs and prey abundance.**
3. Camera traps were deployed at **32,803 locations**, resulting in over **85,000 leopard photo-captures**.
4. Scientific methodologies combining **habitat evaluation, camera trapping, and population modeling** were employed to analyze the data.

Key Findings:

1. India's leopard population is estimated at **13,874** individuals, indicating a stable population compared to 2018 estimates.
2. States like **Madhya Pradesh, Maharashtra and Karnataka** have large populations of leopards, with **Madhya Pradesh leading.**
3. Protected areas and tiger reserves, such as **Nagarjunsagar Srisailam Tiger Reserve** and **Panna Tiger Reserve**, support high densities of leopards.

Population Trends:

1. The overall leopard population at the national level has remained stable since 2018, with **Central India** and **Eastern Ghats** showing **minor annual growth rates.**
2. However, the **Shivalik-Gangetic landscape** has witnessed a concerning **annual decline** in leopard numbers.
3. Notably, there's a **marginal growth rate of 1.08%** in specific areas surveyed **in both 2018 and 2022**, but this **doesn't cover approximately 30% of leopard habitats** not surveyed.

Conservation Challenges:

1. **Rising human-leopard conflicts** pose significant conservation and social challenges, highlighting the importance of **securing habitats outside protected areas.**
2. Habitat division, **poaching**, **prey depletion**, **killings**, **traffic accidents**, and **illegal wildlife trade** are key threats.
3. Climate change impacts may worsen **resource pressures**, necessitating urgent conservation interventions.

Recommendations:

1. Strengthen protection in **tiger corridors and buffer zones** to facilitate wildlife movement.
2. To promote community management models in **multi-use forests** with incentives for **co-existence.**
   - Develop **early warning systems** using technology to prevent conflict scenarios.
3. Enhance coordination between **central and state agencies**.
4. Expand monitoring to unsurveyed areas by including conflict hotspots in future census efforts.

Conclusion:

The report highlights the critical importance of **proactive conservation** measures and **collaborative efforts** to **safeguard India's leopard population** and their habitats.

4. SC's Interim Order On Forest Conservation Act 2023

Recently, The Supreme Court (SC) has instructed the government to keep using a wide definition of **"forest"** from a **1996 T.N. Godavarman Thirumulpad judgement** until S.C makes a final decision on a challenge to the new Forest Conservation Act of 2023.

About the Forest Conservation Act, 1980:

1. This Act was created to make forest laws better, control the cutting down of forests, manage the movement of forest goods, and collect taxes on wood and other forest items.
2. Before using forest land for other purposes, you need to get permission from the Central Government.
3. It applies to lands considered forests under the 1927 Forest Act or state records from 1980 onwards.

Supreme Court's View: In **T.N. Godavarman Thirumulpad judgement 1996** SC focused on protecting all forests, regardless of their legal status or owner,and introduced the idea of "**deemed forests" for areas that look like forests but aren't labelled officially**.

Problem with deemed forest

1. Indian **states define "forests" in various ways**, causing inconsistency in what counts as a deemed forest.
   - E.g; **Chhattisgarh and Madhya Pradesh**, for instance, define a forest as a tract that spans a **minimum of 10 hectares,** is covered with naturally growing **timber, fuel wood and yielding trees and,** has a density of **200 trees or more per hectare,** whereas **Goa defines** a forest as a patch of land having **at least 75% covered with forest species.**
2. Some States have **no parameters** at all. Because of varying definitions of deemed forest, estimates of their territorial spread in India range from 1% - 28% of India's official forest area of 80 million ha.
3. The **2023 Forest (Conservation) Amendment Act** aimed to clarify these definitions and exempt certain lands from the Act, but the Supreme Court's order keeps older definitions in place for now.

Key Points of the Forest (Conservation) Amendment Act, 2023:

1. The Act now specifies **2 kinds of land** it covers, those **officially declared** as forests after 1980**,** and **lands changed from forest to non-forest** before 1996.
2. The changes allow for up to **0.10 hectare of forest land next to roads or railways to be used without protection** if it's for accessing a place where people live.
   - Additionally, forest areas **within 100 kilometres of international borders or the Line of Control/ Line of Actual Control can be cleared for significant national security projects without following the Act's rules.**
3. Up to **10 hectares** can be used for **security infrastructure** or 5 hectares in areas with **'left wing extremism'** issues, without the usual forest protections.
4. The Act supports conservation and certain developments like zoos or eco-tourism, requiring central government approval for assigning forest land.
5. **Prior approval** from the **central government** for the **assignment of forest land to any entity**, furthermore, it **grants the central government the authority to make the terms and conditions** governing such assignments.

India State of Forest Report (ISFR) 2021

1. It is Biennial report by **Forest Survey of India (FSI) under Ministry of Environment, Forests, and Climate Change.**
2. **17th edition in 2021 (first published in 1987).**
3. Covers **forest area, tree density, species composition**, and changes over time.
4. Includes data on **mangrove and bamboo cover**, growing stock, and carbon stock.

Forest Cover Highlights

1. As per the ISFR-2021, forest and tree cover in the country **increased by 2,261 square kilometres** since the last assessment in 2019.

2. India's total forest and tree cover was 80.9 million hectares, which accounted for 24.62% of the geographical area of the country.
    - The report said 17 States and Union Territories had more than 33% of their area under forest cover.

Top 5 States with the most forest cover in the nation in terms of area	Top 5 states in terms of forest cover as a proportion of total land area are
Madhya Pradesh	Mizoram (84.53%)
Arunachal Pradesh	Arunachal Pradesh (79.33%)
Chhattisgarh	Meghalaya (76%)
Odisha	Manipur (74.34%)
Maharashtra	Nagaland (73.90%)
Note: - **1)** The word **"forest area"** refers to the **land's legal status** on the basis of official records. **2)** The term **"forest cover"** denotes the presence of trees on any given piece of land.	

Mangrove and Bamboo Cover

1. Mangroves increased by 17 sq km; total cover: 4,992 sq km.
2. Bamboo area increased by 39,454 million culms; total area: 53,336 million culms (stems)

Forest and Tree Growth

1. Overall forest cover increased by 1,540 sq km.
2. **India's forest cover now 21.71%** of geographical area.
3. Telangana, Andhra Pradesh, Odisha show largest increases.
4. Decrease observed in Northeastern states.

Forest Fire and Climate Concerns

1. 35.46% forest cover susceptible to fires; 45–64% impacted by climate change by 2030.
2. **Carbon stock** in forests increased by 79.4 million tonnes.
3. Forest cover assessed in tiger reserves and corridors for first time.

Concerns and Initiatives

1. Drop in natural forests; increase in open and scrub areas.
2. The Northeast region shows significant forest cover loss.
3. Increase in forest fires; encroachment and illegal activities persist.
4. **Government initiatives:** National Mission for a Green India, Afforestation Programs, CAMPA, Desertification Combat Program, Green India Mission, Joint Forest Management.

5. The Water (Prevention And Control Of Pollution) Amendment Act, 2024

1. Recently, The Parliament passed **The Water (Prevention and Control of Pollution) Amendment Act, 2024.**
2. It seeks to **amend** the Water (Prevention and Control of Pollution) Act, 1974.

Background

1. The Water (Prevention and Control of Pollution) Act was enacted in 1974 to provide for the prevention and control of water pollution, and for the maintaining or restoring of wholesomeness of water in the country.
    - The Central and State Pollution Control Boards have been constituted under section 3 and 4 of the Water Act,1974 respectively.
    - Central Pollution Control Boards (CPCB) and State Pollution Control Boards (SPCB), were charged with monitoring and preventing public water resources from getting contaminated by sewage and industrial effluents.
2. The Water Act, 1974 was amended in 1978 and 1988 to clarify certain ambiguities and to vest more powers in the Pollution Control Board.
3. The Water(Prevention and Control Of Pollution) Cess Act was enacted in 1977, to provide for the levy and collection of a cess on water consumed by persons operating and carrying on certain types of industrial activities.

- This Cess is collected with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974.
- This Water Cess Act was Amended in 1992 and 2003.

Centre changed a 'State' Act

1. Water is a **State subject**, and the Centre cannot directly pass legislative laws influencing water management.
2. However, the Centre can create legislation, if two or more States demand it, and this can be made applicable by States over their territories if they adopt the legislation in their Assemblies.
3. The amended version of the Act, passed by both Houses of Parliament, will currently apply to Himachal Pradesh and Rajasthan and the Union territories.
   - Under **Article 252 of the Constitution,** Parliament has the power to legislate for two or more States by consent and adoption of such legislation by any other State.
   - Also, such Act could be amended or repealed only by the Parliament.

Key Amendments (Water Amendment Act,2024)

The Water (Prevention and Control of Pollution) Act 1974	The Water (Prevention and Control of Pollution) Amendment Act, 2024
1. Applied uniformly across 25 states.	1. Initially applicable to Himachal Pradesh, Rajasthan, and the union territories, with the option for other states to extend its applicability through resolutions.
2. Required industrial plants to obtain consent from State Pollution Control Boards to establish industries.	2. Grants authority to the Central Government, in consultation with the Central Pollution Control Board, to exempt certain categories of industrial plants from this consent
3. Vesting the power to appoint adjudication officers with the state governments.	3. Allowing the central government to appoint adjudication officers for determining penalties under the Water Pollution Act.
4. The chairman of an SPCB is nominated by the state government.	4. The central government will prescribe the manner of nomination and the terms and conditions of service of the chairman
5. Certain violations were treated as criminal offenses. It included punishments like jail time ranging from one and a half years to six years, along with fines.	5. Decriminalizes several violations and instead imposes penalties for non-compliance. The latest amendment removes the imprisonment punishment for many violations and replaces it with fines ranging from Rs 10,000 to Rs 15 lakh.

Central Pollution Control Board(CPCB)

1. The Central Pollution Control Board (CPCB), statutory organisation, was constituted in September, 1974 under the **Water (Prevention and Control of Pollution) Act, 1974.**
2. Further, CPCB was entrusted with the powers and functions under the **Air (Prevention and Control of Pollution) Act, 1981.**
3. It functions under the **Ministry of Environment, Forest and Climate Change(MoEFCC)** and coordinates with the State Pollution Control Boards and other agencies.
4. Principal Functions of the CPCB, according to the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981,
   (i) to promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution,

(ii) to improve the quality of air and to prevent, control or abate air pollution in the country.

5. Air Quality Monitoring is an important part of Air quality management.
6. Water Quality Monitoring is an important part of Water quality management.

Significance of the Amendment

1. **Harmonizing Ease of Living and Doing Business**
   a) The Water Act 2024 Amendment is hailed for its dual focus on fostering ease of doing business and harmonizing it with ease of living.
   b) By eliminating bureaucratic hurdles and reducing regulatory interference, commonly known as the "inspector raj," the bill aims to streamline processes, promote economic growth, and ensure transparency in addressing water pollution issues.
   c) This approach reflects a commitment to achieving economic prosperity while safeguarding environmental well-being.
2. **Progress Towards Environmental Protection**
   a) The proposed changes in the Water Act are seen as not only benefiting industries but also advancing environmental protection efforts.
   b) This signifies a balance between industrial development and environmental sustainability.
3. **Streamlining Appointment Processes**
   a) The Water Act 2024 Amendment introduces a more efficient mechanism for appointing officials, ensuring greater transparency and efficiency in decision-making processes related to water management and pollution control.
4. **Decriminalizing and Revising Penalties**
   a) The Water Act 2024 Amendment's move towards decriminalization and revision of penalties reflects a progressive approach aimed at fostering compliance while still maintaining accountability.
   b) It thereby encourages a more collaborative and constructive approach towards addressing water management challenges.
5. **Empowerment of Central Government**
   a) The bill empowers the central government to exempt certain categories of industrial plants from restrictions on new outlets and discharges, as outlined in Section 25 of the Act.
   b) This move is aimed at reducing regulatory duplication and alleviating burdens on regulatory agencies, ultimately facilitating smoother industrial operations.

Criticism of the Amendment

1. **Weakening Original Act**: The amendment weakens the core principles of the original Water Act in force for 50 years, risking the erosion of long-established environmental protections and standards.
2. **Penal Provision Changes:** Proposed changes in penal provisions may dilute accountability and deterrence for water-related offenses, potentially reducing enforcement and penalties. This undermines the legislation's effectiveness in ensuring responsible water management.
3. **Central Control Over State Boards:** The amendment aims to centralize selection of top state board officials. Granting more authority to the central government contradicts decentralization principles and may lead to jurisdictional conflicts.
4. **Anti-environment and Against Federal Structure:** Civil society organizations and opposition leaders label the amendment anti-environmental and against federalism, fearing it weakens environmental protections and encroaches on state government powers in environmental governance.
5. **Central Government's Intrusion:** Central government's authority over SPCB chairman nominations and terms is seen as an intrusion into state domain, potentially upsetting the balance of power in environmental governance between central and state entities.
6. **Lack of Decentralization, Stricter Laws:** Contrary to needs for decentralization and stronger regulations, the amendment centralizes power and weakens provisions, instead of addressing water management challenges. This approach diminishes the legislation's effectiveness in tackling environmental issues.

Conclusion: In conclusion, the success of the Water Act 2024 Amendment relies on a comprehensive approach that integrates enhanced regulation, stakeholder consultation, capacity building, transparency, and public awareness. Strengthening monitoring and regulatory measures is crucial for enforcing pollution standards and preventing unauthorized discharge. By implementing these strategies together, we can ensure sustainable water management practices for future generations, benefiting all stakeholders involved.

6. 1st European Country To Recognise Ecocide As Crime: Belgium

1. **In February 2024**, Belgium becomes 1st European country voted in favour of a **new penal code** for the country, which, for the **1st time in Europe**, includes recognition of the crime of ecocide at both the **national and international level.**
2. The new code also includes:
   - Up to **20 years in prison** for individuals guilty of ecocide
   - Up to **€1.6 million** in fines for corporations

About

1. When we think about war, we often focus on the **human cost**, like **lives lost and cities destroyed**. However, there's another **serious issue that comes with war** - the **damage** it does to our **environment**.
2. Recent conflicts wars around the world have caused extensive environmental damage, **described as ecocide**.

1. **Ecocide** describes the **mass destruction** of nature by humans.
2. **Ecocide** threatens all human populations who are dependent on natural resources for maintaining ecosystems and ensuring their ability to support future generations.

Key points:

1. The conflict led to the release of **toxic substances** like **lead, mercury,** and **depleted uranium** into the environment due to explosions. This pollution affects **air, water,** and **soil, posing serious health risks**.
2. Industrial areas have seen disasters, with harmful leaks spreading poison across Ukraine and beyond. The war also increases the risk of **nuclear accidents**, contributes to **CO2 emissions**, and contradicts climate change efforts.
3. The situation highlights the need for **addressing environmental impacts** in conflict zones and **international cooperation** for recovery efforts.
4. These wars also show us that during conflicts, taking care of the **environment is often not a priority.** Rules to protect nature are ignored, leading to more damage, such as factories releasing dangerous chemicals without control. Moreover, the need for resources for war, like **oil and metals, results in harmful activities like excessive mining and drilling, causing further environmental issues.**
5. The environmental cost of war is a big concern because it not only affects the areas where the war is happening but can also have **long-term global impacts**, including contributing to climate change.
6. **Efforts to Reduce Impact:** There are rules and reports to try to reduce the environmental impact of war:
   a. **The Geneva Convention** sets limits on how war can be fought to protect the environment.
   b. **The Brundtland Report** talks about sustainable development and how conflict stops it.
   b. **The Stockholm Conference** banned all weapons of mass destruction.
   c. **The 1992 Rio Conference** said that war is bad for sustainable development and asked countries to follow environmental rules during war.
   d. **The Rome Statutes** talk about countries' responsibility for environmental damage in wars.
   e. **The International Day** for Preventing the Exploitation of the Environment in War and Armed Conflict highlights the need to protect the environment during conflicts.
7. **The Draft Principles** on Protection of the Environment in Relation to Armed Conflicts give guidelines for protecting the environment in wars.
8. **The UN Convention** on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques tries to stop military use of environmental modification.

Challenges related to the environmental costs of war: Understanding the environmental cost of war is hard, especially in places with a lot of biodiversity. It's difficult to measure the damage, and the **military's pollution isn't included in the Paris Climate Agreement.** After a war, rebuilding often f**ocuses on homes and infrastructure instead of the environment**. Climate change, partly caused by war, makes things worse by making resources scarce and increasing conflicts.

Ways to Reduce War's Impact on the Environment

1. The UN Framework on Climate Change could make rules about emissions from military and conflicts.
2. After conflicts, focus on recovery that is good for the environment.
3. **Train the military** on reducing emissions and protecting the environment.
4. Make the military more eco-friendly, like using electric vehicles and solar power. The UK and Switzerland are working on this.

7. Brumation

A Recent viral video of a crocodile in a frozen lake showed that **reptiles** go into a state- **similar to hibernation** (in mammals) known as **Brumation**.

What is Brumation?

1. Brumation is a period of dormancy or slowed activity in **reptiles.**
   - Similar to hibernation in mammals but specific to reptiles.
2. Reptiles enter brumation to conserve energy and survive adverse environmental conditions.
3. It occurs during colder months when temperatures drop and food is scarce.
4. Metabolism slows significantly, enabling them to go weeks or months without eating.
5. Reduced activity conserves energy and minimizes resource requirements.
6. Reptiles retreat to underground burrows, rock crevices or other sheltered areas where temperatures are relatively more stable, during brumation.

Few Instances:

1. Box turtles and painted turtles retreat into the mud at the bottom of ponds or lakes.
2. Snakes find refuge in underground dens or caves.
3. Lizards conceal themselves under rocks or within vegetation to undergo brumation.

What is the need for Brumation?

1. Almost All reptiles are **ectothermic** which means they are **cold-blooded animals**.
   - Cold-blooded animals like crocodiles and snakes rely on the **external environment** to maintain their internal temperature. Whereas, **mammals (Humans)** are **endothermic** and hence do not need to rely on external weather but are capable of regulating their internal temperature by themselves.
2. Hence, to deal with **extreme weather conditions** such as cold climates, reptiles adapt to Brumation.

Difference Between Hibernation, Aestivation and Brumation

HIBERNATION	AESTIVATION	BRUMATION
A state of greatly reduced metabolic activity and lowered body temperature adopted by certain mammals as an adaptation to adverse winter conditions. Example- Bears, Bats	A state of inactivity observed in ectotherms (cold-blooded animals) during extreme warm temperatures (also called Summer Sleep). Example- Box turtles aestivate in shallow forms or depressions in the soil to stay moist and cool.	A hibernation-like phase of inactivity observed in ectotherms during extreme cold temperatures. Example- Box turtles bury themselves in leaves or soil to keep warm during cold winter months.

Key Features of Reptiles:

1. Vertebrates including snakes, turtles, lizards, and crocodilians, are predominantly terrestrial animals.
2. Distinctive Features: Their bodies are covered in dry, cornified skin, epidermal scales, or scutes. They lack external ear openings; the tympanum represents the ear.
3. Limbs: When present, limbs typically consist of two pairs.
4. Heart Structure: Reptiles generally have a three-chambered heart, except for crocodiles, which have a four-chambered heart.

5. Thermoregulation: They are poikilotherms, meaning their body temperature varies with the environment.
6. Skin Shedding: Snakes and lizards shed their scales as skin cast during growth.
7. Reproduction: Reptiles have separate sexes, with internal fertilization. Most lay eggs with tough shells, but some, like boa constrictors, give birth to live young.
8. Respiration: Possess lungs for breathing air, distinct from gilled aquatic animals.
9. Diet: Varied, with most being carnivorous, while some, like tortoises, are herbivorous.
10. Adaptations: Evolved diverse traits for survival, including camouflage, venom, and armoured scales.
11. Examples- *Chelone* (Turtle), *Testudo* (Tortoise), *Chameleon* (Tree lizard), *Calotes* (Garden lizard), *Crocodilus* (Crocodile), *Alligator* (Alligator). *Hemidactylus* (Wall lizard), Poisonous snakes – *Naja* (Cobra), *Bangarus* (Krait), *Vipera* (Viper).

8. New Climate Goal For 2040 By EU

In February 2024, the European Union (EU) announced its proposed **2040 climate target**, aiming **to reduce net emissions by 90% compared to 1990 levels.**

EU's Goals and Laws:

- In 2020, the EU decided to **cut pollution by 55% by 2030.** They **also** plan to be **completely carbon neutral by 2050.**

Fossil Fuel Phaseout and Energy Crisis:

1. The proposal outlines **phasing out coal by 2040** and **reducing reliance on natural gas**, especially amidst an energy crisis caused by the Ukraine war, which disrupted natural gas supplies from Russia.
2. The EU is turning to **renewable energy sources and increasing LNG** (Liquefied Natural Gas) imports to decrease the crisis.

Concerns:

- Some people think the **EU is doing less than what is expected** as there is much historical damage to be taken care of.

What is Carbon capture, usage and storage?
It is a technology that can capture and make effective use of the high concentrations of CO_2 emitted by industrial activities. Consequently, it has a key role to play in decarbonization and the addressing the challenge of global climate

- The **heavy reliance on carbon capture and removal technologies i**s questioned, especially due to concerns about their **reliability and cost-effectiveness.**
- Criticized for changing rules about farming because of farmer protests, which led to a reduction in emission reduction targets.
- Other climate policies, like the **Carbon Border Adjustment Mechanism (CBAM) and the Green Deal Industrial Plan**, have been put forward to help fight climate change. However, they've received some **negative feedback of greater costs for developing nations**.
- The **Net Zero Industry Act (NZIA)** wants to encourage making green technology at home but has been **criticized for supporting unsure technologies like CCUS** (Carbon Capture, Usage and Storage).

9. El Nino and la nina, and its impact on air quality

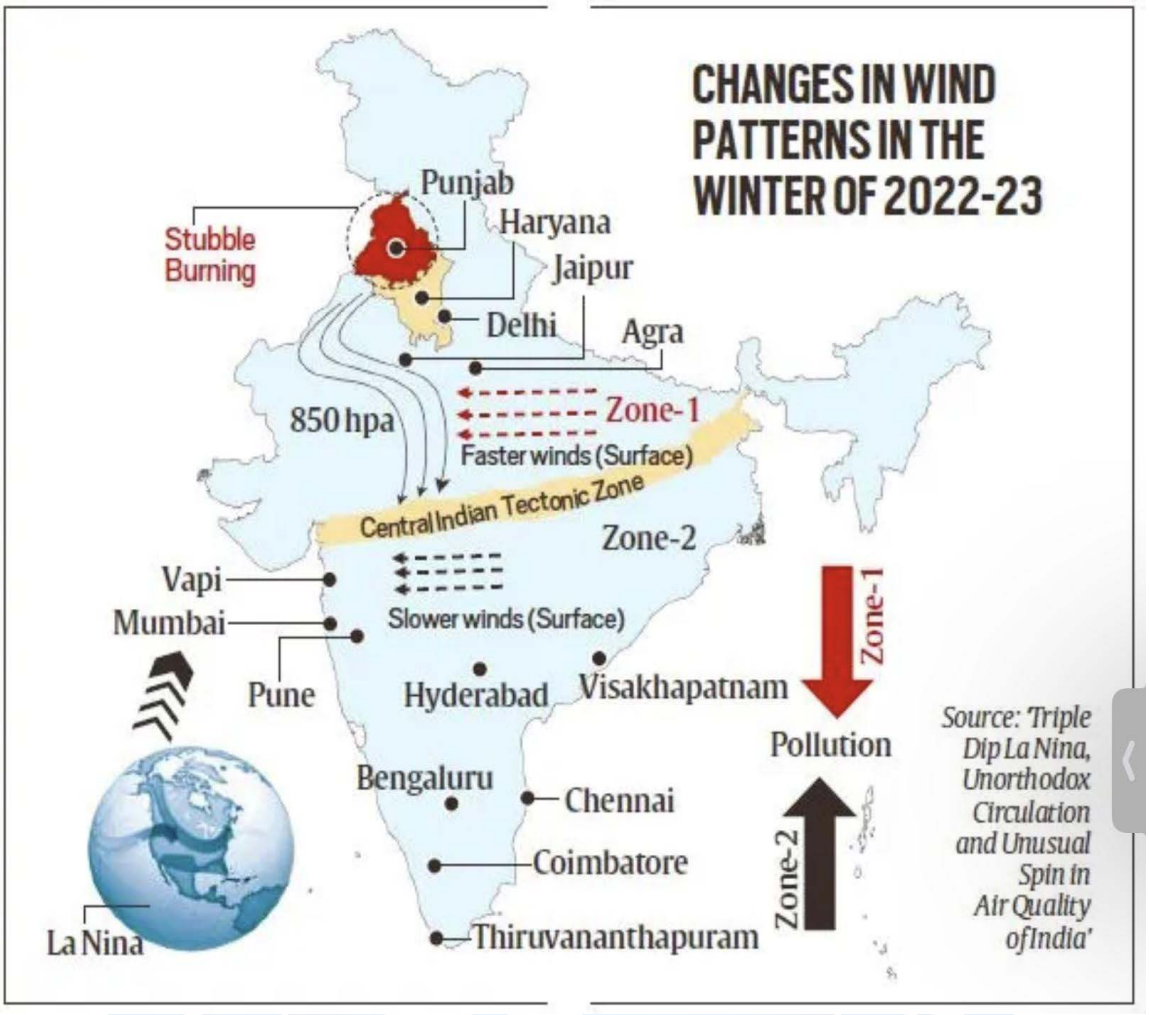
A study by **National Institute of Advanced Studies** and **Indian Institute of Tropical Meteorology** found that air quality in the country is influenced by El Nino and La Nina.

National Institute of Advanced Studies

1. National Institute of Advanced Studies (NIAS) is a premier institute in India founded by J. R. D. Tata.
2. It is engaged in interdisciplinary and multidisciplinary research in natural sciences, social sciences, arts and humanities.
3. It provides an avenue for administrators, managers and social leaders for interaction and exchange of information.

Indian Institute of Tropical Meteorology

1. The Indian Institute of Tropical Meteorology (IITM) is a scientific institute located in Pune.
2. The goal is to increase research in the tropical Indian Ocean, specifically focusing on monsoon meteorology.
3. It is an autonomous institute under the Government of India's Ministry of Earth Sciences.



Key Findings of the Study

1. **Anomaly in Usual Condition (2022):**
   a. While northern Indian cities, such as Delhi, had cleaner air than usual, west Indian and south Indian cities, such as Mumbai, Bengaluru, and Chennai, had worse-than-usual air quality.
   b. In the winter of 2022, Ghaziabad's PM2.5 concentrations decreased by almost 33% from baseline, Delhi's witnessed a decrease of roughly 10%, Mumbai saw a rise of 30%, while Bengaluru recorded a 20% increase.
2. **Wind Direction Change:**
   a. During the winter, the typical wind direction, which is north-westerly, shifted to a north-south direction.
   b. Consequently, the smoke and pollution from burning stubble from Punjab and Haryana moved over Rajasthan and Gujarat to southern regions, avoiding Delhi and the Gangetic Plains.
3. **PM 2.5 levels:**
   a. From **October through January,** cities in northern **India, especially Delhi, face significantly high levels of PM2.5 pollution**.
   b. The **study highlighted a significant decrease in PM2.5** levels in Ghaziabad by approximately 33% from the usual figures, with Noida witnessing a 28% drop. **Delhi's PM2.5 concentrations fell by about 10%.**
   c. **In contrast, Mumbai's pollution levels increased by 30%,** and Bengaluru saw a 20% rise in PM2.5 levels. This **unexpected change** in air quality patterns led researchers to investigate, eventually pointing them towards the **potential influence of La Nina.**
4. **Deviation in the direction of the local winds in the vicinity of Mumbai:**

a. In 2022, the local winds continued to blow in the same direction for over a week or ten days, as opposed to reversing course every four to five days.
b. Every few days, wind currents switch from blowing from the land to the sea.
c. When the winds blew from the land towards the sea, they took pollutants out of the city, which resulted in a higher concentration of pollutants in Mumbai.

5. **Unusual weather pattern**
   a. Several weather-related factors, including temperature, humidity, air density, and wind patterns, contribute to the accumulation of pollutants at lower atmospheric levels.
   b. Additionally, these conditions facilitate the movement of pollutants from other areas, notably from **agricultural residue burning** in Punjab and Haryana, towards Delhi and its neighbouring regions.
   c. Conversely, the **western and southern regions** of India typically **experience lower pollution levels, largely due to their closeness to the sea**.
6. **Triple dip La Nina:**
   a. Winters in 2022 followed by 3 consecutive years of La Nina (triple-dip) event.
   b. There was a shift in the typical wind direction. Ordinarily, the wind flows from the northwest, such as from Punjab towards Delhi, extending into the Gangetic plains.
   c. The researchers compared the wind patterns over the Indian region with the worldwide air circulation data that resulted from La Nina.

During the winter of 2022, the wind patterns altered to a north-south flow. As a result, the pollutants from Punjab and Haryana did not pass through Delhi and its neighbouring areas but instead moved across Rajasthan and Gujarat towards the south (see map).

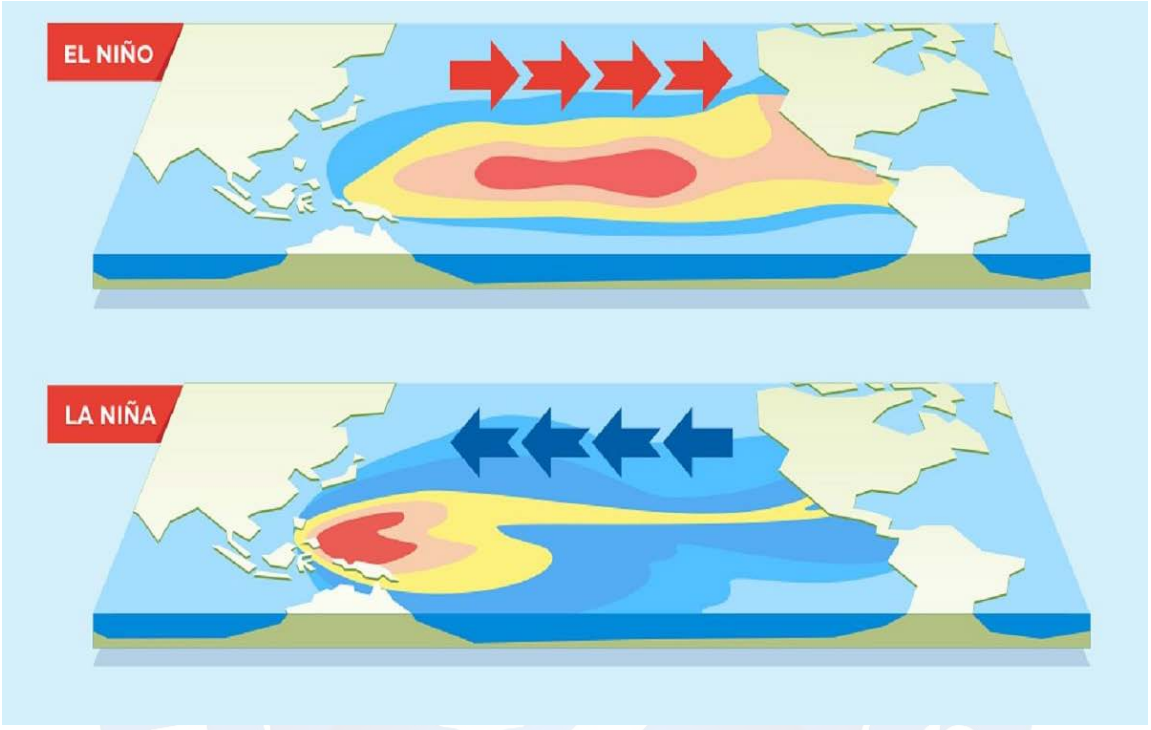
Impact of ENSO on Air Quality

1. The Pacific Ocean experiences **3 phases** of the **El Nino Southern Oscillation (ENSO)**:
   a. El Nino,
   b. La Nina
   c. A neutral phase with sea surface temperatures that are similar to long-term norms.
2. ENSO include not only anomalies in sea surface temperature but also variations in atmospheric parameters such as air pressure at sea level, wind direction, and strength.
3. The 3 years that La Nina conditions persisted had a greater effect on wind patterns and ultimately resulted in discernible shifts in the distribution of air quality throughout India.

Difference Between El Nino and La Nina

	EL NINO	LA NINA
Definition	It is a climate pattern that describes the unusual warming of surface waters in the eastern tropical Pacific Ocean.	It is characterized by unusually cold ocean temperatures in the Equatorial Pacific, opposite to El Nino.
Occurrence	It typically occurs every 2-7 years and can last between 9 to 12 months, sometimes extending up to two years.	Like El Nino, La Nina events also occur every few years but can vary in intensity and duration.
Impact	1. Alters weather patterns across the globe, leading to extreme weather events such as floods, droughts, and storms. 2. Affects **marine life and bird populations** due to the increase in ocean temperature and decrease in upwelling of nutrient-rich water. 3. Influences global temperatures, contributing to **heat waves** and the warming of the Earth's atmosphere.	1. Generally, it leads to increased rainfall in some parts of the world and drought in others. 2. Can contribute to more intense and numerous tropical cyclones in the Pacific. 3. Affects global temperature patterns, often leading to **cooler** global temperatures.

	4. often associated with **weaker monsoons in India.** It can lead to below-average rainfall, affecting the country's agrarian economy heavily since a significant portion of India's agriculture is rain-fed.	**4.** typically strengthens the Indian monsoon, leading to more-than-average rainfall. This can be beneficial for crop yields and replenishing water bodies.



10. World's Biggest Northern Green Anaconda Found in Amazon Rainforest

About Green Anaconda

A team of scientists has discovered a new species of **green anaconda** in the Amazon rainforest. One of the scientists has recorded a video of a **26-feet-long green anaconda,** believed to be the **biggest snake** in the world.

1. The species was found during filming for the **National Geographics Disney+ series 'Pole to Pole'** with **Will Smith.**
2. The newly identified species is called the "**northern green anaconda**" and coexists with the previously known "**southern green anaconda**."
   a. The known species is identified as the "**southern green anaconda**" (**Eunectes murinus**) and inhabits regions such as **Perú, Bolivia, French Guiana, and Brazil.**
   b. The newly recognized species is called the "**northern green anaconda**" (**Eunectes akayima**) and is distributed across **Ecuador, Colombia, Venezuela, Trinidad, Guyana, Suriname, and French Guiana.**
   c. Despite their size, green anacondas are **non-venomous** and use large, flexible jaws to capture and crush prey.
   d. Conservation status: **Least Concern (IUCN)** and **CITES Appendix II.**
3. **Genetic** analysis revealed a significant **5.5% genetic difference between the two anaconda species,** which is **higher than** the genetic difference between **humans and apes (2%).**
4. Historically, **4 distinct anaconda species, including green anaconda**, were recognized.
5. Green anacondas, known as the **world's largest snakes,** are well-adapted to aquatic life, with nostrils and eyes on top of their heads.
6. The **largest females** can grow over **7 meters** long and weigh more than **250 kilograms.**
7. The **genetic split** between these two anaconda species **occurred approximately 10 million years ago.**

8. These snakes are **ovoviviparous**, meaning that they **give birth to live young instead of laying eggs.**

Feature	Southern Green Anaconda (Eunectes murinus)	Northern Green Anaconda (Eunectes akayima)
Habitat	Peru, Bolivia, French Guiana, Brazil	Ecuador, Colombia, Venezuela, Trinidad, Guyana, Suriname, French Guiana
Appearance	Olive-colored with large black spots	Similar to Southern Green Anaconda
Size	Up to 7 meters long, 250+ kg	Likely similar to Southern Green Anaconda
Ecological role	Apex predator, maintains ecosystem balance	Likely similar to Southern Green Anaconda
Genetic difference	**5.5%** divergence from Northern Green Anaconda	5.5% divergence from Southern Green Anaconda
Threats	Habitat loss, climate change, pollution	Similar but specific threats need investigation

11. Discovery Of A New Marine Amphipod Species: Parhyale Odian

1. Researchers from **Berhampur University** in **Odisha** found a new species of **marine amphipod** in **Chilika Lake**.
   a. Named **Parhyale Odian** after Odisha's native language, **Odia**.

About Amphipods

1. Amphipods are a diverse group of **crustaceans** similar to crabs, lobsters, and shrimp.
2. They have a **flattened body** from side to side and a curved shape.
3. Amphipods have a body, with 3 main parts: **head**, **thorax**, and **abdomen**. They have many parts sticking out, like **antennae**, **mandibles**, and **specialized legs** called pereopods.
4. **Whale lice**, found on whales and dolphins, belong to this group.

Recent Discoveries: In 2023, researchers found **3 new marine amphipod species**: **Quadrivisio chilikensis** and **Demaorchestia alanensis** in Chilika Lake, and **Talorchestia buensis** on the West Bengal coast.

Characteristics of Genus Parhyale

1. First reported in **1899** from the **Virgin Islands (US)**, the **genus Parhyale** has 15 global species.
2. This recent study added one more species, bringing the total to 16.
3. These **amphipods** live in both **marine and brackish water**.
   - **Brackish water** is water that has more salt than freshwater but less salt than seawater. It can be found where freshwater mixes with seawater, such as in estuaries and where rivers flow into the ocean.
4. They are **cosmopolitan** (widespread), found in **intertidal and littoral environments** across **tropical and warm temperate regions**.
   - The **intertidal zone**, also known as the **littoral zone**, is the area where the ocean meets the land between high and low tides. It's a transitional coastal region that's influenced by the tides.
5. They are commonly found **underneath stones with attached vegetation** or in the burrows of isopods.
   - Isopods are crustaceans that burrow (hole or excavation in the ground made by an animal) into sediment for shelter and semi-hibernation.

Characteristics of Parhyale Odian

1. **Parhyale Odian** is a **crustacean** similar to a shrimp and belongs to the Parhyale genus.
2. What sets **Parhyale Odian** apart from the other 15 species in its genus is a **stout robust seta** on the male gnathopod's (first pair of legs) surface.

About Chilika Lake

1. Chilika Lake is **Asia's largest brackish water lagoon** and the **world's second-largest coastal lagoon**.
2. Situated on India's east coast, it's where the **Daya River** meets the Bay of Bengal.
3. Lake Chilika was the **first Indian wetland** recognized under the **Ramsar Convention in 1981** due to its rich biodiversity.
4. Its unique hydrological features make it exhibit characteristics of a lake, estuary, and lagoon all at once.
5. The lake is an ecosystem with **large fishery resources**. It sustains more than 150,000 fisher folk living in 132 villages on the shore and Islands.
6. It is the **largest wintering ground for migratory birds** on the Indian sub-continent.
7. Birds from the Caspian Sea, Lake Baikal, Aral Sea and other remote parts of Russia, Kirghiz steppes of Mongolia, Central and Southeast Asia, Ladakh and Himalayas come here.
8. Chilika is home to one of the **world's largest breeding colonies of Flamingos**.
9. Being richly famous for the presence of aquatic wildlife, Chilika Lake sanctuary also houses **Irrawaddy dolphins** which are different from the other dolphins as their colour and dorsal fin being less prominent.

[Q] What is the significance of the term "Parhyale odian" in recent news?

[A] A newly discovered star
[B] A new species of marine amphipod
[C] A historic monument
[D] A popular cultural festival

[ANS] B

[SOLN]

Key Facts

- The term **"Parhyale odian"** refers to a new species of marine amphipod that was recently discovered. This shrimp-like crustacean was found in Chilika Lake, Asia's largest brackish water lagoon, located on India's east coast.
- The species was named "Parhyale odian" after Odisha's native language, Odia, as the species was collected there.
- This discovery has added one more species to the genus Parhyale, raising the global species number in the group to 16.
- The new species is brown in color and around eight millimeters in length. It has 13 pairs of legs, with the first pair used for capturing prey and feeding. So, the correct answer is: B) A new species of marine amphipod

[Q] Which one of the following is the correct sequence of a food chain?
[Prelims 2014]

[A] Diatoms-Crustaceans-Herrings
[B] Crustaceans-Diatoms-Herrings
[C] Diatoms-Herrings-Crustaceans
[D] Crustaceans-Herrings-Diatomsol

[ANS] A

[SOLN]

Key Facts

- In this sequence, diatoms serve as the primary producers. Crustaceans, which are herbivorous animals, feed on diatoms. Herrings, which are carnivorous animals, feed on crustaceans.
- This completes the food chain. Diatoms are autotrophs that prepare their own food. So, the correct answer is (a) Diatoms-Crustaceans-Herrings.

[Q] Consider the following pairs:

Wetland/Lake:	Location
1. Hokera Wetland	Punjab
2. Renuka Wetland	Himachal Pradesh
3. Rudrasagar Lake	Tripura
4. Sasthamkotta	Tamil Nadu

How many pairs given above are correctly matched?
(Prelims 2022)

[A] Only one [B] Only two
[C] Only three [D] All four

[ANS] B

[SOLN]

Key Facts

- The pairs are matched as follows:
  - Hokera Wetland is located in Jammu and Kashmir, not Punjab.
  - Renuka Wetland is indeed located in Himachal Pradesh.
  - Rudrasagar Lake is indeed located in Tripura.
  - Sasthamkotta is located in Kerala, not Tamil Nadu.
- So, only two pairs are correctly matched:
  - **Renuka Wetland - Himachal Pradesh**
  - **Rudrasagar Lake - Tripura**
- **Therefore, the correct answer is: Only two pairs**

12. Newly Discovered Sea Slug: Melanochlamys Droupadi

Zoological Survey of India (ZSI) discovered a new species of **head-shield sea slug along the Odisha and West Bengal coastlines**, which has been named **Melanochlamys Droupadi in honor of the President of India, Droupadi Murmu.**

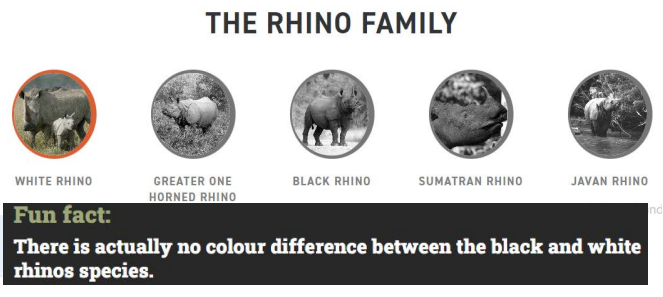
1. **Features:** It is a small invertebrate, measuring up to 7 mm long, with a **clear brownish-black color** and a **ruby red spot** on the posterior end.
   - **Invertebrate** is any animal **that lacks backbone**, in contrast to the **cartilaginous or bony vertebrates.**
   - More than **90 percent of all living animal species are invertebrates.**
2. **Habitat:** Prefers wet, soft sandy beaches.
3. **Unique Characteristics:** Bisexual nature, **having both male and female reproductive organs;** Secretes **transparent mucus to prevent sand particles** from entering its parapodial space; And moves forward leaving a mark like that of a turtle under the sand.
4. **Significance:** Represents a new addition to the **Melanochlamys genus**, showcasing the rich biodiversity of India's coastal regions.

Insight into Sea Slugs:

1. **Definition:** Sea slugs are **slug-like marine mollusks** that live in diverse marine habitats ranging from **polar regions to the tropics to the intertidal zone** to the deep sea.
2. **Feeding Behavior:** Primarily fast predators, they prey on **creatures such as sea slugs, marine worms, roundworms and small fish.**
3. **Global Distribution:** Currently, **18 sea slug species have been identified worldwide,** primarily distributed in the **temperate regions of the Indo-Pacific Oceanic region**, with a few tropically distributed species like **Melanochlamys papillata and Melanochlamys bengalensis.**

13. World's First IVF Rhino Pregnancy: A Hope for the Northern White Rhino

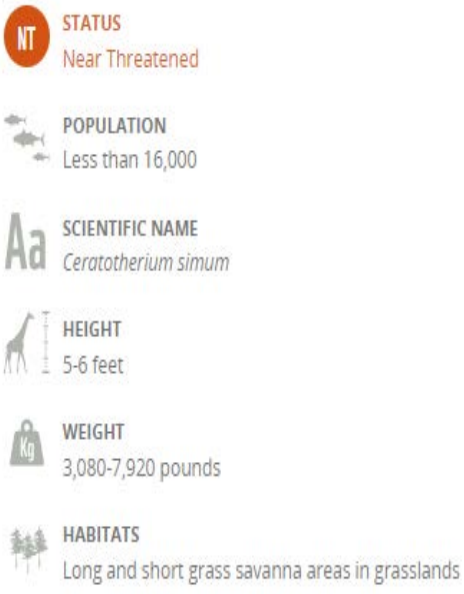
The team at the BioRescue project successfully impregnated a southern white rhino via in vitro fertilization (IVF), according to a press release, creating a possible path for restoring the northern white rhino species. The northern white rhino is a very **rare animal**, with **only 2 females** left in the world. These rhinos, **Najin and Fatu**, live in a place in **Kenya** called the **Ol Pejeta Conservancy**. Scientists are trying to save this kind of rhino from disappearing forever.



The white rhino is also known as the Square-lipped rhino due to the shape of its mouth compared with its African cousin, the black rhino.

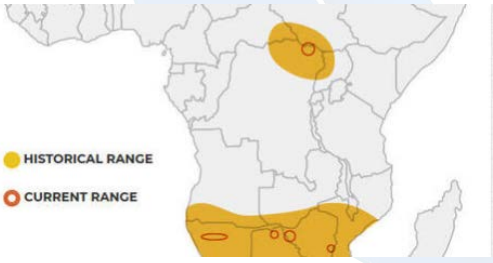
The Big Step with IVF:

1. Scientists have come up with a special way to try and save the **northern white rhinos** by using a method called **IVF**, which stands for **In Vitro Fertilization**. This is when they create a baby rhino in a laboratory instead of the natural way.



2. ***First Success:*** They managed to get a rhino **pregnant** through IVF **for the first time ever**, but they used a **southern white rhino**, which is similar to the northern white rhino, as a helper or "**surrogate**" mom.
3. ***Why It's Important:*** If they can do this with southern white rhinos, they hope they can do the same with northern white rhinos. This could help make more northern white rhinos and stop them from disappearing.

Challenges They Faced:



1. ***Collecting Eggs:*** It was very hard for the team to get eggs from the big rhinos, which are very heavy animals.
2. ***Creating Embryos:*** They had to mix the **eggs** with sperm in the lab to make baby rhinos (**embryos**). This took a lot of tries to get right.
3. ***A Sad Moment:*** Sadly, after getting a surrogate rhino mom pregnant, she **died** because of an **infection.** But, before she died, it showed that the baby rhino inside her was growing well, which means their method can work.

What's Next?

1. ***More Tries:*** The scientists have **30 embryos** of the northern white rhino ready to be used. They plan to put these embryos into surrogate southern white rhinos since Najin and Fatu can't carry babies themselves.
2. ***A Big Hope:*** They want to have a baby northern white rhino born from a southern white rhino mom. **No one has ever tried** this before between two different kinds of rhinos.

Location
South Africa, Botswana, Kenya, Namibia, eSwatini, Zambia, Zimbabwe, Uganda

Habitat
Tropical and Subtropical Grasslands, Savannas and Shrublands

Why This Matters

1. ***People Caused the Problem:*** One of the project leaders said that **humans are the reason** northern white rhinos are almost gone because of **hunting** them for their horns. Now, humans have a chance to fix this problem.
2. ***Every Rhino Counts:*** Another leader in this effort, said these rhinos are very important for nature, and they will do everything possible to save them.

The Big Picture

While using IVF is a great start, it's not enough to save the northern white rhino forever. The scientists are also thinking about using **stem cells** to make more rhinos, which could help even more. But, some people wonder if we should focus on saving animals that are less close to disappearing instead.

This work is about using science to try and save a special animal from vanishing forever. It shows how much people care about protecting nature and its creatures.

[Q.1] Consider the following statements regarding the efforts to save the Northern White Rhino:

1. The BioRescue project has initiated the world's first IVF pregnancy in a rhino as a strategy to save the northern white rhino species, which has a population of only two females left.

2. The attempt to use IVF involved a northern white rhino as a surrogate mother for the embryo.
3. The process has proven successful on the first attempt, with the surrogate southern white rhino showing signs of a healthy pregnancy before succumbing to an infection.
4. Scientists plan to use southern white rhinos as surrogate mothers for northern white rhino embryos, with over 30 embryos currently ready for implantation.

How many of the statements given above are correct?

[A] Only one
[B] Only two
[C] Only three
[D] All four

[ANS] C

[SOLN]

Key Facts:

1. The BioRescue project's successful IVF pregnancy in a southern white rhino surrogate represents a significant step toward preserving the northern white rhino species, making **statement 1 correct.**
2. The surrogate mother used for the IVF process was a southern white rhino, not a northern white rhino, **making statement 2 incorrect.**
3. The initial success of the IVF procedure, despite the subsequent loss of the surrogate mother to an infection, indicates the potential viability of this approach, making **statement 3 correct.**
4. The future plan involves using southern white rhinos as surrogate mothers for the implantation of northern white rhino embryos, with a significant number of embryos prepared for this purpose, making **statement 4 correct.**

14. World's First Melanistic Tiger Safari in Odisha

Odisha is preparing to introduce the **world's first melanistic tiger safari near the Similipal Tiger Reserve** (STR).

Odisha's Vision for the Melanistic Tiger Safari:

1. **Melanism and the Melanistic Tiger:** Melanism, a **genetic condition that causes increased melanin production**, resulting in the animal's skin, feathers, or hair becoming black or nearly black.
2. The **Royal Bengal Tigers of Similipal** have **high levels of melanin**, causing scattered black and yellow stripes, creating a pseudo-melanistic pattern.
3. According to the All India Tiger Estimate, 2022, there are **16 tigers in Similipal Tiger Reserve**, of which **10 tiger show melanistic traits.**

Location of Safari:

1. Spread over about **200 hectares near the Dhanbad-Balasore National Highway-18,** the safari site is close to the STR, resembling the landscape of Simlipal.
2. Initially, **3 melanistic tigers from Nandankanan Zoo** will join the rescued or orphaned tigers in the safari.

Objective:

1. The safari aims **to raise awareness of the conservation needs of melanistic tigers** and provide a platform for researchers and enthusiasts to connect with these rare big cats.
2. **Approval:** The project requires **regulatory approval from the Central Zoo Authority** and feasibility study by the **National Tiger Conservation Authority Committee.**

Other Colour Variations in Tigers:

1. **Orange with black or brown stripes:** The most common tiger color, **seen in Royal Bengal Tigers**, with the unique stripe patterns serving as camouflage.
2. **White tigers:** The result of a **genetic mutation called leucism**, which reduces **pigmentation.**
3. **Golden Tigers:** No separate subspecies; The variation in their golden color is due to the presence of a recessive gene called "**wideband**", which **reduces melanin production.**

Similipal Tiger Reserve:

1. **Location:** Located in the **Deccan Peninsula** biogeographic region.
2. **Vegetation:** Mainly **tropical semi-evergreen** and **moist mixed deciduous forests** with dry deciduous forests and grasslands.
3. **Fauna Diversity:** Home to various **mammal, bird, reptile and amphibian species** including tigers, leopards and crocodiles.
4. Since 2009 it has been designated as a **Global Network of Biosphere Sites**, highlighting its ecological importance.

15. First time in India: 'Spur-winged Lapwing'

A bird-watching team from Telangana spotted a **spur-winged lapwing** near **Warangal**, believed to be the **first bird** seen in India.

1. **Scientific Name:** Vanellus spinosus
2. **Family:** Belongs to the family of **Charadriidae.**
3. **Size:** The spur-winged lapwing is a **medium-sized bird** measuring 25–28 cm in length and weighing 100–170 g.
4. **Appearance:**
   - It has a distinctive appearance with **black and white plumage**.
   - The bird has a black crown and nape, contrasting with a white face and throat.
   - The wings are mainly white with black flight feathers.
5. **Habitat:**
   - wetlands, marshes, and other freshwater habitats.
   - Also inhabit agricultural areas, grasslands, and savannas.
6. **Behaviour and Lifestyle:**
   - These lapwings are known for their loud and distinctive calls, often described as a **"kleep-kleep-kleep"** sound.
   - They are territorial and may defend their nesting sites vigorously.
7. **Diet and Feeding habits:**
   - Their diet consists mainly of insects and other small invertebrates.
   - They search for food in mud or shallow water, using their long legs to wade through the substrate.
8. **Breeding:**
   - Spur-winged Lapwings typically build their nests on the ground in shallow scrapes.
   - The female usually **lays a clutch of eggs**, and both parents share the responsibility of incubating the eggs and caring for the chicks.
9. **Distribution:** North Africa, the Middle East and Mediterranean regions.
10. **Threats:**
    - Spur-winged lapwings are vulnerable to birds of prey, a variety of small carnivores, and people.
    - Snakes and rodents may also raid their nests and steal eggs.
11. **Conservation Status:**
    - **IUCN:** Least Concern
12. **Lifespan:** About 15 years.
13. **Interesting Facts:**
    - It is a **wading** (to walk through water or other liquid with some effort) bird.
    - spur-winged lapwing was sighted at **Ammavaripet Lake** near Warangal (Telangana) in India.
    - The **14th edition of the Hyderabad Bird Race** was organised by Deccan Birders together with HSBC.

16. Indian Gharial

After a gap of 75 years, **Indian Gharial** was spotted in **Greater Kaziranga** (Assam).

1. **Scientific Name:** Gavialis gangeticus
2. **Physical Characteristics:**
   - **Long, thin snout:** One of the distinctive features of the gharial is its long and slender snout, which is adapted for catching fish.
   - **Nuchal hump:** Adult males have a bulbous growth on the tip of their snout called a nuchal hump.
3. **Habitat:** Gharials are **primarily found in freshwater habitats**, including rivers and their tributaries. They prefer slow-moving waters.
4. **Range:** Historically, gharials were found in **major river systems** across the Indian subcontinent, including the Ganges, Brahmaputra, Mahanadi, and Indus rivers.
5. **Gharial reserves of India (in three States):** MP, UP, and Rajasthan.
6. **Diet:** Gharials are **piscivores**, meaning they **primarily feed on fish**. Their long, slender snout and sharp teeth are adapted for catching and eating fish.
7. **Reproduction:** Female gharials lay their eggs in **sandy riverbanks**. They create nests and bury their eggs in the sand. After hatching, the young gharials make their way to the water.

8. **Conservation Status:**
   - **IUCN:** critically endangered
   - **Wildlife Protection Act,1972:** Schedule I
   - **CITES:** Appendix I
9. **Threats:**
   - **Habitat destruction:** Dam construction, sand mining, and irrigation projects have altered the natural habitats of gharials.
   - **Fishing practices:** Gharials often become entangled in fishing nets and may be accidentally killed.
   - **Water pollution:** Industrial and agricultural runoff, as well as pollution from urban areas, pose a significant threat to gharial populations.
10. **Conservation Efforts:** Various conservation programs and initiatives have been implemented to protect the Indian gharial. These include habitat conservation, captive breeding programs, and efforts to reduce threats from fishing and river pollution.

17. Baleen Whales

Recently, the scientists discovered the anatomy (body structure) that is responsible for the voice of Baleen Whales.

Details of Baleen whales:

1. **About:** They are amazing creatures that belong to a group called **'Mysticeti'**. They're known for their massive size and **unique feeding mechanism**.
2. **Species:** There are **14 species of baleen whales** and some well-known species include the **blue whale, humpback whale, fin whale, minke whale, and gray whale.** Each species has its own distinct characteristics and behaviours. **3 species are found in India namely blue, Bryde's and humpback whales.**
3. **Size: Baleen whales** are some of the **largest animals** on Earth. Species like the blue whale can grow up to 100 feet long, making them **one of the largest animals** ever known to exist.
4. **Feeding:** Unlike toothed whales, which hunt prey individually, baleen whales **use baleen plates in their mouths to filter food from the water**. These plates allow them to capture small fish, krill, and plankton while removing excess water.
5. **Baleen:** Baleen is made of **keratin**, the **same material found in human fingernails** and **hair**. It forms a series of flexible plates that hang down from the whale's upper jaw, creating a filtering system.
6. **Migration:** These whales undertake **long migrations**, traveling between feeding and breeding grounds. This can involve **thousands of miles of travel**, driven by the availability of food and the need to reproduce.
7. **Communication:** They are known for their **complex way of communication**, including songs and calls used for communication, navigation, and possibly even mating rituals.
8. **Conservation:** They face threats from activities like pollution, habitat destruction, climate change, and collisions with ships. **All 14 species of baleen whales are listed under CITES Appendix I,** prohibiting commercial international trade.

Prelims Ques:

Consider the following statements about 'Baleen Whales':

1. There are 14 species of baleen whales.
2. All 14 species of baleen whales occur in India.

Which of the above statements is/are true?

A] 1 only B] 2 only
C] Both 1 & 2 D] Neither 1 nor 2

Ans: A

18. DONKEY SKIN TRADE BANNED BY AFRICAN UNION

1. In February 2024, during the **37th African Union Summit in Ethiopia**, African heads of state unanimously agreed to a **historic ban on the trade of donkey skin**.
2. This is a significant outcome following the **Dar es Salaam declaration** adopted at the **1st AU-IBAR Pan-African Donkey Conference** in December 2022.
3. This ban prohibits the killing of donkeys across the continent for their skin.

What is the Dar es Salaam declaration?

1. The Dar es Salaam declaration was **signed in Tanzania** during the **Pan African Donkey Skin Conference,** organized by the **African Union-Inter African Bureau for Animal Resource** (AU-IBAR).
2. Government ministers convened at this conference to comprehend the detrimental effects of the donkey skin trade on animals and communities in Africa.

3. **Concerns Addressed by the Declaration**:
   a. It highlights the **rapid decrease** in Africa's donkey population.
   b. Advocates for increased investment in research, policies, and legislation to safeguard the species.
4. **Proposals and Advocacy**:
   a. It calls for an African Union Commission resolution suggesting a **15-year stay** on the **commercial slaughter** of donkeys for their skins.
   b. Additionally, it proposes the creation of an African donkey strategy addressing exploitation, production, and productivity.
   c. The goal is to integrate these concerns into the global development agenda.

Why is Donkey skin traded?

1. The trade of donkey skin, largely unregulated, involves cruel practices such as the vicious slaughter of donkeys for their skins, which are subsequently exported to China.
2. This trade is illegal in some countries and legal in others, resulting in cruelty and suffering inflicted upon donkeys globally.

Impact of Donkey Skin Trade:

a) The trade is driven by the demand for **ejiao**, a traditional Chinese medicine, leading to a vicious and unsustainable global trade.

b) **Africa,** home to over **two-thirds** of the world's donkey population, faces significant threats from the trade, resulting in theft, cruel treatment, and a dramatic decline in donkey populations.

Consequences of Donkey Population Decline:

a) The decline in donkey populations poses a threat to the livelihoods of millions of people who depend on them for their well-being and means of subsistence.

b) Efforts to combat poverty, such as in **Mali and Ethiopia**, rely heavily on the contributions of working equids, including donkeys.

Importance of African Union Agreement:

a) The ban aims to protect **33 million donkeys** on the continent from exploitation and safeguard the communities that rely on them.

b) It aligns with efforts to achieve **United Nations sustainable development goals**, particularly the goal to **end poverty**, by recognizing the crucial role of equid ownership.

Call for Implementation and Enforcement:

a) The success of the ban depends on its implementation and enforcement by every country within the African Union.

b) Expectations of similar bans in **Brazil** may disrupt the supply chain and impact the **ejiao** industry in China, according to experts' predictions.

African Union

1. The African Union (AU) is a continental body made up of 55 member states from the African continent.
2. The independent African governments created the Organisation of African Unity in 1963.
3. The African Union replaced the Organisation of African Unity in 2002, and one of its objectives was to hasten the "economic integration of the continent."
4. Addis Ababa is home to the African Union Commission, which serves as the AU's secretariat.

TRAFFIC

1. TRAFFIC **(Trade Records Analysis of Flora and Fauna in Commerce),** the Wildlife Trade Monitoring Network, is a global non-governmental organization monitoring the trade in wild plants and animals (Flaura and Fauna).
2. TRAFFIC focuses on preserving biodiversity and sustainable legal wildlife trade while working against unsustainable illegal wildlife trade.
3. It was originally created in 1976 as a specialist group of the Species Survival Commission of the International Union for Conservation of Nature (IUCN), and evolved into a strategic alliance of the World-Wide Fund for Nature (WWF) and the IUCN.

About Wild Ass

1. Southern Asia is home to the Indian wild ass, also known as the Indian onager, a subspecies of the onager family.
2. It is situated in the Indian state of Gujarat, in the Little Rann of Kutch. The Indian wild ass, known locally as Khacchar, is found exclusively there.
3. It is a subspecies of Equus hemionus, the Asian wild ass.
4. It is identified by characteristic white markings on the front of the rump, the back of the shoulder, and a white-bordered stripe along the middle of the back.
5. Distribution: The Rann of Kachchh, Gujarat, is home to the last remaining population of Indian WildAss in the world.
6. **Scientific name:** Equus hemionus khur
7. **Habitat:** Ecosystems of grasslands and deserts.
8. **CITES:** Appendix II
9. **Wildlife Protection Act (1972):** Schedule-I
10. **IUCN Status:** Near threatened.

G. Society And Culture

1. 'Social Media And Child Sexual Exploitation And Abuse' Report: UNICEF

1. UNICEF (United Nations International Children's Emergency Fund) has intensified its efforts to tackle child sexual exploitation and abuse, particularly those facilitated by technology, in response to the COVID-19 pandemic. And, the report is in response to these efforts.
   a. The report intends to provide a headline overview of the current situation across target countries to draw out promising practices and lessons learned to inform future policy and practice.

About the Report

1. The report evaluates the adoption of the Model National Response (MNR) in various countries, spotlighting effective strategies and insights gained.
   a. The MNR, conceived by the We Protect initiative (a UK government project with INTERPOL, UN entities, and NGOs), offers a strategic framework for combating child sexual exploitation and abuse nationally.
2. Data for the analysis were gathered from surveys completed by UNICEF offices in 29 low- and middle-income countries (LIMCs), covering all global regions.

Key Highlights of the Report

1. **Progress in LMICs:**
   a. Many low- and middle-income countries have made significant progress in addressing online child sexual exploitation and abuse.
2. **Advances in Tackling Child Sexual Exploitation and Abuse**
   a. **Policy and Governance Frameworks**: Strengthening of legal and administrative structures to combat abuse.
   b. **Law Enforcement Capacity**: Enhanced training and resources for police, judiciary, and prosecution to manage cases effectively.
   c. **Support and Reporting Mechanisms**: Increased availability of hotlines and helplines for victim support and case reporting.
   d. **Educational Initiatives:** Expansion of awareness programs addressing both online and offline exploitation risks.
3. **Challenges across the different domains**
   a. **Policy and Governance**
      i. **Governance Structures**: 69% of countries have national bodies to address online child sexual abuse and exploitation.
      ii. **Policies and Strategies**: Over half (59%) possess a specific national policy or strategy against child sexual abuse.
      iii. **Research and Awareness:** 79% conducted research on child sexual exploitation, including online aspects.
      iv. **Legislative Gaps:** 90% face significant legislative challenges in fully addressing child exploitation.
      v. **Challenges**: Despite some progress, issues like ineffective governance, inadequate data collection, and poor enforcement of legislation persist.
   b. **Criminal Justice**
      i. **Law Enforcement Specialization**: Every surveyed country has law enforcement with specific duties to tackle both offline and online child sexual exploitation and abuse.
      ii. **Cybercrime Units**: 72% of these countries have their capabilities within cybercrime units, sometimes working alongside child or women crime units, with noted challenges in inter-unit collaboration.
      iii. **Judicial and Prosecution Knowledge**: 75% of the judiciary and 79% of prosecution services possess some level of expertise to support victims, but comprehensive understanding is rare.

iv. **Offender Management**: Over half (57%) lack a process for managing offenders.
v. **International Collaboration:** About 48% have access to INTERPOL's International Child Sexual Exploitation database, indicating some level of international cooperation.

c. **Victim**
i. **Case Management Framework:** 69% of countries have established protocols or legislation for case management to support child sexual exploitation and abuse victims.
ii. **Implementation Challenges:** Many countries face difficulties in effectively applying these plans and protocols.
iii. **Workforce Training:** Only one country reported having a fully trained social service workforce in numbers adequate to meet the demand.
iv. **Comprehensive Remedies:** Just one country has extensive remedies available for victims.
v. **Child Helplines:** 93% offer child helplines, but they often struggle with resource limitations and provide effective referral system linkages.

d. **Societal**
i. **Reporting Mechanisms:** 90% (26 countries) have active hotlines or portals for reporting illegal online content, including child sexual abuse material.
ii. **Challenges with Hotlines:** Limited public awareness, distrust in the system, and fear of victim-blaming hinder their effective use.
iii. **Education Programs:** 72% of countries run national programs to increase awareness of child sexual exploitation online and offline.
iv. **Youth Participation:** 64% of countries involve children and adolescents in shaping policies and practices related to child sexual exploitation and abuse.
v. **Offender Support Systems:** A significant gap exists, with 74% of countries lacking specific support for offenders, and no country offers preemptive support for individuals with a sexual interest in children to prevent child harm

e. **Industry**
i. **Prevalence**: 93% of surveyed countries have procedures for removing child sexual abuse material.
ii. **Regulatory and Enforcement Gaps**: Not all procedures are legally regulated or consistently enforced.
iii. **Challenges**: Limited technical and human resources hinder enforcement, and there's low awareness among tech industries and law enforcement about these procedures.

f. **Communication and media**
i. **Government Support:** Only Nearly half (48%) of the countries surveyed report significant government support for ethical and balanced media reporting on child sexual exploitation and abuse, which includes guidance, training, regulations, and monitoring.
ii. **Universal Terminology:** 68% of countries engage in discussions or adopt universally agreed terminology related to child sexual exploitation and abuse.
iii. **Challenges:** There is a need to translate, contextualize, and apply the Terminology Guidelines to enhance the protection of children from sexual exploitation and abuse.

Recommended way forward

1. **Comprehensive Approach:**
   a. Addressing technology-facilitated child sexual exploitation requires a broad strategy that encompasses both digital and underlying risk factors, acknowledging its unique dynamics for targeted interventions.
2. **Strengthening the governing system:**
   a. Instead of temporary project-based efforts, focus on enhancing statutory bodies and integrating educational programs into national curricula and professional training for sustainable impact.
3. **Evidence-Based Policy:**
   a. Advocate for and invest in building national systems for data generation on child sexual exploitation to inform contextualized and comprehensive policies.

4. **Effective Policy Development:**
   a. Emphasize the creation of robust policies and frameworks to combat child sexual exploitation and abuse comprehensively.
5. **Multisectoral Collaboration:**
   a. Encourage cooperation among various sectors including health, education, justice, and technology to address child sexual exploitation effectively through structured dialogue and mutual understanding.
6. **Cross-Border Cooperation**:
   a. Highlight the importance of regional and international collaboration to tackle the cross-border nature of child sexual exploitation, drawing on examples like ASEAN's regional declaration and action plan.
7. **Digital Literacy for Children:**
   a. Stress on enhancing children's digital skills, including online safety, to empower them in navigating the internet securely.
8. **Integrate Digital Safety in Education**:
   a. Digital safety should be incorporated into existing educational programs that address offline issues like bullying and sexual abuse, reflecting the growing integration of technology in children's lives.
9. **Child Participation in Safety Solutions:**
   a. Amplify children's involvement in creating online safety solutions and consider their perspectives in matters affecting them, including policy-making and child protection mechanisms.

What is Online child sexual abuse and exploitation?

Online child sexual abuse and exploitation refer to the use of the internet and other digital technologies to harm or exploit children sexually. This includes producing, distributing, or accessing child sexual abuse materials, as well as manipulating or coercing children into sexual activities through cyber means.

As per National Human Rights Commission, Child Sexual Abuse Material (CSAM) has increased by approximately 250 percent on social media in India.

Year	2021	2022	2023
Data (Number of Cases)	163633	204056	447168

Impact of Online Child Sexual Abuse and Exploitation

1. **Inappropriate Content Exposure**: Risk of encountering violent, pornographic, or hate speech content online.
2. **Online Predators and Grooming**: Threat of online predators using social media and gaming platforms for grooming.
3. **Cyberbullying:** Vulnerability to harassment, intimidation, or humiliation through digital technology.
4. **Privacy Concerns:** Potential inadvertent disclosure of personal information due to unawareness of privacy settings.
5. **Addictive Behavior:** Possibility of developing addictive behaviors from excessive screen time, affecting mental health, academic performance, and social interactions.

Major Initiatives in India for Preventing Child Sexual Abuse in India:

1. POCSO Act, 2012
2. Integrated Child Protection Scheme
3. Child Abuse Prevention and Investigation Unit
4. Beti Bachao, Beti Padhao
5. Juvenile Justice Act/Care and Protection Act, 2000
6. Child Marriage Prohibition Act (2006)
7. Child Labour Prohibition and Regulation Act, 2016
8. Operation Smile

2. Risk Of Female Genital Mutilation (FGM) : UN Report

1. Recently, In February 2024, the UN agencies have highlighted a concerning figure regarding Female Genital Mutilation (FGM)
2. According to it, approximately 4.4 million girls are at risk of undergoing female genital mutilation worldwide.

Understanding Female Genital Mutilation (FGM):

1. **Definition:** Female genital mutilation (FGM) encompasses various procedures that involve altering or injuring the female genitalia (Private Part) for non-medical reasons. It is internationally recognized as a violation of the human rights, health, and integrity of girls and women.
2. **Extent of the Issue:**
   a. **Geographical Concentration:** FGM is predominantly concentrated in regions of Western, Eastern, and North-Eastern Africa, alongside specific Middle Eastern and Asian countries.
   b. **Global Concern:** However, due to increased migration, FGM has emerged as a global issue, impacting girls and women not only in Africa and Asia but also in Europe, Australia, and North America.
   c. More than 200 million girls and women alive today have undergone FGM in countries where the practice is concentrated. Each year, an estimated 3 million girls are at risk of undergoing FGM, with the majority being cut before the age of 15.
3. **Impacts of Female Genital Mutilation (FGM):** Girls subjected to female genital mutilation endure both immediate and long-term consequences. These include severe pain, shock, excessive bleeding, infections, urinary difficulties, as well as enduring implications for their sexual, reproductive, and mental health.
4. **Violation of Human Rights**: -
   a. Internationally recognized as a violation of human rights, FGM reflects deep-rooted gender inequality and discrimination against women.
   b. It violates the rights of children as it is often performed on young girls without their consent.
   c. FGM also infringes upon rights to health, security, physical integrity, freedom from torture, and the right to life in cases where the procedure results in death.
5. **Status of FGM in India:** Currently, there is no specific legislation in India that prohibits the practice of female genital mutilation.
6. **Official Response:** In 2017, the Ministry of Women and Child Development, in response to a petition in the Supreme Court, stated that there is no official data or study supporting the existence of FGM in India.
7. **Unofficial Reports:** Despite the absence of official recognition, unofficial reports suggest that FGM procedures are practiced within the Bohra community, predominantly in states like Maharashtra, Kerala, Rajasthan, Gujarat, and Madhya Pradesh

Classification of Female Genital Mutilation (FGM) by WHO:

1. **Type 1:** Involves partial or total removal of the clitoral glans.
2. **Type 2:** Involves partial or total removal of the external and visible parts of the clitoris and the inner folds of the vulva.
3. **Type 3:** Known as infibulation, entails narrowing of the vaginal opening by creating a sealing closure.
4. **Type 4:** Encompasses various practices such as picking, piercing, incising, scraping, and cauterizing the genital area.

Social and Cultural Influences on Female Genital Mutilation (FGM)

The factors driving the practice of FGM vary across regions and evolve over time, shaped by a combination of socio-cultural dynamics within families and communities.

1. **Social Conventions and Norms: -** In regions where FGM is seen a social norm, there is significant pressure to conform to the practice due to societal expectations and the fear of social exclusion.
2. **Rites of Passage and Marriage Preparation: -** FGM is often perceived as a crucial aspect of a girl's upbringing, preparing her for adulthood and marriage. It is sometimes viewed as a means to control female sexuality, promoting premarital virginity and marital fidelity.
3. **Perceived Religious Justifications: -** While some individuals believe that FGM is supported by religious teachings, no religious scriptures explicitly endorse the practice. Religious leaders' perspectives on FGM vary, with some advocating for its abandonment and others maintaining ambivalent or supportive stances.

Motivations Behind Medicalized Female Genital Mutilation (FGM)

Healthcare providers may engage in medicalized FGM for several reasons, including:

1. **Perceived Reduction in Complications: -** Some believe that medicalized FGM carries fewer risks compared to traditional practices, leading to a misguided perception of safety.
2. **Potential Path to Abandonment: -** There is a belief that medicalization could serve as a transitional phase towards the complete abandonment of FGM.
3. **Social and Cultural Pressures: -** Healthcare providers performing FGM may belong to communities where the practice is prevalent, making them susceptible to the same social norms and pressures.
4. **Financial Incentives: -** Financial gains may also drive healthcare providers to perform FGM, although this motivation varies across contexts.
5. **Shift towards Advocacy: -** With support and training from organizations like WHO, many healthcare providers are transitioning into advocates for FGM abandonment, both within clinical settings and their communities.

Challenges in combatting FGM and their respective solutions:-

Challenges in Combatting FGM	Solutions
1. Cultural and Social Barriers	a) Promote community-led initiatives that challenge and transform deeply entrenched cultural and social norms surrounding FGM. b) Engage religious and community leaders as advocates for change and champions of alternative practices.
2. Lack of Awareness and Education	a) Implement comprehensive awareness campaigns highlighting the adverse effects of FGM on physical, psychological, and sexual well-being. b) Educate both individuals within practicing communities and the wider society about the risks associated with FGM.
3. Inadequate Data Collection	a) Establish robust data collection mechanisms to accurately assess the prevalence of FGM and inform targeted interventions. b) Enhance collaboration with local stakeholders and organizations to improve data reporting and monitoring processes.
4. Lack of Healthcare Infrastructure	a) Strengthen healthcare systems to provide accessible and culturally sensitive services for FGM survivors, including medical, psychological, and social support. b) Train healthcare professionals to recognize and respond to the needs of FGM survivors with sensitivity and empathy.
5. Inadequate Legal Protection	a) Advocate for the implementation of comprehensive legal frameworks that explicitly criminalize FGM and provide adequate protection for survivors. b) Collaborate with legal authorities to ensure swift and effective prosecution of individuals involved in perpetrating or facilitating FGM.

WHO's Approach to Combatting Female Genital Mutilation (FGM)

In response to the global challenge posed by FGM, WHO has undertaken various initiatives:

1. **Holistic Health Sector Response:**
   a. WHO advocates for a comprehensive approach to FGM prevention and care within the health sector.
   b. This includes developing guidance and resources for healthcare workers to prevent FGM and manage its complications.

2. **Multi-Sectoral Collaboration:**
   a. Recognizing the multi-faceted nature of the issue, WHO emphasizes concerted action across various sectors.
   b. Including health, education, finance, justice, and women's affairs.
3. **Resource Development and Adaptation:**
   a. WHO produces guidance materials and resources to aid countries in tackling FGM, tailoring them to fit local contexts and needs.
   b. This approach ensures relevance and effectiveness in diverse settings.
4. **Evidence Generation:**
   a. To enhance understanding and inform strategies, WHO conducts research to generate evidence on FGM and effective interventions for its elimination.
5. **Global Strategy Implementation:**
   a. Collaborating with partner organizations, WHO has formulated a global strategy to combat FGM medicalization.
   b. It continues to assist countries in implementing this strategy, thereby advancing efforts to eradicate this harmful practice worldwide.

Global Initiatives for Eradication of Female Genital Mutilation (FGM)

1. **UNFPA-UNICEF Joint Programme on FGM Elimination**
   a) Managed jointly by the United Nations Population Fund (UNFPA) and the United Nations Children's Fund (UNICEF).
   b) Operational in 17 countries across Africa and the Middle East with high FGM prevalence.
   c) Adopts a culturally sensitive and human rights-focused approach involving various stakeholders such as governments, communities, religious leaders, media, healthcare providers, youth, and women's organizations.
   d) Provides comprehensive support services including healthcare, psychological assistance, legal aid, and education for affected girls and women.
2. **International Day of Zero Tolerance for FGM**
   a) Designated by the UN General Assembly on February 6th, aiming to strengthen efforts towards FGM eradication.
   b) The 2024 theme is "Her Voice. Her Future," emphasizing empowerment and advocacy for affected women and girls.
3. **UN Commitment to FGM Elimination**
   a) Aligned with Sustainable Development Goal 5.3, which aims to eradicate harmful practices including FGM by 2030.
   b) SDG 5.3 also targets the elimination of child, early, and forced marriage.
4. **Beijing Declaration and Platform for Action**
   a) Adopted during the Fourth World Conference on Women in 1995.
   b) Represents a landmark in the global pursuit of gender equality and the advancement of women's rights.

Conclusion: -

The fight against Female Genital Mutilation (FGM) requires global unity and cultural sensitivity. Ongoing efforts by governments, NGOs, and international bodies are crucial for ensuring the rights and well-being of women worldwide. Together, we can create a future where FGM is eradicated, and every woman is respected and protected.

3. High Risk Pregnancies

A recent study in the **Journal of Global Health from Mumbai's ICMR research institute** found that many pregnancies in India are high-risk.

- High-risk pregnancies are where the mother or baby might face health issues or the baby might be born early.

Study findings:

1. Nearly half the pregnant women in India are at high risk.
2. About one-third have one risk factor, while 16% face several risks.
3. High-risk pregnancies are more common in states like Meghalaya and Telangana but less common in Sikkim and Odisha.
4. Short time between births, maternal age, height, weight, and unhealthy lifestyle choices are major risk factors.

Causes of high-risk pregnancy:

1. **Socioeconomic Factors:** Lower socioeconomic status contributes to high-risk pregnancies due to inadequate nutrition, lack of access to quality healthcare, and limited health education.
   - Women from poorer backgrounds are less likely to receive timely antenatal care, which can detect and manage high-risk factors early.
2. **Cultural Practices:** In some regions, early marriage and childbearing, as well as preference for home births, can increase the risk.
   - Cultural norms may also discourage women from seeking care or making health decisions independently.
3. **Healthcare Infrastructure:** Inadequate healthcare infrastructure, especially in rural areas, limits access to comprehensive maternal care.
   - This lack of access can lead to poor management of pregnancy-related complications.
4. **Nutritional Deficiency**: Malnutrition and anemia, which are prevalent in Indian women, contribute significantly to high-risk pregnancies. Poor maternal nutrition can affect fetal development and increase the risk of complications.
5. **Lifestyle Factors:** Lifestyle choices, such as tobacco and alcohol use, can increase the risk of complications.
   - Additionally, stress and physical strain, especially in certain occupations, can contribute to adverse outcomes.
6. **Medical Conditions:** Pre-existing medical conditions like diabetes, hypertension, and infections or conditions developed during pregnancy like preeclampsia can lead to high-risk situations.

Impact:

1. **Maternal and Neonatal Health:** High-risk pregnancies can lead to serious health issues for the mother, including increased risk of maternal mortality and morbidity.
   - For the newborn, there is a higher risk of preterm birth, low birth weight, and neonatal mortality.
2. **Healthcare System:** High-risk pregnancies demand more resources from the healthcare system, including specialized care and prolonged hospital stays, which can strain resources, especially in areas with already limited healthcare infrastructure.
3. **Economic Burden:** There are significant economic implications for families and the healthcare system.
   - Families may face financial hardship due to medical expenses and loss of income, especially if prolonged care or complications arise.
4. **Psychological Effects:** There can be substantial psychological impacts on the mother and family, including stress, anxiety, and depression, particularly if there are adverse outcomes for the mother or child.
5. **Long-term Child Development:** High-risk pregnancies can affect the long-term health and development of the child, potentially leading to chronic health issues or developmental delays.
6. **Population Health:** At a broader level, high rates of high-risk pregnancies can affect population health metrics, such as infant and maternal mortality rates, which are critical indicators of a country's health status and healthcare quality.

Indian Government Initiatives Related to Pregnant Women

1. The **Pradhan Mantri Matru Vandana Yojana (PMMVY)** provides financial aid to pregnant and nursing mothers for better health and to make up for lost wages.
2. The **Janani Suraksha Yojana (JSY)** encourages women, especially the poor, to give birth in hospitals by offering them cash.
3. The **Janani Shishu Suraksha Karyakram (JSSK)** offers free childbirth services and care in public hospitals.
4. The Pradhan Mantri Surakshit Matritva Abhiyan **(PMSMA)** arranges free monthly check-ups for pregnant women.
5. The Surakshit Matratva Ashwasan **(SUMAN)** scheme aims for free, respectful, and quality healthcare for all pregnant women and newborns in public facilities.
6. The **LaQshya program** focuses on improving the quality of care in labor rooms to lower complications and enhance outcomes for mothers and babies.

4. First India-Specific Ai Model Garbhini-GA2

1. **BRIC-THSTI** Faridabad and **IIT Madras** researchers developed an India-specific model, **Garbhini-GA2**, to **precisely determine foetal age** in the **2nd and 3rd stages of pregnancy,** reducing error by almost 3 times compared to Western formulas.
    a. BRIC-Translational Health Science and Technology Institute (THSTI) is an Institute of the Biotechnology Research and Innovation Council, Govt. of India.
2. The model, using 3 ultrasound parameters, was validated with Indian population data and published in Lancet Regional Health Southeast Asia, showing superior accuracy compared to current methods like Hadlock.
3. **Accurate gestational age (GA)** is crucial for pregnant women's care and delivery date determination, particularly significant for Indian populations where many have late-stage ultrasounds.
4. This development, part of the **GARBH-Ini** program, supported by **DBT** India, aims to enhance pregnancy outcomes and **reduce maternal and infant mortality rates** in India.

Garbh-ini (Interdisciplinary Group for Advanced Research on Birth Outcomes—DBT India Initiative) was initiated by the Department of Biotechnology **(DBT), in 2014** as a collaborative interdisciplinary program. This program is led by Translational Health Science and Technology Institute (THSTI), NCR Biotech cluster, Faridabad.

5. **IIT Madras and THSTI researchers** emphasized the importance of population-specific models in addressing healthcare challenges and contributing to **public health enhancement** in India.
6. DBT Secretary highlighted **Garbh-Ini as a flagship program**, praising the development of **population-specific GA models**, currently undergoing validation across India.

5. Support To Poor Prisoners Scheme

The Ministry of Home Affairs has introduced the '**Support to Poor Prisoners**' Scheme to assist Needy prisoners who **face challenges in paying fines** or **obtaining bail due to financial limitations**.

Administration: The National Crime Records Bureau **(NCRB)**, New Delhi, oversees the implementation of the scheme as the **Central Nodal Agency.**

Standard Operating Procedure:

For Undertrial Prisoners:

1. **Notification Process:** Jail authorities must notify the Secretary of the **District Legal Services Authority (DLSA)** if an undertrial prisoner remains jailed for more than 7 days after bail has been granted.
2. **Examination and Recommendation:** The Secretary, DLSA, assesses the financial incapacity of the undertrial prisoner to fulfil bail conditions within 10 days. This assessment may involve collaboration with civil society representatives, social workers, NGOs, probation officers, or revenue officers.
3. **Empowered Committee Review:** The District Level Empowered Committee Assembles **every 2-3 weeks** to review cases identified by the Secretary, DLSA. If deemed eligible, financial assistance of up to Rs. 40,000 per case can be allocated.
4. **Exclusion Criteria:** Persons accused under specific acts like the Prevention of Corruption Act, Prevention of Money Laundering Act, or Unlawful Activities Prevention Act are ineligible for this scheme.

For Convicted Prisoners:

1. **Notification Process:** Jail superintendents must inform the Secretary, DLSA if a convicted prisoner remains jailed due to an inability to pay fines within 7 days.
2. **Financial Assessment:** The Secretary, DLSA, in collaboration with relevant authorities, evaluates the financial status of the convicted prisoner within 7 days.
3. **Funding Approval:** The Empowered Committee approves the release of fine amounts up to Rs. 25,000, with proposals exceeding this limit requiring Approval from the State-level Committee.

4. **Discretionary Funding:** The Secretary, DLSA, may exercise discretion to allocate amounts exceeding the specified limits and engage legal aid advocates to negotiate surety reductions.

Conclusion: By implementing these standardized procedures, the Support to Poor Prisoners Scheme aims to reduce financial burdens and facilitate equitable access to justice for economically disadvantaged individuals within the prison system.

6. Vikramaditya Vedic Clock: World's 1St Vedic Clock

On February 29, Prime Minister Narendra Modi **virtually** inaugurated the Vikramaditya Vedic Clock in **Ujjain, Madhya Pradesh**. This clock is installed on an **85 feet high tower near the Government Jiwaji Observatory** inside **Jantar Mantar** in Ujjain.

Details:

1. **Indian 'Panchang' Based Timepiece:** The clock uses the Indian **'Panchang'** (almanac) as its foundation, providing a unique timekeeping system.
2. **Functionality:** It provides data on planetary positions, **muhurat** (auspicious time), **astrological calculations** along with indicator Indian Standard Time (**IST**) and Greenwich Mean Time (**GMT**).

Historical Significance of Ujjain:

1. **Time Calculation Hub:** Ujjain is a city with a significant history in time calculation. **300 years ago**, it determined the **standard time of the world** and is known as a **hub for timekeeping**. The **Tropic of Cancer** also passes through the city.

Features of the Vedic Clock:

1. **Comprehensive Data:** Beyond time, the clock provides information like **moon position**, **parva** (festival), shubh shubh **muhurat** (auspicious time), **ghati** (a unit of time), **nakshatra** (lunar mansion), and more.
2. **Aim:** This clock attempts to revive the **traditional Indian method** of time calculation based on astronomical principles.

Operational Mechanism:

1. **Time Calculation:** It calculates the time from **one sunrise to the next**, dividing the period into 30 parts, where **each hour consists of 48 minutes** as per ISD (Indian Standard Duration).
2. **Duration:** The clock operates **for 30 hours**, starting at **0:00 with sunrise.**

Feature	Vikramaditya	IST
Time Calculation	Sunrise to sunrise, divided into **30 parts**	**24-hour** clock based on mean solar time at the Royal Observatory in Greenwich, England
Duration	30 hours, starting at 0:00 with sunrise	24 hours, starting at 00:00 UTC
Hour Length	48 minutes	60 minutes

Greenwich Mean Time (GMT):

1. **Definition:** GMT denotes the **mean solar time** at the **Royal Observatory in Greenwich, London**, serving as the global timekeeping benchmark.
2. **Origin:** Established in the **19th century, the Royal Observatory** was assigned as the **prime meridian (0° longitude)**, dividing the **Earth into Eastern and Western Hemispheres.**
3. **Usage:** GMT is widely used in **aviation**, **maritime navigation**, and **international telecommunications** to standardize time coordination globally.
4. **Conversion:** It is converted to local time by adjusting hours according to the respective time zone relative to Greenwich.

There are 5 Jantar Mantar in India: Maharaja Jai Singh II of Jaipur built the 5 Jantar Mantar **between 1724 and 1735.** They are astronomical observatories that use stone structures to help calculate time and interpret the position of celestial bodies. **The Jantar Mantar is an expression of the astronomical skills and cosmological concepts** of the court of a scholarly prince at the end of the Mughal period.

1. **Jaipur:** The **world's largest sundial**, measuring time to within 2 seconds, is located in Jaipur. The observatory also contains instruments like the **Chakra Yantra,** which determines the sun's declination, and the **Vrihat Samrat Yantra, the world's largest gnomon sundial.**
2. **Delhi:** The Jantar Mantar is located at Sansad Marg in Delhi.
3. **Ujjain:** The Jantar Mantar is located in Madhya Pradesh.
4. **Varanasi:** The Jantar Mantar is located in Varanasi.
5. **Mathura:** The Mathura Jantar Mantar is in ruins.

Conclusion:

Vikramaditya Vedic Clock is a blend of tradition and technology, symbolizing the cultural heritage and scientific prowess of India. Its unveiling is an important step towards reviving ancient timekeeping methods in the contemporary era.

7. Awards/Personalities

A. 58th JNANPITH AWARD

1. The Jnanpith Award Selection Committee announced the 58th Jnanpith Award for the year 2023 will be confered to two eminent writers**: Jagatguru Shri Rambhadracharya for Sanskrit** and famous **lyricist Gulzar for Urdu** respectively.
2. This award is being given for the **2nd time for Sanskrit** language and for the **5th time for Urdu** language.

Shri Rambhadracharya

1. Born in 1950 in Shandikhurd village of Jaunpur (Uttar Pradesh), Shri Rambhadracharya is an eminent scholar, educationist, and a religious leader living in Chitrakoot, UP.
2. He is one of the present four Jagadguru Ramanandacharyas of the Ramananda sect and has been holding this position since 1988.
3. He is the founder president of Tulsi Peeth (1987) in Chitrakoot.
4. He is a polyglot who speaks 22 languages.
5. He is a poet and writer in many languages including Sanskrit, Hindi, Awadhi, and Maithili.
6. He has authored more than 240 books and texts, including four epics (two in Sanskrit and two in Hindi), a Hindi commentary on the Ramcharitmanas, a poetic Sanskrit commentary on Ashtadhyayi and Sanskrit commentaries on Prasthanatroyi (Brahmasutra, Bhagavad Gita and Upanishads).
7. In 2015, the Government of India honored him with Padma Vibhushan.

Gulzar

1. Sampooran Singh Kalra (born 1934), popularly known as Gulzar, is a famous lyricist of Hindi films. He is a poet, screenwriter, film director, and famous poet.
2. His works are mainly in Hindi, Urdu and Punjabi.
3. Gulzar has also been awarded the **Sahitya Academy Award in 2002** and the **Padma Bhushan in 2004**.
4. In the year 2009, he received the Oscar Award for Best Song for **"Jai Ho"** written by him in the film Slumdog Millionoire directed by Danny Boyle. He has also been honored with a **Grammy Award** for the same song.
5. In poetry, he invented a **new genre "Triveni"** which is a non-mukaffa poem of three lines.
6. **About the Award**
7. Since 1965, Jnanpith award has been given annually by **Bharatiya Jnanpith**, established in **1944**, for outstanding contribution to Indian literature.
8. The country's highest literary honour, Jnanpith Award, carry prize money of Rs 11 lakh, a statue of Vagdevi and a citation.

B. BHARAT RATNA: INDIA'S HIGHEST CIVILIAN AWARD

The government announced that the former Chief Minister of Bihar, **Karpoori Thakur** (on January 23, 2024), BJP veteran **Lal Krishna Advani** (on February 3, 2024), Former Prime Ministers **PV Narasimha Rao** and **Chaudhary Charan Singh** as well as agricultural scientist **MS Swaminathan** (on February 9, 2024) will be conferred with the country's highest civilian award, **Bharat Ratna in 2024.**

- Overall, there are **5 recipients of Bharat Ratna** Honour this year in 2024. Out of these 5 recipients, **4 are awarded posthumously** (except Lal Krishna Advani)

A. **Karpoori Thakur**

1. Karpoori Thakur **'Jannayak'**, served as Chief Minister from December 1970 to June 1971 and from December 1977 to April 1979.
2. He was born in 1924 in a village in **Samastipur district** which has since been re-named after him.
3. He was the pioneer in providing the Other Backward Classes (OBCs) with the benefit of reservation as he implemented the recommendations of the **Mungeri Lal Commission** during his tenure as Bihar CM.
4. He joined the All-India Students Federation. As a student activist, he left his graduate college to join the Quit India Movement. For his participation in the Indian independence movement.
   - In 1978, he introduced a groundbreaking reservation model, allocating 26% of reservations with specific quotas for OBCs, Economically Backward Classes (EBCs), women, and economically backward classes among upper castes.

5. The Most Backward Classes, now popular in political lexicon as 'ati-pichhda', were recognised as a distinct category during his time. Later on February 17, 1988, he passed away.

B. **L.K. Advani**

1. Lal Krishna Advani (born 8 November 1927, Karachi) is an Indian politician who served as the 7th Deputy Prime Minister of India from 2002 to 2004.
2. He is one of the co-founders of Bharatiya Janata Party (BJP) and a member of the Rashtriya Swayamsevak Sangh (RSS).
3. In 1958, he became the Secretary of the Delhi State Jana Sangh.
4. In 1967, he was elected as the chairman of the First Delhi metropolitan council and served till 1970 while becoming a member of the RSS national executive.
   a. In 1970, Advani became a member of the Rajya Sabha for the first time
5. He served as the president of the party three times, for the longest period since its inception in 1980.
6. Advani was the initiator of the Ram Rath Yatra from Somnath in Gujarat and concluding in Ayodhya, to advocate for the construction of the Ram Temple in Ayodhya.

C. **Chaudhary Charan Singh**

1. He was the former Prime Minister of India (former Chief Minister of Uttar Pradesh) and a prominent leader of the farmers.
2. He served as the 5th Prime Minister of India and 5th Chief Minister of Uttar Pradesh.
3. In 1952, as agriculture minister, he led Uttar Pradesh in abolishing the zamindari system.
4. He introduced several policies and schemes for the welfare of the peasantry and the poor.
5. He was awarded Bharat Ratna, highest civilian award of Republic of India, for his contributions to agriculture sector especially in Uttar Pradesh.
   - He is credited for bringing radical land reform measures and bringing uniformity in the farm sector through the Debt Redemption Bill, the Land Holding Act, and the Zamindari Abolition Act etc.

D. **M.S. Swaminathan**

1. Mankombu Sambasivan Swaminathan, was legendary agricultural scientist and a key architect of India's 'Green Revolution'.
2. He was born in Kumbakonam on August 7, 1925.
3. He developed high-yielding (HYV-seeds) wheat and rice varieties with Norman Borlaug, revolutionising agriculture in India in the 1960s and later on.
4. He has served as the Chairman of the Government of India's National Commission on Farmers, President of the Pugwash Conferences on Science and World Affairs, Chairman of the High-Level Panel of Experts (HLPE) of the World Committee on Food Security (CFS), Member of the Indian Parliament (Rajya Sabha), Former Director General of Indian Council of Agricultural Research and International Rice Research Institute amongst others.
5. He played a pivotal role in developing the **Protection of Plant Varieties and Farmers' Right Act, 2001**.
6. He received numerous prestigious awards, including the **Shanti Swarup Bhatnagar** Award in 1961, the **Ramon Magsaysay Award** in 1971, and the **Albert Einstein World Science Award** in 1986.
7. He has received 81 honorary doctorate degrees from universities around the world.
8. He was a Member of the Parliament of India (Rajya Sabha) for the period 2007-13.
9. He also chairs the Task Force set up by the Ministry of External Affairs to oversee the projects undertaken in Afghanistan and Myanmar in the field of agriculture and was elected the "Living Legend of International Union of Nutrition Sciences" at the 20th International Congress of Nutrition held at Granada, Spain.
10. He is recognised with the **Padma Shri (1967), Padma Bhushan (1972)**and **Padma Vibhushan (1989).**
11. He recently passed away on September 28, 2023.

National Commission on Farmers (NCF)

1. The National Commission on Farmers (NCF) is an Indian commission constituted on 18 November 2004 under the chairmanship of Professor M.S. Swaminathan to address the nationwide calamity of farmer's suicides in India.
2. The NCF submitted four reports in December 2004, August 2005, December 2005 and April 2006 respectively. The fifth and final report was submitted on 4 October 2006.

3. The reports contain suggestions to achieve the goal of "faster and more inclusive growth" as envisaged in the Approach to 11th Five Year Plan and are collectively termed the M.S. Swaminathan report for farmers.

E. **P.V. Narasimha Rao**

1. His full name is Pamulaparthi Venkata (P.V.) Narasimha Rao.
2. He was born on June 28, 1921 at Karimnagar.
3. He served as the ninth Prime Minister of India (1991 to 1996).
4. He, along with the then Finance Minister Dr. Manmohan Singh, initiated economic reforms agenda primarily focused on 'liberalisation, privatisation, globalization (LPG).
5. Major reforms in India's capital markets led to an influx of foreign portfolio investment. The major economic policies adopted by Rao include:
   a. Abolishing in 1992 the Controller of Capital Issues which decided the prices and number of shares that firms could issue.
   b. Introducing the SEBI Act of 1992 and the Security Laws (Amendment) which gave SEBI the legal authority to register and regulate all security market intermediaries.
   c. Opening up in 1992 of India's equity markets to investment by foreign institutional investors and permitting Indian firms to raise capital on international markets by issuing Global Depository Receipts (GDRs).
   d. Starting in 1994 of the National Stock Exchange as a computer-based trading system which served as an instrument to leverage reforms of India's other stock exchanges.
   e. Encouraging foreign direct investment by increasing the maximum limit on share of foreign capital in joint ventures from 40 to 51% with 100% foreign equity permitted in priority sectors.
6. The 73rdand 74th Constitutional Amendments Acts were enacted during the tenure of P.V. Narasimha Rao.
7. He published 'SahasraPhan', a Hindi translation of Shri Viswanatha Satyanarayana's famous Telegu Novel 'Veyi Padagalu'.

About BHARAT RATNA

1. The Bharat Ratna **(Jewel of India)** is **India's** most prestigious and **highest civilian Award** civilian honor, **established in 1954**.
2. It is awarded for exceptional service towards the **advancement of art, literature, science, and in recognition of public service of the highest order.**
3. The award is **open to people of all professions**, **genders**, and **races**, underlining the inclusive nature of this recognition.
4. The **recommendations** for Bharat Ratna are **made by the Prime Minister** himself to the **President**.
   · No formal recommendations for this are necessary.
5. On conferment of the award, the recipient receives a Sanad (**certificate**) **signed by the President** and a medallion.
6. The Award **does not** carry any **monetary grant.**
7. The medallion, designed in the **shape of a Peepal leaf**, features the Sun and the State Emblem of India, representing the radiance and pride of the awardees' achievements.
8. In terms of **Article 18 (1)** of the Constitution, the award **cannot** be used as a **prefix or suffix** to the recipient's name.

However, should an award winner consider it necessary, he/she may use the following expression in their biodata/ letterhead/visiting card etc. to indicate that he/she is a recipient of the award: **'Awarded Bharat Ratna by the President or 'Recipient of Bharat Ratna Award'.**

Important Facts

1. **First awarded: In1954, to :-**
   i. C. Rajagopalachari (last Governor-General of the Dominion of India and the former Chief Minister of Madras)
   ii. Sarvepalli Radhakrishnan (second President and the first Vice President of India)
   iii. C. V. Raman (Nobel Prize Laureate and Physicist)
2. **Youngest Recipient: Sachin Tendulkar:** Awarded in 2014 at the age of 40.
3. **Oldest Recipient: Dhondo Keshav Karve:** Honored at the age of 100 in 1958.
4. Former Prime Minister Lal Bahadur Shastri, the **first individual** to be honored **posthumously**.
5. There is **no formal provision** that recipients of the Bharat Ratna **should be Indian citizens**.
6. It has been **awarded to a naturalised Indian citizen**, **Mother Teresa** in 1980, and to **2 non-Indians**, **Abdul Ghaffar Khan** of Pakistan **in 1987** and the former South African president **Nelson Mandela in 1990.**
7. As of 2024, the **award** has been **conferred** upon **50 people** with **15 posthumous** declarations.

H. ETHICS

1. Case Study: Addressing The Challenges Of Elderly Widows In Vrindavan

The city of Vrindavan faced a challenge of an influx of elderly widows, seeking refuge in the overcrowded Ashrams with inadequate facilities. Traditionally, the widows would withdraw into a life of devotion and prayer, but the Ashrams were ill-equipped to cater to the health needs or the frailties of age. Many lived in poverty and lacked access to basic necessities. Radha, the Mayor of Vrindavan, wanted to improve the living standards and healthcare for these women who were equal citizens. However, providing preferential treatment to one group raised concerns about fairness among other vulnerable populations. Moreover, any support given to the widows could be seen as endorsing outdated cultural practices that marginalized the women. Radha had to find the best course of action within her authority and available resources, while upholding the principles of equality, rights and dignity for all. To address the issue, Radha formulated a plan to enhance essential services in the Ashrams through partnerships with charities and corporate donors, without utilizing the public funds. These improvements aimed to uplift the living conditions of the women already residing in the Ashrams. Simultaneously, a public education campaign would be launched to promote the idea that traditions evolve over time, and the widows had the choice to live with their families, or in regular housing if they preferred. However, some argued that any support provided would legitimise a system that should be abolished altogether. On the other hand, others believed that regardless of cultural practices, suffering must be relieved wherever it exists, through lawful and ethical means as a duty, and not as a privilege. Radha firmly stood by the principle that governance could not overlook the harsh realities faced by any group and that injustices should be rectified through policies aligned with constitutional values. However, the complexity of the issue was apparent, with moral arguments presented from various perspectives. **(250 words)**

1. If you were Radha, what would you see as the **obligations and priorities in this issue?**
2. What solution would you determine to be the **most ethical?**
3. What role do moral reasoning, empathy and ethics play in policymaking around **complex challenges rooted in culture and values?**

Case Study Analysis: Addressing the Challenges of Elderly Widows in Vrindavan

Obligations and Priorities:

1. Radha's main job is **to improve the lives of older widows.**
2. She ensures they're **treated with respect**, regardless of what others say.
3. Radha needs to ensure that **everyone gets what they need, without showing favoritism.**
4. She needs to **advocate for systemic changes** that will create fairness, particularly for women.

Most Ethical Solution:

1. Improve **living conditions and access to healthcare** for widows in ashrams.
2. Partner with organizations like **NGOs** without using public money.
3. Provide **immediate relief** and help to make better choices regarding living arrangements.
4. Launch a **public education campaign to promote alternatives to traditional practices.**

Role of Moral Reasoning, Empathy, and Ethics:

1. Moral reasoning and empathy help **policy makers** to **understand the root causes of suffering** and unfairness.
2. This leads to **finding fair solutions** that treat everyone with respect.
3. Ethics ensures **equal and fair treatment** for all.
4. Leaders must **consider different cultures and practice fairness** and understanding when making decisions.
5. Ethical reasoning and empathy enable leaders to consider everyone's feelings in their decisions.

6. They aim for solutions that unite people and improve society.

Conclusion:

1. Radha's way of working demonstrates the importance of ethical leadership when addressing complex societal issues. She prioritizes helping the suffering and ensuring fair treatment for all. She advocates for systemic change to create lasting improvements. Her goal is to ensure equitable and respectful treatment for everyone in her country, regardless of cultural or traditional differences.

2. Ragi Revolution: Transforming Farming In Rural Jharkhand

1. **IAS officer Sushant Gaurav** was awarded the **Prime Minister's Award for Excellence in Public Administration** for transforming **Jharkhand's Gumla district.**
2. **Ethical Principle: Integrity and Service:** Gaurav's commitment to public service and **integrity** in promoting sustainable agricultural practices.

Background:

1. Gumla district of Jharkhand is **heavily dependent on rain-fed paddy cultivation** with minimal returns.
2. Gaurav identified the **instability of paddy cultivation** due to its dependence on soil conditions and rainfall.
3. **Ethical Principles: Responsibility and Accountability:** Gaurav recognizes **its responsibility** to be accountable for improving the livelihoods of farmers and implementing effective solutions.

Initiative Overview:

1. He encouraged the farmers to cultivate **Ragi because of its resilience and nutritional value.**
2. He empowered more than **30,000 farmers and 5,500 women to adopt ragi farming.**
3. **He offered free seeds** and assured government procurement at fair prices.
4. **Ethical Principles: Justice and Fairness:** Ensuring fair treatment and opportunities for all farmers, especially farmers from **marginalized communities**, by providing **equal access to resources** and support.

Empowering Women:

1. A women led Farmer Producer Company **(FPO) was established** for **Ragi processing** and product manufacturing.
2. He provided infrastructure and **training for value added products** like **ragi flour, laddu and snacks.**
3. **Increase in income** and **financial independence of women farmers.**
4. **Ethical Principles: Respect for Diversity:** Recognizing and promoting the **contributions of women farmers**, promoting gender equality and respecting their rights and dignity.

Success and Sustainability:

1. Significant **increase in the area and production** of Ragi cultivation.
2. **Women-led FPOs** are promoting **economic growth** and **self-reliance.**
3. **Government support** continues through free seed provision.
4. **Ethical Principles: Public Interest:** Prioritizing the **well-being of the community** and ensuring sustainable development for future generations.

Recognition and Future Outlook:

1. Gaurav received the award in the category "Inclusive Development through **Aspirational District Program-Holistic Progress with Special Focus on Saturation Approach**" at Vigyan Bhawan, New Delhi
2. Sustainable model designed for long-term success is empowering farmers and **women in rural Jharkhand.**
3. **Ethical Principles: Leadership:** Pride in leadership and innovation in addressing social challenges and inspiring positive change in the community.

Conclusion:

Sushant Gaurav's **visionary approach towards agriculture demonstrates the potential for transformational change in rural areas**, with an emphasis on local level initiatives and the potential for community empowerment guided by the ethical principles adopted in the civil services.

I. Essay

Those Who Wander Are Not Lost

Christopher Columbus, this boy from Genoa, Italy, was born into a family of weavers, but he was not completely into weaving. He was a sea lover and wanted to become a high-class sailor. One day, a wonderful idea came to his mind to find a sea route to Asia. He tried to convince the people in Genoa, then he tried to convince the kings of Portugal, England, France and Spain. But for a long time, no one was sponsoring him or believing him. But guess what? Eventually he managed to talk the king of Spain for the sponsorship of his journey.

Despite the difficulties he faced and the unknown vastness of the Atlantic Ocean, Columbus persisted in his wanderings. **In 1492 he did not reach Asia**, as he wanted, but reached the Caribbean islands (America). His discovery opened a new chapter in history, connecting two previously separated worlds, Europe and America. What conclusion did we draw from this? The story of Columbus shows that not all who wander are lost. Sometimes some people make unprecedented discoveries.

So, is a determined goal enough to make a lost wanderer successful? The answer is obviously "No". If Columbus had lost his patience while crossing the never-ending Atlantic with a medicinal ship and returned to Europe, there may not have been a United States of America and the global hegemony that it enjoyed for decades. Not just patience and a determined firm goal, but a lost wanderer also needs perseverance, an able guide or teacher, and a huge amount of hard work without breaking down and slogging through tough periods.

Now the question is, **what does wanderer mean here**? -Traditionally, wanderers are often associated with a lack of purpose. However, this may not always be true. For some people, traveling may be a choice to explore new dimensions in their life. Additionally, it can also be a way to break the monotony. For example, some people take leave from regular work and go to tourist places to break the monotony. Therefore, wandering can have a purpose as well as a lack of purpose. We can find traces of it across the entire spectrum.

"When **Elon Musk** made millions of dollars by selling a stake in his first startup, he decided to invest that money in his two new startups. While the goal of his first company was to explore the possibility of creating the best electric vehicles, a mission similar to Toyota Abandoned by other automobile giants, his second company aimed to commercialize space travel and possibly establish human civilization on Mars. While people thought they had lost themselves by venturing into these risky ventures, they proved to the world that Not everyone is lost by making both of his companies successful. So, what makes Musk different from a typical lost wanderer?

This is the goal he aims to achieve and his dedication to pursuing it. If we look at history we will find many examples like Siddhartha, who left his royal family to explore the world and search for truth. He was no lost wanderer; He wandered around the northern states of India with the aim of acquainting himself with the truth.

Subsequently, Medieval Europe saw the Renaissance. In those days, scientists like Galileo Galilei and Copernicus challenged the existing scientific beliefs, paving the way for the scientific revolution. For this deviation Galileo was sentenced to prison. This was because his wanderings challenged the tradition where the Church believed that the Earth was at the center of the universe and the Sun revolved around it. However, his observations showed that heliocentrism is not possible and thus the Sun is at the center and the Earth revolves around it. So, his wanderings ended with a scientific discovery.

After this, if we look at the political developments of the modern world, we will see the wanderings of the Indian saint Mahatma Gandhi. During his wanderings, he used his resources to fight against the British Empire. For example, **Mahatma Gandhi** developed the Satyagraha technique during his visit to South Africa. It was based on truth and non-violence. Later, he also used the same means to fight against the British colonial power in India. Thus, his wanderings were useful in finding new means of fighting against imperial power.

Apart from this, we also see its reflection in the post-modern world. At the individual level, people are trying to find the purpose of life amidst the race of technological advancement. Some problems have no name. These problems are being investigated by individuals through excursions and experiments. For example, **Robin Sharma in his book "The Monk Who Sold His Ferrari"** describes how he experimented with his life while wandering in his

mind in a dilemma between materialism and spirituality.

Ultimately, while roaming around, he came to know that simplicity in life gives happiness in the future. This tells you that it is more important to focus on building your inner life than building your outer life. So, he sold his Ferrari and gave up materialism. Thus, his wanderings were fruitful in the sense that it provided simplicity in life by reducing the dependence on materialism which is characteristic only of external life.

if we talk about the field of sports, then **M.S. Dhoni** experimented in his life through travelling. He deviated from his career path. He had a job in Indian Railways. Nevertheless, he tried to explore his inner feelings through cricket. The result was that he left the career of a ticket collector and started exploring himself in the cricket field. Till now, he has been one of the most successful Indian captains in Indian cricket, having won all the world tournaments under his leadership. Thus, his journey inspires other people in the society to self-discovery.

Thus, walking is also a kind of metaphor for flexibility and adaptability. For example, if we look at the national level, we will see India wandering in world politics. After independence, India chose the third pole in the face of the Non-Aligned Movement against being trapped in bipolar rivalry. The First World criticized India for "sitting on the fence" and acting like a "swing state". However, we, India, in our wandering, have transformed ourselves from NAM to "strategic autonomy" while building our capacity. Today India has become a "rule maker" in world politics. Thus, India's entry into geopolitics was useful in serving its national interests.

However, there is another side to this coin. We cannot always claim that wandering always ends with a profitable journey. Some wanderers are not purposeful in their travels. For example, in African countries like Sudan, people choose not to wander during refugee crises or civil wars. In fact, circumstances force them to wander. They are really lost in their wandering and are trying to find a place to survive by becoming refugees in other countries. Thus, they lack purpose and remain adrift.

The recent conflict between Russia and Ukraine and the breakdown of the world order is a perfect example of difficult times. In this period, countries need to move forward by engaging in dialogue and diplomacy with the goal of global peace, as India has shown. India, with its twin goals of global peace and strategic autonomy, has been vocal about adhering to the UN Charter and promoting a rules-based world, as evidenced by PM Modi's recent message on ending war. While aligning with Western powers through initiatives like **Quad, I2U2** and logistics agreements with the US, India has balanced it with the other side of the war by cooperating with Russia on logistics agreements like **SCO, BRICS and RELOS**. While this may seem like a deviation in India's foreign policy, it has ensured India's strategic autonomy, as demonstrated by the increased purchases of Russian oil and gas without approval by Western powers, leading to sustained economic growth and There has been controlled inflation.

Sometimes, despite having an objective, the objective can also be bad. For example, under the leadership of Osama bin Laden, a plane flew directly into the Twin Towers of the World Trade Center in New York. It had hit its target and was not lost literally but metaphorically; it could not have been more lost. But its objective was not morally sufficient. Thus, even if one has a purpose, it does not mean that one's journey will be fruitful.

Therefore, to make wandering a purpose, a person must have a proper moral foundation. This means that the person must have a purpose and that purpose must appear morally good. It requires social skills so that the person can understand his own and others' emotions.

Similarly, honesty will inspire people to come out of their comfort zone and try to find solutions to suffering. As we saw above, Buddha, despite being from the elite class, came out of his comfort zone to find the causes and solutions to human suffering. Thus, integrity combined with compassion can make wandering fruitful and successful.

Mirza Ghalib said – "The destination will be reached only by wandering, the misguided is the one who does not get out of the house" (मंज़िल मिलेगी भटक कर ही सही, गुमराह तो वो है, जो घर से निकले ही नही।). That is, only wandering leads to the destination. Those who wander are not lost, but those who did not come out of their comfort zone and did not confine themselves to the four walls of home are truly lost. Thus, it can be concluded that not all people who wander are lost, especially if they have a definite goal, perseverance and the ability to work hard. But one should not stray into areas that are harmful, such as pursuing a career that is stressful, which can lead to mental health issues and sometimes extreme steps like suicide. As the saying goes, "A fish should not be judged by its ability to climb a tree." Thus, deliberately going astray with a set of goals can prevent one from getting lost.

J. SCHEME

1. Amrit Bharat Station Scheme

In February, 2024 PM Narendra Modi launches more than 2000 railway Infrastructure projects worth around Rs 41,000 crores.

Introduction:

Amrit Bharat Station Scheme **(ABSS)** launched by the Ministry of Railways to redevelop stations nationwide to enhance and modernize railway stations in the Indian Railways network.

Station Selection:

Till February 2024, **1318 number of stations** have been **identified** for development/redevelopment under Amrit Bharat Station scheme

Long-term Vision:

1. Develop stations with a focus on **long-term improvement.**
2. Involves **creating Master Plans** and implementing them in phases.

Enhancements:

1. Improve station **accessibility**, **waiting areas, toilet facilities.**
2. Install lifts, escalators, and offer free Wi-Fi.
3. Set up **kiosks** for local products (One Station One Product).

   Kiosks in railway stations can have many functions, including:
   a. **Selling items:** Kiosks can sell newspapers, hot drinks, fast food, or other items.
   b. **Selling tickets:** Kiosks can sell tickets, and some systems can print tickets without an employee.
4. Enhance passenger information systems and cleanliness.
5. Establish Executive Lounges and spaces for business meetings.

Structural Upgrades:

1. Upgrade station structures and **integrate** them with **surrounding city areas.**
2. Promote **multimodal connectivity** and **facilities** for **individuals with disabilities** (Divyangjans).
3. Implement sustainable and eco-friendly solutions.
4. Introduce ballastless tracks and consider **Roof Plazas** where necessary.

Ultimate Goal:

1. **Transform** stations into vibrant city centers over the long term.
2. Provide high-level platforms at all categories of stations.
3. Improve station approaches for smooth access, including road widening.

The ABSS is part of other Government of India schemes, including:

1. BharatNet
2. Make in India
3. Startup India
4. Standup India
5. Bharatmala
6. Dedicated Freight Corridor Corporation of India
7. Sagarmala

2. 'e-Kisan Upaj Nidhi' For Farmers'

Recently, the **Union Minister for Consumer Affairs, Food & Public Distribution, Commerce and Industry, and Textiles launched the 'e-Kisan Upaj Nidhi'** (Digital Gateway) in New Delhi, marking a significant step in empowering farmers with digital solutions.

Overview of e-Kisan Upaj Nidhi Platform:

1. **Digital Gateway:** The e-Kisan Upaj Nidhi platform serves as a **digital gateway of the Warehousing Development and Regulatory Authority (WDRA)**, aiming to simplify the storage process for farmers.
2. **Post-Harvest Storage:** With its simplified digital process, **farmers can now store their produce at any registered WDRA warehouse for a period of 6 months** at an attractive **interest rate of 7% per annum**, thus providing them with viable post-harvest storage options.
3. **Mitigating Distress Sales:** This digital intervention is set to **reduce distress sales by providing accessible**

and affordable storage facilities to farmers, empowering them to make informed decisions about **when and where to sell their produce.**

Key Facts about Warehousing Development and Regulatory Authority (WDRA):

1. **Establishment:** The **WDRA** was established under the **Warehousing (Development and Regulation) Act, 2007,** and comprises **1 Chairperson and 2 full-time Members.**
2. **Mission:** The primary mission of WDRA is **to establish a negotiable warehouse receipt system in the country.** This system aims **to facilitate finance against warehouse receipts,** thereby improving the quality of lending portfolios for banks and scientific warehousing practices.
3. **Benefits:** The introduction of negotiable warehouse receipts by **WDRA enables farmers to seek loans from banks against National Warehouse Receipts (NWRs),** thereby **preventing distress sales of agricultural produce** during peak marketing seasons and **minimizing post-harvest storage losses.**
4. **Scope: WDRA covers 136 agricultural commodities**, including **cereals, pulses, oilseeds, spices, rubber, tobacco, coffee,** etc., for issuing negotiable warehouse receipts. Additionally, it includes **24 horticultural commodities for cold storage** and 9 **non-agricultural commodities.**

The e-Kisan Upaj Nidhi platform, combined with the efforts of the Warehousing Development and Regulatory Authority, marks a significant step towards modernizing agricultural warehousing practices and empowering farmers with accessible and efficient storage solutions.

3. PM MATSYA Kisan Samridhi Sah-Yojana

1. Union Cabinet approved "Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)" as a Central Sector Sub-scheme under the Pradhan Mantri Matsya Sampada.
2. PM-MKSSY aims to formalize the fisheries sector and support fisheries micro and small enterprises.

Expenditure and Implementation:

1. The scheme **involves an investment of more than Rs. Rs 6,000 crore over the next four years** (FY 2023-24 to FY 2026-27), of which **50% is financed through public funds including external financing, and the remaining 50% from beneficiaries/private sector leverage.**
2. It will be implemented in **all states and union territories**, aiming to benefit various stakeholders involved in the fisheries value chain.

Intended Beneficiaries:

1. Beneficiaries include **fishers, fish farmers, fish workers, fish vendors**, and other individuals directly engaged in the fisheries value chain.
2. **Micro and small enterprises**, including proprietary firms, partnerships, companies, cooperatives, and startups involved in fisheries and aquaculture, are also targeted beneficiaries.

Major Impact and Objectives:

1. The scheme aims **to create a national fisheries digital platform**, which will provide work-based identity to **40 lakh small and micro enterprises.**
2. It focuses on formalizing the fisheries sector, **improving access to institutional credit**, moving towards **performance-based incentives**, and increasing value chain efficiency.
3. Other objectives include promoting **environmental and sustainability initiatives**, facilitating **ease of doing business**, and addressing **aquaculture crop losses through insurance coverage.**

Implementation Strategy:

1. The scheme comprises **4 major components**, including formalization of the fisheries sector, adoption of **aquaculture insurance**, **support for microenterprises** to improve value chain efficiencies, and adoption and expansion of **fish and fishery product** safety and quality assurance systems.
2. Each component is designed to incentivize and support stakeholders at various stages of the **fisheries value chain.**

Conclusion

The approval of **Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana** highlights the **government's commitment** to promoting the **fisheries sector**, enhancing employment opportunities, and ensuring sustainability and quality in fish production.

4. PM MITRA Park

1. The Ministry of Textiles has issued a notification for establishing **7 Mega Integrated Textile Region and Apparel (PM MITRA) Parks**.
2. The initiative aims to support India in achieving **United Nations Sustainable Development Goal 9.**
3. Inspired by **PM Narendra Modi's 5F vision - F**arm **to F**ibre **to F**actory **to F**ashion **to F**oreign. It aspires to fulfil the vision of building an Aatmanirbhar Bharat and to position India strongly on the Global textiles map.

Objectives and Features:

1. PM MITRA Parks aim to create a **comprehensive textile value chain**, **attracting advanced technology** and **boosting both foreign and domestic investment** in the sector.
2. The parks will integrate various textile processes **from spinning to garment manufacturing** at **one location**, reducing logistics costs for the industry.
3. Each park is expected to generate **approximately 1 lakh direct** and **2 lakh indirect employment opportunities.**
4. Several states such as **Tamil Nadu, Punjab, Odisha, Andhra Pradesh, Gujarat, Rajasthan, Assam, Karnataka, Madhya Pradesh** and **Telangana** have expressed interest.

Implementation Details:

1. Sites for PM MITRA Parks will be **selected through a Challenge Method based** on objective criteria.
2. Development Capital Support and Competitiveness Incentive Support will be provided to ensure the establishment and **early operation of manufacturing units within the parks.**
3. The parks will be developed as **Special Purpose Vehicles (SPVs)** in a **Public-Private Partnership (PPP) mode**, with **state and central government ownership.**

Benefits and Convergence:

1. **Convergence with other central and state government** schemes will enhance the **competitiveness of the textiles industry** and create significant job opportunities.
2. Leveraging economies of scale, the **scheme aims to empower Indian companies to emerge as global leaders** in the textile sector.

Conclusion:

The establishment of **PM Mitra Park** marks an important step towards realizing **PM Modi's vision of a self-reliant India** and strengthening India's position in the global textile market.

5. Rashtriya Udyamita Vikas Pariyojana

1. In **February 2024**, the **Union Minister of Education, Skill Development & Entrepreneurship** inaugurated the **Rashtriya Udyamita Vikas Pariyojana, in Sambalpur (Odisha).**
   - This initiative was also launched (virtually) across 9 cities including **Bhopal, Kanpur, Indore, Varanasi, Bharatpur, Shillong, Silchar, Dibrugarh and Guwahati,** emphasizing the nationwide scope of this initiative.

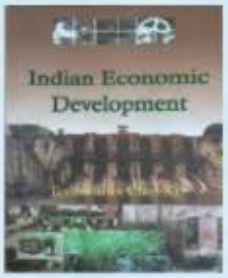
About RUVP

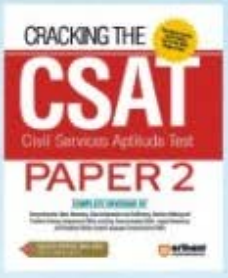
1. Launched under the **'Skill India Mission'.**
2. Basically, the RUVP is designed for the **beneficiaries of PM SVANidhi scheme.**
3. The main objective of this initiative is to **provide individuals with comprehensive entrepreneurship training** and making them job **providers** instead of job **seekers.**
4. Under RUVP, the entrepreneurship training will be provided for **22 weeks,** integrating theoretical understanding with practical experience.
5. This training will be provided in **offline as well as in online mode**. The certificates will be awarded after the completion of training.
6. The central government has collaborated with **Flipkart** to provide training to street vendors and small shopkeepers.

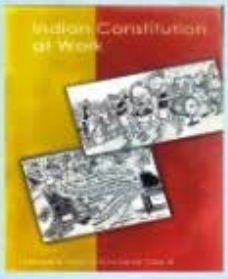
What is PM SVANidhi Scheme?

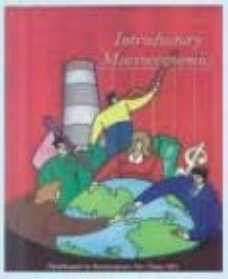
1. The **PM SVANidhi Scheme (Pradhan Mantri Street Vendor's AtmaNirbhar Nidhi)** is an initiative launched by the Government of India to **support street vendors**, who have been adversely **affected by the COVID-19 pandemic**.
2. It was launched in **June,2020.**
3. The primary goal of the scheme is to **provide financial assistance to street vendors** to help them get back on their feet after facing economic challenges due to the pandemic.
4. Street vendors in urban areas who were selling on or before **March 24, 2020** were eligible for the scheme. They should possess a vending certificate or ID issued by the municipal corporation.

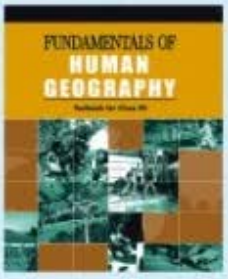
New List of Books to be provided to our classroom students since December 2023

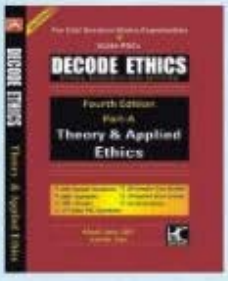


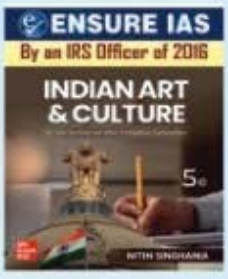


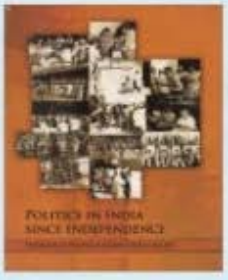


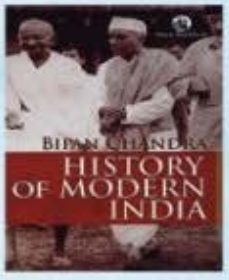


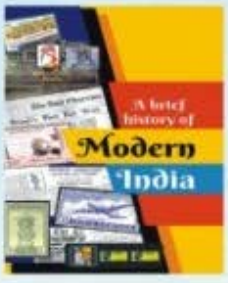


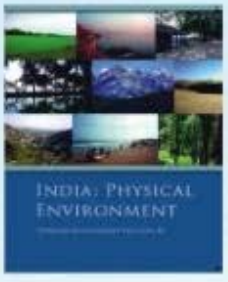


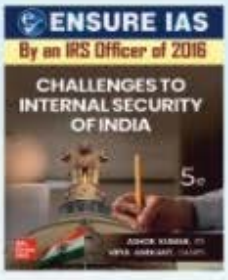


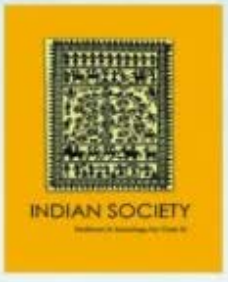


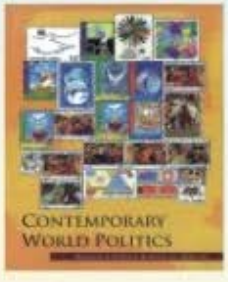


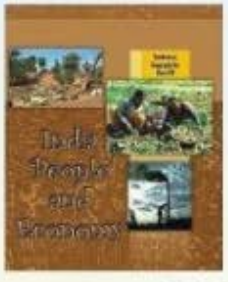


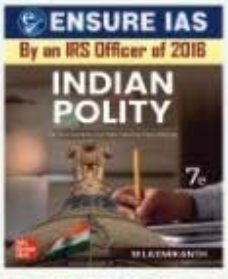












and many more .....

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