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EDITION : OCTOBER - 2023

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Science Reporter

Outstanding performance by BYJU'S students in IAS 2021

Congratulations to our toppers

| **03** Ranks in Top 10 | **12** Ranks in Top 25 | **25** Ranks in Top 50 |

RANK 01 — Shruti Sharma

RANK 5 — Utkarsh Dwivedi

RANK 6 — Yaksh Chaudhary

RANK 12 — Yasharth Shekhar

RANK 13 — Priyamvada Mhaddalkar

RANK 14 — Abhinav Jain

RANK 15 — Challapalle Yaswanthkumarreddy

RANK 16 — Anshu Priya

RANK 19 — Diksha Joshi

RANK 20 — Arpit Chauhan

RANK 21 — Dilip Kainikkara

RANK 25 — Shruti Rajiakshmi

RANK 29 — Bhavishya

RANK 31 — Avinash V

RANK 33 — Jaspinder Singh

RANK 35 — Kartikeya Jaiswal

RANK 37 — V Sanjana Simha

RANK 40 — Kushal Jain

RANK 44 — Anjali Shrotriya

RANK 47 — Naman Kumar Singla

RANK 50 — Abhijit Ray

Outstanding performance by BYJU'S students in IAS 2020

Congratulations to our toppers

02 Ranks in Top 10 | **18** Ranks in Top 50 | **36** Ranks in Top 100

RANK 02
Jagrati Awasthi

RANK 8
Kartik Jivani

RANK 13
Gaurav Budania

RANK 14
Karishma Nair

RANK 17
Sarthak Agarwal

RANK 25
Vaibhav Rawat

RANK 26
Pulkit Singh

RANK 28
Divya Mishra

RANK 30
Divyanshu Choudhary

RANK 31
Megha Swaroop

RANK 32
Rallapalli Jagat Sai

RANK 35
Aparna Ramesh

RANK 37
Narwade Vinayak

RANK 38
Varuna Agarwal

RANK 41
Aswathy Jiji

RANK 42
Pooja Gupta

RANK 46
Jubin Mohapatra

RANK 50
Abhishek Shukla

Incredible Results

CSE 2019

4 Ranks in top 10   **13 Ranks** in top 50   **22 Ranks** in top 100

Rank 3 Pratibha Verma   **Rank 6** Vishakha Yadav   **Rank 8** Abhishek Saraf   **Rank 10** Sanjita Mohapatra

CSE 2018

11 Ranks in top 50   **28 Ranks** in top 100   **183 Ranks** in the final list

Rank 11 Pujya Priyadarshni   **Rank 16** Dhodmise Trupti Ankush   **Rank 21** Rahul Jain

Rank 24 Anuraj Jain   **Rank 31** Mainak Ghosh

CSE 2017

5 Ranks in top 50   **34 Ranks** in top 100   **236 Ranks** in the final list

Rank 3 Sachin Gupta   **Rank 6** Koya Sree Harsha   **Rank 8** Anubhav Singh

Rank 9 Soumya Sharma   **Rank 10** Abhishek Surana

CSE 2016

8 Ranks in top 50   **18 Ranks** in top 100   **215 Ranks** in the final list

Rank 2 Anmol Sher Singh Bedi   **Rank 5** Abhilash Mishra   **Rank 12** Tejaswi Rana

Rank 30 Prabhash Kumar   **Rank 32** Avdhesh Meena

CSE 2015

5 Ranks in top 50   **14 Ranks** in top 100   **162 Ranks** in the final list

Rank 20 Vipin Garg   **Rank 24** Khumanthem Diana Devi   **Rank 25** Chandra Mohan Garg

Rank 27 Pulkit Garg   **Rank 47** Anshul Agarwal

CSE 2014

6 Ranks in top 50   **12 Ranks** in top 100   **83 Ranks** overall selections

Rank 4 Vandana Rao   **Rank 5** Suharsha Bhagat   **Rank 16** Ananya Das   **Rank 23** Anil Dhameliya   **Rank 28** Kushaal Yadav   **Rank 39** Vivekanand T.S

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Monday to Friday 06:30 AM to 09:00 AM	Monday to Friday 05:30 PM to 08:00 PM	Saturday 02:00 PM to 08:00 PM	Sunday 10:00 AM to 06:00 PM

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Stay safe and Keep Learning!

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Slots	Batch 1	Batch 2	Batch 3	Batch 4	Batch 5	Batch 6	Batch 7
1st Feb to 6th March, 2023	Polity						
7th March to 10th April, 2023	Economics	Economics					
11th April to 15th May, 2023	Modern History + Post Independent India	Modern History + Post Independent India	Modern History + Post Independent India				
16th May to 16th June, 2023	Geography	Geography	Geography	Geography			
19th June to 21st July, 2023	Ethics + Governance	Polity	Polity	Polity	Polity		
24th July to 25th August, 2023	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Economics	Economics	Economics	Economics	
28th August to 3rd October, 2023	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Modern History + Post Independent India	Modern History + Post Independent India	Modern History + Post Independent India	Modern History + Post Independent India
4th October to 7th November, 2023	International Relations + World History	International Relations + World History	International Relations + World History	International Relations + World History	International Relations + World History	Polity	Polity
8th November to 12th December, 2023	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Geography	Geography	Geography
13th December to 17th January, 2024	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Economics
18th January to 21st February, 2024	Focus Prelims	Ethics + Governance	Ethics + Governance	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper
22nd February to 27th March, 2024	Focus Prelims	Focus Prelims	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture
28th March to 2nd May, 2024	Focus Prelims	Focus Prelims	Focus Prelims	Focus Prelims	Focus Prelims	International Relations + World History	International Relations + World History
3rd May to 22nd May, 2024	Focus Prelims	Focus Prelims	Focus Prelims	Focus Prelims	Focus Prelims	Focus Prelims	CSAT
23rd May to 2nd June, 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024
3rd June to 5th July, 2024				Ethics + Governance	Ethics + Governance	Ethics + Governance	Ethics + Governance
8th July to 9th August, 2024					Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management
12th August to 27th August, 2024							Internal Security
1st September to 30th September, 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024

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YEAR LONG TIMETABLE
(Evening Batch)
Monday to Friday - 5:00 PM to 8:30 PM

Slots	Batch 1	Batch 2	Batch 3	Batch 4	Batch 5	Batch 6	Batch 7
1st Feb to 6th March, 2023	Modern History + Post Independent India						
7th March to 10th April, 2023	Geography	Geography					
11th April to 15th May, 2023	Polity	Polity	Polity				
16th May to 16th June, 2023	Economics	Economics	Economics	Economics			
19th June to 21st July, 2023	Ethics + Governance	Modern History + Post Independent India	Modern History + Post Independent India	Modern History + Post Independent India	Modern History + Post Independent India		
24th July to 25th August, 2023	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Geography	Geography	Geography	Geography	
28th August to 3rd October, 2023	International Relations + World History	International Relations + World History	International Relations + World History	Polity	Polity	Polity	Polity
4th October to 7th November, 2023	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Economics	Economics	Economics
8th November to 12th December, 2023	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Modern History + Post Independent India	Modern History + Post Independent India
13th December to 17th January, 2024	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Geography
18th January to 21st February, 2024	Focus Prelims	Ethics + Governance	Ethics + Governance	Ethics + Governance	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT
22nd February to 27th March, 2024	Focus Prelims	Focus Prelims	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper
28th March to 2nd May, 2024	Focus Prelims	Focus Prelims	Focus Prelims	Focus Prelims	Focus Prelims	Focus Prelims	Ancient India + Medieval India + Art & Culture
3rd May to 22nd May, 2024	Focus Prelims	Focus Prelims	Focus Prelims	International Relations	International Relations	International Relations	International Relations
23rd May to 2nd June, 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024
3rd June to 14th June, 2024				World History	World History	World History	World History
18th June to 22nd July, 2024					Ethics + Governance	Ethics + Governance	Ethics + Governance
23rd July to 27th August, 2024						Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management
1st September to 30th September, 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024

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YEAR LONG TIMETABLE
(Weekend Batch)
Saturday - 12:00 PM to 8:00 PM | Sunday - 10 AM to 8 PM

Slots	Batch 1	Batch 2	Batch 3	Batch 4	Batch 5
February (04, 05, 11, 12, 18, 19, 25 & 26) + March (04, 05 & 11)	Economics				
March (12, 18, 19, 25 & 26) + April (01, 02, 08, 09, 15 &16)	Polity	Polity			
April (23, 29 & 30) + May (06, 07, 13, 14, 20, 21, 27 & 28)	Geography	Geography	Geography		
June (03, 04, 10, 11, 17, 18, 24 & 25) + July (01, 02 & 08)	Modern History + Post Independent	Modern History + Post Independent	Modern History + Post Independent	Modern History + Post Independent	
July (09, 15, 16, 22, 23 & 30) + August (05, 06, 12, 13 & 19)	Environment & Ecology + Science & Technology + Compulsory Language Paper	Economics	Economics	Economics	Economics
August (20, 26 & 27) + September (02, 03, 09, 10, 16, 17, 23 & 24)	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Polity	Polity	Polity
September (30) + October (01, 07, 08, 14, 15, 21, 22, 28 & 29) + November (04)	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Geography	Geography
November (05, 11, 18, 19, 25 & 26) + December (02, 03, 09, 10 & 16)	Ethics + Governance	Ethics + Governance	Ethics + Governance	Ethics + Governance	Modern History + Post Independent
December (17, 23, 24, 30 & 31) + January '24 (06, 07, 13, 14, 20 & 21)	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT
January '24 (27 & 28) + February '24 (03, 04, 10, 11, 17, 18, 24 & 25) + March '24 (02)	Focus Prelims	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper
March '24 (03, 09, 10, 16, 17, 23, 24, 30 & 31) + April '24 (06 & 07)	Focus Prelims	Focus Prelims	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture
April '24 (13, 14, 20, 21, 27 & 28) + May '24 (04, 05, 11, 12 & 18)	International Relations + World History	International Relations + World History	International Relations + World History	International Relations + World History	International Relations + World History
31st May to 11th June, 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024
June '24 (01, 02, 08, 09, 15, 16, 22, 23, 29 & 30) + July (06)				Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management
July '24 (07, 13, 14, 20, 21, 27 & 28) + Aug '24 (03, 04, 10 & 11)					Ethics + Governance
1st September to 30th September, 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024	MAIN 2024

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POLITY

1. Using AI for audit techniques

Syllabus: Appointment to various Constitutional Posts, Powers, Functions and Responsibilities of various Constitutional Bodies.

Prelims: CAG, AI, State Audit Institution (SAI) G20 conference

Mains: Challenges associated with AI and Audit

Context
- The Comptroller and Auditor General of India (CAG) has warned about the risks of relying solely on Artificial Intelligence (AI) for auditing purposes.
- The CAG emphasized the importance of ethics in the use of AI and stressed that responsible AI must be both ethical and inclusive.

Challenges Faced by CAG in Audit
- The CAG conducts financial, compliance and performance audits.
- The challenges of auditing with AI include ensuring transparency, objectivity, fairness, and avoiding bias.
- Lack of appropriate legislation regarding the use of AI systems.
- Data integration and cross-referencing become cumbersome due to data being sourced from different places and stored in multiple platforms without standardization.
- Ensuring the accuracy of data mines is another issue which could derail the audit process. This could be due to the human bias present in machine learning data sets.

Global developments
- The European Parliament approved the EU AI Act in June, which is the first of its kind in the world.
- The Act ensures that generative AI tools will be under greater scrutiny.
- Developers must submit their systems for review and approval before releasing them commercially.
- The Act also prohibits real-time biometric surveillance in public settings and "social scoring" systems.
- India should take a cue from the EU and create appropriate legislation regarding the use of AI systems.

AI and Audit
- **Framework:**
  ○ The State Audit Institution (SAI) G20 conference stressed the importance of a universal audit framework for AI.
- **Communication:**
  ○ Communication with stakeholders on the do's and don'ts are crucial since there are limited precedents for AI usage.
- **Standardize:**
  ○ Legally acceptable definitions and taxonomies of AI must be examined.
- **Scope:**
  ○ Auditors must choose an appropriate AI design and architecture while defining the audit's objective, scope, approach, criteria, and methodology, considering the wide variation in AI systems and solutions.
- **Capacity Building:**
  ○ Capacity building of auditors in diverse aspects of the AI technology landscape is necessary to familiarize them with AI frameworks, tools, and software.
  ○ AI audit tasks can also include consulting with experts such as data scientists, data engineers, data architects, programmers, and AI specialists.
- **Ethics:**
  ○ In the absence of specific AI auditing guidelines, auditors should prioritize ethics, utilize authentic data sources for transparency, address legal issues, and assess IT control and governance shortcomings.
- **Risk Mitigation:**
  ○ Third-party control of infrastructure during AI outsourcing via cloud computing poses risks.
  ○ Risks associated with the AI domain, including large data, machine learning, and cybersecurity, must be recorded in a risk and control matrix.
  ○ Data Protection Impact Assessments should be conducted on AI systems processing personal data to mitigate potential risks.

Way Ahead

- Responsible AI must add credibility, trust, and scalability to the CAG audit.
- Complete, timely, accurate, available, and relevant datasets are essential for reliable audit findings.
- To overcome these challenges, the government's IT policies must synchronize all entity data platforms.
- The CAG is introducing One Indian Audit and Accounts Department One System, a web-enabled IT application supporting multiple languages, offline functionality, and a mobile app, to digitize the audit process starting from April 1, 2023, except for defense audits due to security concerns.
- A multifaceted approach may be necessary to mitigate bias and ensure the safety and accuracy of AI models.

Nut Graf: The CAG has warned of the risks of relying solely on AI for auditing, emphasizing the importance of ethics and appropriate legislation. To mitigate these risks, India should develop a universal audit framework for AI, standardize definitions and build capacity for auditors in AI technology.

2. The silence around the state's seizure of India's press

Syllabus: Indian Constitution: Features, Significant Provisions and Basic Structure.

Prelims: ADM Jabalpur case, Justice K.S. Puttaswamy case, Article 20(3) of the Indian Constitution, World Press Freedom Index

Mains: Concerns on Freedom of Press, Right to Privacy

Context:

- The recent arrest of journalists and seizure of their personal devices has raised concerns about the right to privacy and digital data protection.

Supreme Court's View

- In the ADM Jabalpur case, the Supreme Court of India ruled that during an Emergency proclamation, individuals could not challenge illegal detentions.
- However, Justice H.R. Khanna's dissent in this case has been lauded for standing by the fundamental rights of citizens.
- In the Justice K.S. Puttaswamy case, the court recognized the right to privacy and repudiated the observations made in the ADM Jabalpur case.

Impact on Fundamental Rights

- With the increasing use of digital devices, the balance between legitimate police action for evidence and right to privacy of the accused is not clearly defined.
- **Existing procedure:**
  - Chapter 8 of the Code of Criminal Procedure outlines provisions for
    - Voluntary document submissions by people
    - Outlines police actions based on properly obtained warrants,
  - Critics highlight that these are often disregarded in practice.
  - People also willingly comply with law enforcement demands without warrants, due to risks such as physical threats or prosecution under an unrelated charge.
  - There have been instances where police officers sidestep the need for a warrant by using broad exceptions, and magistrates rarely provide a thorough check when issuing such warrants.
  - A survey by Lokniti-CSDS-Common Cause found that 47% of respondents believed that the police could access their phones without consent.
- **Violation of Fundamental Rights:**
  - The provision for forced unlocking of smartphones and retrieval of backups by the police has implications on the right to privacy and protection against self-incrimination as stated under Article 20(3) of the Indian Constitution.
  - India ranks 161st out of 180 countries in the World Press Freedom Index.
- **Legal Uncertainty**
  - The Karnataka High Court's ruling in the Virendra Khanna vs State of Karnataka case allows the police to coerce individuals to unlock their smartphones, giving law enforcement unrestricted access to personal data.
  - This ruling has led to mass searches where officers can intrude into restaurants or stop people on the road and demand that they unlock their phones and scan their WhatsApp conversations for certain keywords.
  - However, a Central Bureau of Investigation special court opinion has differed with this approach causing confusion.
- **Scope of Investigation:** In case of the recent arrests, forced unlocking of devices revealing years of personal and professional communications and confidential sources might go beyond the scope of investigation.

Way Forward

- Due to the chilling effect on freedom of speech and expression and right to privacy, the judiciary should clarify the procedures which fall under lawful police action in case of search and seizure of digital devices.
- Protective measures like compulsory warrants, seizure specificity, protection against forced device unlocks could also be considered.
- Upholding India's constitutional framework in all actions of the government is the need of the hour.

Nut Graf: *Recent arrests and seizure of their personal devices in India have raised concerns about the right to privacy and digital data protection. The judiciary should clarify the procedures for search and seizure of digital devices, and the government should consider protective measures like compulsory warrants and seizure specificity.*

3. Women want change, society needs change

Syllabus: Indian Constitution – Evolution, Features, Amendments, Significant Provisions and Basic Structure.

Prelims: Global Gender Gap Report 2023, Constitution (One Hundred Twenty-Eighth Amendment) Bill, 2023

Mains: Need for representation of women in politics

Context:

- The Constitution (One Hundred Twenty-Eighth Amendment) Bill, 2023, also known as the Women's Reservation Bill, 2023, was passed by both Houses, making it an important piece of legislation in independent India.
- Recently, the Global Gender Gap Report by the World Economic Forum (2023) revealed that it will take 149 years in South Asian countries like India to close the gender gap.

Why have women been underrepresented?

- Despite India's founding fathers ensuring universal adult suffrage, the role of women in shaping the country's political future remains limited.
- Society tends to appreciate women in supportive and emotional roles rather than leadership roles, and ambitious women are often disliked.
- Throughout history, women who have taken on leadership roles have often faced significant societal obstacles and discrimination.
- The fact that women have achieved leadership positions despite these barriers suggests that they have had to overcome additional hurdles beyond those faced by men in similar positions.
- Many women leaders have also had privileged backgrounds, including higher education, influential mentors or families, and belonging to upper classes or castes.
- Despite the above advantages, women still face obstacles in achieving leadership positions, and often take longer to do so compared to men.
- Women who lack basic necessities like nutrition, education, and financial independence find it difficult to aspire for public office.
- The largest obstacle to achieving gender equality has also been the regressive attitudes towards women's rights held by both men and women.

Why is reservation needed?

- Reservation is an effective form of affirmative action and equity is the first step towards equality.
- Criticism of the women's reservation bill that it will benefit educated, urban, and elite women only, ignores the fact that its true purpose is to create opportunities for underprivileged women as has been observed in the case of reservations in local bodies.
- Additionally, the perception that reservation for women by itself will lead to inefficiency and incompetence has been criticized by the courts on various occasions.
- Women outperform men in academics and have higher college graduation rates.
- Despite this, women are underrepresented in leadership positions due to male dominance rather than lack of competence.
- Women are not inherently inferior to men in any way, and any perceived gaps in competency can be addressed through training and development opportunities.

Way Forward:

- Women have had to wait too long to achieve gender parity, and the current Bill is a first step towards realizing this goal.
- It is time to correct past mistakes and bring about change, which is necessary for both women and society as a whole.
- We need to create enabling conditions for ordinary Indian women so that they can dream of becoming the Prime Minister of India one day, just like Jacinda Ardern did in New Zealand

Nut Graf: *Removing entry barriers for women who aspire to political leadership is essential to increase their representation. The Women's Reservation Bill, 2023, marks a significant step towards achieving gender parity and fostering an inclusive environment where all women can pursue leadership roles.*

4. Women's quota – rhetoric and reality

Syllabus: Constitution and Amendments

Mains: Women's quota opportunities and challenges

Context: The recent passing of the Women's Reservation Bill in both Houses of Parliament is celebrated, but it overlooks significant realities and conditions attached to the legislation.

Challenges:
- **Conditional Legislation:** The Women's Reservation Bill is conditional upon the conduct of a census and a subsequent delimitation of constituencies. In Hamdard Dawakhana vs Union of India (1959), the Supreme Court hinted that in conditional legislations, for the statute to take effect, there could be a further dependence on the executive or even on the legislature of the future day, among other things.
- **Underrepresentation of Women:** Women, constituting nearly half the population, are severely underrepresented in Parliament and State legislative bodies, with only 15% in the Lok Sabha and 12% in the Rajya Sabha.
- **Global Gender Gap:** India's low ranking (141 out of 185) in the Global Gender Gap Report emphasizes the gender disparity in political representation.
- **Constitutional Provisions:** Articles 81 (2) (a) and 170 of the Constitution link seat allocation to population, making delimitation a contentious issue.
- **North-South Divide:** Pending delimitation and demographic differences between North and South India could affect the allocation of political power and resources.

Significance:
- The Women's Reservation Bill aims to address gender disparity and empower women in political decision-making.
- Delimitation and demographic issues have become barriers to the bill's implementation, affecting its significance.

Way forward:
- **Decouple Women's Reservation from Delimitation:** Detach the Women's Reservation Bill from the delimitation process to expedite its implementation.
- **Different Parameters:** Recognize that the criteria, process, and purpose of the Women's Reservation Bill differ from delimitation, making a separate census unnecessary.
- **Constitutional Amendment:** Address the issue of conditional legislation, ensuring that amendments are not contingent on uncertain future processes.
- **Transparency:** Promote transparency in the legislative process and avoid secretive handling of such critical issues.

Delimitation:
- The Election Commission defines delimitation as the process of drawing boundaries of constituencies for elected bodies based on the population in the most recent Census.
- Article 81 says that "the ratio between (the number of seats) and the population of the state is, so far as practicable, the same for all states".
- Article 82 of the Constitution states that after every Census is completed, the allocation of Lok Sabha seats to each state must be adjusted based on population changes.
- Under these provisions, an independent Delimitation Commission is to be set up once every decade to reapportion seats among states.

The history
- In Independent India's history, delimitation has taken place four times – 1952, 1963, 1973 and 2002.
- 1952 – 500 seats; 1963 – 522 seats; 1973 – 545 seats.
- In 1976, the 42nd Amendment to the Constitution froze the number of Lok Sabha seats and put off delimitation for 25 years until the 2001 Census under Article 82.
- But in 2002, delimitation was delayed for another 25 years, with the 84th Amendment.
- The Amendment froze the allocation of seats in Article 82 until "the relevant figures for the first Census taken after the year 2026 have been published".

For Prelims
- The Delimitation Commission is appointed by the President of India and comprises a retired judge of the Supreme Court or a high court, the Chief Election Commissioner and the State Election Commissioner.
- The Commission, in consultation with State Election Commissions, examines changes in the population to redraw constituencies or create new ones.
- It then publishes in the Gazette of India its draft report, which is open for public feedback.
- After accounting for the feedback, the Commission publishes its final report.
- Once published, the Commission's orders are final and, as per the Delimitation Commission Act 1952 and Article 329A of the Constitution, have the "full force of law and shall not be called into question in any court".

Nut Graf: For effective empowerment of women in political decision-making, it is essential to uncouple the women's reservation bill from the condition of delimitation of constituencies. This is imperative to uphold the principles of democracy and the pursuit of gender equality.

5.   SC refers electoral bonds case to 5-judge Constitution Bench

Syllabus: Polity

Prelims: Electoral bonds

Introduction
- Chief Justice of India D.Y. Chandrachud has referred the challenge to the validity of the electoral bonds scheme to a Constitution Bench of five judges.
- The scheme allows for anonymous donations to political parties, and its legality has been a matter of contention.
- The case has been pending for over eight years in the Supreme Court.

Key Points
- The challenge to the electoral bonds scheme was referred to a larger Constitution Bench due to the importance of the issue.
- The case will be listed for a hearing on October 31, signalling that the court is committed to addressing the matter promptly.
- The petitioners argue that the scheme legalises anonymous donations to political parties, violating citizens' right to information about political funding and potentially promoting corruption.
- The case involves potential violations of Articles 19, 14, and 21 of the Constitution.
- The Constitution Bench may not immediately address the question of whether the scheme passed as a Money Bill but may await a seven-judge Bench's decision on this issue.

Background
- The electoral bonds scheme has been contentious as it enables anonymous and sanitised political donations, limiting public transparency about the sources of funding.
- Amendments in the Companies Act allowed companies to donate to political parties via electoral bonds while maintaining anonymity.
- Critics argue that the scheme, established through Finance Acts in 2016 and 2017, opens the doors to unlimited political donations.

Conclusion
- The reference to a Constitution Bench underscores the significance of the electoral bonds scheme challenge.
- The court's decision to proceed promptly signals its intent to address the long-standing issue of anonymous political donations and the potential consequences for transparency and corruption in political funding.

6.   The Court's 'no fundamental right to marry' is wrong

Syllabus: Indian Constitution—Historical Underpinnings, Evolution, Features, Amendments, Significant Provisions and Basic Structure.

Prelims: Supriyo v. Union of India case, Navtej Singh Johar v. Union of India, Universal Declaration of Human Rights, Article 21, Right to Marry

Mains: Right to Marry, Transformative Constitution, Evolution of ambit of fundamental rights

Context
- The Supreme Court of India has ruled that there is no fundamental right to marriage, and therefore same-sex couples cannot marry.

Supriyo v. Union of India case
- While the court recognized the right of LGBTQ+ individuals to choose their partners and live together, it did not explicitly recognize same-sex marriage or civil unions.
- Existing legal provisions denied queer couples the right to adopt children. They argued that these provisions violated their fundamental rights to equality, non-discrimination, and life.
- The Supreme court has asked the executive to reconsider the laws on adoption in light of the best interests and welfare of children.
- The court also directed that same-sex couples must be protected from harassment, and gave instructions for the authorities to be sensitized to this issue.
- It directed the Union Government to set up a committee to examine whether and how the existing legal framework could be amended to make the benefits of marriage available to same-sex couples.

Historical Context

- **Impact of Section 377 on LGBTQ Individuals**
  - As a result of Section 377, LGBTQ+ individuals faced blackmail, torture, violence, and harassment from the police, their loved ones, and their families.
  - LGBTQ+ individuals were also afraid to reveal their sexual orientation due to fear of retribution.
- **Repeal of provisions under Section 377**
  - In 2009, the Delhi High Court repealed Section 377 of the Indian Penal Code, which criminalized non-heterosexual relationships, but this was overturned by the Supreme Court in 2013 (Suresh Kumar Koushal v. Naz Foundation case), and then reinstated in 2018 (Navtej Singh Johar v. Union of India)
  - The Lawyers Collective challenged the constitutionality of Section 377 in 2001, leading to the landmark cases of 2009 and 2018, which decriminalized consensual non-heterosexual relationships between adults in private.
  - The court also ruled that people have the right to self-identify their gender, leading to the passage of the Transgender Persons (Protection of Rights) Act, which allows for gender change and protects against discrimination.
  - However, neither case struck down Section 377 entirely.
- **Demand for Marriage Equality**
  - In India, individuals have the right to autonomy, dignity, privacy, and choice in partner selection.
  - The Supreme Court has recognized the rights of LGBTQ+ individuals to have intimate relationships.
  - After the Navtej Johar judgment, it is logical to assume that couples in such relationships may desire to develop long-term relationships, including marriage.
  - Marriage offers various benefits, including succession, adoption, decision-making in hospitalization, employment benefits, and social legitimacy.
  - LGBTQ+ communities face stigma due to lack of legal recognition of their relationships.
  - As a result, LGBTQ+ communities demanded the right to marry and filed petitions in various courts, which were eventually transferred to the Supreme Court.
- The Supreme Court was tasked with deciding on the right of non-heterosexual couples to seek recognition of their marriages.

LGBTQ+ rights

- **International Recognition of the Right to Marry**
  - The Supreme Court's decision in Supriyo Chakraborty states that there is no fundamental right to marry in India.
  - This decision was reached despite India being a signatory to the Universal Declaration of Human Rights (UDHR), which recognizes the right to marry as a human right.
- **Indian Constitution and Legislation**
  - The Indian Constitution and legislation are expected to align with the UDHR, and courts in India have previously interpreted the Constitution and statutes in line with the UDHR and other international covenants.
  - Article 16 of the UDHR provides that men and women have the right to marry and start a family, regardless of race, nationality, or religion.
  - Critics argue that the Indian Constitution does not explicitly provide for the right to marry, but this ignores the Indian constitutional jurisprudence, which has interpreted constitutional provisions in a liberal and expansive manner.
- **Evolution of rights under Article 21**
  - The Supreme Court has read the right to be treated with dignity into Article 21 of the Constitution, and has used the provisions of the UDHR to elaborate rights under the Constitution.
  - The Court has referenced the UDHR in previous cases, such as Prem Shankar Shukla and Francis Coralie Mullin, to support the idea that the right to protection against torture and degrading treatment is implicit in Article 21 of the Constitution.
  - In Maneka Gandhi, the Court relied on Article 10 of the UDHR to read in principles of natural justice into the administrative process.

Way Forward

- The Supreme Court's ruling currently identifies that marriage is only legal between a biological man and woman, despite the fact that gender identity is self-identified.
- The court's decision may perpetuate discrimination against same-sex couples and reduce them to second-class citizens.
- Extending marriage to queer couples or enabling them to enter into civil unions requires a comprehensive legal reform involving various stakeholders, including the queer community, religious leaders, government officials, and family law experts.

Nut Graf: *The Supreme Court of India has ruled that there is no fundamental right to marriage, and therefore same-sex couples cannot marry. This decision is being considered a setback for LGBTQI rights in India, as it denies them the social, legal, and economic benefits of marriage. The court has directed the executive to reconsider the laws on adoption in light of the best interests and welfare of children, and has also asked the Union Government to set up a committee to examine whether and how the existing legal framework could be amended to make the benefits of marriage available to same-sex couples.*

7. Politicising the Bureaucracy

Syllabus: Separation of powers between various organs, dispute redressal mechanisms and institutions; Role of the bureaucracy in the governance and integrity of institutions.

Mains: Analysis of the impact of politicisation of the bureaucracy and military on the constitutional scheme of governance; The need for maintaining bureaucratic impartiality in a democracy

Context
The Indian government's plan for a nationwide roadshow and 'selfie points' to showcase achievements has stirred controversy, viewed as partisan and detrimental to democratic norms.

Introduction
- The Indian government intends to initiate a roadshow called "Viksit Bharat Sankalp Yatra" running from November 20 to January 25, 2024, with the aim of displaying its accomplishments.
- This outreach focuses on the accomplishments of the ruling party in the last nine years starting from 2014.
- The timing aligns with the expected Lok Sabha election in April-May 2024.

Roles of Bureaucracy and Military
- Joint Secretaries, Directors, and Deputy Secretaries will assume the role of Rath Prabharis (leaders of the chariots) during the roadshow.
- The Ministry of Defence is setting up 822 'selfie points' for citizens to take pictures with Prime Minister Narendra Modi.

Concerns Raised
- Opposition parties have criticised the government for politicising the bureaucracy and military.
- India's governance structure mandates a separation of powers between the executive, judiciary, and legislature, as well as insulation of the bureaucracy and military from partisan politics.
- Bureaucracy and the military are expected to remain impartial, loyal to the elected government, and free from personal ideological inclinations.

Damage to Institutions
- Critics argue that the ruling party's strategy may undermine established norms for electoral gains.
- This approach could potentially harm institutions and erode their credibility.
- It is very important to preserve the impartiality and integrity of bureaucratic and military institutions to safeguard India's democratic process.

Nut Graf: The Indian government's pre-election roadshow and 'selfie points' to highlight its achievements are criticised for politicising the bureaucracy and military, potentially undermining democratic institutions' impartiality.

8. Cabinet Committee on Economic Affairs

Syllabus: Polity

Prelims: Cabinet Committee on Economic Affairs

Central Support for Jamrani Dam Project
- The Cabinet Committee on Economic Affairs (CCEA) has granted approval for a Central support of ₹1,557.18 crore to Uttarakhand for the proposed Jamrani dam project in Nainital district.

Multipurpose Project and Estimated Cost
- The Jamrani dam project is a multipurpose initiative with an estimated cost of approximately ₹2,584.10 crore.
- The project is scheduled for completion by the year 2028.

Inclusion in Pradhan Mantri Krishi Sinchayee Yojana
- The CCEA has granted its approval for the incorporation of the Jamrani dam project into the Pradhan Mantri Krishi Sinchayee Yojana-Accelerated Irrigation Benefit Programme (PMKSY-AIBP).

Project Details
- The project entails the building of a dam in proximity to Jamrani village, which spans across the Gola River, a tributary of the Ram Ganga, located within the Nainital region.
- The main objective of the dam is to channel water to the pre-existing Gola barrage via its interconnected canal system.

9. Ethics Committee of Lok Sabha

Syllabus: Polity

Prelims: Parliament and State Legislatures, structure, functioning, conduct of business, powers & privileges, and issues arising out of these.

Introduction
- The Ethics Committee of the Lok Sabha is at the centre of a high-profile case, where Trinamool Congress MP Mahua Moitra is summoned to defend herself against allegations of cash-for-query.
- This committee plays a crucial role in upholding parliamentary ethics and standards of conduct.

Role and Significance of the Ethics Committee
- The Ethics Committee is tasked with ensuring the ethical conduct of Members of Parliament.
- Its primary role is to examine and investigate cases of breach of parliamentary ethics.
- The committee is essential in maintaining the integrity and credibility of the legislative body, making it a critical component of the parliamentary system.

Cash-for-Query Allegations
- The current case before the Ethics Committee involves allegations made by Mr. Nishikant Dubey against Mahua Moitra.
- Moitra is accused of being involved in a cash-for-query scheme, where parliamentary questions were allegedly posed on her behalf by an industrialist in exchange for financial benefits.

Opposition's Concerns
- The Opposition has raised concerns about the committee's proceedings, specifically the sequence in which complainants and defendants are summoned.
- The debate surrounding the process has raised questions about fairness and objectivity in investigating such allegations.

The Committee's Decision
- Despite initial objections and protests, the Ethics Committee voted to allow the complainant and a key witness to present their case.
- Following this, Mahua Moitra was summoned to present her defence on October 31.

Involvement of Ministries
- The committee has sought assistance from the Ministry of Home Affairs and the Ministry of Electronics and Information Technology.
- The nature of the information requested from these ministries remains undisclosed.

10. Parliamentary Standing Committees

Syllabus: Polity

Prelims: Parliament and State Legislatures, structure, functioning, conduct of business, powers & privileges, and issues arising out of these.

Context: The Parliamentary Standing Committee on Home Affairs has postponed the adoption of a draft report on three Bills aimed at replacing existing criminal laws. The Opposition has raised concerns about the speed of the review process and the lack of consultations.

Issues:
- **Speedy Review:** The draft report in English was circulated just a week prior, and the Hindi version was sent to members of the Parliamentary panel only hours before the scheduled adoption of the report.
- **Dissenting Members:** Three members, including Congress MPs Adhir Ranjan Chowdhury and Digvijay Singh, as well as Dravida Munnetra Kazhagam MP N.R. Elango, have filed dissent notes, demanding significant changes in the Bharatiya Nyaya Sanhita, 2023, and the Bharatiya Nagarik Suraksha Sanhita, 2023, which are meant to replace the Indian Penal Code and the Criminal Procedure Code.
- **Nomenclature Controversy:** The draft report does not accept the Hindi nomenclature of the Bills. The panel justifies this by stating that the text of the Bills is in English and does not violate provisions of Article 348 of the Constitution.
- **Inadequate Consultations:** The panel began consultations on the three Bills on August 24 and has held 12 meetings. Opposition members argue that this is insufficient, given the scale and scope of the proposed changes.

Solutions:
- **Extended Consultations:** It is essential to engage in extensive consultations with state governments and stakeholders to address concerns and ensure broad-based support for the Bills.
- **Reconsider Nomenclature:** The controversy surrounding the Hindi nomenclature should be resolved through discussions, considering the inclusivity of all linguistic and cultural groups in the country.
- **Transparent Legislative Process:** To prevent hurrying through the Bills, it is crucial to uphold the principles of legislative scrutiny, allowing for comprehensive evaluation and debate.

Parliamentary Committees:
- Parliamentary Committees are committees elected by the House or nominated by the Speaker.
- A Parliamentary Committee operates under the instructions of the Chairman or the Speaker, whosoever is leading the House.
- Parliamentary Committees are constituted to study and manage numerous matters that cannot be managed by the legislature due to their high volume.
- The major responsibility of the Parliamentary committees is to regulate the operation of the executive branch and facilitate the legislature with numerous policy inputs; this plays an eminent role in democracy.
- Articles 105 and 118 of the Indian Constitution mention the Parliamentary Committees. The reports of the Committee are presented to the House or to the Chairman or Speaker of the House.
- The concept of a Parliamentary Committee has been taken from the British Parliament. As per the Indian Constitution, there are two types of Committees – Ad Hoc and Standing Committees.

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11. Give up impropriety, demonstrate impartiality

Syllabus: Parliament and State Legislatures—Structure, Functioning, Conduct of Business, Powers & Privileges and Issues Arising out of these.

Prelims: Role of Speaker, Article 93, Kihoto Hollohan case, Tenth Schedule, Money Bill

Mains: Increasing impartiality of the role of Speaker

Context:
- The Chief Justice of India stressed the importance of following court orders, when highlighting the Maharashtra Assembly Speaker's inaction on pending disqualification petitions.

The Role of the Speaker
- The Speaker is expected to act impartially as the presiding officer of the Lok Sabha at the Centre and the Legislative Assembly in the States.
- The office of the Speaker originated in medieval Britain as a spokesman for the House of Commons in dealings with the King.
- The Speaker is responsible for upholding the rights and privileges of the House, its committees, and its members.
- Article 93 states that as soon as possible, the House of the People shall elect two members to serve as its Speaker and Deputy Speaker, respectively.

Analysis of Functions of the Speaker
- The Speakers perform two important functions: certifying a Bill to be a Money Bill and deciding on disqualification under the Tenth Schedule for defection.
- **Dealing with misconduct:**
  ○ The Lok Sabha and Legislative Assembly rules provide for suspension of members for misconduct in the House, but it has been observed that the Speakers often misuse these provisions against opposition members.
- **Decline in Referral of Bills to Committees:**
  ○ The Speaker is also responsible for referring Bills introduced to the Parliamentary Standing Committees, but significant Bills that require detailed scrutiny are often not referred to such committees.
  ○ The decline in the percentage of Bills referred to committees since 2014 affects robust parliamentary functioning.
  ○ For example, over 60% of bills were referred to committees in the Lok Sabha between 2004 and 2014, while less than 25% have been referred during the period of 2014-2023.
- **Disqualification:**
  ○ The authority to decide on disqualification petitions under the Tenth Schedule is vested in the Speaker, but past instances have shown that Speakers tend to favor the ruling party.
  ○ This has raised questions about the constitutionality of this arrangement.
  ○ In the landmark case of Kihoto Hollohan (1992), minority judges opined that granting the authority to determine defections to the Speaker undermines democratic principles.
  ○ The Supreme Court, in its judgment for Keisham Meghachandra Singh versus The Honorable Speaker Manipur (2020), advocated for constitutional reforms that would establish an autonomous tribunal, presided over by judges, to assume responsibility and bring impartiality for such decisions.

- ○ The current observations on the Speaker of the Maharashtra Assembly is due to his failure to take action on disqualification petitions. The speaker has neglected to make decisions on these petitions for over a year, leading to the present situation.
- **Money Bills:**
- There have also been challenges in court in recent years against certification of certain Bills as a Money Bill by the Speaker of the Lok Sabha.

Way Forward:
- In Britain, the Speaker resigns from their political party and seeks re-election as an independent candidate to maintain impartiality.
- Adopting British practices would help instill confidence in the office of the Speaker.
- It is essential for Speakers to demonstrate impartiality in their functioning and follow sound democratic practices.

Nut Graf: *The role of speakers play a crucial role in upholding democracy, but their impartiality and conduct have been questioned in recent years. The Chief Justice of India's recent observations on the Speaker of the Maharashtra Assembly highlight the need for reforms to ensure that Speakers act independently and fairly.*

ECONOMY

1. The narrative of development and populism

Syllabus: Inclusive Growth and issues arising from it

Prelims: Fiscal Deficit, National Highways Authority of India (NHAI)

Mains: Inclusive Growth, Growth and Development

Introduction
- The Prime Minister laid the foundation stone of projects worth over ₹50,700 crore in Madhya Pradesh, emphasizing that these projects will contribute to the state's development. In a similar vein, another opposition party announced several guarantees for the people, including financial assistance, subsidies, and other benefits.
- Both announcements highlight the debate around 'development and populism' and the necessity to adopt a more holistic approach to development, taking into account factors such as sustainability, environmental impact, and social equity.

Effects of development seen only in terms of physical infrastructure
- The common belief is that development seen in terms of physical infrastructure is the long-term ideal, while populism will always stunt development.
- Governments also prioritize visible infrastructure projects as they might lead to favourable electoral outcomes.
- However, this narrow definition of development neglects the long-term environmental consequences and the suitability of such projects for the specific geographic location and user needs i.e. welfare of the local population might take a back seat.
- It can also lead to inequality, as it often benefits the wealthy and powerful at the expense of the poor and marginalized.
- For example, recent environmental disasters in Himachal Pradesh and Uttarakhand, which have resulted from the construction of numerous highway roads and other infrastructure projects are a case in point.
- Despite these disasters, governments continue to promote such projects as symbols of development, ignoring the environmental costs and the financial burden of maintaining them.
- Furthermore, the fiscal implications of financing such mega-infrastructure projects can't be ignored.
- The National Highways Authority of India (NHAI) has accumulated a massive debt of over ₹3.4 trillion, with a significant portion of it being contracted between 2017-18 and 2021-22.
- The debt servicing cost alone will cross ₹50,000 crore in FY28, and the NHAI also faces contingent liabilities from disputed claims filed by contractors and developers.

Why is there a space for populism?
- Conventional economic growth models didn't emphasize redistribution, assuming benefits of economic growth would trickle down naturally through the "trickle-down effect."
- This approach views growth as a "high tide that lifts all boats," i.e. economic growth by itself will ensure benefits to all sections of the economy.
- However, experiences of growth in various countries show that benefits don't always trickle down easily, leaving some populations as "outliers" in the growth process.
- Populism is used as a tool to address the shortcomings of conventional economic growth models by redistributing wealth and ensuring that the benefits of growth are shared more evenly.

Why are checks and balances on populism necessary?
- Around the world, populists see themselves as representing the popular will and criticize the checks and balances placed on the executive.
- However, rules and restraints are necessary.
- Populism can lead to bad policy decisions, as populist leaders may be more focused on winning elections than on developing sound policies.

Conclusion:
- While economic populism in the form of freebies has fiscal costs, poorly planned physical infrastructure-led development adds environmental costs that can constrain future governments.
- Policymakers should adopt a more holistic approach to development, taking into account factors like sustainability, environmental impact, and social equity.
- A balance between rules and discretion is needed to allow for flexibility in decision-making within the broad context of rules and regulations to achieve these goals.

Nut Graf: *The debate around development and populism highlights the need for a more holistic approach to development, taking into account sustainability, environmental impact, and social equity. Both physical infrastructure-led development and economic populism can have negative consequences if not properly planned and implemented.*

2.   Manufacturing PMI

Syllabus: Indian economy and Growth

Prelims: Manufacturing PMI

Introduction
- India's manufacturing activity slowed in September 2023, reaching a five-month low, as per the S&P Global India Manufacturing Purchasing Managers' Index (PMI).
- The PMI dropped from 58.6 in August to 57.5 in September, reflecting a decrease in new orders.

Key Findings
- Input cost inflation reached its lowest point in over three years, but firms raised output charges at a pace higher than the long-term average.
- The price increases were attributed to higher labour costs, along with positive business confidence and strong demand in September.
- New export orders slightly softened but remained sharp, with firms gaining new business from clients in Asia, Europe, North America, and the Middle East.
- Factory output saw the slowest growth in five months but remained above the long-term average.
- Manufacturers expressed high optimism about future business prospects in 2023, leading to increased hiring growth compared to August levels.

Expert Commentary
- Experts noted that in September, India's manufacturing sector displayed minor indications of deceleration, primarily because of a gentler rise in new orders.
- Nevertheless, there were substantial improvements in both demand and production, with manufacturers holding a notably positive outlook regarding production.
- Upbeat forecasts drove job creation efforts and initiatives to replenish input stocks, indicating a favourable trajectory for the Indian manufacturing industry.
- However, it's worth noting that the considerable rise in output prices, despite diminishing cost pressures, could potentially constrain sales in the upcoming months.

3.   RBI flags inflation risk to stability

Syllabus: Indian economy and Growth

Prelims: Inflation

Context: The Reserve Bank of India (RBI) has voiced concerns about inflation and its impact on macroeconomic stability.
- The Monetary Policy Committee (MPC) has maintained the policy repo rate at 6.50% for the fourth consecutive meeting.
- RBI Governor Shaktikanta Das emphasizes the importance of aligning inflation with the 4% target.

Details:
- **Inflation as a Risk:**
  - RBI views high inflation as a significant threat to macroeconomic stability and sustainable growth.
  - Monetary policy has been oriented towards achieving a durable 4% inflation target.
  - Das announces the MPC's decision to keep interest rates unchanged.
- **Rationale for Unchanged Rates:**
  - Despite declining core inflation, the overall inflation outlook remains uncertain.
  - Uncertainties include reduced kharif sowing for essential crops, low reservoir levels, and volatile global food and energy prices.
  - The MPC remains vigilant and prepared to take timely policy measures to align inflation with the target.
- **External Risks:**
  - External factors such as geopolitical tensions, global economic slowdown, and volatile financial markets pose risks.
  - Uneven distribution of monsoon rains further complicates the inflation outlook.
- **Growth and Inflation Projections:**
  - RBI maintains the real GDP growth forecast for 2023-24 at 6.5%.
  - The average CPI inflation forecast for the current fiscal year is retained at 5.4%.
  - However, the MPC raises its Q2 headline inflation projection to 6.4%.
- **Emphasis on the 4% Target:**
  - Governor Das reiterates the inflation target is 4%, not the broader range of 2% to 6%.
  - Monetary policy remains actively anti-inflationary in the current scenario.

Significance:
- RBI's focus on inflation control is vital for ensuring economic stability and sustainable growth.
- Maintaining the policy repo rate unchanged reflects concerns about inflationary pressures and uncertainties.
- Timely policy measures are essential to align inflation with the 4% target and anchor inflation expectations.

Solutions:
- Continued vigilance and monitoring of inflation trends.
- Timely policy adjustments to address inflationary pressures.
- Efforts to mitigate external risks and uncertainties through proactive measures.
- Promoting stable and sustainable economic growth while adhering to the 4% inflation target.

On watch

The MPC remains alert and ready to take timely measures to align inflation to the 4% target on a durable basis to preserve macroeconomic stability, says Das

- Cites uncertainties including fall in kharif sowing of pulses and oil seeds, low reservoir levels as clouding inflation outlook
- Terms declining core inflation (CPI excluding food, fuel components) as silver lining
- MPC raises its headline retail inflation projection for the second quarter ended Sept. 30 by 20 basis points to 6.4%

Source: The hindu

4.   Inflation - Is restricting exports and imposing stocking limits the optimal policy?

Syllabus: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment. Gender budgeting

Prelims: Inflation

Context: The Indian government took measures to control rising food inflation, especially in rice and wheat, but how these actions, like export bans and duties, may have unintended effects, causing market uncertainty and impacting both farmers and consumers.

What is the current inflation situation in India?
- Retail Inflation Rate: As of August 2023, India's retail inflation stands at 6.83%. This figure is notably higher than the desired ceiling of 6%.
- Significant Contributor: Food and beverages are pivotal in this scenario. They account for 57% of the retail inflation calculation in India.
- Impact of Food Inflation: The food inflation rate, specifically, soared to 9.94%. Such a rapid increase in food prices severely affects the overall retail inflation.

What steps has the government taken?
- **Wheat Export Ban:** In May 2022, the Indian government prohibited the export of wheat in an effort to control its prices.
- **Rice Export Restrictions:**
  - In September 2022, exports of broken rice were halted.
  - By July 2023, an export ban was placed on non-basmati white rice.
- **Stocking Limits:** In June 2023, the government introduced stocking limits for wheat traders and millers, ensuring that there weren't excessive hoardings.
- **Rice Export Duties:**
  - In July 2023, a 20% export duty was imposed on parboiled rice.
  - Additionally, in August 2023, a Minimum Export Price of $1,200 per tonne was set for basmati rice.
- **Export Duty on Onion:** In August 2023, onions faced a substantial export duty of 40%.

What are the impacts of the export ban?
- **Surge in Wheat Inflation:**
  - Post the wheat export ban in May 2022, wheat inflation increased from 9.22% to a high of 15.7% by August 2022.
  - It further accelerated to a concerning 25.4% by February 2023.
- **Market Uncertainty:** The sudden bans led to unpredictability in the market, affecting both traders and consumers.
- **Rice Inflation Stagnation:** Despite the non-basmati rice export ban in July 2023, when inflation was at 13%, it only slightly reduced to 12.5%.
- **Consumer Panic:** The abrupt export ban of non-basmati rice alarmed not just local consumers but also the African and Indian diaspora in the U.S.
- **Implications for Farmers:** These rapid government measures impacted farmers, who had to face the consequences of these policy decisions.

Wayforward:
- **Well-Strategized Approach:** Instead of "knee-jerk" reactions, a well-thought-out strategy is needed to address inflation effectively.
- **Rational Trade Policy:** The policy should aim to balance both consumers' and producers' interests, ensuring fair prices without harming the farming community.
- **Consider Farmers:** While making policy decisions, the implications on farmers, who bear the brunt of abrupt actions, must be factored in.
- **Avoid Sudden Bans:** Rather than sudden export bans, which create market panic, a gradual approach, like phased export duties, might be more effective.
- **Study Impacts:** Before implementing new policies, their potential impacts on inflation and the overall market should be closely examined.
- **Transparent communication:** There is a need to address the issue of perception of wheat production and official estimates. There is a need to have a transparent communication about govt estimates
- **Reduction of imports duty** on wheat from 40% to 10% or even a complete removal
  - Earlier in 2017 such a policy has been taken by the govt - duty was reduced to nil
  - Earlier when edible oil prices were higher, the govt reduced the import duty to allow for imports and this helped in controlling the prices.

5.   Urban unemployment rate drops to 6.6% in Q1

Syllabus: Indian Economy and growth

Prelims: Periodic Labour Force Survey and unemployment rate.

Introduction
- The Periodic Labour Force Survey (PLFS) conducted by the National Sample Survey Office (NSSO) has reported a decrease in the unemployment rate in urban areas of India during April-June 2023.
- Other labour market indicators, such as the labour force participation rate (LFPR) and worker-population ratio (WPR), have also shown improvements during this period.

Key Labour Market Indicators
1. **LFPR Increase:** The LFPR in urban areas increased from 47.5% in April-June 2022 to 48.8% in April-June 2023.
   - For men, the LFPR remained around 73.5% during this period.
   - For women, the LFPR increased from 20.9% to 23.2% during the same period.
2. **WPR Increase:** The worker-population ratio (WPR) for individuals aged 15 and above in urban areas rose from 43.9% in April-June 2022 to 45.5%.
   - For men, the WPR increased from 68.3% to 69.2%.
   - For women, the WPR increased from 18.9% to 21.1%.
3. **Decrease in Unemployment Rate (UR):** The unemployment rate in urban areas decreased from 7.6% in April-June 2022 to 6.6% in April-June 2023 for individuals aged 15 and above.
   - For men, the UR decreased from 7.1% to 5.9% during this period.
   - For women, the UR decreased from 9.5% to 9.1%.

Comparison with Pre-Pandemic Period
- The PLFS findings highlight an improvement in key labour market indicators in urban areas compared to the pre-pandemic period (April-June 2018 to October-December 2019).
- The LFPR increased from a range of 46.2% to 47.8% during the pre-pandemic period to 48.8% in the latest survey.
- The WPR increased from a range of 41.8% to 44.1% before the pandemic to 45.5% in the recent survey.
- The current unemployment rate of 6.6% is reported to be lower than the unemployment rates observed in the pre-pandemic period.

Conclusion
- The Periodic Labour Force Survey reveals positive trends in labour market indicators in urban India during April-June 2023, including a decrease in the unemployment rate, increased labour force participation, and a higher worker-population ratio.
- These improvements are seen in comparison to both the previous year and the pre-pandemic period, indicating a recovery in urban labour markets.

6.   The impact of Claudia Goldin's work

Syllabus: Economy and issues relating to planning, mobilisation of resources, growth, development and employment.

Mains: Evolution of women's participation in the labour force market.

Context
Harvard Professor Claudia Goldin received the 2023 Nobel Prize in Economic Sciences for her pioneering research on women's labour market outcomes spanning two centuries.

Introduction
- Professor Claudia Goldin of Harvard University was awarded the Sveriges Riksbank Prize in Economic Sciences in 2023 for her pioneering work in understanding women's labour market outcomes.
- Her research spans over 200 years and provides a comprehensive account of how gender differences in earnings and employment rates have evolved.

The U-Shaped Curve
- Goldin's most significant finding was that female labour force participation did not follow a steady upward trend but instead resembled a U-shaped curve.
- Economic growth did not consistently reduce gender differences in the labour market.

Factors Influencing Gender Disparities
- Various factors historically influenced the supply and demand for female labour, including the ability to balance work and family, education decisions, technical innovations, laws, norms, and economic transformation.

Negative Impact on Both Genders
- Goldin emphasises that the unequal paradigm harms both men and women.
- Men may have to forgo family time, while women often limit their careers.

Changes Between Agrarian and Industrial Eras
- The transition from an agrarian to an industrialised society in the early nineteenth century reduced married women's participation in the labour force.
- Participation increased again with the growth of the service sector.

Corrections in Historical Data
- Goldin corrected historical data that misrepresented female labour force participation by categorising women's occupation as "wife." This revealed a higher proportion of women in the labour force than previously recorded.

Role of Expectations
- Women's labour force participation was influenced by societal expectations. In the early twentieth century, women were expected to leave the labour force upon marriage.

Factors Leading to an Upward Curve
- The twentieth century marked an upward trajectory in female labour force participation due to technological progress, the growth of the service sector, and increased education.
- Birth control pills allowed women to plan their careers better.

Emergence of Pay Discrimination
- Pay discrimination increased with the growth of the services sector in the twentieth century, despite a reduced earnings gap between men and women.

Influence of Education and Technology
- Goldin's work underscores the importance of education and technology in economic growth and individual productivity.
- Education raced ahead of technology in the early twentieth century, while the reverse was true later on.

Educational Advances for Women
- Goldin's research highlights substantial educational advances for women, contributing to their increased labour force participation.

Recent Research and Future Prospects
- Goldin's recent research explores the trend of American women working longer and the factors contributing to this phenomenon.
- In her book "Career & Family," Goldin traces the century-long journey of women closing the gender wage gap and emphasises the importance of equitable sharing of household responsibilities.
- She hopes for a future where women can pursue both a career and a spouse who shares their goals.

Nut Graf: Professor Claudia Goldin's groundbreaking work reveals the complex evolution of female labour force participation, highlighting the influence of education, societal expectations, and historical data corrections on gender disparities in earnings and employment rates.

7.   NBFCs under PCA norms

Syllabus: Indian Economy and banking

Prelims: Prompt Corrective Action (PCA) Framework

Introduction
● The Reserve Bank of India (RBI) has declared that the stringent regulatory standards outlined in the Prompt Corrective Action (PCA) Framework will be extended to state-owned non-banking financial companies (NBFCs) starting in October 2024.
● This move extends the PCA framework, which was originally applied to banks, to government-owned NBFCs.
● Some of the major government NBFCs affected by this decision include the Power Finance Corporation (PFC), Rural Electrification Corporation (REC), Indian Railway Finance Corporation (IRFC), and Industrial Finance Corporation of India (IFCI).

PCA framework
● Under the PCA framework, NBFCs will be subject to various restrictions and supervisory measures aimed at maintaining their financial stability and preventing further deterioration. These measures include:
  ○   Restrictions on dividend distribution and remittance of profit.
  ○   Requirements for promoters and shareholders to infuse additional equity capital.
  ○   Reduction in leverage to improve capital adequacy.
  ○   Restrictions on taking on other contingent liabilities on behalf of group companies.

Objective of applying the PCA framework to NBFCs
● This is to allow supervisory intervention when necessary, helping to address financial stress and prevent systemic risks.
● This move underscores the RBI's commitment to ensuring the financial stability and health of the NBFC sector in India.

Conclusion
● By extending the PCA framework to government-owned NBFCs, the RBI aims to create a more robust regulatory environment for these entities, which play a crucial role in supporting various sectors of the Indian economy, including power, infrastructure, and finance.

8.   India ranks 111 in Hunger Index

Syllabus: Economy

Prelims: About Global Hunger Index

Introduction
● India's ranking in the Global Hunger Index (GHI) 2023 has placed it at 111 out of 125 countries.
● The GHI is a measure of hunger that combines multiple indicators to assess a country's performance in addressing hunger and malnutrition.

India's GHI Rank and Score
● India's GHI ranking is 111, with a GHI score of 28.7 on a scale of 0 to 100.
● A score of 0 represents no hunger, while 100 indicates the worst hunger.
● India's score categorises its severity of hunger as "serious."

Key Indicators in GHI
● The GHI uses a formula that considers four key indicators to assess hunger: undernourishment, child stunting, child wasting, and child mortality.
● These indicators reflect the multi-dimensional nature of hunger and malnutrition.

Controversy Over India's GHI Ranking
● The Indian government has contested its GHI ranking for the third consecutive year, citing methodological flaws.
● The Ministry of Women and Child Development questions the GHI's accuracy in representing India's true hunger situation.

Global Context
- Afghanistan, Haiti, and 12 sub-Saharan countries fared worse than India on the GHI.
- India's performance against hunger has nearly stalled since 2015, in line with a global trend of slowing progress.

Response to Controversy
- Miriam Wiemers, senior policy advisor at the GHI, defended the index's methodology, stating that it uses the same data sources and comparable methodologies for all countries.

9. IIP rises at a 14 month high

Syllabus: Indian Economy and growth

Prelims: Index of Industrial Production

Introduction
- India's industrial output saw significant growth in August, marking a 14-month high.
- The growth in industrial production was influenced by various factors, including a favourable base effect and robust manufacturing performance.

Key Industrial Output Figures
- Industrial output in India increased by 10.3% in August, compared to a revised 6% rise in July.
- The favourable base effect is attributed to last year's production levels, which had contracted by 0.7%.
- This marks the best manufacturing performance since April.

Sector-Specific Growth
- Electricity and mining sectors experienced substantial growth, with a 15.3% and 12.3% increase, respectively.
- Manufacturing output grew by 9.3% in August, with most major segments showing growth and fewer contractions compared to July.
- Some sectors, like apparel, chemicals, and computers/electronics, saw a decline in production.

Consumer Goods Production
- Consumer goods production displayed a mixed trend.
- Durable goods output grew by 5.7%, reaching its highest level since September 2022.
- Non-durable consumer items increased by 9% year-on-year but were 3.9% lower compared to July levels.

Use-Based Segments
- Three of the six use-based segments recorded double-digit growth, driven by infrastructure and construction goods, which have shown consistent growth.
- Production of capital goods surged by 12.6%, signifying a bolstered demand for investments.
- Primary goods and intermediate goods also experienced growth at 12.4% and 6.5%, respectively.

Economic Outlook
- Economists and experts are closely watching whether this industrial buoyancy will be reflected in the sales and performance of Indian companies in their second-quarter results.
- The revival of rural demand is a critical factor for sustained growth.
- The external environment may present challenges in the coming months as major Western economies decelerate.

10. India's share of growth to rise to 18%

Syllabus: Economy

Prelims: India's projected growth and contribution to global GDP.

Introduction
- India's contribution to global economic growth is expected to rise by 2 percentage points over the next five years due to the country's projected faster economic growth, according to a senior International Monetary Fund (IMF) official.
- Currently, China and India together contribute 50% to global growth, with India's share at 16%. This share is forecasted to grow to 18% within five years.

Asia-Pacific Region's Growth
- The Asia-Pacific region is considered a relatively bright spot in the global economic environment, with an expected economic growth of 4.6% in 2023 and 4.2% in 2024.
- The region is set to contribute around two-thirds of global growth, and India's growth is cited as a contributing factor to this positive outlook.

India's Strong Economic Growth
- India's economic growth remains robust, with a projected growth rate of 6.3% for the fiscal year 2023/24.
- This growth is supported by strong government capital expenditure, some private sector investment, and sustained consumption growth, despite weakening external demand.

Inflation and Fiscal Deficit
- Retail inflation in India is moderating, with headline inflation returning within the Reserve Bank of India's (RBI) tolerance band.
- The government of India is expected to meet its fiscal deficit target of 5.9% in FY24.
- Revenue is anticipated to reach budgeted levels, and the budget can absorb unexpected expenditure increases in certain areas.

IMF's Monetary Stance Recommendation
- The IMF has recommended that countries maintain a sufficiently restrictive monetary stance until inflation is firmly under control.

11. EU calls for Global Minimum Tax on billionaires

Syllabus: Economy

Prelims: Global Minimum Tax

Introduction
- The European Union Tax Observatory's 'Global Tax Evasion Report 2024' highlights tax evasion by billionaires, enabling them to effectively pay tax rates as low as 0% to 0.5% of their wealth.
- The report calls for a global minimum tax on billionaires, set at 2% of their wealth, to combat evasion and generate an estimated $250 billion from fewer than 3,000 individuals.

Justification for the Proposed Tax
- The report justifies the 2% tax rate for billionaires as "modest" considering their wealth has grown at an average of 7% annually since 1995, net of inflation.

Successes in Curbing Tax Evasion
- The report recognizes the effectiveness of the automatic sharing of bank information in decreasing offshore tax evasion by a factor of three in the last decade.
- It notes that there is still a significant amount of financial wealth held offshore, but only 25% of it evades taxation today.

Challenges in Curbing Tax Evasion
- **The report identifies two main challenges for offshore tax evasion:**
  - Some offshore financial institutions do not comply with automatic exchange of bank information requirements.
  - Wealthy individuals have started shifting their assets to non-covered asset classes, particularly real estate.

Recommendations for Expanding Measures
- The report calls for an expansion of assets covered by the automatic exchange of information system to further reduce tax evasion.

Global Minimum Tax Concerns
- The global minimum tax of 15% on multinational corporations (MNCs) adopted in 2012 has faced challenges, as growing loopholes reduce expected revenues.
- The report mentions the trend of "greenwashing" the global minimum tax, where MNCs can use 'green' tax credits for low carbon transition to lower their tax rates below 15%.

Concerns About Tax Competition
- The report highlights emerging forms of aggressive tax competition targeting wealthy foreign individuals, with such regimes offering tax exemptions or reductions to incoming residents.
- These preferential tax regimes weaken overall tax collection and have negative spillover effects on other countries.

12. Govt. mulls partnerships to make semiconductor chips

Syllabus: Economic Development in India

Prelims: Semiconductor features

Mains: Significance of manufacturing Semiconductor chips for India

Context: The Indian government is exploring various partnerships and initiatives in the fields of semiconductor chip manufacturing, artificial intelligence (AI), and robotics.
- Seven working groups have submitted recommendations for the Indian government's AI roadmap, which includes public-private partnerships for semiconductor production.
- The government also plans to create "GPU clusters" for AI applications and develop a diverse dataset platform for Indian researchers and startups.

Details:
- **Semiconductor Chip Production:**
  ○ India is considering partnerships to boost semiconductor chip manufacturing, a crucial component of modern technology.
  ○ The need for semiconductor chips is growing in various sectors, including AI and electronics.
- **AI Application and Dataset Platform:**
  ○ The government is focusing on AI applications in agriculture, healthcare, education, fintech, security, and governance.
  ○ A diverse dataset platform is planned to provide anonymized datasets for training AI models.
- **Robotics Strategy:**
  ○ The draft National Strategy on Robotics aims to leverage robotics technology for economic and industrial transformation.
  ○ It emphasizes the importance of manufacturing and local development of robotics hardware.

Significance:
- These initiatives are significant for India's technological and economic development, as they address emerging technologies and their applications across various sectors.
- They demonstrate a commitment to fostering innovation, research, and local manufacturing in the technology domain.

Way forward:
- **Semiconductor Manufacturing Partnerships:**
  ○ Collaborate with private sector companies to establish semiconductor manufacturing facilities in India, enhancing self-reliance in chip production.
- **AI and Dataset Platform:**
  ○ Encourage public-private partnerships to develop AI applications in key sectors.
  ○ Ensure the dataset platform adheres to data privacy and security standards.
- **Robotics Development:**
  ○ Implement fiscal incentives to promote local manufacturing of robotics hardware, fostering innovation and economic growth.
  ○ Establish demonstration facilities for testing and showcasing robotics technologies to potential investors and users.
  ○ Invest in skill development and capacity building in the robotics sector to create a skilled workforce.
- **Public Awareness and Perception:**
  ○ Educate the public about the potential benefits of robotics, emphasizing the value of quality assessment and efficiency rather than focusing solely on job losses.

Nut Graf: The Indian government's initiatives in semiconductor manufacturing, AI, and robotics reflect a proactive approach to technology-driven growth. Collaborations with the private sector and the creation of diverse datasets can accelerate advancements in AI. Furthermore, the focus on robotics presents an opportunity to boost domestic manufacturing and enhance industrial competitiveness.

13. 'Govt. will not restrict but only monitor the import of laptops'

Syllabus: Economic Development in India

Mains: Import of laptops

Context: The Indian government has clarified that it will not impose licensing requirements on the import of laptops and computers. Instead, it will focus on monitoring inbound shipments of these products, marking a change from the earlier announcement in August.

Details:
- **Licensing Requirement Announcement:**
  - In August, the Indian government had announced plans to subject laptops, tablets, computers, and related products to a licensing regime, effective from November 1.
  - This decision aimed to boost domestic manufacturing and reduce imports from countries like China.
- **Revised Approach – Monitoring:**
  - The government's new approach involves monitoring, rather than imposing restrictions or licensing requirements, on laptop imports.
  - Commerce Secretary Sunil Barthwal clarified that the focus is on closely watching importers and their laptop shipments.
- **Monitoring and Data Collection:**
  - The decision to monitor laptop imports allows the government to collect data on the volume and sources of imported laptops.
  - This data can aid policymakers in making informed decisions and assessing the impact on domestic manufacturing.
- **Balancing Domestic Production and Imports:**
  - Striking a balance between promoting domestic industry and maintaining a competitive global market is crucial.
- **Transparency and Stakeholder Engagement:**
  - Ensure transparency in the monitoring process and engage with industry stakeholders to gather insights and feedback.
  - Collaboration with businesses and trade associations can help in crafting effective policies.
- **Evaluating Impact:**
  - Continuously evaluate the impact of the monitoring approach on the laptop and computer market in terms of domestic production, quality, and affordability.
  - Adjust policies as necessary to achieve the desired outcomes.

14. The world needs to stop taking water for granted

Syllabus: Inclusive Growth and issues arising from it, Food Security, Irrigation Systems

Prelims: Food and Agriculture Organization (FAO), World Food Programme(WFP), International Fund for Agricultural Development (IFAD), Climate smart agriculture

Mains: Importance of Water and Food Security, Impact of Climate Change on agriculture

Introduction
- 'Water is Life, Water is Food' has been chosen as the theme for World Food Day highlighting the need for better water management practices.

Water crisis: A pressing concern
- Climate change has led to an increase in extreme weather events such as heat waves, droughts, floods, and unseasonal rains, which directly impact agricultural production.
- These changes in weather patterns alter crop productivity and shift growing seasons, ultimately affecting food and nutrition security.
- In India, 60% of the net sown area is rainfed, contributing to 40% of the country's total food production.
- However, poor water management practices, including misuse and pollution, have resulted in a reduction of freshwater availability, making small-scale farmers more vulnerable to climate shocks and land degradation.
- Without proper adaptation measures, the government estimates that rainfed rice yields will decrease by 20% in 2050 and 47% in 2080, while irrigated rice yields will decline by 3.5% in 2050 and 5% in 2080.
- Additionally, wheat yields are expected to decrease by 19.3% in 2050 and 40% in 2080, and kharif maize yields could decline by 18% and 23%.
- The lack of access to finance, technology, and irrigation further exacerbates the challenges faced by small-scale farmers, directly affecting their livelihoods and incomes.

Existing Support for Adaptation and Mitigation
- Climate change poses a threat to crop yields and nutritional quality.
- Irrigation can help farmers grow high-value crops and enhance their livelihoods.
- The UN's food agencies emphasize the need for innovative approaches to managing water resources.
- Climate-smart agriculture practices and technologies can help rainfed farmers adapt to these changes. Sustainable water management is crucial for food and nutrition security.

Food and Agriculture Organization (FAO)
- In India, the Food and Agriculture Organization (FAO) is piloting a crop forecasting framework to aid rainfed farmers.
- It also has programs to improve water use efficiency, such as the Farmer Water School and the Andhra Pradesh Farmer Managed Groundwater Systems project.

World Food Programme(WFP)
- WFP supports soil and water conservation efforts by assisting in construction of canals etc.
- It has collaborated with the Government of Odisha to enhance small scale farmer's resilience through solar technologies, community-based climate advisory services, and a millet value chain that reduces water usage and improves nutrition.

International Fund for Agricultural Development (IFAD)
- The organization promotes environmentally and socially sustainable micro-irrigation infrastructure through the MGNREGA scheme.
- The IFAD has also set ambitious targets for mitigating climate change and supporting farmers through climate-resilient seed varieties, climate-sensitive agricultural practices, and soil management training.

Way Ahead
- Ensuring global food and nutrition security requires political commitment
- Investment in agricultural infrastructure, promoting innovative technologies that enhance farmers' productivity, climate resilience, and shock resistance is the need of the hour.
- Sustainable irrigation and water management practices, while ensuring access to sanitation and clean drinking water for rural communities is necessary.
- Efficient food and water recycling methods are crucial for conservation.
- Innovative initiatives like Solar 4 Resilience, Secure Fishing, and millet revival can serve as models for future development efforts focused on renewable energy, food security, and nutrition.

Nut Graf: Climate change is aggravating water scarcity in India, posing a serious threat to food and nutrition security. Ensuring global food and nutrition security requires sustained political commitment and investment in agricultural infrastructure, innovative technologies, and sustainable water management practices

15. Closing the gender pay gap in the workforce

Syllabus: Indian Economy and issues relating to Growth, Development and Employment.

Prelims: Female labor force participation rate, Claudia Goldin, 2023 Economics Nobel Prize winner

Mains: Reasons for low female labor force participation rate

Introduction:
- The labor force participation rate (LFPR) in India decreased to 39.5% in the fiscal year 2022–2023 according to the **Centre for Monitoring Indian Economy (CMIE).**
- In other words, of all the Indians aged 15 years and above, only 39.5% are even asking for a job. Among men, this proportion was 66% and among women, just 8.8%.

Understanding low LFPR
- Earlier, the hypothesis was that women were absent from the workforce because they were caring for children at home.
- They were paid less than men because they had lower education levels.
- However, feminist economists and sociologists have disagreed with this.
- Claudia Goldin, the 2023 Economics Nobel Prize winner, has highlighted the fact that the problem is not at home but in the labor market.

Claudia Goldin's work in understanding the labor market
- Goldin argues that as economic production moved from home to factories, women were excluded from market activities.
- Women found jobs in offices, schools, and hospitals but still earned less than men despite having higher education levels.
- Goldin argues that women's inability to take on jobs involving long hours and irregular work schedules are due to parental responsibilities.
- This leads to women taking on fewer opportunities for career advancement and being stuck on the "mommy track".
- Gender ideologies place a burden on women to take on extra family duties while men focus on their careers.
- Goldin also blames gender inequality on "greedy work" in the labor market which demands extraordinary effort from workers who are then rewarded with higher salaries and faster promotions.
- Companies prefer hiring two workers who work long hours rather than three workers who work regular hours as it reduces costs like health insurance, office space, and personnel services.
- Due to the difficulties discussed above, finding extra time to benefit from this is low for women.
- Additionally, rising income inequality leads couples to prioritize increasing family income over gender equality within the household.
- Goldin's solution is restructuring the workplace to have moderate work hours, predictable schedules, and not relying on heroic efforts.

Way Forward
- The growth of the service sector, rising education, and declining fertility rates (hence reducing parental responsibility) should provide more job opportunities for women.
- To capitalize on these changes, society must create jobs that accommodate family responsibilities and challenge traditional gender roles.
- Increasing male participation in household work and childcare is crucial, but it's not enough to achieve gender equality in the workforce.
- Reshaping the work environment and social norms is necessary to establish a work-life balance for both men and women.
- Addressing issues beyond the workplace, such as schools that rely heavily on parental involvement with children and urban developments locating homes far from workplaces, is vital to creating more opportunities for women.
- The ultimate goal should be to attain a "grand gender convergence" in labor market outcomes, as proposed by economist Claudia Goldin.

Nut Graf: The gender pay gap in the workforce is a complex issue with deep-rooted causes. Claudia Goldin's research highlights the role of labor market discrimination and gender ideologies in perpetuating this gap. In addition to addressing issues within the workplace, society must also challenge traditional gender roles and create jobs that accommodate family responsibilities.

16. The measure of the working woman

Syllabus: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.

Mains: Women's labour force participation- rate, issues, and the need for providing support.

Prelims: About Women's labour force participation rate and gender-related issues.

Context
The article discusses the importance of empowering women in India's growing economy and highlights the challenges women face in unpaid care work and the need for suitable support.

Introduction
- The inclusion of women in India's growing economy is crucial for the nation's ambitions of becoming a $5 trillion economy.
- Two key aspects must be addressed: appropriately valuing women's work, especially in caregiving roles, and supporting women's participation in the formal workforce.

The Issue of Unpaid Care Work
- The majority of women in India engage in unpaid domestic services, such as caregiving for children, the sick, and the elderly.
- This "double burden" of unpaid care work, combined with their paid work outside the home, leads to gender inequality.
- Women's unpaid work contributes significantly to the economy, equivalent to 7.5% of GDP.

Challenges in Valuing Women's Work
- Women's unpaid work often goes unnoticed and unaccounted for in official records, affecting labour and employment policies.
- Governments should advocate for changes in the System of National Accounts to reflect the value of this labour.
- Statistical invisibility limits the applicability of protective labour legislation.

Supporting Women in Low-Income Families
- In low-income households, both parents often have to work, breaking the traditional breadwinner-caregiver model.
- Low-income women work without adequate support, but their work patterns are often seasonal, sporadic, and irregular.
- They need suitable childcare options for stable employment, especially in urban areas.

The Role of Creches
- Creches offer a solution by providing childcare services. The National Creche Scheme operates thousands of such centres.
- Creches help mothers build stable careers while ensuring the safety and development of their children.
- The private sector recognizes the need for childcare services, making it a growing industry.

Closing the Gender Gap
- India's women's labour force participation rate (FLFPR) lags behind other countries in the region.
- To empower Indian women, their work must be appropriately recognized and supported to raise FLFPR.

Nut Graf: *As India aims to become a $5 trillion economy, valuing women's work, especially unpaid caregiving, and supporting women in low-income families are essential for increasing women's participation in the formal workforce.*

17. Centre raises MSP for Rabi crops

Syllabus: Indian Economy and agriculture

Mains: MSP for Rabi crops

Introduction
- The Cabinet Committee on Economic Affairs (CCEA) has announced an increase in Minimum Support Prices (MSP) for all Rabi crops for the financial year 2024-25.
- The increment has been criticised by farmers' organisations as insufficient to cover rising input costs.

Key MSP Increases
1. **Wheat**
- Wheat, a major Rabi crop, receives a ₹150 per quintal increase in MSP.
- The new MSP for wheat is ₹2,275 per quintal.
2. **Lentils (Masur)**
- The MSP for lentils has seen the highest increase compared to the previous year, with a ₹425 per quintal rise.
- The new MSP for lentils stands at ₹6,425 per quintal.
3. **Rapeseed and Mustard**
- Rapeseed and mustard crops have an MSP increase of ₹200 per quintal.
- The new MSP for rapeseed and mustard is ₹5,650 per quintal.

Farmers' Criticisms
- Farmers' organisations have expressed dissatisfaction with the MSP hikes, stating that they do not adequately account for increased input costs.
- They point to rising prices of fertilisers and diesel, which have added to the farmers' expenses.

Procurement Concerns
- Some farmers' representatives have questioned the meaningfulness of MSP without an effective procurement system in place.
- They highlight the importance of ensuring that farmers can actually sell their produce at the MSP rates to benefit from these increases.

18. National Green Hydrogen Mission

Syllabus: Economy

Prelims: National Green Hydrogen Mission and its implications for environmental sustainability and energy sector.

Introduction
- India's National Green Hydrogen Mission, led by the Ministry of New and Renewable Energy (MNRE), aims to produce "green hydrogen" devoid of fossil fuel emissions.
- A recent study by Climate Risk Horizons (CRH), an environmental and energy think-tank, suggests that without appropriate measures, this initiative could worsen pollution.
- The MNRE defines green hydrogen as hydrogen production emitting no more than two kg of carbon dioxide per kg of hydrogen, in stark contrast to "grey hydrogen," which emits nine kg of carbon dioxide for every kg produced.

Daunting Green Hydrogen Targets
- The National Green Hydrogen Mission aims to manufacture five million tonnes of green hydrogen by 2030.
- This endeavour necessitates the installation of 125 GW of renewable energy capacity and the utilisation of 250,000 gigawatt-hour units of power, equivalent to 13% of India's current electricity generation.

Existing Renewable Energy Capacity
- As of August 2023, India's total renewable energy (RE) capacity stands at 131 GW.
- Achieving the 2030 green hydrogen targets requires adding an equivalent RE capacity by that year.
- This is in addition to India's commitment to install 500 GW of RE capacity by 2030 under the Paris Agreement.

Current Renewable Energy Progress
- In 2023, India added only 15 GW of new solar and wind capacity, significantly less than the 45 GW per year needed to reach the 2030 RE target.

Electricity Source Dilemma
- A major concern is the source of electricity for green hydrogen production, especially during nighttime when solar power generation is minimal.
- If electricity for electrolysis comes from India's coal-powered grid (accounting for about 70% of electricity generation), it could increase carbon emissions, particularly during non-daylight hours.

Lack of Disclosure and Clarity
- The study points out that a significant number of green hydrogen projects have not disclosed their source of electricity.
- Furthermore, it is unclear if projects claiming to meet their electricity requirements from renewable sources can indeed do so.

19. 7.5% dip in active workforce under MGNREGS, says study

Syllabus: Indian Economy, Employment

Prelims: MGNREGS

Mains: Progress of MGNREGS

Context:
- A study conducted by LibTech India, a consortium of academics and activists, reveals a 7.5% decline in the active workforce participating in the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS).
- The data analysis covers the period from April to September 2023 and compares it with previous financial years.

Issues:
- The MGNREGS workforce has decreased from 15.49 crore in the previous financial year to 14.33 crore as of October 6, 2023.
- A net deletion of 80 lakh workers has occurred in the current financial year, further impacting the scheme's workforce.
- The decline in the MGNREGS workforce raises concerns about the program's effectiveness and reach.
- The findings emphasize the need for a comprehensive analysis to identify the factors contributing to this decline and develop strategies to revitalize the program's participation.
- Despite the decrease in the active workforce, there has been a 9% increase in person-days, highlighting the growing demand for work under the scheme.
- The report suggests that the person-days generated could have been even higher if wrongly deleted workers were reinstated, emphasizing the persistent and increasing demand for employment opportunities through MGNREGS.
- State-level variations in employment trends are noted, with 14 states reporting an increase while six states have witnessed a decline.

Wayforward:

- To address the decline in the MGNREGS workforce, it is essential to conduct a thorough analysis to understand the reasons behind this trend.
- Strategies should be formulated to attract and retain workers in the scheme, ensuring that the program's benefits reach those in need.
- Efforts should be made to reinstate wrongly deleted workers, maximizing the scheme's impact.

Nut Graf: The reduction in the active workforce under MGNREGS is a cause for concern and calls for a detailed examination of the factors contributing to this decline. The program's continued importance is evident in the increased demand for work despite a shrinking workforce.

20. The Indian Railways' revenue problem

Syllabus: Indian Economy and issues relating to planning, mobilisation of resources, growth, development and employment. Infrastructure – Energy, Ports, Roads, Airports, Railways etc.

Mains: Indian Railways: capital expenditure, debt, its freight business and the economic concerns related to it.

Context:
The Indian Railways (IR) has embarked on a substantial capital expenditure (capex) program, yet its profitability, as measured by the operating ratio, remains a challenge.

Introduction

- The Indian Railways (IR) has undertaken significant capital expenditure (capex) initiatives, especially after the integration of the rail budget with the main budget.
- However, despite increased capex, the IR's operating ratio, a key measure of profitability, has not shown improvement.
- This article explores the challenges and opportunities in the context of the IR's capital expenditure and freight business.

Rising Debt and Financing

- To finance capex, the IR relies on Gross Budgetary Support (GBS) and Extra Budgetary Resources (EBS).
- The merger of budgets allowed for increased GBS, but EBS has become a growing concern.
- Repayment of principal and interest now accounts for a substantial portion of revenue receipts, impacting the IR's financial health.

Productivity and Investment

- The IR's investments are vital for the nation's economic growth, job creation, and revenue generation.
- However, these investments must yield productive returns to ensure the IR's sustainability.
- The IR's role as an economic engine necessitates that its investments contribute to its revenue.

Passenger and Freight Segments

- While the IR's freight segment is profitable, the passenger segment consistently incurs substantial losses.
- The cross-subsidization of passenger services using freight profits poses a financial challenge.
- Addressing this issue requires boosting freight volumes and revenues.

Challenges in Freight Business

- The annual growth in freight volume and revenue lags behind the country's economic growth, indicating a performance gap.
- The IR's modal share in India's freight business has dwindled to around 27%, down from over 80% post-independence.

Restructuring the Freight Business

- The IR's division of cargo into goods and parcels creates artificial distinctions.
- It may be more beneficial to categorize cargo based on characteristics such as bulk and non-bulk.
- This can streamline cargo handling and improve efficiency.

Changing Share in Key Commodities

- The IR's share in the transportation of key commodities like coal, iron ore, and cement has diminished over the years.
- Despite some improvement, the rail share remains lower than previous years.
- Initiatives like private container train operations have not substantially increased rail's share in container movement.

Fluctuating Net Tonne Kilometres (NTKM)

- The key index of NTKM has experienced fluctuations in recent years.
- Factors like demonetization contributed to falls in NTKM, which impacted rail's competitiveness.
- Despite some recovery, NTKM growth remains lower than road transport growth.

Nut Graf: Despite a surge in capex, the IR's operating ratio hasn't improved. Rising debt and issues in the passenger segment underscore the need for optimising investments in the freight business.

21. Offshore Wind Energy Plant of India

Syllabus: Indian Economy and issues relating to planning, mobilisation of resources, growth, development and employment. Infrastructure – Energy, Ports, Roads, Airports, Railways, etc.

Mains: Wind Energy Plant of India

Context:
● India's first Offshore Wind Project will come up in Tamil Nadu by the year end.
● Tenders for the same have been floated by the Union Government.
● Sea-bed sites for this will be allocated by MNRE.

What is Offshore wind energy?
● First such plant in Denmark.
● Since then, many countries, including the United Kingdom, Germany, the Netherlands, and the United States.

Benefits over land based Wind Energy Plants
● Abundant Energy Potential
● Reliable and Predictable Energy Source
● Reduced Visual and Noise Impact
● Decreased Land Use Conflicts
● Job Creation and Economic Growth
● Scalability

Efforts by Government to support this
● Offshore Wind Energy Policy' in October 2015
● Nodal Institute: National Institute of Wind Energy
● 'Guidelines for Offshore wind Power Assessment, Studies and Surveys' in September, 2018
● potential offshore wind zones off the coast of Gujarat and Tamil Nadu have been identified
● Offshore Wind has been included in the list of activities to be considered for trading of Carbon Credits under Paris Agreement.
● Government has permitted Foreign Direct Investment (FDI) up to 100 percent under the automatic route for renewable energy projects, including offshore wind energy projects.

22. An unfolding economic tragedy

Syllabus: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.

Prelims: NSO, GDP growth, Gross Fixed Capital Formation, Types of GDP calculation, PLI scheme

Mains: Relation between GDP growth and Inclusive growth, Divergence between growth and development

Context
● The National Statistics Office (NSO) announced that India's GDP has increased at an annual rate of 7.8% in the April-June quarter.
● However, focusing on GDP growth alone might be misguided, as it doesn't reveal inequalities and neglects issues such as job scarcity, poor education and healthcare, inadequate infrastructure in cities and environmental degradation.
● High GDP does not translate into purchasing power for all citizens as it is unevenly distributed.
● India's GDP growth might have slowed down significantly over the past two decades, with weak demand being a significant factor.

India's Growth Trajectory till COVID-19
● India's GDP grew at an annual rate of 9% in the mid-2000s due to high world trade growth.
● The economy grew because of excess investments in the real estate and financial sector, but it couldn't last forever.
● After the global financial crisis of 2007-08, growth slowed to 6% as world trade also started declining
● The data revision in January 2015 showed an increase in GDP growth for a few years.
● However, the slowdown resumed after demonetization and the GST rollout.
● Following the IL&FS bankruptcy in August 2018, GDP growth dropped to 3.9% in the year before the pandemic.
● The slowdown in GDP growth from 9% in the mid-2000s to 3%-4% before the pandemic reflected weak demand.
● This weak demand was evident in the significant drop in private corporate fixed investment from 17% of GDP in 2007-8 to 11% in 2019-20.
● Private companies reduced investments due to reduced purchasing power and limited foreign demand for Indian goods.

Post-COVID Economic Situation
- The Indian economy has exhibited a bouncy growth pattern, with fluctuations including a sharp fall, modest recovery, severe slowdown, and a dead cat bounce in late 2022.
- Considering the latest four quarters over the four quarters before COVID, the annual growth rate (of the income and expenditure average) is 4.2%.
- Private corporate investment dropped further to 10% of GDP in 2021-22, indicating persistent demand weakness.
- The government started a year-long free grain program for nearly three-fifths of the population in December 2022, which is expected to continue through 2024.
- Households have reduced their savings rates to 5.1% of GDP, down from 11.9% in 2019-20, to maintain consumption.
- Concerns of overvalued rupee and sluggish world trade, have led to decline in Indian exports

Conclusion:
- Government policy has focused on boosting supply instead of demand through good jobs, human capital investment, and infrastructure improvement in cities.
- This approach with measures such as the September 2019 corporate tax cut, PLI schemes, and infrastructure projects are failing to stimulate corporate investment.
- The increased reliance on indirect taxes has further reduced purchasing power and weakened demand.

Nut Graf: *India's GDP growth, while high in recent quarters, doesn't reveal inequalities or neglect issues such as job scarcity, poor education and healthcare, inadequate infrastructure in cities and environmental degradation. Weak demand, evident in the significant drop in private corporate fixed investment, has been a major factor in the slowdown in GDP growth over the past two decades.*

23. Easing the transport of cargo by Railways

Syllabus: Indian Economy and issues relating to planning, mobilisation of resources, growth, development and employment. Infrastructure – Energy, Ports, Roads, Airports, Railways, etc.

Mains: Indian Railways: capital expenditure, debt, its freight business and the economic concerns related to it.

Context
The article delves into the Indian Railways' evolving strategies to enhance its presence in the bulk cargo transportation sector, focusing on policies, initiatives, challenges, and solutions.

Introduction
- The Indian Railways has been a cost-effective mode of transporting bulk cargo, but it faces new challenges and opportunities.
- The government is focusing on reducing logistics costs, improving green mobility, and developing infrastructure within the sector.
- This article explores the policies and initiatives aimed at boosting the Railways' share in the bulk cargo transportation sector and addressing environmental concerns.

Key Policies and Initiatives
- The Indian government has introduced two key policies: PM GatiShakti (PMGS) and the National Logistics Policy (NLP).
- PMGS seeks to establish an integrated multi-modal transportation network across India, whereas the NLP is concentrated on developing a national logistics portal and amalgamating platforms from different ministries.

Railway Initiatives for Bulk Cargo
- The Indian Railways has introduced several measures in the bulk cargo segment, including relaxed movement rules, mini rakes, private freight terminals (PFTs), and private sidings.
- The Gati Shakti Terminal (GCT) policy eases stipulations for operating these terminals, aiming to convert PFTs and sidings into GCTs.
- Collaboration with freight operators has resulted in more than 16,000 privately owned wagons being inducted to facilitate specialised cargo transportation, such as automobiles and fly ash.

Challenges and Solutions
- Despite these initiatives, the Railways' share in bulk cargo continues to decline, partly due to increasing production decentralisation.
- To offset this, the Railways should reduce non-price barriers and distribute transaction costs, making it more accessible for various customers.
- It is essential to work in cooperation with state governments to set up shared facilities for cargo aggregation and dispersal at locations within industrial and mining clusters.
- The Railways should explore new commodities like fly ash and correct past oversights in power plant sidings' facilities.
- Environmental constraints and regulations need to be mode-agnostic to promote rail loading, preventing cargo from shifting to more environmentally polluting road transport.

Nut Graf: *As part of India's evolving logistics landscape, the Indian Railways is implementing initiatives and policies to increase its share in the bulk cargo sector, offering potential solutions to pressing challenges and promoting environmentally friendly transportation options.*

24. Angel tax for start-ups

Syllabus: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.

Prelims: Angel tax

What is Angel Tax?
● Tax payable on the capital raised by unlisted companies via the issue of shares through off-market transactions if the share price of issued shares is seen to be in excess of the fair market value of the company.
● Angel tax - Income Tax Act, 1961.
● Investments over and above the fair market value are taxed at 30.9%

What were the changes for angel tax in Budget 2023-24?
● To include foreign investors in the ambit.
● However, these foreign investors will not need to pay any angel tax while investing in a government-recognised startup in India — similar to the provision for domestic investors.

25. Declining household savings

Syllabus: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.

Prelims: Household savings

Context: Recently, the release of the Reserve Bank of India's (RBI) Monthly Bulletin revealed that households' net financial savings had declined to 5.1% in 2022-23 from 11.5% in 2020-21.
● RBI showed this household savings data as net financial assets, which is essentially gross financial assets (which include bank deposits, capital mkt investments, life insurance, PFs etc) minus gross financial liabilities (bank or NBFC loans etc).

Why have the financial savings of households declined recently?
● Household financial savings have declined recently due to the rapid increase in financial liabilities (such as loans from banks and financial institutions) compared to financial assets (such as bank deposits and investments in shares).
● In FY23, household financial liabilities surged to 5.8% of GDP, a significant increase from 3.8% in FY22.
● Between 2000 and 2022, the average growth of financial assets was 12.4%, while financial liabilities grew at a faster rate of 21.6%.
● The difference between financial assets and liabilities represents financial savings, and with liabilities growing faster than assets, there has been a slowdown in the growth of financial savings.

What are the factors behind the decline in financial savings rate?
● **Government Policies:** Government policies and incentives, such as subsidies or tax breaks for homebuyers or educational loans, can also play a role in shaping households' investment choices and financial behavior.
● **Increased Expenditure:** As lifestyles improve and become more extravagant, households tend to spend more on luxury goods, leisure activities, dining out, travel, and other non-essential items. This increased expenditure leaves less money available for savings.
● **Inflation Concerns:** High inflation can erode the purchasing power of traditional savings and make physical assets like real estate appear as a more attractive store of value. Concerns about inflation may have influenced individuals to invest in assets that are perceived as inflation-resistant.
● **Increased Access to Credit:** The availability of loans for various purposes, such as education and vehicle loans, from both commercial banks and housing finance companies, has expanded. Easy access to credit can lead people to take on more debt for these non-financial assets.
● **Housing Sector Boom:** The construction sector, including housing, experienced significant growth during the post-pandemic period. This growth can be attributed to factors like increased demand for housing, government incentives, and easier access to housing loans.
● **Low Interest Rates:** The RBI set low interest rates in response to the COVID-19 pandemic to stimulate economic activity. Low interest rates can encourage individuals to borrow and invest in physical assets, like homes and vehicles, rather than keeping their money in traditional savings instruments like fixed deposits or savings accounts.

Optimistic Growth in Physical Assets vs. Pessimistic Concerns about Rising Liabilities

Optimistic Claim: Shift to Physical Assets
- **Composition of Savings**: Physical assets (excluding gold and silver) now constitute nearly 60% of household net savings, while financial savings have reduced.
- **Diversified Investments:** Households have diversified their investments, with education and vehicle loans also increasing. Education loans grew at 17%, while vehicle loans increased by approximately 25% between 2021-22 and 2022-23.
- **Housing Loans:** Housing loans from Scheduled Commercial Banks (SCBs) have consistently grown, with significant expansion from housing finance companies.
- **Construction Sector Growth:** Post-COVID, the construction sector has shown robust growth, with a 15% increase between 2020-21 and 2021-22.

Pessimistic Claim: Rising Liabilities and Concerns
- **Non-Banking Institutions' Role:** The biggest contributor to the large rise in financial liabilities between 2021-22 and 2022-23 has been loans from non-banking institutions, which grew by almost ten times in just the last year, contributing to 32.1% of the total rise in financial liabilities over this period.
- **Possible Consumption-Financed Debt:** Some evidence suggests that loans might be used for consumption rather than asset creation.
- **Diverse Personal Loans:** Various types of personal loans have surged, including credit card loans and loans against gold jewelry.
- **Rise in Gross Liabilities:** Gross liabilities have increased to 5.8% of GDP in 2022-23, leading to concerns about rising indebtedness.

Conclusion
- The Indian economy faces a complex situation, and policymakers must be vigilant and prepared to address both the optimistic and pessimistic aspects of the data.
- They should consider the potential consequences of rising interest rates and develop strategies to ensure the stability and well-being of households in the face of economic uncertainty.

26. Gender budgeting on the revamp
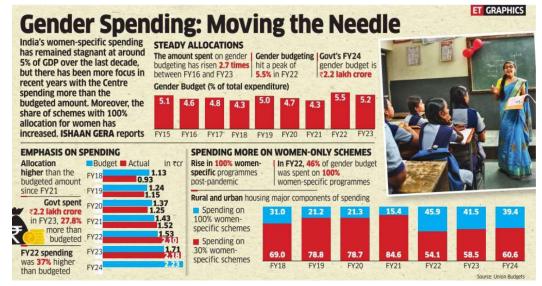
Syllabus: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment. Gender budgeting

Prelims: Gender budgeting

Context: India is considering a major change in the annual budget to better capture spending on gender equality and women's empowerment. This will entail a revamp in the gender budget statement that's part of the annual exercise.

Gender budgeting:
- It is an exercise that
  - Applies a gender lens to government programmes / schemes
  - Tracks the funds allocated
  - Assesses their implementation and impact
  - Will suggest corrective action to address gender disparities
- It is done to ensure that the budgetary policies do not increase the social and economic inequalities.

Source: Economic Times

● MoWCD had set up a committee headed by Dakshita Das and the committee submitted the report.

A panel set up by the women & child development min on Gender Budget Statement has submitted its report in August

It has suggested several changes in reporting gender budget allocations

Proposes year-round monitoring

Calls for linking statement with output-outcome framework

Source: ET

Issues
● Allocation needs to be increased
● Part B schemes get more funds compared to Part A Schemes
● Participation of more departments
● Underutilization of the funds
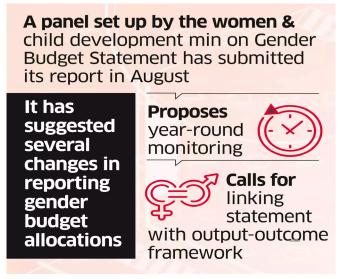
27. Flipping and Reverse Flipping

Syllabus: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment. Gender budgeting

Prelims: Flipping and Reverse Flipping

Context: In recent times, Indian start-ups have witnessed a notable trend called "Reverse Flipping," which is the opposite of the earlier practice of start-ups relocating their holding companies abroad.
● This trend reflects a growing interest in returning home to India due to the country's favorable economic policies, a burgeoning domestic market, and increasing investor confidence in the Indian start-up ecosystem.

Why does flipping happen?
● They do it because major market of their product is offshore
● The companies prefer to domicile because there could be access to easy capital
● Personal preference of the owners/investors
● Taxation preferences
● International exposure/branding/marketing

Issues:
● **Flipping Trends:** Start-ups were initially relocating their holding companies to foreign jurisdictions for various reasons, including access to venture capital, tax benefits, market penetration, and international brand positioning.
● **Tax Implications:** When start-ups decide to reverse flip, they may encounter significant tax consequences, particularly if their valuation has increased since their initial relocation. This process can be perceived as a 'transfer of assets,' potentially leading to capital gains tax in India and foreign jurisdictions.
● **Compliance and Regulatory Challenges:** Structuring a reverse flip is complex, involving share swaps, mergers, and, in some cases, the need for approval from the National Company Law Tribunal (NCLT). Start-ups must also navigate exchange control regulations when repatriating funds or assets to India.
● **Employee Impact:** Employees of start-ups may be affected by the reverse flip, including changes in the employee stock ownership plan (ESOP) structure.

Why are the companies reverse flipping?
● **Maturing Start-up Ecosystem:** The Indian start-up ecosystem has matured significantly, providing opportunities for growth and development within the domestic market.
● **Investor Confidence**: The availability of untapped domestic retail investors who want to invest in emerging companies is drawing start-ups back to India.
● **Government Initiatives:** Recent government measures have made it easier for start-ups to go public, making India an attractive destination for reverse flipping.

Wayforward:
- **Simplifying Taxation:** The Economic Survey of 2022-23 has proposed measures to simplify tax holidays, taxation of ESOPs, and capital flows, reducing layers of tax to facilitate the reverse flipping process.
- **Expert Committees:** The International Financial Services Centres Authority (IFSCA) has established an expert committee to promote onshoring Indian innovation to the Gujarat International Finance Tec-City (GIFT City), making it a preferred location for start-ups to reverse flip.

Conclusion:
- The trend of reverse flipping among Indian start-ups reflects the belief in India's potential as a global start-up hub. While challenges related to tax implications and regulatory compliance exist, the long-term benefits of tapping into the domestic market and the strengthening start-up ecosystem are compelling many start-ups to consider returning to India. This trend aligns with India's vision of becoming a global leader in the start-up landscape.

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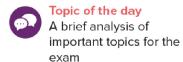
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INTERNATIONAL RELATIONS

1.   Israel 'at war' as Hamas attack leaves 200 dead

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: Israel with war against the Palestinian militant group Hamas.

Context: Israel has declared a state of war against the Palestinian militant group Hamas. Operation Iron Sword. According to Hamas, attacks are driven by Israel's escalated attacks on Palestinians in the West Bank, Jerusalem, and against Palestinians in Israeli prisons.

The History of the Conflict:
- After the defeat of the Ottoman Empire in World War 1, the British got the custody of Palestine (Arab majority, Jewish minority).
- 1920s and 1940s, Jews fled from Europe to Palestine; and later demanded a motherland in the region.
- **1947:** UN voting to divide Palestine into separate Jewish and Arab states (Jerusalem to be under international administration). Not Implemented.
- **1948:** British authorities withdrew; Jewish leaders declared the founding of Israel (USA recognition the same day)
- Multiple wars:
- **1956:** Raid of Suez canal as Egypt nationalized it and didn't allow movement of Israeli Ships
- **1967:** Six-day War.
- **1973:** Yom Kippur war

Why has Hamas attacked now?

Source: New York Times

- **Deepening Occupation:**
  - Palestine-Israel relations have deteriorated, marked by frequent military raids in the occupied West Bank.
  - High casualties on both sides in 2023, escalating tensions.
  - The raid on Jerusalem's Al Aqsa Mosque compound triggered rocket attacks from Gaza and Israeli airstrikes.
  - Lack of a peace process, pervasive violence, and growing anger among Palestinians against Israeli occupiers and the Palestinian Authority.
  - Hamas leveraged public anger against occupation to emerge as the leading pole of the Palestinian cause.
- **Divisions in Israel:**
  - Israel's right-wing government seeks to overhaul power structures to concentrate power in the elected government.
  - Controversial legislative agenda to curtail judicial powers sparked massive protests and military reservists' involvement.
  - Perception of internal weakness in Israel could have emboldened Hamas to launch a major attack.
- **Geopolitical Angle:**
  - The attack coincided with advanced normalisation talks between Israel and Saudi Arabia.
  - Saudi Crown Prince Mohammed bin Salman indicated progress in these talks.
  - A potential Saudi-Israel normalisation deal could shift West Asian geopolitics, disadvantage Hamas.
  - Iran and Hezbollah, Hamas supporters, welcomed the attack, complicating the prospects for Saudi-Israel normalisation.
  - As Gaza faces Israeli retaliation, immediate normalisation between Saudi Arabia and Israel becomes more complex.

Significance:
- Understanding the motives behind Hamas' attack is crucial for assessing the evolving situation in the Middle East.
- The attack underscores the complex interplay of regional dynamics, internal politics, and the Israeli-Palestinian conflict.

Solutions:
- Promoting diplomatic efforts to resume peace talks between Israelis and Palestinians.
- Encouraging international mediation to address the root causes of the conflict.
- Monitoring and addressing regional geopolitical developments that impact the stability of the region.

India's stance
- India stands in solidarity with Israel, in this difficult time.
- Explicitly stating that these are terrorist attacks.
- De-hyphenation: Support the cause of Palestine and the oppressed Palestinians, but we do support a peaceful process to resolve the differences.

Nut Graf: Hamas' surprise attack on Israel was driven by a combination of factors, including the deteriorating Palestinian-Israeli relations, internal divisions in Israel, and the geopolitical context of ongoing normalisation talks between Israel and Saudi Arabia. Understanding these factors is essential for navigating the complex dynamics of the Middle East and working towards a peaceful resolution of the Israeli-Palestinian conflict.

2. Israel tells Palestinians to leave northern Gaza

Syllabus: Effect of policies and politics of developed and developing countries on India's interests

Prelims: Places in news – Gaza

Mains: Israel – Palestinians conflict

Context: Israel has issued an unprecedented evacuation order to one million Palestinians in northern Gaza. This order precedes an expected ground invasion against Hamas, who launched attacks against Israel. The United Nations has expressed concern about the potential calamitous impact of mass exodus.

Present Issues:
- **Humanitarian Crisis in Gaza:**
  ○ Israel has imposed a total siege on Gaza, cutting off essential supplies, food and water, and causing a blackout.
  ○ Civilians and aid workers are fleeing from Israeli airstrikes, leaving them in dire conditions.
- **Hamas' Response:**
  ○ Hamas has dismissed the evacuation order as a ploy, calling on people to stay in their homes.
  ○ They have been responsible for thousands of rocket attacks on Israel.
- **Hostage Situation:**
  ○ Hamas took 150 people hostage during their recent attack on southern Israel.
  ○ Israel has demanded the release of the hostages before allowing any supplies into Gaza.
- **Casualties:**
  ○ The conflict has resulted in over 3,000 deaths on both sides, escalating tensions in the region.

Impact:
- The crisis in Gaza has far-reaching implications for regional stability and the lives of civilians trapped in the conflict.
- The evacuation order, the siege, and the hostage situation have brought the situation to a critical juncture.

Way forward:
- **Immediate Humanitarian Aid:**
  ○ International organizations and countries should work to provide immediate humanitarian assistance to the people of Gaza.
  ○ Efforts should be made to ensure the delivery of essential supplies, including food, water, and medical aid.
- **Negotiation and Ceasefire:**
  ○ Diplomatic efforts should be intensified to broker a ceasefire and facilitate negotiations between Israel and Hamas.
  ○ The release of hostages and the restoration of essential services must be prioritized.
- **International Mediation:**
  ○ The United Nations and other international bodies should play a more active role in mediating the conflict and ensuring compliance with international humanitarian law.
- **Long-term Resolution:**
  ○ A comprehensive, long-term solution to the Israeli-Palestinian conflict is essential to prevent further crises in the region.

Nut Graf: The crisis in Gaza, marked by Israel's evacuation order, the siege, and the hostage situation, has created a dire humanitarian situation. Immediate action is needed to provide aid, negotiate a ceasefire, and seek a lasting resolution to the conflict to prevent further loss of life and suffering. The international community must step in to mitigate the ongoing crisis and work toward a peaceful and sustainable future in the region.

3. What did Hamas achieve from the attack on Israel?

Syllabus: International relations, Effect of policies and politics of developed and developing countries on India's interests and Indian diaspora.

Mains: International relations in the Middle East, Israel-Palestine issue and the involvement of Hamas

Context
The article discusses Hamas's recent attack on Israel in comparison to the Yom Kippur War, examining Hamas's objectives, deterrence, and implications for the Palestinian cause.

Introduction
- The surprise attack launched by Egyptian and Syrian troops on Israeli forces during the Yom Kippur War in 1973 serves as a historical backdrop to understand the recent attack by Hamas on Israel.
- In both cases, Israel was caught off guard despite its earlier military successes against Arab nations.
- This article examines whether Hamas can achieve strategic gains from its attack on Israel and the implications for the Palestinian cause.

Hamas's Objectives
- While Egypt and Syria were national armies in 1973, Hamas is an Islamist militant group.
- The Yom Kippur War involved territorial conflicts, but Hamas's recent attacks targeted Israeli towns, resulting in casualties.
- Hamas's objectives may differ from territorial gains, raising questions about its intentions.

Stalemate in the Peace Process
- Since the Oslo process froze in the mid-1990s, there has been limited progress in the Israeli-Palestinian peace efforts.
- Israel adopted a status quoist approach, maintaining occupation without compromise.
- Gaza faced a blockade, and the West Bank had security checkpoints and settlements.

Collapse of Deterrence
- Hamas's coordinated attack challenged Israel's security model and its perceived invincibility.
- Israel's intelligence and military superiority failed to prevent the attack, leading to a crisis in deterrence.
- Asymmetric conflicts often weaken deterrence, and Hamas exploited this vulnerability.

Palestine Issue in West Asian Politics
- Hamas's attack underscored the continued centrality of the Palestinian issue in West Asian geopolitics.
- Recent geopolitical realignments, such as Israel-UAE reconciliation and Saudi-Iran detente, did not diminish the significance of the Palestine question.
- Hamas aimed to bring the Palestine issue back to the forefront.

Risks and Consequences
- Hamas's attack, resulting in Israeli civilian casualties, may risk its reputation and return to terrorist labelling.
- Israel's response may include a ground offensive and massive airstrikes, leading to more Palestinian casualties.
- The duration of Hamas's resistance in Gaza remains uncertain.

Conclusion
- Hamas's attack challenged Israel's security model, but its strategic objectives remain unclear.
- The Palestinian issue remains central in West Asian politics, despite geopolitical shifts.
- The consequences of this attack, including further violence and casualties, are uncertain, raising concerns about the prospects for peace in the region.

Nut Graf: Drawing parallels between Hamas's attack on Israel and the Yom Kippur War, this article explores Hamas's goals, challenges to Israeli deterrence, and the enduring centrality of the Palestinian issue in West Asian politics.

4.   Toofan Al-Aqsa jolts West Asian geostrategic architecture

Syllabus: Effect of Policies and Politics of Developed and Developing Countries on India's interests, Indian Diaspora.

Prelims: Gaza strip, Hamas, Yom Kippur War, Israel – Palestine Conflict, Abraham Accords

Mains: Escalation of Israel- Palestine conflict, Impact on India

Introduction
- The recent escalation of violence between Israel and Hamas in the Gaza Strip has resulted in a significant number of casualties on both sides.
- At least 600 people have been killed in Israel, including 44 soldiers, while 313 people have reportedly died in Gaza.
- Fighting has continued over 24 hours after an unexpected surprise attack by Hamas militants, supported by thousands of rockets.
- The militants breached Israel's security barrier and attacked the neighboring communities.
- The Gaza Strip is a Palestinian enclave that has been under Israeli blockade since 2007.
- It is home to over two million Palestinians living on a 362sq. km strip of land ruled by Hamas, now at war with Israel for the fifth time in 15 years.

What will be the impact?
- **Historical Similarities:**
  - There are striking similarities between Hamas's recent operation "Toofan Al-Aqsa" ("Al-Aqsa Flood") and the 1973 Yom Kippur War.
  - The Yom Kippur War ended inconclusively, but it led to a significant shift in the region's geopolitical landscape, with Israel agreeing to a "land for peace" formula at the Camp David Accords six years later.
- **Impact on Israel:**
  - Despite fighting on its territory, Israel is not under an existential threat, and the outcome is expected to be in favor of Israel, with possibility of a massive ground incursion into Gaza to exact vengeance and re-impose strategic asymmetry.
  - The conflict will likely lead to a revision of Israel's strategic doctrines including intelligence failure and over reliance on high-tech missile defense and Artificial Intelligence.
- **Impact on Hamas:**
  - The 'shock and awe' tactics of Hamas might create new social media icons, potentially reviving the 'military option' from non-state militias.
- **Geopolitical support:**
  - The control of Palestine is split between the West Bank run by al-Fatah and Gaza administered by Hamas.
  - While the Palestinian Authority under al-Fatah publicly praises "the resistance", they might wish for the downfall of their political rivals, Hamas and Islamic Jihad.
  - The region surrounding Gaza is not supportive of Hamas, except for Qatar and Turkey (which has limited influence due to economic issues and efforts to reconnect with Israel and Gulf monarchies).
  - Egypt, which borders Gaza, has a history of conflict with Hamas and does not support them due to their ties to the Muslim Brotherhood.
  - The Gulf monarchies, except Qatar, strongly disapprove of Hamas.
  - Iran has supported Hamas and also attempted to create a Hezbollah-like proto-state in Gaza to threaten Israel on two fronts.

Way Forward:
- The crisis has led to a surge in violence, with over 200 Palestinians and 30 Israelis dead this year, and is expected to continue escalating given Israel's traditional policies and the current political climate.
- The situation may lead to a delay in the rapprochement between Saudi Arabia and Israel, as Israel may be unwilling to make concessions to the Palestinians sought by Saudi Arabia.
- Other countries that have signed the Abraham Accords will hope that economic interests prevail despite the regional political tensions.
- Iran may seek to expand its footprint due to the ongoing conflict between Israel and Palestine.
- While India is not directly affected by the crisis, it may still experience collateral damage through rising oil prices, impact on its diaspora, and jeopardizing plans for economic corridors in the region.
- However, the crisis may also present opportunities for India to showcase itself as a stable, fast-growing economy attractive to foreign investors, relatively insulated from the Middle Eastern turmoil.

Nut Graf: *The recent escalation of violence between Israel and Hamas in the Gaza Strip has resulted in significant casualties on both sides. Regional dynamics and international alliances add complexity to the crisis, with potential consequences for Saudi Arabia, countries in the Abraham Accords, Iran's influence, and even India's interests in West Asia.*

5. Israel's missile defence shield

Syllabus: Bilateral, regional and global groupings and agreements involving India and/or affecting India's Interests

Prelims: Israel's missile defence shield

Context: Iron Dome The highly effective missile defence system shot down many rockets fired by Hamas on October 7, but some of them landed in populated areas. While Iron Dome has previously boasted high interception rates, there is uncertainty about its performance in the current conflict due to the overwhelming number of rockets fired.

The Iron Dome:
- Israel's Iron Dome is a highly effective missile defense system designed to intercept rockets, mortars, and artillery shells. Developed by Rafael Advanced Defence Systems of Israel, this system plays a crucial role in safeguarding Israeli citizens from aerial threats.
- **Short-Range Defense:** Iron Dome is a short-range missile defense system with an intercept range of 2.5 to 43 miles, designed to protect populated areas from incoming projectiles.
- **Modularity and Mobility:** Israel has strategically deployed at least 10 Iron Dome batteries, which can be moved as threats change, making it adaptable and highly mobile.
- **U.S. Collaboration:** The U.S. has provided substantial financial support to Israel for Iron Dome, with a co-production agreement in place. This collaboration includes the manufacture of Tamir interceptors (known as SkyHunter in the U.S.).
- Iron Dome's targeting system and radar first track the trajectory of incoming projectiles and are designed to fire its Tamir interceptors only at those which are likely to land in populated areas or important areas/targets. In the past, Israel has put Iron Dome's interception rate at as high as 97%.

The Iron Fortress:
- **Layered Air Defense:**
  - **Israel's missile defense network includes four layers:** Iron Dome (short range), David's Sling (low to mid-range), Arrow II (upper-atmospheric), and Arrow III (exo-atmospheric).
  - The U.S. has provided considerable financial support for these defense systems, with the cooperation dating back to 2011.

The Indian Angle:
- Israel has an extensive presence in the Indian military ecosystem, especially in air defence. In the past, Iron Dome was pitched to India to tackle threats from across the Line of Control (LoC), especially by terrorist groups.
- However, it did not fructify as India does not face such extremely close range threats. Instead, the Indian military had expressed interestin the Arrow system. Eventually, India procured some air defence elements and radars to take forward its indigenous Ballistic Missile Defence system.

Nut Graf: *Iron Dome is a critical component of Israel's defense strategy, providing protection against short-range aerial threats. Its adaptability, mobility, and collaboration with the U.S. demonstrate its importance. To ensure its continued effectiveness, further improvements in interception rates and international cooperation are essential. As adversaries evolve their tactics, Israel's missile defense systems will continue to be analyzed and upgraded to maintain the safety of its citizens.*

6. Israel, Hamas, and the laws of war

Syllabus: Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Mains: Israel- Hamas conflict

Context
The article discusses the Israel-Hamas conflict and the application of international humanitarian law (IHL) to the ongoing conflict, addressing issues such as civilian killings, hostage-taking, and blockades.

Introduction
- The ongoing conflict between Israel and Hamas has led to significant civilian casualties and violations of international law.
- This article explores the application of international humanitarian law (IHL) to the conflict, addressing issues related to civilian killings, hostage-taking, blockades, and more.

The Laws of War
- International law governs the use of force in international relations (jus ad bellum) and the conduct of parties in armed conflicts (jus in bello/IHL).
- IHL, contained in the Geneva Conventions and Additional Protocols, aims to protect civilians and minimise suffering during armed conflicts.
- All parties involved in an armed conflict, regardless of their justifications, must adhere to IHL.

Application of IHL to the Conflict
- The Israel-Hamas conflict falls under the category of a non-international armed conflict (NIAC), as it involves non-governmental forces (Hamas) against governmental forces (Israel).
- Parties to a conflict, in this case, Israel and Hamas, are bound by IHL.

Civilian Killings
- IHL mandates a clear distinction between combatants and civilians, prohibiting attacks on civilians and civilian objects.
- Indiscriminate attacks that do not differentiate between combatants and civilians are illegal.
- Both Israel and Hamas are bound to adhere to these principles, making civilian killings illegal.

Hostage-Taking
- Hamas has taken Israelis hostage, which is recognized as a war crime by international law.
- The International Criminal Court's Rome Statute specifically addresses hostage-taking as a crime.

Gaza Strip Blockade
- Israel's plan to block supplies to the Gaza Strip is considered collective punishment, which is illegal under IHL.
- Collective punishment punishes an entire group for the actions of individuals and is not permitted.
- Israel's actions violate fundamental IHL principles.

Warning to Civilians and Investigations
- Warring parties must provide effective advance warnings to civilians before attacking.
- Civilians should be given sufficient time to evacuate, and those who do not evacuate should still be protected.
- Both Israel and Hamas must respect their IHL obligations, and an investigation into war crimes is essential.

Nut Graf: The Israel-Hamas conflict, a non-international armed conflict (NIAC), is subject to international humanitarian law (IHL). IHL mandates a clear distinction between combatants and civilians, prohibits hostage-taking, and condemns collective punishment. Both parties must adhere to IHL principles, and an investigation into war crimes is crucial.

7.   History of Gaza

Syllabus: Effect of policies and politics of developed and developing countries on India's interests

Prelims: Gaza area

Mains: Impact of Israel and Palestine issue on world and India

Context: The state of Israel was declared in Palestine in May 1948, which was followed by five Arab countries attacking the newly created state, leading to the first Arab-Israeli war.
- This resulted in the uprooting of some 7,00,000 Arabs from Palestine, with most of them taking refuge in Gaza and the West Bank.
- Since then, Gaza has witnessed colonisers determining its fate. Israel has captured the enclave and kept it under its control, leading to occasional bouts of violence.

History of Gaza
- The Gaza area was an administrative district of Palestine that remained an Ottoman district of Palestine for more than four centuries.
- In 1917, the British captured Palestine, including Gaza, from the Ottoman Empire and promised to support the creation of "a national home for the Jewish people" in Palestine.
- Jewish migration to British-ruled Palestine had picked up pace during the interwar period, leading to Arab-Jewish violent riots in the 1930s. By the time the Second World War ended, Jews had become a sizable community in Palestine.

Emergence of Palestinian movements and intifadas
- Under Israeli occupation, two different streams of Palestinian movements emerged, i.e., secular nationalism championed by Fatah and the Palestinian Liberation Organisation (PLO) and the Islamist awakening promoted by the Muslim Brotherhood.
- The Gaza Strip played a significant part in the outbreak of the first intifada (uprising) against the occupation.
- The intifada led to the Oslo Accords of 1993, which saw a provisional authority (the Palestinian Authority) being formed with limited powers in parts of the West Bank and Gaza.
- Hamas, which opposed the Oslo Accords, would carry out attacks against the Israelis during this period. Hamas was in the driving seat during the second intifada in 2000.

Gaza's current state
- Israel promoted Jewish settlements in the West Bank and Gaza in the 1970s. In 2005, faced with Hamas's violent resistance, Israel unilaterally decided to pull back troops and settlers from Gaza, giving Palestinians a chance to establish their own rule.
- In the first elections held in the Palestinian territories in 2006, Hamas came to power. However, it would fall apart quickly, particularly after Western countries refused to sanction funds to the Palestinian Authority led by Hamas, which they consider a terrorist outfit.
- A brief Fatah-Hamas civil war would break out, leading to Hamas being the government in Gaza.
- Israel designated Hamas as a terrorist outfit and imposed a blockade on Gaza from 2007 onwards to control what and who goes in and out of the enclave.

Issues:
- Gaza has become one of the most densely populated regions, with an unemployment rate of roughly 47% and electricity scarcity.
- Israel has destroyed Gaza's airport, restrained access for Gazans to the Mediterranean Sea, and built barriers along the border. Gaza is often described as the world's largest open prison.
- The conflict between Israel and Hamas shows a new level of escalation, with Hamas launching an unexpected ground invasion into Israel for the first time since 1948, shattering Israel's security model and bringing the Palestine question back to the forefront of West Asia.

Wayforward:
- The Gaza Strip needs a long-term political solution that ensures the protection of the Palestinian people's human rights and allows the region to develop its economy and infrastructure.
- The world should push for a two-state solution while protecting the human rights of Palestinians in Gaza.

Nut Graf: The Gaza Strip has been tumultuous since the creation of Israel in 1948, with occasional bouts of violence leading to the current situation of daily struggles for Gazans. There is a dire need for a long-term political solution that will bring peace and prosperity to the region.

8. India sends aid to Gaza

Introduction
- India has joined the list of countries providing humanitarian assistance to the civilian population in the Gaza Strip.
- The relief material was delivered to the Egyptian Red Crescent at the El-Arish airbase near the Gaza border.

Nature of Aid
- An Indian Air Force (IAF) C-17 flight carried approximately 6.5 tonnes of medical aid and 32 tonnes of disaster relief material.
- The assistance comprises crucial supplies such as medications to save lives, surgical equipment, sleeping materials, sanitation utilities, tents, water purification tablets, protective tarpaulins and various other essential items.

Appreciation from Palestine Ambassador
- Ambassador of Palestine, Adnan Abu Alhaija, expressed his gratitude for India's assistance.
- He highlighted that the Israeli blockade of the past two weeks had halted the entry of essential items such as oxygen into the Gaza Strip.
- The Palestinian people highly appreciate India's timely and unsolicited assistance.

Transfer of Supplies
- The Indian consignment landed in Egypt, where Ambassador Ajit V. Gupte handed over the supplies to the Egyptian Red Crescent.
- The Egyptian Red Crescent is responsible for forwarding the aid to Palestine through the border crossing between Gaza and Egypt.

Support for Two-State Solution
- India has consistently expressed its support for a two-state solution to resolve the Israel-Palestine conflict.
- The recent aid delivery underscores India's commitment to providing humanitarian assistance and contributing to peaceful resolution efforts.

9.   The Israel Palestine conflict is at bend point

Syllabus: GS-2, Effect of Policies and Politics of Developed and Developing Countries on India's interests, Indian Diaspora.

Prelims: UN Security Council resolutions 242 and 338, Oslo Accords, Camp David Accords, Land For Peace agreement, I2U2

Mains: Israel-Palestine conflict and its impact on global politics

Context
- Ambassador T.S. Tirumurti, while condemning Hamas's actions on October 7, 2023, as a brutal terrorist attack, also believes that the Palestinian fight against Israeli occupation is still justified.

Two-State Solution and Proportional Response
- UN Security Council resolutions 242 and 338 also advocate for "Land For Peace" and a two-state solution.
- As part of the "Land For Peace" agreement, Israel should have withdrawn from occupied land in the West Bank, Gaza, and East Jerusalem in exchange for peace.
- This would provide security, recognition, normalcy, and peace for both the State of Israel and the State of Palestine.
- The revised 2017 charter of Hamas also accepts a two-state solution based on the 1967 borders.
- Ambassador Tirumurti also feels that the one-state solution is not a viable option.
- He argues that while Israel has a right to defend itself against Hamas terrorism, it must consider the proportionality of its responses, particularly given the high number of civilian casualties in Gaza and questions how many Palestinian lives are deemed acceptable collateral damage.

Media representation and dehumanization
- The West and its media have equated Hamas with all 2.2 million Palestinians in Gaza to dehumanize them and justify indiscriminate bombings.
- This also aims to silence opposition to the violence and mask the real issue of Palestinian statehood.

Humanitarian crisis and double standards
- The term "humanitarian" is used to describe aid provided in response to Israel's collective punishment of Gazans through blockades, but the situation is actually a human tragedy involving the killing of innocent lives and mass displacement.
- Arab countries have been criticized for their failure to take concrete actions to address the Palestinian issue, despite their rhetorical support for the Palestinian cause.
- They have been accused of prioritizing their interests over Palestinian rights and seeking to normalize relations with Israel without addressing the issue.
- Additionally, they have been criticized for not using their influence and "oil clout" to pressure Israel into resolving the conflict and instead focusing on the containment of popular support for Palestine within their own borders.

Historical context and cycle of violence
- Successive Israeli governments have been accused of working to make the two-state solution increasingly difficult to achieve.
- The current government has openly declared its opposition to a two-state solution, leading to increased settlement expansion and violence against Palestinians.
- The Israel-Palestine conflict has been marked by cycles of violence and non-implementation of agreements.
- Major violent conflicts have historically led to a renewed focus on the Palestinian issue, followed by empty promises and further violence.
- Previous agreements, such as the Oslo Accords and the Camp David Accords, have failed to deliver on their promises of Palestinian self-rule and statehood. These failures have led to increased frustration and radicalization among the Palestinian population.
- The situation in Gaza has been described as a human disaster, with widespread poverty, unemployment, and despair. The recent ground operations by Israel have resulted in significant civilian casualties and risk further destabilizing the region.

India's Stand
- India has traditionally supported a two-state solution to the Israeli-Palestinian conflict.
- However, India has been cautious about the potential consequences of terrorist attacks in Israel on South Asia.
- India's approach to normalizing relations with Israel is aligned with that of the Arab world, as seen in groupings like I2U2 (India, Israel, the United Arab Emirates, and the United States).
- India has abstained from voting on a UN General Assembly (UNGA) resolution calling for a ceasefire in the Israel-Palestine conflict.
- India's decision was due to the absence of any "explicit condemnation" of the October 7 terror attack by Hamas militants on Israel. It is based on India's principled stand on terrorism.
- India, with its traditional balanced position on the issue and recent G-20 role in bridging global divides, was well-suited to play a prominent diplomatic role.

- India had several options such as
  - Playing a prominent diplomatic role to ensure clearer mention of the October 7 attacks.
  - Voting for the motion while expressing regret for the omission of explicit condemnation of the terror attack.
  - Voting against the resolution along with the US, UK, and Israel.
- By abstaining without making efforts to forge a consensus, India missed an opportunity to make its voice heard in the growing geopolitical conflict and to demonstrate its desire for a seat at the global high table.

Conclusion:
- The international community has to take tangible action to address the root causes of the conflict and bring about lasting solutions, rather than relying on empty promises and short-term fixes.
- While India does not currently have a direct role in the peace process, it is important for the US and Western countries, as well as the Gulf and Arab states, to show leadership first.
- Any regional fallout from the conflict will affect India, making it crucial for the country to speak out not only against terrorism but also against the humanitarian crisis in Gaza.
- India's close ties with both Israel and the US can be an asset in addressing the situation.

Nut Graf: Ambassador T.S. Tirumurti emphasized the need for a two-state solution and proportional responses to violence. The violence has also revealed biased media representation of the Palestinian cause apart from the unfolding humanitarian crisis in Gaza. The international community has to take tangible action to address the root causes of the conflict and bring about lasting solutions, rather than short-term fixes.

10. Balancing policy

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: Balancing policy of India in the Israel and Palestine conflict

Context:
- India faces the challenge of maintaining a balanced and nuanced policy in the midst of the Israel-Palestine conflict.
- Recent events, including Hamas attacks on Israel and Israel's response, have put India's diplomacy to the test.
- India's historical support for the Palestinian cause and growing ties with Israel create a delicate diplomatic tightrope.

Issues:
- **Diverse Interests and Concerns:**
  - India faces a dual challenge of expressing solidarity with Israel in the face of terror while ensuring the safety of its citizens and remaining consistent on its Palestine policy.
  - Balancing its relationship with Israel, economic interests, and counter-terrorism cooperation with the need to condemn indiscriminate bombings and uphold international humanitarian law.
- **Shift in Ties:**
  - India's diplomatic ties with Israel, established in 1992, have strengthened, with close bilateral relations, trade, technology cooperation, and military procurement.
  - This shift towards Israel's position is a departure from its historical support for the Palestinian cause.
- **Moral and Diplomatic Challenges:**
  - India must condemn acts of terrorism, including those by Hamas, while not endorsing excessive military actions or policies that violate international law.
  - Israel's demand for Gaza residents to evacuate raises concerns about the impact on civilians.

Significance:
- India's approach to the Israel-Palestine conflict is significant in the context of its diplomatic relations, international positioning, and the need to balance moral values and strategic interests.

Solution:
- **Steadfast Condemnation of Terrorism:**
  - India should unequivocally condemn acts of terrorism, irrespective of the actor, while supporting international efforts to combat terrorism.
- **Upholding International Humanitarian Law:**
  - India can use its diplomatic influence to encourage Israel to adhere to international humanitarian law, ensuring the protection of civilians in conflict zones.
- **Maintain Consistent Position on Palestine:**
  - India can reaffirm its long-standing support for the Palestinian cause, which remains a key aspect of its foreign policy.
- **Engage in Diplomacy:**
  - India should use its diplomatic channels to engage with both Israel and Palestine, urging peaceful solutions and advocating for dialogue.

- **Support International Mediation:**
  - India can endorse international efforts, including those by the United Nations, to mediate and facilitate a peaceful resolution to the Israel-Palestine conflict.

Nut Graf: *India faces a complex task in balancing its foreign policy regarding the Israel-Palestine conflict. It must condemn terrorism, advocate for international humanitarian law, and maintain its commitment to the Palestinian cause. Engagement in diplomacy and support for international mediation are essential to navigate this delicate diplomatic tightrope. India's stance on this issue reflects its commitment to peace, stability, and the principles of international law.*

11. Operation Ajay

Syllabus: International Relations

Prelims: About Operation Ajay

Introduction
- India has initiated "Operation Ajay" to facilitate the return of its citizens from conflict-hit Israel.
- Special charter flights and other arrangements are being organised for the evacuation, which comes amid escalating tensions and conflicts in the region.
- This marks the second evacuation operation this year, following Operation Kaveri, which brought back Indian citizens from conflict-torn Sudan in April-May.

Details:
- **Crisis in Israel:**
  - The security situation in Israel deteriorated after Hamas' attack, leading to a volatile and dangerous environment for residents and foreign nationals.
  - The ongoing exchange of rockets and missiles between Israel and Hamas has added to the peril.
- **Safety Concerns:**
  - Indian citizens in Israel have faced fear and uncertainty, with the sound of air raid sirens and the threat of conflict haunting their daily lives.
  - The underground shelters constructed by the Israeli government have provided a measure of physical safety.
- **Airlift Operation:**
  - **Operation Ajay is aimed at evacuating willing Indian citizens from Israel and ensuring their safe return to India.**
  - The operation follows the principle of "not leaving any Indian behind," as emphasized by the External Affairs Minister.
- **Significance:**
  - Operation Ajay holds significant importance as it demonstrates the Indian government's commitment to the welfare and safety of its citizens, even in challenging and crisis-stricken situations.
  - It underlines India's responsiveness to its citizens' needs, particularly those residing abroad, during times of distress.

12. 'West Asia conflict will not affect IMEC'

Syllabus: Effect of policies and politics of developed and developing countries on India's interests

Mains: Challenges to IMEC

Context: Finance Minister Nirmala Sitharaman addressed concerns about the impact of the West Asia conflict on the India-Middle East-Europe Economic Corridor (IMEC).
- The conflict between Israel and Palestine has raised fears related to fuel prices, food security, and supply chain disruptions.
- The Finance Minister assured that IMEC plans remain unaffected and discussed the issue at the G20 Finance Ministers and Central Bank Governors (FMCBG) meeting in Marrakech.

The Corridor
- The India-Middle East-Europe Economic Corridor (IMEC) Project was signed at the G20 Summit in New Delhi.
- The project forms part of the Partnership for Global Infrastructure and Investment (PGII). PGII is a values-driven, high-impact, and transparent infrastructure partnership to meet the enormous infrastructure needs of low and middle-income countries.
- The proposed IMEC will consist of railroad, ship-to-rail networks and road transport routes extending across two corridors, that is,
  - The East Corridor – connecting India to the Arabian Gulf
  - The Northern Corridor – connecting the Gulf to Europe
- The IMEC corridor will also include an electricity cable, a hydrogen pipeline and a high-speed data cable.

Objective:
- It aims to create a comprehensive transportation network, comprising rail, road, and sea routes, connecting India, the Middle East, and Europe.
- It aims to enhance transportation efficiency, reduce costs, increase economic unity, generate employment, and lower Greenhouse Gas (GHG) emissions.
- It is expected to transform the integration of Asia, Europe, and the Middle East by facilitating trade and connectivity.

Significance:
- The India-Middle East-Europe Economic Corridor is a significant economic initiative that can have far-reaching implications for regional trade and economic development.
- The global concerns related to fuel and food security have broader implications for the stability of the global economy and the well-being of populations.

Solution:
- **IMEC Resilience:**
  - Efforts should be made to ensure the resilience of IMEC to external factors, including conflicts in the region.
  - Diversification of trade routes and supply sources can enhance the corridor's stability.
- **Global Coordination:**
  - The international community, including G20 nations, should work together to address concerns related to fuel and food security.
  - Collaborative efforts can help stabilize global markets and ensure the availability of essential commodities.
  - **Economic Growth and Investment:**
  - While higher interest rates can impact investment flows in emerging markets, the Finance Minister emphasized the importance of recognizing these economies as growth engines.
  - Investment decisions should not be solely influenced by high-interest rates, as these markets offer substantial growth opportunities.

Nut Graf: The Finance Minister's assurance that the West Asia conflict will not affect IMEC is a positive sign for the continued development of this crucial economic corridor. However, global concerns related to fuel and food security highlight the need for international cooperation to address potential disruptions and ensure the stability of global markets. Recognizing emerging markets as growth engines is essential for sustaining investment flows and economic growth.
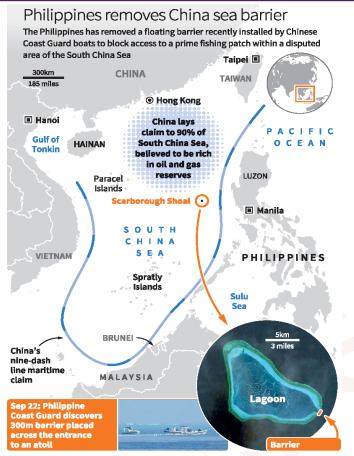
13. Asia's disputed waters

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: Asia's disputed waters

Context: The South China Sea dispute has once again escalated tensions, drawing attention to the strategic significance of these waters and the complex web of territorial claims. September 25, the Philippines Coast Guard said it had removed barriers placed by Chinese vessels at the entrance to a lagoon off the Scarborough Shoal in the South China Sea.

Philippines removes China sea barrier

The Philippines has removed a floating barrier recently installed by Chinese Coast Guard boats to block access to a prime fishing patch within a disputed area of the South China Sea

Source: The hindu

About South China Sea

- **Trade and Economic Significance:** According to data from the UN Conference on Trade and Development, 80% of global trade by volume and 70% by value is transported by seas.
  - Of the total volume, 60% passes through Asia, with the South China Sea "carrying an estimated one-third of global shipping".
  - 64% of Chinese trade passes through the sea, the highest for any country. In contrast, 14% of U.S. trade passes through it.
- **Territorial Claims:** The core of the dispute revolves around competing territorial claims over islands, reefs, and their associated territorial waters. The UN Convention on the Law of the Sea (UNCLOS) allows states to establish territorial seas up to 12 nautical miles and Exclusive Economic Zones (EEZ) up to 200 nautical miles from the territorial sea baseline.
- **Complex Claims and Reclamation Activities:** As many as 70 disputed reefs and islets are under contestation. China, Vietnam, the Philippines, Malaysia, and Taiwan have established outposts on these features. China, in particular, has undertaken extensive reclamation activities, creating new land in the South China Sea, altering the regional dynamics.
- **The Nine-Dash Line:** China's controversial "nine-dash line" on official maps claims nearly the entire South China Sea. The Permanent Court of Arbitration (PCA) ruled in 2016 that this claim was inconsistent with UNCLOS, but China rejected the ruling, emphasizing "historical rights" to the waters and islands.

Diplomatic Efforts and Arbitration:

- **Code of Conduct (CoC):** Diplomatic efforts, including the establishment of a Code of Conduct (CoC), have been ongoing. However, achieving a CoC has proven challenging, given the complexity of the disputes and the inability of ASEAN to present a united front in negotiations with China.
- **Arbitration and PCA Ruling:** In 2013, the Philippines initiated arbitral proceedings against China under UNCLOS, resulting in a 2016 PCA ruling rejecting China's "nine-dash line" and affirming that historic rights were incompatible with UNCLOS. China rejected the arbitration.
- **Enforcement and Ongoing Tensions:** The enforcement of claims in the South China Sea remains a contentious issue, as demonstrated by recent disputes such as the one at Scarborough Shoal. The situation continues to evolve, with regional claimants and external powers closely monitoring developments.

Law of Sea:

- Branch of international law concerned with public order at sea.
- United Nations Convention on the Law of the Sea, signed on December 10, 1982.
- Aims to codify international law governing sea lanes, territorial waters, and ocean resources.
- Entered into force in 1994.

- Each nation's sovereign territorial seas are limited to a distance of 12 nautical miles (22 km) from its coast, but foreign vessels have the right of innocent passage across this area.
- Every coastal nation has the right to create an exclusive economic zone (EEZ) that stretches 200 nautical miles (370 km) from its coastline.
- Where the territorial waters, EEZs, or continental shelves of neighbouring countries overlap, a boundary line must be drawn by agreement to achieve an equitable solution.
- Beyond this are the High Seas.

Nut Graf: The South China Sea dispute remains a complex and potentially destabilizing issue with implications for regional and global security, trade, and economic stability. Present tensions and territorial claims could disrupt the vital flow of trade through these waters. India, along with other Indo-Pacific nations, has a vested interest in promoting peace and stability in this strategically significant region.

14. India-China Partnership

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: India-China Partnership

Context: The world faces ongoing crises, including conflicts in Ukraine and West Asia, accompanied by traditional and non-traditional security threats. These challenges prompt deep questions about how we should respond as a global community, emphasizing the need for meaningful solutions.

An Opportunity for China and India:
- **Common Values:** China and India, with their rich histories and ancient civilizations, share a common vision for the future of humanity. They both cherish principles of fairness, justice, and unity. In the 1950s, they jointly initiated the Five Principles of Peaceful Co-existence, establishing fundamental norms for international relations.
- **India-China:** A Civilization Relationship
  - Ancient Silk & Spice Route – Buddhism and Trade
  - Mahabharata and Arthashastra – contain references to China
  - Nalanda University in Bihar
  - Cholas & Song Dynasty
- **Shared Responsibility:** As the two most populous developing countries and emerging market economies, both nations are at pivotal stages of development. They bear a significant responsibility, capability, and opportunity to guide the world's path forward using their unique Oriental wisdom.
- **Global Community of Shared Future:** President Xi Jinping's vision is to build a global community of a shared future. China's white paper titled "A Global Community of Shared Future: China's Proposals and Actions" outlines the theoretical foundation, practices, and development of this concept.
  - It emphasizes the need to achieve lasting peace, create a secure environment, foster mutual trust for common development, encourage intercultural learning, and protect the environment.

India-China Relations
- **1954:** The Five Principles of Peaceful Coexistence (Panchsheel) was signed.
- **1950s-1990s & Post-2010:** Relations marred by Border Conflict, Tensions & Rivalry.
- **1990s-2010:** Improved Ties & Global South-South Cooperation

Vision Points:
- **Economic Globalization:** The vision includes promoting the correct direction of economic globalization, and building an open world economy that reflects the needs and interests of developing countries. It rejects unilateralism, protectionism, and zero-sum games.
- **Peaceful Development**: Emphasizing that the world requires peace, the vision encourages cooperation, development, and win-win results. It warns against the old path of colonialism and hegemonism.
- **New International Relations:** The vision promotes a new type of international relations that transcends the Thucydides trap, fostering common ground and development for diverse civilizations and countries with different social systems. Mutual respect, equity, and mutually beneficial cooperation are key principles.
- **True Multilateralism:** The vision calls for true multilateralism, rejecting cliques, supremacy, and selective approaches. It advocates fairness, free from dominance, and upholds the international system with the United Nations at its core.
- **Common Values:** The vision promotes common values of peace, development, equity, justice, democracy, and freedom while respecting the diversity of civilizations and the right of nations to choose their social systems and development paths.

China's Contributions:
- **Belt and Road Initiative (BRI):** China has contributed by providing the BRI as a global public good and cooperation platform, addressing global challenges across multiple dimensions.
- **Global Initiatives:** The Global Development Initiative, Global Security Initiative, and Global Civilization Initiative have evolved into cornerstones for building a global community of a shared future, offering comprehensive solutions to humanity's challenges.

China-India Partnership:
- With one-third of the global population, China and India are natural partners in building a global community of a shared future.
- By working together on global development, security, and civilization initiatives, they can demonstrate the shared will and commitment of Global South countries to create an open, inclusive, peaceful, and prosperous world.
- India-China: Avenues for Global Co-operation – UN, BRICS and SCO.
- India & China Co-operated at Multilateral Platforms
  - UNFCCC negotiations: BASIC Group – Kyoto Protocol & CBDR Principle
  - Pushed reforms of World Bank & IMF
  - Provided leadership to G77 & Global South
  - WTO – Developed v/s Developing Countries

Nut Graf: *The vision of a global community of a shared future, with its core principles and values, offers a path forward for addressing the world's current challenges. China and India, with their significant populations and potential, can play a pivotal role in making this vision a reality, contributing to global peace, security, and prosperity.*

15. India-Qatar Ties

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: India-Qatar Ties

Context: The recent imposition of a death sentence by a Qatari court on eight Indian nationals, accused of espionage, has left the Indian government facing a grave diplomatic challenge. This mysterious trial, shrouded in secrecy, necessitates a swift and strategic response to secure the release of the accused individuals.

Concerns:
- **Secrecy and Lack of Transparency:**
  - The trial of the eight Indian nationals in Qatar was conducted in secrecy, with minimal information available about the charges and evidence presented.
  - The Qatari government has not provided any details about the case, even withholding the judgment from the Indian government.
- **Serious Allegations of Espionage:**
  - Leaked reports suggest that the accused were charged with sharing classified information related to their work on a stealth submarine program with a third country, allegations denied by their families.
  - The gravity of the charges and the lack of transparency in the trial raise concerns about the fairness of the legal process.
- **India-Qatar Relations:**
  - Unlike the case of former Naval Commander Kulbhushan Jadhav in Pakistan, India's relations with Qatar have been relatively better, marked by strategic and defense cooperation agreements.
  - India significantly relies on Qatar for 40% of its LNG needs, and the two countries engage in substantial trade, despite the Gulf blockade against Qatar in 2017.
  - India is also Qatar's third biggest source of imports, particularly raw materials for construction and fresh food items.
  - In addition, 7,00,000 Indian expatriates are an integral part of Qatar's institutions, industry and workforce.

Way forward:
- **Diplomatic and Legal Appeals:**
  - India should immediately initiate legal appeals on behalf of the accused within the Qatari legal system.
    - Diplomatic efforts to seek leniency and transparency should continue, including appeals to the highest levels of Qatari leadership.
- **Channeling Existing Agreements:**
  - The "Transfer of Sentenced Persons" agreement between India and Qatar, signed in 2015, should be invoked to facilitate the repatriation of convicted individuals to serve their sentences in India.
- **Behind-the-Scenes Diplomacy:**
  - **Sensitive Approach:** Experts recommend discreet, behind-the-scenes diplomatic consultations at senior levels to avoid public discussions and maintain a sensitive approach. The stakes are high due to the significant number of Indians working in Qatar.

- ○ **Royal Pardon Possibility:** Recognizing the exceptional nature of this case involving Indian espionage in the Gulf region, experts suggest exploring the possibility of a royal pardon, given the high value Qatar's royal family places on its relationship with India.
- **Leveraging Strategic Ties:**
  - ○ **Defense Cooperation Agreement:** The 2008 Defense Cooperation Agreement between India and Qatar, last extended in November 2018, offers a potential avenue for diplomatic negotiations. Its non-renewal indicates an opportunity for high-level discussions.
  - ○ **Military Training and Participation:** India extends training slots in its defense institutions to Qatari military personnel and participates in the Doha International Maritime Defence Exhibition and Conference (DIMDEX) biennially, strengthening strategic ties.

Nut Graf: The death sentence handed down to eight Indian nationals in Qatar represents a significant diplomatic challenge for India. Leveraging diplomatic ties, and existing agreements, and maintaining a discreet, behind-the-scenes approach is essential to secure the release or commutation of their sentences.

16. Pakistan breaks ceasefire

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: India-Pakistan relations

Context:
- An eight-hour skirmish between Indian and Pakistani troops near the zero line in the Arnia sector of Jammu has escalated tensions and raised concerns about the 2021 ceasefire agreement between the two nations.
- The clash involved Pakistan Rangers violating the ceasefire pact, targeting civilian houses and crops, leading to a Border Security Force (BSF) constable sustaining minor injuries.

Issues:
- **Ceasefire Violation:** The skirmish involved the violation of the 2021 ceasefire agreement between India and Pakistan, which was originally established in 2003. This breach raises questions about the stability of the ceasefire and the potential for future hostilities.
- **Civilian Impact:** Pakistani gunfire and mortar shells targeted civilian houses and crops, leading to damage to property and injuries, including a civilian. This endangers the safety and well-being of civilians living near the border.
- **Unrest in the Region:** The skirmish has left the region tense and on high alert. The BSF has been placed on high alert along the international border in Jammu, and residents have been forced to seek shelter in schools and panchayat ghars due to the shelling.

Solutions:
- **Diplomatic Efforts:** Both India and Pakistan should engage in diplomatic efforts to de-escalate tensions and reaffirm their commitment to the ceasefire agreement. International mediation may also be considered.
- **Civilian Protection:** Steps should be taken to ensure the safety of civilians living in border areas. Evacuation plans, shelters, and communication systems should be improved to protect civilians during such incidents.
- **Transparency and Communication:** Both nations should maintain open channels of communication to prevent misunderstandings and to promptly address any violations of the ceasefire.

17. The Maldives, the evolution of a democracy

Syllabus: India and its neighbourhood, Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Mains: India-Maldives bilateral relations

Context
The Maldives held a presidential election, reflecting its thriving democracy, with a focus on economic well-being and shifting political dynamics.

Introduction
- The key issues in the election revolved around voters' concerns for economic well-being, including employment, housing, improvements to the tourism industry, education, and healthcare.
- This election should not be oversimplified as a contest between China and India, as it is primarily about the dynamics of the nation's internal politics.

Historical Context
- The Maldives transitioned from an era of autocracy under Maumoon Abdul Gayoom to a multiparty democracy with a new constitution.
- This transition saw various presidents, including Mohamed Nasheed, Mohamed Waheed Hassan, Abdulla Yameen, and Ibrahim Mohamed Solih, each with their distinct policies and alliances.

Factors Leading to Ibrahim Mohamed Solih's Defeat
- Incumbents have not been re-elected in the Maldives, as people feel empowered to bring in and oust rulers through the democratic process.
- The ruling Maldivian Democratic Party (MDP) split, and Mohamed Nasheed, a prominent figure exited, contributing to the defeat.
- The opposition alliance launched a disinformation campaign, creating challenges for the MDP.

Foreign Policy Choices Ahead
- **The new administration will have choices regarding its foreign policy:**
  - Revert to the 'India Out' campaign under former President Yameen.
  - Continue the 'India First' policy of the outgoing President.
  - Innovate a calibrated policy to balance relations with key partners, including China and India.

Challenges and Opportunities for India
- India-Maldives relations remain positive, with extensive development projects, training programs for Maldivian youth, tourism, imports, investment, and prompt responses to emergencies.
- India can further strengthen regional diplomacy by enhancing maritime security cooperation and Blue Economy development in the Colombo Security Conclave.
- The Maldives should be considered as an observer in The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) to foster regional collaboration.
- India's strategic community and media organisations can play a vital role in building mutual understanding and trust with the Maldives.

Nut Graf: The Maldives' recent presidential election signifies the success of democracy in this small island nation. The key issues revolved around economic concerns and reflected a complex internal political landscape.

18. Building BRICS for the future

Syllabus: Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests.

Prelims: BRICS, G7, G20, NATO

Mains: Relevance of BRICS with increasing US-China rivalry

Context
- In August, six new members were inducted into the BRICS grouping during a meeting held in South Africa.
- Critics believe that the meeting did not produce any substantive results.
- However, it's important to evaluate BRICS based on its evolution and impact over time rather than judging it solely on the outcomes of a single meeting.

Importance:

Economic
- The emergence of BRICS (Brazil, Russia, India, China, and South Africa) is driven by economic motivations rather than military or security interests.
- Unlike organizations like NATO, BRICS does not provide military support, police nations, or offer peacekeeping services.
- Despite this, BRICS's combined GDP is 36% of the global total, and its member populations will make up 47% of the world's population by 2050, presenting significant long-term opportunities.
- Expansion of BRICS membership could challenge the dominance of the G7 (Canada, France, Germany, Italy, Japan, the UK, and the US).

India-China Cooperation
- China and India possess one-third of the world's population and are projected to be among the top three economies by 2030.
- Bilateral ties between China and India have transformed following the creation of economic blocs like the EU and ASEAN, leading to increased trade and investment despite political and diplomatic challenges.
- Economic cooperation between China and India continues to grow significantly, even after events like the Doklam stand-off in 2017.
- Additionally, the US dollar has been the dominant global currency, but digital currencies are becoming more important.

- India and China are making significant progress in digital currencies and pushing for more trade and investment in their own currencies.
- Freedom from the US dollar is a driving factor behind India and China's convergence despite short-term challenges.

Strategic Autonomy
- Polarization between the US and other parts of the world has increased.
- Countries are looking for alternatives to the US-dominated global economic system
- For example, the US stance against China (imposing tariffs and restrictions on trade and investment) has affected countries which are dependent on China.
- These countries want to join groupings that include China, such as BRICS, to counterbalance US influence
- The Non-Aligned Movement (NAM) is thus gaining attention as a potential new order and BRICS (Brazil, Russia, India, China, and South Africa) is emerging as a voice of the global south.

Importance of Africa's addition
- Africa is seen as the continent that promises economic growth in the 21st century.
- France's intervention in Niger and the treatment of migrants in Europe has given Africans a negative view of Europe.
- There has been no progress on connectivity to Europe due to geopolitical issues and other concerns.
- Visa restrictions have led Africans to travel to China instead of Europe or the US, making them believe in China's potential.
- African nations want the freedom to choose their investment and trading partners and want to step away from unsustainable and dangerous capital from the West.
- Considering this, India has offered complete membership to the African Union at the G20 conference in New Delhi as it tries to expand its influence within Africa.

Conclusion
- Although the news about BRICS losing relevance exists after each summit, these events create opportunities for new areas of cooperation in the future.
- As Goldman Sachs predicted, if everything goes well, the combined economy of the member states could surpass the G6 in US dollars in under 40 years and can emerge as a voice of the global south.

Nut Graf: *BRICS is a significant economic bloc with a growing population. By expanding its membership, it has the potential to emerge as a strong voice of the developing world despite the challenges.*

19. UN Security Council reform is a song in a loop

Syllabus: Important International institutions, agencies and fora, Structure and Mandate

Mains: UN Security Council reforms

Context: The longstanding debate over reforming the United Nations Security Council has resurfaced, with world leaders and the UN Secretary-General expressing concerns about its outdated structure.

Issues in the UN Security Council:
- **Outdated Composition:** The Security Council's composition reflects the geopolitical realities of 1945, with only 15 members out of 193 UN member-states, and just five permanent members (P5) enjoying veto power.
- **Lack of Equity:** The current setup gives undue weight to the balance of power of those days, particularly favouring European nations, which control a disproportionate number of seats.
- **Injustice in Representation:** Some financially significant contributors like Japan and Germany remain underrepresented while emerging powers like India are denied a permanent seat despite their global influence.
  - When the UN was founded in 1945, the Security Council had 11 members; out of a total membership of 51 nations – meaning a 22% representation.
  - Change was made to the original charter in 1965 – addition of 4 more non-permanent members, taking the total from 11 to 15.
  - At present, out of 193 members, the council has 15 members; meaning 8% representation.
- **Opposition to Reform:** Several medium-sized and large countries, often rivals of potential beneficiaries, resist reforms due to competition, historical grievances, or envy.
- **High Bar for Charter Amendment:** Amending the UN Charter requires a two-thirds majority in the General Assembly, plus ratification by two-thirds of member states, creating a high threshold for any change.

Need for reforms:
- The UN represents the realities of 1945.
- The UN Charter still terms countries like Japan and Germany as 'enemy states'.
- Does not take into account financial contributions by the members.
- Does not represent the population.
- Ignores the role of countries like India.
- Leads to the council becoming ineffective.

Significance of reforms:
- Reforming the Security Council is crucial for the UN to adapt to the 21st century's geopolitical landscape.
- It would ensure more equitable representation, recognize emerging powers, and address historical injustices.
- The current gridlock and misuse of veto power jeopardize the Security Council's ability to effectively address global issues and conflicts.

Way forward:
- **Broad Consensus:** Reform proposals should seek a broad consensus among member states and avoid alienating any of the P5, who hold veto power.
- **Semi-Permanent Members:** Consider the introduction of a second category of "semi-permanent members" with limited, but renewable, terms to accommodate aspirant nations.
- **Regional Representation:** Ensure representation of key regions like Asia, Africa, and Latin America, which have multiple contenders for permanent seats.
- **Avenues for Dialogue:** Establish platforms for constructive dialogue and negotiation among member states to find common ground on reform.

Issues in undertaking reforms:
- Pushback from the permanent members.
- Reluctance on the side of the other member nations.
- The methodology for expansion: Process for amendment of the charter
  - Amendments require a 2/3rd majority, (129 out of 193 states).
  - Ratification by 2/3rd of the member states.

Reform advocates: the G4
- The G4 (Brazil, Germany, India and Japan) was created in 2004 and has been promoting Security Council reform.
- The G4 calls for the enlargement of both permanent and non-permanent categories as well as supporting each other's bids for permanent seats on the Council.
- It proposes expanding UNSC membership from 15 to 25 by adding six permanent members and four non-permanent members, with the objective of the G4 obtaining permanent membership.
- The G-4 agreed to forgo their right to the veto for at least 15 years.

Coffee Club/Uniting for Consensus:
- An informal "coffee club", comprising 40-odd member states, has been instrumental in holding back reforms to the United Nations Security Council.
- Most members of the club are middle-sized states who oppose bigger regional powers grabbing permanent seats in the UN Security Council.
- The prime movers of the club include Italy, Spain, Australia, Canada, South Korea, Argentina and Pakistan.
- While Italy and Spain are opposed to Germany's bid for the Security Council's permanent membership, Pakistan is opposed to India's bid.

Nut Graf: The issue of UN Security Council reform is indeed a recurring theme, but it remains vital for the UN's effectiveness and relevance. As the world's premier global organization, it must adapt to the evolving international landscape by addressing historical injustices and ensuring more equitable representation. Achieving meaningful reform requires diplomacy, compromise, and a genuine commitment to building a stronger, more inclusive United Nations.

20. Nagorno – Karabakh standoff

Syllabus: International Relations

Prelims: Nagorno – Karabakh

Introduction
- Nagorno-Karabakh is internationally recognized as part of Azerbaijan but is home to a majority of ethnic Armenians.
- Azerbaijan claimed full control over Nagorno-Karabakh in September 2023, causing hundreds of local Armenians to flee due to fear of ethnic cleansing.

Recent Escalation
- A fresh round of violence erupted in September when Azerbaijan launched an attack against ethnic Armenian forces in Nagorno-Karabakh.
- The fighting lasted a day, followed by a ceasefire, with the U.S. expressing deep concern for the ethnic Armenian population.

Historical Context

- The conflict traces back a century when Ottoman forces, aided by Azeris, targeted ethnic Armenians during World War I.
- A full-blown war erupted in 1920, leading to Nagorno-Karabakh becoming part of the Azerbaijan Democratic Republic under Soviet rule.
- The Soviet Union's dissolution in 1991 saw the region declare independence, sparking a war that lasted until 1994, killing around 30,000.

Ceasefire and Unresolved Borders

- A ceasefire brokered by Russia in 1994 ended the war but left international borders undefined.
- A brief war in 2016 offered no resolution.

2020 Conflict

- In 2020, Azerbaijan's President Ilham Aliyev launched an offensive to retake Nagorno-Karabakh, leading to a six-week war with Armenia.
- Over 2,000 people died, and Azerbaijan, backed by Turkey, regained 40% of the region.
- Russia helped broker a ceasefire but did little to support Armenia.

Azerbaijan's Persistence

- Despite the ceasefire, Azerbaijan continued efforts to capture Nagorno-Karabakh, blockading the Lachin Corridor in December 2022, further impacting the region's economy.

Turkish Involvement and Russian Absence

- Turkey, a political and military supporter of Azerbaijan, played a significant role in the recent developments.
- Russia's absence in the Caucasus can be attributed to its involvement in Ukraine, leading Armenia to vote to join the International Criminal Court (ICC).

Humanitarian Crisis

- Over 100,000 ethnic Armenians from Nagorno-Karabakh fled to Armenia in the wake of recent events, creating a massive humanitarian crisis.

21. Frosty ties

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: Diplomatic tensions between India and Canada have more grassroots-level impacts

Context: India and Canada have witnessed a deterioration in their diplomatic relations, leading to a reduction in visa services and the withdrawal of Canadian diplomats. These tensions have escalated due to allegations made by the Canadian government regarding the involvement of Indian officials in a controversial case, despite India's demand for equalizing diplomatic missions and efforts for reconciliation.

Diplomatic Standoff:

- India sought to balance the number of diplomats in each other's missions, but tensions flared following allegations by the Canadian government that India was involved in the killing of a Canadian national and Khalistani activist, Hardeep Singh Nijjar.
- Despite initial hopes of resolving the situation through quiet diplomacy, the standoff persisted as Canada insisted that India cooperate in its investigations without providing further proof.

Reciprocal Actions:

- In response to the tit-for-tat expulsions of diplomats by both countries' security agencies, the Indian government suspended visas for all Canadians and demanded a reduction in the number of Canadian diplomats.
- India issued an ultimatum, requiring Canada to reduce two-thirds of its diplomats by October 31, threatening to unilaterally withdraw diplomatic immunity.

Legal Disputes:

- Canada contended that India's demand was a violation of international law, including the Vienna Convention, which grants diplomatic immunity.
- India justified its stance under Article 11.1 of the Vienna Convention, which permits a host country to set limits on the size of a foreign mission.

Impact on Visa Services:

- As a result of the diplomatic standoff, Canada announced the discontinuation of "in-person" visa services at its consulate due to staffing shortages.
- The Canadian Immigration Minister asserted that India's actions would not deter Canada's prosecution in the Hardeep Singh Nijjar case.

Diplomatic Efforts Ineffective:
- Previous diplomatic meetings, including those between Prime Minister Modi and Prime Minister Trudeau, discussions involving the National Security Advisers, and interactions between External Affairs Minister S. Jaishankar and Canadian Foreign Minister Mélanie Joly, have failed to alleviate the situation.
- Mediation attempts by Canada's "Five Eyes" allies, while supportive of Canada's claims, have not yielded positive results.

Issues:
- The allegations and counter-allegations have resulted in a stalemate, with diplomatic efforts thus far proving ineffective.
- The reduction in visa services affects students, tourists, and businesspersons, potentially straining people-to-people and economic ties.

Way Forward:
- Diplomatic channels should remain open to seek resolution through dialogue and negotiation.
- Mediation efforts, including those by **"Five Eyes" allies,** can continue to promote peaceful resolution.
- Both countries should prioritize their long-standing friendly relations and explore opportunities for mutual cooperation.

Nut Graf: The ongoing diplomatic standoff between India and Canada has implications for people-to-people interactions and business ties. It underscores the need for diplomatic solutions and reconciliation to maintain positive bilateral relations.

22. Canada's actions are in violation of Vienna Convention, says Jaishankar

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: Diplomatic tensions between India and Canada

Introduction
- Canada's recent withdrawal of 41 diplomats from India and the suspension of walk-in services at Canadian consulates in India have raised diplomatic tensions.
- External Affairs Minister S. Jaishankar expressed concerns about the safety and security of Indian diplomats in Canada, asserting that it challenges the "most fundamental aspect" of the Vienna Convention on Diplomatic Relations.

Background
- Canada accused India of violating the Vienna Convention after the withdrawal of its diplomats.
- Indian missions in Canada had suspended visa issuance in September, citing security concerns for diplomats.

Key Points
- S. Jaishankar emphasised that ensuring the safety and security of diplomats is a fundamental aspect of the Vienna Convention.
- He expressed hope that the situation would improve, enabling the resumption of visa services for Canadians in India.
- India is reportedly reviewing the security situation that led to the suspension of visa services.

International Responses
- The United Kingdom and the United States supported Canada's position, expressing concerns that the move by India impacted the principles of the Vienna Convention.
- The U.S. State Department emphasised the importance of resolving differences between the countries through diplomats on the ground in India.

23. An India-Canada bonding that is in danger of snapping

Syllabus: Effect of Policies and Politics of Developed and Developing Countries on India's interests, Indian Diaspora.

Prelims: India – Canada Relations, Komagata Maru incident, Global Compact for Safe, Orderly and Regular Migration, Sustainable Development Goals

Mains: Diplomatic tension between India and Canada

Context:
- The existing diplomatic relations between Canada and India are currently strained because of the Khalistan movement-related tensions.

Dimensions of India-Canada Relations

- **Historical Context**
  - In 1914, the ship SS Komagata Maru arrived in Vancouver with 376 Indian passengers, including Sikhs, Hindus, Muslims, and Christians, seeking a new life in Canada. However, they were denied entry due to colonial British laws in Canada.
  - A century later, the Canadian government issued a formal apology for the Komagata Maru incident, recognizing it as a stain on Canada's past and emphasizing the importance of diversity as a source of strength for the country.
  - On May 1, 2014, Canada Post released a stamp commemorating the 100th anniversary of the arrival of SS Komagata Maru.
- **Diaspora**
  - According to the Census of Canada 2021, there are over 1.86 million people of Indian origin living in Canada, making up 5% of the country's population and 5.8% of the global Indian diaspora.
  - The diplomatic tension has affected all three groups of individuals:
    - **Naturalized Canadian citizens of Indian origin** (holding OCI, lifetime Indian visa or semi-dual citizenship)
    - **Permanent residents** of Canada (investors, industrialists, business people, skilled professionals, and service workers)
    - **Temporary visitors** (international students, trainees, exchange scholars, tourists, and their families)
  - It has resulted in cutbacks in consular and visa services.
  - There is practically a travel ban with visa issuance withheld and/or restricted on both sides.
- **Global Compact for Safe, Orderly and Regular Migration**
  - Canada and India are members of the Commonwealth and have signed the Global Compact for Safe, Orderly and Regular Migration agreement.
  - The agreement has 23 objectives, including creating conditions for migrants and diasporas to fully contribute to sustainable development in all countries.
  - Remittances and investments, transfer of knowledge, and return migration for development engagement are some of the ways in which migrants and diaspora can contribute to the development of both countries.
- **Trade**
  - In 2022, India was Canada's 10th largest bilateral trading partner, with exports exceeding $13.7 billion.
  - Canada was India's ninth largest partner, with exports up to $5.3 billion.
- **Tourism**
  - Visitors from India comprised Canada's fourth-largest international air travel market.
  - In 2021, Canadians visiting India spent $93 million, while tourists from India spent $3.4 billion in Canada.
  - In 2022, Canada and India agreed to remove restrictions on the number of bilateral flights, which was previously limited to 35 per week.
- **Impact of the Khalistan Movement**
  - 7,70,000 people of the Indian diaspora in Canada are from the Sikh religion.
  - Sikhs of Indian origin form a significant part of the Canadian Indian diaspora and have been living in harmony with other religions, mainly Indian Hindus, for over a century.
  - Although the Khalistan movement has caused some tension between the Indian diaspora and Canadian society, their strong bonds have endured.

Way Forward

- The strong bond between India and Canada is being tested due to current diplomatic tensions.
- The Global Compact for Safe, Orderly and Regular Migration's goal is to protect migrants and ensure they have a clear understanding of their rights and status in their host countries. The diplomatic tensions have put this goal under strain.
- If the issue isn't addressed promptly, it could damage the relationship between the two countries and negatively impact the Global Compact and Sustainable Development Goals (SDGs).
- To resolve the situation, both sides must demonstrate commitment to restoring trust and loyalty, ensuring the well-being of their citizens and migrants.

Nut Graf: *India and Canada share a strong historical bond, but diplomatic relations are currently strained due to Khalistan movement-related tensions. This has affected the diaspora, trade, tourism and migration. Both sides must show commitment to restoring trust and loyalty to ensure the well-being of their citizens and migrants.*

24. The legality of using White Phosphorus

Syllabus: Bilateral, Regional and Global Groupings and Agreements

Mains: Human rights violations & threats to civilian life during war and conventions related to this

Prelims: Convention on Certain Conventional Weapons (CCW) & Chemical Weapons Convention (CWC)

Introduction:
- Human Rights Watch recently accused the Israel Defense Forces (IDF) of using white phosphorus munitions in Gaza, raising concerns about the impact on civilians.
- In the 2008-2009 Gaza War, there were allegations of IDF using sub-munitions containing white phosphorus. Initially, the Israeli government denied this but later acknowledged its use in 2009, claiming it was in uninhabitable areas for signalling and marking.

Incendiary Weapon:
- White phosphorus is considered an incendiary weapon, primarily designed to set fire to objects or cause burn injuries through the action of flame, heat, or a chemical reaction of a substance delivered on the target.
- White phosphorus munitions are intended for illuminating and creating smoke screens, with incendiary effects being secondary or unintentional.

Convention on Certain Conventional Weapons (CCW):
- The Convention on Certain Conventional Weapons (CCW) imposes restrictions on the use of incendiary weapons, including white phosphorus, with the aim of safeguarding civilians.
- Protocol III under the CCW specifically addresses incendiary weapons and their regulation.

Chemical Weapons Convention (CWC):
- The Chemical Weapons Convention (CWC) comprehensively bans the use of chemical weapons, but white phosphorus, when used as an incendiary weapon and not for chemical warfare, is not covered by the CWC.

Way Forward:
- The need has been felt to strengthen Protocol III of the CCW to create clearer rules regarding the use of white phosphorus and similar multi-purpose munitions.
- This would establish a binding agreement for states to prevent the exploitation of legal loopholes and facilitate enforcement.
- The legal consequences of using white phosphorus in warfare underscore the importance of upholding international law, treaties, and protocols to reduce harm to civilians and the environment.
- Violations of these legal principles can lead to global condemnation, investigations, and potential prosecution for war crimes, emphasizing the need for clarity in regulations.

Nut Graf: The use of white phosphorus munitions, said to be deployed by the Israel Defense Forces, poses complex legal and ethical questions. This raises the question of the legality of white phosphorus in armed conflicts, examining international agreements, the incendiary weapon classification, and calls to strengthen regulations to protect civilians and the environment.

25. Eight former Indian Navy officers get death penalty in Qatar

Syllabus: India and its neighbourhood – International relations; Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Mains: India- Qatar relations

Context
Eight former Indian Navy personnel, working in Doha, Qatar, were sentenced to death for alleged espionage. This has prompted concern over its impact on the India-Qatar relationship.

Introduction
- In an alleged espionage case, a Qatari court has handed down death sentences to eight former Indian Navy personnel.
- The Indian government has expressed its astonishment at the ruling and is actively investigating legal avenues.
- This case has the potential to impact the India-Qatar relationship, characterised by a significant Indian migrant population and strong economic ties.

Espionage Allegations
- The eight men, including Captain Navtej Singh Gill, Captain Saurabh Vashisht, and Commander Purnendu Tiwari, were employed by a company in Doha.
- They were accused of breaching sensitive secrets while providing security-related services to the State of Qatar.

High-Stakes Relationship
- The verdict's potential consequences on the India-Qatar relationship are a matter of concern.
- India and Qatar have maintained a steady relationship, marked by significant Indian migrant contributions and close economic ties.

Economic Ties
- Qatar holds the position of being India's primary LNG supplier, contributing to more than 48% of India's total global LNG imports.
- India also imports various other products from Qatar, including ethylene, propylene, ammonia, urea, and polyethylene.

Previous High-Level Engagements
- Both countries have witnessed high-level engagements, including Indian Prime Minister Narendra Modi's visit to Doha in 2016 and meetings with the Emir of Qatar on the sidelines of the UN General Assembly in New York in 2019.
- External Affairs Minister S. Jaishankar visited Qatar in February 2022.

Nut Graf: A Qatari court's death penalty for eight ex-Indian Navy personnel accused of espionage in Doha has stirred diplomatic tensions, potentially affecting the robust India-Qatar relationship, marked by a significant Indian expatriate community and substantial economic ties.

26. India-EU Naval Exercise

Syllabus: India and its neighbourhood – International relations; Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Prelims: India-EU Naval Exercise

Introduction
- India and the European Union (EU) have made history by conducting their first-ever joint naval exercise in the Gulf of Guinea.
- The exercise marked a significant moment of collaboration and cooperation between these maritime forces.

Joint Naval Exercise Highlights
- At the heart of the exercise, the offshore patrol vessel INS Sumedha from the Indian Navy played a pivotal role.
- Participating in the undertaking were naval ships from three member states of the European Union: ITS Foscari representing Italy, FS Ventose from France, and Tornado hailing from Spain.

The Gulf of Guinea
- The Gulf of Guinea, located along the western coast of Africa, is recognized for its strategic importance and diverse maritime activities.
- It is a region that has seen increased efforts to enhance maritime security, making it an ideal location for collaborative naval exercises.

Strengthening Naval Cooperation
- The joint naval exercise underscored the commitment of both India and the European Union to strengthen naval cooperation and mutual understanding.
- Such exercises facilitate the sharing of knowledge, best practices, and operational capabilities, contributing to enhanced maritime security in the Gulf of Guinea.

Naval Assets and Capabilities
- The participation of INS Sumedha and EU naval vessels exemplifies the diverse and capable naval assets possessed by both India and the EU.
- These assets play a pivotal role in safeguarding international waters and promoting maritime security.

International Maritime Engagement
- The joint exercise in the Gulf of Guinea highlights the global reach and engagement of India and the European Union in maritime affairs.
- It showcases their commitment to upholding international maritime laws and ensuring the safety and security of the seas.

27. Comprehensive Nuclear Test Ban Treaty

Syllabus: Bilateral, regional and global groupings and agreements involving India and/or affecting India's Interests

Prelims: Comprehensive Nuclear Test Ban Treaty

Mains: Significance of Comprehensive Nuclear Test Ban Treaty

Context: The revocation of Russia's ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT) has raised concerns about the potential for renewed nuclear arms race and its implications for global nuclear non-proliferation efforts.
● This move by Russia comes at a time of heightened tension between Moscow and Washington, making it a significant development in the realm of nuclear disarmament.

CTBT Background:
● It is a multilateral treaty to ban nuclear weapons test explosions and any other nuclear explosions, for both civilian and military purposes, in all environments.
● It was adopted by the United Nations General Assembly in 1996, but has not entered into force, as eight specific nations have not ratified the treaty.
● The CTBT aims to ban all nuclear explosions, whether for military or peaceful purposes. While it has been signed by 187 countries, only 178 have ratified it.
● To come into legal force, it requires ratification by all 44 Annex 2 countries, including those with nuclear capabilities like the U.S. and Russia.
● China, Egypt, Iran, Israel and the United States have signed but not ratified the Treaty.
● Notably, North Korea, India, and Pakistan have not signed the CTBT.

Historical Context:
● The history of nuclear testing and arms race, starting with the first nuclear test in 1945 and the subsequent Limited Test Ban Treaty of 1963, led to the Nuclear Non-Proliferation Treaty (NPT) of 1968.
● The Limited Test Ban Treaty of 1963 (also called the Partial Test Ban Treaty) was the first international step in that directionand prohibited nuclear testing in the atmosphere, underwater, and in outer space.
● The treaty was signed by the U.S., the erstwhile Soviet Union,and the U.K.
● It, however, did not extend to underground testing.
● Subsequently, the Nuclear Non-proliferation Treaty (NPT) of 1968 followed as concerns about nuclear stockpiling continued, fueled by the Cold War between the U.S. and the U.S.S.R.
● The CTBT emerged in 1996, driven by international efforts to curb nuclear testing and arms proliferation.

Verification Regime:
● The CTBT establishes a comprehensive verification regime to monitor and detect nuclear test explosions.
● This regime involves the International Monitoring System (IMS), the International Data Centre, and On-Site Inspections.
● The IMS includes seismic, hydroacoustic, infrasound, and radionuclide detection to monitor nuclear tests worldwide.

CTBT has helped check testing & proliferation:
● Although the CTBT is stuck in an ongoing ratification impasse, it has had positive implications for global nuclear nonproliferation.
● Ever since the treaty was opened for signatures in 1996, ten nuclear tests have been conducted — two each by India and Pakistan, and six by North Korea.
● This is drastically less than the more than 2,000 nuclear tests conducted globally between 1945 and 1996.

Implications of Revocation:
● Russia's decision to revoke its ratification has the potential to set a dangerous precedent.
● Other nations might consider following suit, leading to renewed nuclear arms competition.
● The timing of this move, amid the Ukraine conflict, has raised concerns about the potential nuclear dimension of the crisis.

Solution:
● **Diplomacy and Dialogue:** Engaging in diplomatic efforts and open dialogue between nations is crucial to addressing concerns related to the CTBT and nuclear disarmament. Negotiating a path forward and rebuilding trust is essential.
● **Pressure for Ratification:** International pressure on countries that have not ratified the CTBT, particularly those with significant nuclear capabilities, can promote its universal acceptance and enforcement.
● **Strengthening Verification:** Efforts to strengthen and improve the verification regime of the CTBT can enhance its effectiveness in deterring nuclear testing.
● **Conflict Resolution:** Addressing the root causes of regional conflicts, such as the situation in Ukraine, is essential for preventing the potential escalation to a nuclear dimension.

Nut Graf: The revocation of Russia's ratification of the CTBT is a significant development in the realm of nuclear non-proliferation, with implications for global security.

28. The BRI at 10, some hits, many misses

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: Significance and concerns about Belt and Road Initiative (BRI)

Context: The Belt and Road Initiative (BRI) has been a significant global undertaking by China, aimed at fostering economic connectivity and development. As the initiative completes a decade, it is crucial to assess its impact, achievements, and challenges. The recent Third Belt and Road Forum for International Cooperation in Beijing brought the initiative into focus, shedding light on its evolution and repercussions.

Issues:
- **BRI's Intent and Early Debates:** BRI was conceived as a means for China to transition from a regional power to a global one and to reboot globalization. It sought to address concerns about the vulnerability of China's economy due to the Strait of Malacca.
- **Global Influence and Branding:** BRI served as a platform for President Xi Jinping to project China's global power and influence. It entered the Chinese Communist Party's constitution and gained prominence in the nation's plans and international cooperation pacts.
- **Massive Infrastructure Gap:** The World Bank has identified significant global infrastructure deficits in areas like electricity, potable water, and broadband coverage. BRI aimed to bridge these gaps with substantial investments in infrastructure projects.
- **Unsavoury Realities:** Despite the lofty goals, BRI has faced criticism and challenges. Ecological damage, displacement of people, disputes over payments, and labour issues have marred its progress. Examples from Indonesia, Laos, and the China-Pakistan Economic Corridor (CPEC) illustrate these concerns.
- **Perceptions of Inequality:** BRI's "win-win cooperation" slogan has been tarnished by perceptions that it primarily benefits China at the expense of other stakeholders, as seen in cases like Gwadar Port's revenue distribution.

Significance:
- **Global Infrastructure Investment:** BRI's significance lies in its substantial investments in infrastructure, addressing critical global infrastructure deficits.
- **China's Global Power Projection:** BRI has allowed China to assert itself as a global power, with economic and political influence across nations.
- **Alternative Initiatives:** The challenges posed by BRI have spurred the development of alternative initiatives, such as the United States-Japan infrastructure investment, the Build Back Better World (B3W) initiative, and the India-Middle East-Europe Corridor (IMEC).

Solutions:
- **Addressing Environmental and Social Concerns:** China should address ecological and social issues associated with BRI projects to improve its reputation and ensure genuine cooperation.
- **Transparency and Equity:** Promote transparency and equitable agreements in BRI projects to counter perceptions of inequality.
- **Global Alternatives:** Encourage global alternatives to BRI, like the B3W initiative and IMEC, that prioritize sustainable development and equitable cooperation.

Nut Graf: As the Belt and Road Initiative reaches its ten-year mark, it is essential to recognize both its successes and challenges. While it has contributed to global infrastructure development and elevated China's global influence, it has also faced criticism for issues related to environmental and social impacts, perceived inequality, and opaque agreements. The emergence of alternative initiatives underscores the need for cooperation that benefits all stakeholders.

29. 3rd BRI Summit

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Prelims: BRI Summit

Context: The Third Belt and Road Forum for International Cooperation was convened in Beijing on October 17th & 18th

Status of BRI
- According to China's first-ever white paper on BRI, released just prior to this week's Belt and Road forum, Beijing has "signed more than 200 BRI cooperation agreements with more than 150 countries and 30 international organizations across five continents."
- The document also stated that total two-way investment between China and partner countries from 2013 to 2022 touched $380 billion.

- Importantly, though, not every country that has signed a BRI memorandum of understanding hosts BRI projects.
- In addition, joining BRI does not guarantee that a country will receive preferential treatment from Chinese banks when compared with their non-BRI neighbors.
- In 2017, the leaders of 29 countries traveled to Beijing to attend the First Belt and Road Forum.
- This number climbed to 37 for the Second Belt and Road Forum in 2019.
- Last week only 23 heads of state and government attending the Third Belt and Road Forum.
- This is a good indicator that enthusiasm for BRI has waned, as major projects have run into trouble, countries have less capacity to take on additional debt, and China's desire to lend has decreased.
- India has boycotted all 3 Summits.
- Italy, the only G7 country to join BRI, did not attend and likely confirms that it will formally withdraw from the initiative in the coming months.
- Global Alternatives: G7's 'Build Back Better World' (B3W) initiative reorganized as the Partnership for Global Infrastructure and Investment(PGII).
- Under PGII, the G-20 Delhi Summit brought out the India-Middle East-Europe Corridor (IMEC) that seeks to link India, West Asia, and Europe through railways and shipping lines.

30. Bangladesh gets its first batch of uranium

Syllabus: International Relations

Prelims: Current events of national and international importance.

Introduction
- Bangladesh has received its first delivery of uranium for the Russian-backed nuclear plant project.
- The project aims to strengthen Bangladesh's energy grid but faces complications due to sanctions on Moscow.

Russian Support and Financing
- Russia is providing significant support to Bangladesh for the nuclear plant project, with a loan covering 90% of its total cost, amounting to $12.65 billion.
- The project is expected to help alleviate chronic power shortages in Bangladesh.

Russian President Vladimir Putin's Statement
- During a videoconference with Prime Minister Sheikh Hasina, Russian President Vladimir Putin emphasised the long-term friendship and partnership between Russia and Bangladesh.
- Putin also pledged assistance in the supply of uranium, maintenance, and management of spent fuel for the nuclear plant.

Nuclear Plant Project Details
- The nuclear plant is located in Rooppur, a village along the Ganges River, approximately 175 km west of the capital city, Dhaka.
- Construction on the plant began in 2017, with the first of its twin 1,200-megawatt units scheduled to commence operations in the coming year.
- Both reactors are expected to be fully operational by 2025.

31. Kazan meet makes no headway on equal rights in Afghanistan

Syllabus: International Relations

Prelims: Current events of national and international importance.

Context: The recent "Moscow Format" meeting in Kazan, Russia, aimed to address the ongoing challenges in Afghanistan following the Taliban's takeover. The meeting brought together various regional stakeholders, including India, with a focus on urging the Taliban to establish an inclusive government and uphold equal rights, particularly women's education.

Meeting Participants and Objectives:
- **Participants:** The meeting included representatives from nine nations, including India, the Taliban's Acting Foreign Minister, and special envoys from Pakistan, Russia, China, Iran, and Central Asian states.
- **Objectives:** The primary goals of the meeting were to press the Taliban for the formation of an inclusive government and the assurance of equal rights and freedoms for all Afghans, especially women. Additionally, the meeting discussed humanitarian assistance and economic cooperation with Afghanistan.

Outcome and Challenges:
- **Lack of Progress on Inclusive Government:** The meeting expressed regret over the absence of progress in forming an inclusive government in Afghanistan that represents various ethno-political groups.
- **Equal Rights and Freedoms:** The participants emphasized the importance of fundamental rights and freedoms, including equal access to work, education, and justice for all Afghans, irrespective of gender, ethnicity, or religion. Concerns were raised about imposed restrictions on women's employment and girls' education.
- **Humanitarian Assistance:** The participants pledged to continue providing humanitarian aid to Afghanistan, highlighting the pressing need for assistance amid the country's challenging humanitarian situation.
- **Economic Ties:** Strengthening bilateral and multilateral economic ties with Afghanistan was discussed as a means to support the country's economic recovery.

Taliban's Response and Diplomatic Engagement:
- **Taliban's Stance:** Taliban Foreign Minister Amir Khan Muttaqi expressed the administration's readiness to engage with the international community based on "common legitimate interests." He underscored that foreign interventions had not resolved Afghanistan's problems over the past decades.
- **Lack of Recognition:** No country officially recognizes the Taliban regime as a legitimate government. However, all the Moscow Format countries and observer nations maintain diplomatic missions in Kabul.
- **India's Engagement:** India, which reopened its embassy in Afghanistan as a "technical mission" in June 2022, has been involved in discussions with the Taliban regarding humanitarian assistance and infrastructure projects in Afghanistan.

About Moscow Format:
- A dialogue platform on Afghanistan, initiated in 2017.
- To promote regional peace and cooperation.
- 6 founding members; Now 9 members: China, India, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Turkmenistan, and Uzbekistan.

32. Russia might pull back from nuclear test treaty

Syllabus: International Relations

Prelims: Current events of national and international importance.

Context: Russian lawmakers will consider revoking the ratification of a global nuclear test ban, the Parliament Speaker said.

Nuclear Test Ban Treaty
- Russian lawmakers will consider revoking the ratification of a global nuclear test ban.
- Russia could move to resume nuclear tests to try to discourage the West from continuing to offer military support to Ukraine.

About the Nuclear Test Ban Treaty:
- Signed in Moscow in August 1963.
- Initial Parties (had Veto power): USA, UK, USSR. (later 100 more nations joined)
- Formally called Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space, and Under Water. (Didn't ban underground testing)
- Trigger: Cuban Missile Crisis.
- 1977: Negotiations started on the Comprehensive Nuclear Test Ban Treaty
- Draft CTBT passed in UNGA in 1996.
- To enter into force, it needs to be signed by all nuclear powers and 44 members of the Conference on Disarmament who have nuclear reactors.
- By 2007 all of these countries but three (India, Pakistan, and North Korea) had signed, though 10 of those that had signed had not ratified, including the United States and China.

33. Bhutan-China Border Talks Progress

Syllabus: India and its neighbourhood – International relations; Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Mains: India's role and concerns in the boundary talks between Bhutan and China.

Context
Bhutan and China have resumed boundary talks after a significant hiatus, seeking a resolution and diplomatic ties. India closely monitors these talks due to their regional security implications.

Bhutan-China Boundary Talks Resumed
- Bhutan and China held their 25th round of boundary talks after a significant pause since the previous round in 2016.
- Bhutan's Foreign Minister, Tandi Dorji, visited Chinese Foreign Minister Wang Yi in Beijing, signifying the resumption of dialogue on boundary issues.
- This marked the first official visit to China by Bhutan's Foreign Minister and suggested substantial progress made by expert groups from both nations.

Key Negotiation Partners
- Dr. Tandi Dorji, Bhutan's Minister for Foreign Affairs and External Trade, led the Bhutanese delegation.
- Sun Weidong, China's Vice Foreign Minister, represented the Chinese side in the boundary talks.
- Both officials signed a "Cooperation Agreement," outlining the functioning of a Joint Technical Team (JTT) for the "Delimitation and Demarcation of the Bhutan-China Boundary." This agreement was established in August.

Prospects of Diplomatic Relations
- During the talks, Chinese Foreign Minister Wang Yi expressed hope for establishing diplomatic relations between China and Bhutan.
- Currently, Bhutan refrains from forming diplomatic ties with UN Security Council Permanent Member (P-5) countries.

India's Stake in the Talks
- India closely monitors these talks due to their implications for regional security, particularly near the Doklam tri-junction point.
- While India follows the discussions closely, the Ministry of External Affairs (MEA) refrained from commenting on Bhutan's Foreign Minister's visit to China.

Three-Step Road Map
- Bhutan and China are progressing toward the completion of a three-step road map on boundary delineation.
- This road map includes reaching agreements on border demarcation through talks, conducting on-site visits to the demarcated line, and finally, formalising the boundary demarcation.

Future Diplomatic Ties
- Bhutanese Prime Minister Dr. Lotay Tshering mentioned that Bhutan is moving closer to delineating the boundary.
- Opening diplomatic relations with China is a consideration, but the timing and manner are yet to be determined.

China's Willingness for Cooperation
- During his visit, Dr. Tandi Dorji also met with Chinese Vice-President Han Zheng.
- China expressed its readiness to enhance exchanges across various sectors such as the economy, trade, culture, and tourism, emphasising a strong commitment to boundary demarcation and diplomatic relations.

Significance of Boundary Talks
- Bhutan and China have held 24 rounds of boundary talks between 1984 and 2016, indicating their commitment to concluding the boundary demarcation.
- Experts in India have raised concerns about potential "swap arrangements" between areas in the north with the Doklam region to the west, given the strategic importance of India's narrow "Siliguri corridor" connecting northeastern states with the rest of India.

Nut Graf: Bhutan and China's 25th round of boundary talks, amid Bhutan's Foreign Minister's official visit to China, have raised hopes for a demarcation deal and future diplomatic relations, with India's strategic interests in the region at stake.

34. How is the IORA a key bloc for India?

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Prelims: IORA

Mains: Importance of IORA for India

Context: 'Reinforcing Indian Ocean Identity' was the banner theme at the Indian Ocean Rim Association's (IORA) Council of Ministers (COM) held in Colombo on October 11, that was attended by foreign ministers and senior officials of the 23-nation grouping of countries.

The IORA

- The Indian Ocean Rim Association includes 23 countries from Africa, West Asia, South Asia, South East Asia, Australia and littoral states situated in and around the Indian Ocean.
- IORA's membership includes 23 countries: Australia, Bangladesh, the Comoros, France, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, the Maldives, Mauritius, Mozambique, Oman, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, the UAE and Yemen.
- It also has 11 dialogue partners: China, Egypt, Saudi Arabia, Germany, Italy, Japan, South Korea, Russia, Türkiye, the U.K. and the U.S.
- The grouping, whose apex body is the Council of Foreign Ministers that meet once a year, moves by rotation through members every two years.
- Sri Lanka took charge as Chair this year from Bangladesh, and India is Vice-Chair, meaning that the troika of IORA is within the South Asian region.
- While the IORA was formed in 1997 (then called the Indian Ocean Region-Association for Regional Cooperation) in Mauritius, its genesis came from a speech Nelson Mandela gave in Delhi in 1995.

Why does the Indian Ocean Region matter?

- A third of the world's population (2.6 billion people) live in the region, and 80% of global oil trade, 50% of the world's containerised cargo and 33% of its bulk cargo passes through it.
- The region produces a combined total of $1 trillion in goods and services and intra-IORA trade is billed at around $800 billion.
- While the QUAD (Quadrilateral Security Dialogue), has made progress, it remains U.S.-led, along with military allies Australia and Japan.
- Meanwhile, China is actively trying to rope in India's neighbours with groupings like the Belt and Road Initiative (BRI), China-Indian Ocean Region Forum on Development Cooperation, China-South Asian Countries Poverty Alleviation and Cooperative Development Centre, which exclude India.

What does IORA focus on?

According to its charter, the IORA's seven priority areas are

- Maritime safety and security
- Trade and investment facilitation
- Fisheries management
- Disaster risk management
- Academic, science and technology
- Tourism and cultural exchanges
- Gender empowerment.
- The IORA also runs a special fund in addition, disbursing $80,000-$150,000 for project grants to members, and has a particular focus on climate change. It is clear that strategic issues and the importance of keeping a free and open sea lane, guarding against piracy, have become an integral part of the discussions.

Why does the Indian Ocean Region matter?

- **Growing Importance of the Indian Ocean Region:** The Indian Ocean region plays a critical role in global trade and security, with a substantial portion of the world's population residing in the area and significant international trade routes passing through it.
- **Big-Power Rivalries:** The strategic importance of the region has led to the involvement of major global powers, such as the United States and China, which compete for influence and control in the Indian Ocean.
- **Regional Cooperation:** IORA serves as a platform for regional cooperation, where member countries, including India, work together to address common challenges, promote economic growth, and enhance maritime security.
- **Safe Space for India:** IORA provides India with a "safe space" to engage in regional collaboration, free from the overt influence of big-power rivalries, unlike other groupings where India faces external pressures.
    - IORA membership is based on consensus, and Pakistan has not been admitted to the grouping since it first applied in 2001, on the basis that it has not extended MFN (most favoured nation) status to India, making the IORA a less contentious space for India as well, compared to groupings like the Shanghai Cooperation Organisation (SCO).
- **Maritime and Economic Focus:** The organization focuses on critical areas such as maritime safety and security, trade and investment facilitation, fisheries management, disaster risk management, academic and technological exchange, gender empowerment, and cultural exchanges, addressing both strategic and socioeconomic concerns.

Solutions:

- **Continued Engagement:** India should actively engage in IORA to promote regional stability and cooperation, emphasizing the significance of a free and open Indian Ocean that respects sovereignty and territorial integrity.
- **Balanced Diplomacy:** India should pursue a balanced diplomatic approach, engaging with both Western powers and regional players, while keeping a focus on its regional priorities and interests within IORA.

Nut Graf: The Indian Ocean Rim Association (IORA) has evolved as a key forum for India to assert its regional influence and address challenges in the Indian Ocean region. It provides a platform for member countries to collaborate on issues of shared concern while preserving India's strategic autonomy and sovereignty. As the importance of the Indian Ocean region continues to grow, IORA remains an essential vehicle for India to engage with its regional partners, foster economic growth, and address strategic imperatives.

35. Indian Ocean Rim Association

Syllabus: International Relations

Prelims: About Indian Ocean Rim Association

Introduction
- India's External Affairs Minister S. Jaishankar addressed the annual meeting of the 23-member Indian Ocean Rim Association (IORA) in Colombo.
- During the meeting, he emphasised India's commitment to ensuring a free, open, and inclusive Indian Ocean region.
- The minister also discussed concerns about unsustainable debt in the region and the importance of collaboration.

Bilateral Agreements
- Three agreements on bilateral cooperation were signed during the event, covering housing projects, school modernization, and a joint project to boost milk production in Sri Lanka.
- These agreements reflect India's support for various development initiatives in Sri Lanka.

Dealing with Debt Crisis
- Sri Lanka is currently engaged in negotiations with the IMF for a $2.9 billion bailout to manage its debt challenges.
- India has extended support to Sri Lanka, including lines of credit, debt payment moratoriums, and currency swap arrangements worth nearly $4 billion.
- The country is working to finalise a debt restructuring package with China, one of its significant creditors.

IORA's Role
- Sri Lanka highlighted the significance of IORA, as it took charge of the forum.
- IORA includes 23 member countries located around the Indian Ocean and 11 major powers as dialogue partners.
- It serves as a platform to promote a rules-based, open, and inclusive Indian Ocean for the benefit of all nations in the region.

Promoting Peace
- India aims to follow the UN Convention on the Law of the Seas (UNCLOS) to ensure a peaceful and rules-based ocean.
- The focus is on preventing hidden agendas and proxy wars in the specific Indian Ocean area.
- This approach aligns with the need for an open and inclusive ocean for the benefit of all countries in the region.
- The Indian Ocean is a critical waterway, accounting for 86% of global trade.

36. 'Ferry to Sri Lanka plies after 40 years

Syllabus: International Relations

Prelims: India- sri lanka relations

Context: Prime Minister Narendra Modi inaugurated an international, high-speed passenger ferry service between Nagapattinam in Tamil Nadu and Kankesanthurai in Sri Lanka, marking the revival of a crucial connection after a hiatus of nearly four decades. The launch signifies a significant development in enhancing connectivity and strengthening diplomatic and economic ties between India and Sri Lanka.

Background:
- **Disruption of Connectivity:** The ferry service between Nagapattinam and Kankesanthurai was suspended for nearly four decades, disrupting a vital mode of connectivity between India and Sri Lanka.
- **Cultural and Economic Ties:** The interruption in connectivity hampered cultural, commercial, and civilisational ties between the two nations, affecting people-to-people interactions and economic opportunities.

Significance:
- **Enhanced Connectivity:** The resumption of the ferry service is not only about physical proximity but also symbolizes the bringing together of people, countries, and their hearts. It promotes trade, tourism, and people-to-people ties, creating new growth opportunities for the youth of both countries.
- **Historical Context:** The region, particularly Nagapattinam, has a rich history of maritime trade, and the revival of this service reflects the historical significance of the region in fostering international connections.

- **Diplomatic and Economic Ties:** The ferry service is viewed as a new chapter in diplomatic and economic relations between India and Sri Lanka. It strengthens cultural and commercial ties, aligning with the joint vision of the India-Sri Lanka economic partnership.

Conclusion: The relaunch of the ferry service between Nagapattinam and Kankesanthurai holds great significance as it reconnects two nations, people, and their hearts. This development not only enhances physical proximity but also strengthens diplomatic, cultural, and economic ties.

37. Rafah crossing

Syllabus: International Relations

Prelims: Rafah crossing

Context: Trucks carrying humanitarian aid entered the Gaza Strip from Egypt, providing much-needed relief to the conflict-ridden region. This aid delivery, facilitated by the Egyptian Red Crescent and various UN agencies, arrived via the **Rafah border crossing.**

Issues:
- **Humanitarian Crisis in Gaza:** The Gaza Strip has been severely affected by the recent conflict between Israel and Hamas. Thousands of Palestinians have been displaced, and essential supplies are urgently needed to address the humanitarian crisis.
- **Challenges in Aid Delivery:** Aid delivery to Gaza has been hindered by the ongoing conflict and border restrictions. The Rafah border crossing, controlled by Egypt, is one of the few entry points into Gaza not controlled by Israel.
- **International Concern:** The international community has expressed deep concern over the situation in Gaza and the urgent need for humanitarian assistance. UN officials have emphasized the importance of continuous aid deliveries.

Significance:
- **Lifesaving Aid:** The arrival of the aid trucks is a crucial lifeline for the people of Gaza, providing essential supplies such as food, medicine, and other humanitarian assistance.
- **International Cooperation:** The collaboration between Egypt, the UN, and various humanitarian agencies highlights the importance of international cooperation in addressing humanitarian crises.
- **Continued Efforts:** While this aid delivery is significant, it is essential for sustained efforts to provide ongoing support to Gaza's population, especially those who have been displaced.

Wayforward:
- **Sustained Aid Deliveries:** The international community should continue to work together to ensure the continuous and unimpeded delivery of humanitarian aid to Gaza.
- **Ceasefire and Diplomacy:** Efforts to establish a lasting ceasefire and engage in diplomatic negotiations are essential to address the root causes of the conflict and prevent future crises.

38. EU, US urge Kosovo & Serbia to resume dialogue

Syllabus: International Relations

Prelims: Kosovo and Serbia

Context: EU and U.S. envoys have called on Kosovo and Serbia to resume dialogue as tensions between the two nations have escalated. This appeal comes after a recent violent incident on the border between the two countries.

Details:
- **Escalation of Tensions:** The visit by EU envoy Miroslav Lajcak and U.S. envoy Gabriel Escobar follows a violent incident on September 24 when Serb gunmen crossed into northern Kosovo, leading to a deadly confrontation with Kosovo police.
- **Call for Dialogue:** The envoys emphasized the need for Kosovo and Serbia to engage in dialogue as the primary means to de-escalate the situation. They warned that without dialogue, the risk of further escalation remains.
- **Strong Condemnation:** The envoys strongly condemned the recent attack on Kosovo police by armed individuals and described it as an unprecedented escalation. This incident underscored the urgency of de-escalation and normalization.
- **EU Accession:** Both Kosovo and Serbia aspire to join the European Union, but the EU has made it clear that they must first resolve their differences and implement a 10-point plan to end ongoing political crises.

Significance:
- **Preventing Conflict**: Resuming dialogue is crucial to preventing further conflict and instability in the region. The violent incident on the border highlighted the urgency of addressing the underlying issues.
- **EU Integration:** EU accession is a shared goal for both Kosovo and Serbia, and resolving their differences is a prerequisite for moving closer to EU membership.

International Diplomatic Efforts: The involvement of EU and U.S. envoys, along with diplomats from key European countries, demonstrates the international community's commitment to facilitating dialogue and conflict resolution.

39. Centre defends UNGA abstention

Syllabus: Bilateral, regional and global groupings and agreements involving India and/or affecting India's Interests

Prelims: UNGA

Mains: Structure and Mandate of UNGA

Context: The Union government of India has defended its decision to abstain from voting on a UN General Assembly (UNGA) resolution calling for a humanitarian truce and ceasefire in Gaza.
- The government's stance is that the resolution did not include an "explicit condemnation" of the October 7 terror attacks in Israel, which led to India abstaining from the vote.

Details:
- The UNGA resolution was titled "Protection of civilians and upholding legal and humanitarian obligations" and was proposed by Jordan on behalf of the Arab League. It had nearly 40 co-sponsors.
- The resolution passed with 120 votes in favor, 14 against (including the U.S. and the U.K.), and 45 abstentions, including India.
- The resolution condemned acts of violence against both Palestinian and Israeli civilians, including acts of terrorism and indiscriminate attacks but did not explicitly mention the specific terror attacks by Hamas on October 7.
- The ongoing conflict in Gaza has resulted in a significant number of casualties, with a large proportion being children.

Significance:
- India's decision to abstain was based on its position that there should be no equivocation on terror.
- India called for the condemnation of the attacks and the immediate and unconditional release of hostages in its explanation of vote (EoV).
- The government highlighted that terrorism is a global concern that knows no borders, nationality, or race.
- India supported a proposed amendment by Canada to the resolution that would have explicitly condemned the terrorist attacks by Hamas on October 7 and called for the release of hostages. However, the amendment did not receive the necessary two-thirds majority for approval.

Four key takeaways from India's vote:
- FIRST, the resolution was drafted by a group of 22 Arab countries and was proposed by Jordan. Among the co-sponsors of the resolution were Bangladesh, Maldives, Pakistan, Russia, and South Africa.
  - Israel, the United States, five small Pacific island nations, and four Eastern European countries — Austria, Croatia, Czechia, and Hungary — were among the 14 members who voted against the resolution.
- SECOND, the amendment proposed by Canada and co-sponsored by the US, sought to fix the responsibility of Hamas in the crisis.
  - The amendment asked for the insertion of a paragraph in the resolution that would state that the General Assembly "unequivocally rejects and condemns the terrorist attacks by Hamas that took place in Israel starting on 7 October 2023 and the taking of hostages, demands the safety, well-being and humane treatment of the hostages in compliance with international law, and calls for their immediate and unconditional release".
- THIRD, unlike resolutions of the UN Security Council, resolutions of the UNGA are not legally binding. Therefore, despite the comprehensive defeat, Israel and the US are not obliged to act on the resolution.
- FOURTH, the balanced position taken by India was in line with the one that it has maintained in the other ongoing and deeply polarising conflict in the world: the Russia-Ukraine war.
- This is the approach that carried the day during the consensus-building exercise at the G20 Summit as well. However, the geopolitics of the Middle East are both more volatile and complicated, as well as closer home — and India will need to mobilise all its diplomatic skills and goodwill.

Other examples of India abstaining from UN voting

- **Russia's invasion of Ukraine –** India abstained from voting on a UN General Assembly resolution that condemned Russia's invasion of Ukraine. The motion was backed by 141 nations, with 32 abstaining and seven, including Russia, voting against it.
- **UNHRC resolution-** India abstained from voting on a resolution at the United Nations Human Rights Council (UNHRC) that enhanced the mandate of the UN body to collect evidence for war crimes for future trials. The resolution also extended monitoring of Sri Lanka's human rights situation to two years.

Nut Graf: India's decision to abstain from the UNGA vote on the Gaza ceasefire resolution is based on its position that explicit condemnation of terrorism is essential. The government's stance is consistent with its approach to addressing the Israel-Palestine conflict and its commitment to fighting terrorism.

40. What has caused the recent thaw in U.S.Venezuela ties?

Syllabus: Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Mains: Recent development in US- Venezuela relations in the context of Russia- Ukraine conflict.

Context:
Maria Corina Machado's victory in the Venezuelan opposition primary coincides with the Biden administration's decision to ease long-standing sanctions on Venezuela's energy sector.

Introduction
- Maria Corina Machado's victory in the October 22 Venezuelan opposition primary marks a significant development.
- The Biden administration recently agreed to ease long-standing sanctions against Venezuela's energy sector in exchange for free and fair elections in 2024.
- This article explores the reasons behind the re-engagement between Washington and Caracas, including geopolitical shifts following the Russia-Ukraine conflict.

Geopolitical Realities and Energy Crisis
- The ongoing Russia-Ukraine war created challenges and energy supply concerns for the United States.
- The U.S. government engaged with Venezuela, home to the world's largest oil reserves, to mitigate the energy crisis.
- Washington sought to ensure a stable energy supply and address regional security concerns regarding Moscow's Latin American allies.

Venezuela's Resilience and International Support
- Despite years of U.S. and EU sanctions, Venezuela received vital support from countries like Cuba, China, Russia, and Iran.
- This support helped Venezuela withstand international isolation and economic challenges.
- The sanctions relief could revive the country's state-owned oil firm, potentially granting access to U.S. financial markets.

Challenges for the Venezuelan Opposition
- The Venezuelan opposition faces fragmentation and resistance from the Maduro government.
- President Maduro remains undeterred by international criticism of his rule.
- The socio-economic crisis has led to a significant exodus of people, and the International Criminal Court is investigating Venezuela for crimes against humanity.

Maria Corina Machado's Victory and Hurdles
- Maria Corina Machado's overwhelming victory in the opposition primary is noteworthy.
- However, she has been disqualified from holding public office for 15 years due to allegations of corruption and support for American sanctions.
- Her hardline stance may impact her chances, given her demand for President Maduro to be tried for war crimes and advocacy for foreign military intervention.

Sanctions Relief and Democratic Progress
- The Biden administration links the extent of sanctions relief to the government's progress towards democracy.
- Arresting Venezuela's economic and social decline remains a top priority for the opposition.

Nut Graf: Amid shifting geopolitical realities following the Russia-Ukraine conflict, the United States seeks to stabilise its energy supply and address regional security concerns, leading to a re-engagement with Venezuela and the sanctions relief offer in exchange for free and fair elections.

41. Towards stabilisation of U.S.China ties

Syllabus: Effect of Policies and Politics of Developed and Developing Countries on India's interests, Indian Diaspora.

Prelims: Asia-Pacific Economic Cooperation, US-China relations, Second Thomas Shoal

Mains: US-China relations and impact on world order

Introduction
- A dialogue between the US and China is significant for promoting peace.
- There is potential for a tactical stabilization of relations between the two powers culminating in a presidential summit at the Asia-Pacific Economic Cooperation conference in November.

Recent Developments in US-China Relations
- China's relationship with the US could have an impact on the Middle East. China has influence over Iran, which in turn supports Hezbollah in Lebanon.
- If Hezbollah gets involved in the conflict in Gaza, it could make things more complicated.
- Recently, China's foreign minister Wang Yi visited the US and met with top officials, including President Biden. The Chinese official said that improving relations between their countries won't be simple.
- Until recently, the Chinese military wasn't taking calls from the Pentagon, but that changed when China replaced its defense minister.
- Jake Sullivan, the US national security adviser, believes it's crucial for the two nations to keep communicating to avoid misunderstandings and maintain stable relations.

US-China Relations Since Bali Meeting
- Since the Bali meeting between Joe Biden and Xi Jinping, the US-China relationship has been strained, especially after the "spy balloon" incident.
- The US is currently thriving economically and in foreign policy, with renewed European alliances and bolstered Indo-Pacific partnerships.
- The Biden Administration has maintained a firm stance on China, keeping Trump-era tariffs and implementing measures to curb China's tech sector growth.
- According to the US National Security Strategy, China is seen as a rival seeking to redefine the global order.
- While the current US administration aims to set boundaries to avoid further deterioration, it's clear that the US-China dynamic remains complex and challenging.
- China has reacted critically to the U.S.'s attempts to limit its power, with Chinese President Xi Jinping claiming that the U.S. is trying to hold back China's growth and influence.
- Former Chinese Foreign Minister Qin Gang also stated that no matter how many safeguards are put in place, the U.S.'s actions will cause problems for China if they continue down their current path.

US Policy Towards China
- Tightening export controls on technology and investment to China
- Tough stance on the China Philippines standoff at the Second Thomas Shoal in the South China Sea.
- Restricting Chinese investments in the US
- Treasury Secretary Janet Yellen has called for constructive engagement with China based on national security, fair competition, and cooperation on global challenges
- Rejection of the idea of decoupling the US economy from China

China's Objectives
- China perceives the United States as a formidable military power, yet believes that its influence is waning.
- Instead of taking an adversarial stance, China aspires to uphold a facade of collaboration and harmonious coexistence with the US.
- It also hopes to secure American acknowledgement of its economic and political structure, which encompasses the paramountcy of the Chinese Communist Party.
- In terms of military and political objectives, China seeks to assert its supremacy in the Western Pacific region.
- However, complications exist in the region with Japan, Taiwan, the Philippines, and Vietnam (backed by the US) contesting China's ambitions.

Importance of Cooperation
- Cooperation between the US and China is essential for addressing global challenges like climate change and crises like the one in West Asia.
- An atmosphere of hostility is impeding effective collaboration.
- While the relationship will still have a strong competitive aspect, the US and China should strive to make it practical.

Nut Graf: *A dialogue between the US and China is significant for promoting peace. The US sees China as a rival seeking to redefine the global order and has maintained a firm stance on China with export controls and restrictions on Chinese investments. However, cooperation between the US and China is essential for addressing global challenges like climate change and crises like the one in West Asia.*

SCIENCE AND TECHNOLOGY

1.   How important is the first asteroid sample?

Syllabus: Developments in Science and Technology

Prelims: Concept of Asteroids

Mains: Importance of the first asteroid sample

Context: NASA's OSIRIS-REx spacecraft recently achieved a significant milestone by returning a capsule containing samples of rocks and dust collected from the asteroid 101955 Bennu. This remarkable mission has raised questions about the importance of these asteroid samples and the broader implications for space exploration.

OSIRIS-REx Mission Overview:
- **Mission Purpose:** The OSIRIS-REx mission, initiated in 2016, aimed to collect samples from the asteroid Bennu, which involved complex maneuvers to place the spacecraft in orbit around the asteroid.
- **Challenges Faced:** The mission encountered challenges due to Bennu's frail gravity, which is so weak that it allows boulders to move uphill on the asteroid's surface. Additionally, the asteroid's rugged terrain rendered OSIRIS-REx's height-measuring instrument unusable, necessitating an intricate holding pattern to identify a suitable landing site.
- **Sample Collection:** On October 20, 2020, OSIRIS-REx successfully landed on Bennu, collecting rocks and dust. To avoid contamination during sample acquisition, it used a blast of nitrogen gas.
- **Return to Earth**: After collecting the samples, OSIRIS-REx departed from Bennu's gravitational influence and released its sample capsule above Earth's atmosphere. It is now set to embark on a new mission to study another asteroid, Apophis, in 2029.

Importance of Studying Bennu:
- **Understanding Near-Earth Asteroids (NEA):** The asteroid belt, located between Mars and Jupiter, houses thousands of space rocks, including NEAs that occasionally come close to Earth. Understanding these asteroids is critical for planetary defense, as it's possible for them to pose a collision threat to our planet.
- **Planetary Defense:** While the likelihood of a catastrophic asteroid collision with Earth is low, the long-term risk is comparable to other everyday dangers. Even if these asteroids don't pose an immediate threat, gravitational forces can alter their orbits over time, necessitating vigilance.
- **Mining Potential:** Studying asteroids like Bennu also opens the possibility of asteroid mining. These celestial bodies often contain valuable resources such as metals, water ice, and minerals. Mining asteroids could be economically viable in the future, serving as resource-rich pit stops for space missions.
- **Origins of Life:** Carbon-rich asteroids like Bennu may hold clues about the origins of life on Earth. Some scientists believe that asteroids and comets may have delivered the building blocks of life to our young planet billions of years ago.

Can We Mine Asteroids?
- **Resource Extraction:** Asteroids, composed of dust, rocks, water ice, and valuable metals like iron, nickel, and cobalt, can potentially be mined for resources.
- **Resource Challenges:** Challenges such as low gravity, lack of atmosphere, and radiation exposure in space must be addressed before mining asteroids becomes a reality.

DART Mission:
- Double Asteroid Redirection Test Mission.
- To test and demonstrate asteroid deflection vis Kinetic impact.
- Target: Asteroid Didymos (diameter approx. 0.5 miles) and it's moonlet Dimorphos.
- Impact on 26 September 2022.
- Dimorphos' orbit was shortened by 32 minutes due to the impact, proving a successful deflection.
- However, based on current technology, a warning of a few years (preferably a decade or more) would be necessary to deploy such Missions on any Earth-course celestial body.

Nut Graf: *The return of samples from asteroid Bennu through the OSIRIS-REx mission represents a significant achievement in space exploration. These samples hold the potential to provide valuable insights into the origins of our solar system, the potential for planetary defense against asteroid threats, and the feasibility of asteroid mining as a future resource. This mission exemplifies the quest for knowledge and resources beyond Earth and highlights the ever-expanding horizons of space exploration.*

2.   Nobel Prize 2023

Syllabus: Developments in Science and Technology

Prelims: Nobel Prize 2023

1.   Claudia Goldin wins 2023 Economics Nobel Prize for research on workplace gender gap

Introduction
- Harvard University professor Claudia Goldin has been awarded the Nobel Prize in Economics for her groundbreaking research on the gender gap in the labour market.
- Ms. Goldin's work spans 200 years of women's participation in the workforce and sheds light on the persistent gender pay gap despite women's increased education levels.
- She became only the third woman among 93 economics laureates to receive this prestigious award.

Key Findings of Claudia Goldin's Research
- Despite economic growth, the gender pay gap has not continuously narrowed, indicating a persistent divide.
- Women's labour force participation rates have changed over time, with the United States having the highest rate in the 1990s but no longer holding that position.
- The analysis highlights that the dynamics within families and households play a crucial role in understanding gender disparities in the labour market.
- Women often opt for jobs that allow them to balance work and family responsibilities, even if these positions tend to pay less.

Policy Implications
- Claudia Goldin's research may not provide direct solutions, but it offers policymakers valuable insights into addressing the entrenched issue of the gender pay gap.
- Understanding the underlying reasons is essential for crafting effective policy measures.
- By accurately identifying and naming the problem, society can pave the way for better strategies to achieve gender equality.

Individual Decision-Making and Generational Impact
- Women's choices regarding education and career paths are influenced by individual decisions, which are often shaped by observing their mothers' experiences.
- Young girls make decisions based on the successes and failures of previous generations.
- This generational evaluation of prospects has contributed to the slow pace of change in gender gaps in the labour market.

Conclusion
- Claudia Goldin's Nobel Prize-winning research sheds light on the complexity of the gender pay gap and its deep-rooted societal influences.
- While her work does not offer immediate solutions, it empowers policymakers with valuable knowledge to address gender disparities effectively.
- Understanding the interplay between individual decisions, family dynamics, and labour market realities is crucial for achieving gender equality in the workforce.

2.   Nobel Prize in medicine

Syllabus: Science and Technology

Prelims: Nobel Prize, mRNA

Introduction
- Hungarian biochemist Katalin Karikó and American physician-scientist Drew Weissman have been honoured with the 2023 Nobel Prize in Physiology or Medicine for their pioneering contributions to mRNA vaccine development, particularly their breakthroughs in nucleoside base modification research.
- The Nobel Prize recognizes the transformative impact of mRNA vaccine technology, from its inception to its vital role in addressing the COVID-19 crisis and its potential to revolutionise healthcare for various diseases.

Revolutionising Vaccine Technology
- Katalin Karikó and Drew Weissman were jointly honoured for their work in mRNA vaccine development.
- mRNA vaccines, a novel approach, proved highly effective against COVID-19.
- This recognition highlights the significant role of mRNA vaccines in combating the pandemic and their potential in vaccine technology.

Understanding mRNA's Potential
- Messenger RNA (mRNA) carries genetic instructions from DNA to the cell's cytoplasm for protein production.
- In the late 1980s, scientists saw potential in using modified mRNA for vaccines.
- The concept involved instructing cells to produce specific proteins, triggering the immune system's response.

The Collaborative Effort
- Dr. Karikó and Dr. Weissman began collaborating in the late 1990s, publishing studies on mRNA delivery and immune response.
- A major hurdle was the immune system's rejection of synthetic mRNA, unlike the body's own mRNA.
- In 2005, their research revealed that chemical modifications to synthetic mRNA allowed it to evade detection by the immune system.

Unlocking mRNA's Potential
- Modifying certain mRNA bases allowed cells to produce more proteins without immune system interference.
- Their studies paved the way for the mRNA platform's use in vaccine development.

Impact on COVID-19 Pandemic
- mRNA vaccines played a crucial role in lowering COVID-19 death rates during the pandemic.
- However, vaccine nationalism overshadowed their global potential.

Future Prospects
- Scientists are exploring mRNA vaccines against influenza, dengue, cancers, and autoimmune diseases.

3. Nobel prize in physics

- Pierre Agostini from France, Ferenc Krausz of Hungarian-Austrian origin, and Anne L'Huillier, who is French-Swedish, have been awarded the Nobel Prize in physics.
- They received the Nobel Prize for their research that involves using extremely fast bursts of light, measured in attoseconds, to study electrons inside atoms and molecules.
- Attoseconds are incredibly short, with as many of them in one second as there have been seconds since the universe began over 13 billion years ago.
- Their work has made it possible to observe and understand incredibly rapid movements and changes, which were previously impossible to study.
- This research has potential applications in both electronics and medical diagnostics.
- Eva Olsson, chair of the Nobel Committee for Physics, mentioned that this research opens up the world of electrons and helps us understand mechanisms controlled by electrons.
- In 1987, Anne L'Huillier discovered unique properties of light when transmitted through a noble gas using infrared laser light.
- In the early 2000s, Pierre Agostini and Ferenc Krausz conducted experiments to isolate extremely short light pulses lasting only a few hundred attoseconds.
- Pierre Agostini is a professor at Ohio State University in the U.S., while Ferenc Krausz is a director at the Max Planck Institute in Germany.
- Anne L'Huillier is only the fifth woman to win the Nobel Prize in Physics since 1901.

4. Norway's Jon Fosse wins Nobel for literature

Introduction
- Jon Fosse, the Norwegian playwright, has been honoured with the Nobel Prize in literature by the Swedish Academy for his innovative works, both in the realm of plays and prose, which eloquently articulate the inexpressible.

Jon Fosse's Diverse Works
- Jon Fosse's literary works are written in the Norwegian Nynorsk language and cover a wide range of genres, including plays, novels, poetry collections, essays, children's books, and translations.
- Some of his major works include "Boathouse" and "Melancholy I and II."

Fosse's Reaction
- Jon Fosse expressed his gratitude for the Nobel Prize, stating that he sees it as an award for literature that aims to be pure and without other considerations.

Recognition by Nobel Committee
- Anders Olsson, the chairman of the Nobel committee, highlighted Fosse's innovative ability to evoke the loss of orientation and how this can lead to a deeper experience akin to divinity.

Literary Journey
- Fosse studied literature and made his debut in 1983 with the novel "Red, Black," known for its non-linear narrative.
- His latest work, "Septology," a semi-autobiographical magnum opus spanning three volumes, was shortlisted for the 2022 International Booker Prize.

Breakthrough in Playwriting
- Fosse's international breakthrough in playwriting came with "Someone is Going to Come," which was first staged in Paris in 1999.
- He gained further acclaim with "And We'll Never Be Parted" in 1994.

Global Impact
- Jon Fosse's works have been translated into approximately 50 languages, highlighting his global influence and reach in contemporary theatre and literature.

5. Nobel Peace Prize 2023 goes to jailed Iranian activist Narges Mohammadi

Context:
- Narges Mohammadi, an Iranian activist, has been awarded the Nobel Peace Prize for 2023.
- Recognized for her unwavering commitment to women's rights, democracy, and opposition to the death penalty.
- Despite multiple arrests and years of imprisonment, she has remained a prominent figure in women-led protests in Iran.

Details:
- **Tireless Activism and Perseverance:**
  - Narges Mohammadi's relentless advocacy for human rights, especially women's rights.
  - Continued activism despite facing numerous arrests and imprisonment.
  - Her leadership role in nationwide protests triggered by the death of a young woman in police custody.
- **Recognition by the Nobel Committee:**
  - Berit Reiss-Andersen, Chair of the Norwegian Nobel Committee, announced the prize.
  - Acknowledgement of Mohammadi's work as a representation of the broader movement in Iran.
  - The prize aims to encourage and support the ongoing efforts of the Iranian human rights movement.
- **Call for Release:**
  - The Nobel Committee's appeal to Iran to release Narges Mohammadi in time for the prize ceremony on December 10.
  - A gesture symbolizing international recognition of her activism.
- **Mohammadi's Response:**
  - Narges Mohammadi issued a statement expressing gratitude for global support and recognition.
  - Her commitment to intensified efforts in advocating for human rights.
  - Hope that the Nobel Prize strengthens the resolve of Iranians striving for change.
- **History of Persecution:**
  - Mohammadi's background as an engineer and her extensive experience of imprisonment.
  - Convicted five times and sentenced to a total of 31 years in prison.
  - Her most recent detention was in 2021 following her participation in a memorial event related to protests.
- **Historical Significance:**
  - Narges Mohammadi is the 19th woman to receive the Nobel Peace Prize.
  - The second Iranian woman to achieve this honour after Shirin Ebadi in 2003.
  - Highlights the global recognition of Iranian women's contributions to human rights and peace.

6. Inspiring colours

Syllabus: Developments in Science and Technology

Mains: Quantum dots revolutionize the semiconductor industry

Prelims: Quantum dots
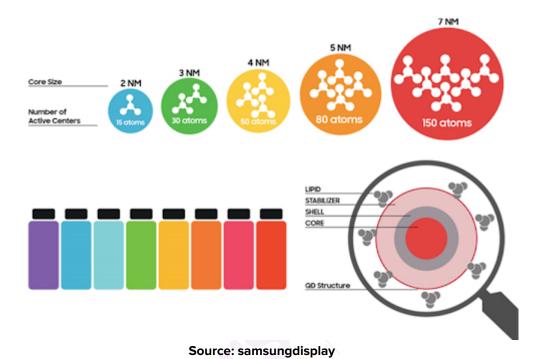
Context: The 2023 Nobel Prize in Chemistry has been awarded to a trio of scientists for their groundbreaking work in the field of quantum dots, often referred to as "artificial atoms."
- Quantum dots, despite their complex quantum mechanical properties, have practical applications and are inspired by the vibrant colours observed in stained glass.
- This recognition highlights the significance of their work and the artistic inspiration behind their creation.

Understanding Quantum Dots:

- Quantum dots are minuscule crystals, a few nanometers wide, known as **"artificial atoms."**
- Unlike atoms, their behaviour is influenced by packing density; when closely packed, they exhibit unique properties.
- Each quantum dot has only a few thousand atoms (whereas a single droplet of water can have a sextillion). And because the atoms are packed so closely together in the dot, their electrons are very close to each other.
- Quantum dots contain only a few thousand atoms but can mimic the behaviour of individual atoms due to their densely packed structure.
- One remarkable property is their response to light: they absorb and re-emit light at different frequencies depending on their size, with smaller dots emitting bluer light.

Source: samsungdisplay

Significance of Quantum Dots

Quantum dots have found diverse applications in various fields, including:
- **Electronics**: Used in transistors to enhance device performance.
- **Lasers:** Employed to create highly efficient lasers.
- **Medical Imaging:** Applied for precise medical imaging, aiding in diagnosis.
- **Quantum Computing:** Utilized in quantum computing technologies, promising significant advancements.

The Nobel Prize Laureates
- **Alexei Ekimov (1981):** First synthesized quantum dots 'frozen' inside glass.
- **Louis Brus (1983):** Synthesized quantum dots in a solution and explored their quantum-physical properties.
- **Moungi Bawendi (1993):** Developed a reliable method to produce high-quality quantum dots.
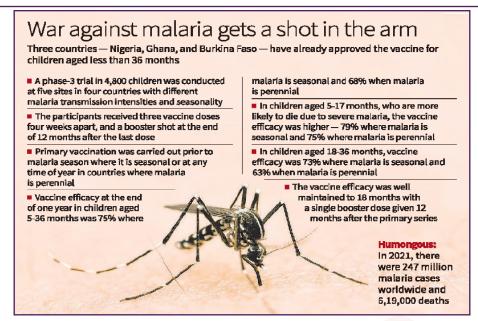
Nut Graf: The Chemistry Nobel Prize awarded to the pioneers of quantum dots acknowledges the transformative impact of their work on both scientific research and practical applications. These artificial atoms, inspired by the beauty of colours in stained glass, have opened doors to technological advancements in electronics, lasers, medical imaging, and quantum computing. Quantum dots remind us that the convergence of art and science can yield remarkable discoveries and inspire further exploration into the mysteries of the universe.

3.   Now a more efficacious, inexpensive malaria vaccine

Syllabus: Developments in Science and Technology

Prelims: R21/MatrixM

Context: A malaria vaccine R21/MatrixM developed by the University of Oxford, manufactured by the Pune-based Serum Institute of India and tested in a phase-3 trial at five sites in four countries Mali, Burkina Faso, Kenya, and Tanzania in Africa was recommended (but yet to be prequalified) by the WHO on October 2.

War against malaria gets a shot in the arm

Three countries — Nigeria, Ghana, and Burkina Faso — have already approved the vaccine for children aged less than 36 months

- A phase-3 trial in 4,800 children was conducted at five sites in four countries with different malaria transmission intensities and seasonality
- The participants received three vaccine doses four weeks apart, and a booster shot at the end of 12 months after the last dose
- Primary vaccination was carried out prior to malaria season where it is seasonal or at any time of year in countries where malaria is perennial
- Vaccine efficacy at the end of one year in children aged 5-36 months was 75% where malaria is seasonal and 68% when malaria is perennial
- In children aged 5-17 months, who are more likely to die due to severe malaria, the vaccine efficacy was higher — 79% where malaria is seasonal and 75% where malaria is perennial
- In children aged 18-36 months, vaccine efficacy was 73% where malaria is seasonal and 63% when malaria is perennial
- The vaccine efficacy was well maintained to 18 months with a single booster dose given 12 months after the primary series

Humongous: In 2021, there were 247 million malaria cases worldwide and 6,19,000 deaths

Source: The Hindu

About R21/MatrixM:
- Tested at 5 sites in 4 countries: Mali, Burkina Faso, Kenya, and Tanzania
- Three countries Nigeria, Ghana, and Burkina Faso have already approved the use of the vaccine to immunise children aged less than 36 months.
- The efficacy of R21/MatrixM is much higher than the first malaria vaccine RTS,S/AS01 (Mosquirix; developed by GSK and Walter Reed Army Institute of Research of USA) that has been recommended by the WHO in 2021
- Besides substantially reducing the number of clinical malaria cases, at 12 and 18 months, there was "significantly reduced" parasite load in children who received the vaccine (R21/Matrix-M).
- Cost: $2-$4 per dose (Production: by SII; 100 mn/year)

WHO's Recommendation
- Following a thorough scientific evaluation by the WHO's Strategic Advisory Group of Experts (SAGE) and the Malaria Policy Advisory Group (MPAG), the R21/Matrix-M malaria vaccine has been recommended for use.
- The Serum Institute of India announced this development, emphasising that the vaccine meets the required safety, quality, and effectiveness standards.

Next Steps
- Following WHO approval and recommendations, additional regulatory approvals are anticipated in the near future.
- Wider distribution of vaccine doses is expected to commence as early as the following year.

Production Capacity
- The Serum Institute has already established production capacity for 100 million doses annually.
- This capacity will be doubled over the next two years, crucial for vaccinating high-risk malaria populations and curbing disease transmission while protecting those vaccinated.

Matrix-M Adjuvant
- Matrix-M is a proprietary saponin-based adjuvant developed by Novavax.
- The Serum Institute possesses the licence to utilise Matrix-M within malaria-endemic countries, whereas Novavax maintains commercial rights in areas not affected by malaria.

Collaborative Development
- The vaccine was jointly developed by the Jenner Institute at Oxford University and the Serum Institute of India.
- It received support from the European and Developing Countries Clinical Trials Partnership (EDCTP), the Wellcome Trust, and the European Investment Bank (EIB).

4.   The trouble with a Nobel for mRNA COVID vaccines

Syllabus: GS-3, Science and Technology – Developments and their Applications and Effects in Everyday Life.

Prelims: Nobel Prize for Physiology, mRNA technology Invitro transcription, COVAX program

Mains: Equity in access to Science, Commercialisation of Scientific discoveries

Context
- The 2023 Nobel Prize for Physiology or Medicine was awarded to Katalin Karikó and Drew Weissman for developing the mRNA vaccine technology.

Evolution of mRNA as means for vaccine delivery
- Katalin Karikó became interested in mRNA when it was still a new concept, and her work continued through various obstacles.
- Genetic information in DNA is transferred to messenger RNA (mRNA) in human cells.
- mRNA serves as a template for protein production, which is essential for cell growth and repair.
- In the 1980s, scientists discovered that mRNA could be used for vaccines and therapies through a process called in vitro transcription.
- However, there were several obstacles to overcome, such as delivery challenges and inflammatory reactions.
- She then partnered with immunologist Drew Weissman, who studied dendritic cells crucial for immune response.
- They modified mRNA bases over time to improve delivery and eliminate inflammation.
- Their work began in 2005, 15 years before the COVID-19 pandemic, but its significance became apparent in 2019 when scientists taught mRNA vaccines to instruct human cells to produce the S protein found on the COVID-19 virus, triggering antibody creation.
- This was the foundation for the fastest vaccine development program in history during the COVID-19 pandemic.
- The award also recognizes the contributions of a female scientist.
- Only 13 women have won the Nobel Prize for Medicine out of 225 awarded and 62 women winning any Nobel Prize out of 894 men.
- Interdisciplinary collaboration and persistent scientific research have led to the success of mRNA vaccines.

Issues with the commercialisation of mRNA vaccine
- The Nobel Prize for Medicine must be awarded for a discovery that confers the greatest benefit to humankind, but some critics point out that mRNA vaccines used during the pandemic may not meet this standard.
- Dr. Karikó and Dr. Weissman began working together on the mRNA platform at the University of Pennsylvania.
- The university licensed its patents to mRNA RiboTherapeutics, which sublicensed them to CellScript, which sublicensed them to Moderna and BioNTech for $75 million each.
- Dr. Karikó joined BioNTech as senior vice president in 2013, and the company enlisted Pfizer to develop its mRNA vaccine for COVID-19 in 2020.
- Governments and public funds often cover the costs of researching and identifying potential bio-molecular targets for drugs and vaccines, with estimated costs ranging from $1-2.5 billion and taking several decades to develop.
- Companies then commercialize and profit from these discoveries, often at the expense of the same people who funded the initial research through taxes.
- While this model can promote innovation and eventual price competition, it also imposes a "double spend" on consumers and encourages profit-driven tendencies among companies.

Equity in vaccine availability
- Moderna and Pfizer's mRNA COVID-19 vaccines were initially limited to North America and Europe due to export restrictions and negotiations over pricing and liability.
- This highlights the challenges faced in distributing medical resources globally.
- COVAX, a program aimed at ensuring poorer countries have access to sufficient stocks of mRNA vaccines, failed to meet its targets.
- India, Russia, and China exported billions of doses of their vaccines, but their efforts were marred by concerns about manufacturing capacity (in the case of India) and quality (in the case of Russia and China).
- There were reports of several African countries having to discard large quantities of vaccine doses due to expiration dates.
- The WHO encouraged these countries to use the expired doses, but this required a level of community engagement and risk communication that was lacking in many of these countries.

Corbevax – A case for ethical scientific discovery
- Researchers at Baylor College of Medicine and Texas Children's Hospital Centre for Vaccine Development developed Corbevax, a protein subunit vaccine, and licensed it to India's Biological E for manufacturing without patenting it.
- Kenya's Ambassador to the United Nations Martin Kimani praised the developers for providing "ethical and scientific leadership" in their efforts.

Conclusion
- Despite the potential benefits of mRNA technology, it did not reach everyone during the pandemic due to administrative mistakes.
- While it is unfair to criticize scientists for seeking financial gain from their research, governments should work towards more equitable access to medical resources so they benefit all of humankind.

Nut Graf: Katalin Karikó and Drew Weissman were awarded the 2023 Nobel Prize for Medicine for their development of mRNA vaccine technology, which has revolutionized the way vaccines are made and delivered. However, some critics argue that the commercialization of mRNA vaccines has not benefited all of humankind equally.

5. ISRO performs trajectory correction for Aditya-L1

Syllabus: Science and Technology

Prelims: Aditya-L1 Mission

Introduction
- The Indian Space Research Organisation (ISRO) conducted a trajectory correction manoeuvre on the Aditya-L1 spacecraft, which is en route to the Sun-Earth L1 (Lagrangian-1) point.
- The manoeuvre, performed on October 6, 2023, was successful, and the spacecraft remains in good condition.

Key Points
- Aditya-L1 is a solar observatory mission, marking India's first mission of this kind.
- The spacecraft was launched on September 2, 2023, using the Polar Satellite Launch Vehicle (PSLV) from the Satish Dhawan Space Centre in Sriharikota.
- The trajectory correction manoeuvre (TCM) was necessary to adjust the spacecraft's path after the Trans-Lagrangian Point 1 Insertion (TL1I) manoeuvre performed on September 19, 2023.
- The initiation of the TL1I manoeuvre signalled the commencement of Aditya-L1's 110-day voyage toward the L1 point, situated approximately 1.5 million kilometres away from Earth, positioned between the Sun and our planet.
- The spacecraft is equipped with a magnetometer payload developed at the Laboratory for Electro Optics Systems, Bengaluru, capable of measuring interplanetary magnetic fields at the L1 point.
- Aditya-L1 is expected to reach the L1 point by January, where it will conduct observations related to the Sun and solar phenomena.

6. What is multimodal artificial intelligence and why is it important?

Syllabus: Recent developments and their applications and effects in everyday life, General awareness in the fields of IT, Space, Computers, Robotics, Nanotechnology, biotechnology

Mains: Idea of multimodal artificial intelligence, its working, competition, application and future.

Prelims: About Multimodal Artificial Intelligence

Context
Multimodal AI, which integrates various sensory inputs, is the next frontier in artificial intelligence, with companies racing to develop versatile and capable models.

Introduction
- Multimodal AI models are emerging as the next frontier in artificial intelligence development.
- These models enable AI systems to understand and interact with users through various modes, including text, images, speech, and more.
- Leading AI companies, such as OpenAI and Google, are actively working on multimodal AI systems to enhance their capabilities.

OpenAI's Move Towards Multimodal AI
- OpenAI recently announced that its GPT-3.5 and GPT-4 models can now analyze images and engage in full-fledged conversations via mobile apps.
- This move was accelerated in response to Google's upcoming multimodal large language model called Gemini.
- OpenAI is actively hiring multimodal experts and working on a new project called Gobi to develop a multimodal AI system from scratch.

How Multimodality Works
- Multimodal AI systems combine different modes of data, such as text and images, during the training stage.
- For example, DALL-E, a text-to-image model by OpenAI, links text prompts with visual data to generate images based on textual descriptions.
- Similarly, GPT's voice processing capabilities are built upon its Whisper speech-to-text translation model.

Applications of Multimodal AI
- Multimodal AI systems have various applications, including:
  - Automatic image caption generation.
  - Detecting hateful content in social media.
  - Predicting dialogue lines in videos.
  - Processing complex medical datasets like CT scans.
  - Enabling speech translation for multiple languages.
  - Enhancing autonomous driving and robotics.

Future of Multimodal AI
- The future of multimodal AI could involve the integration of additional sensory data, such as touch, smell, and brain signals.
- This would allow AI systems to provide richer, more immersive experiences in fields like virtual reality.
- Multimodal AI is also crucial in industries like medicine, where complex data analysis and communication are essential.

Conclusion
- Multimodal AI models represent a significant advancement in AI technology, enabling more natural and versatile interactions between AI systems and users.
- Leading AI companies are investing in multimodal AI development to stay at the forefront of this evolving field and address real-world challenges across various industries.

***Nut Graf:** Leading AI companies like OpenAI and Google are competing to develop multimodal AI systems that can process text, images, sounds, videos, and speech, expanding the possibilities of artificial intelligence applications.*

7. Railways develops anti-freeze flushes and fuel tanks for journeys in J&K

Syllabus: Science and Technology

Prelims: About anti-freeze flushes and fuel tanks

Introduction
- The Indian Railways is facing unique challenges in maintaining water and fuel in liquid form in subzero temperatures during the harsh winters in regions like Jammu and Kashmir.
- Engineers at the Rail Coach Factory (RCF) in Kapurthala have designed and implemented indigenous innovations to overcome these challenges.

Challenges
- In the Jammu and Kashmir region, winter temperatures can drop to minus eight to minus 12 degrees Celsius.
- Freezing water in toilets and fuel tanks poses challenges, including toilets not functioning, supply taps not working, and the risk of tank cracks and bursts due to ice expansion.

Innovations
- The RCF has created double-walled composite insulated water tanks, available in capacities from 450 to 685 litres, which effectively keep water in its liquid state for a duration of 16 to 20 hours even in subzero conditions.
- The tanks mimic thermoplastic bottles with two walls and an insulation layer of foam in the middle, preventing freezing.
- The RCF is using heated pipes with a distributed heating system and insulation to prevent water in supply pipelines from freezing.
- Geysers will be deployed at the point of use in toilets, heating only the required amount of water, reducing energy loss.
- Similar technology is being used in the fuel tanks for locomotives to keep fuel in liquid form.

USBRL Project
- The innovations are being developed to support the Udhampur-Srinagar-Baramulla Rail Link (USBRL) project, which aims to connect Kashmir to Kanyakumari.
- The 111 km railway section connecting Katra in Jammu to Banihal in Kashmir is anticipated to become operational before the upcoming national elections in March

8.   Confronting the long term risks of Artificial Intelligence

Syllabus: Science and Technology- Developments and their Applications and Effects in Everyday Life.

Prelims: Runaway AI, AI Index

Mains: Risks associated with development of AI

Context:
- The understanding of AI risk can change dramatically as the technology's capabilities increase.
- Sharing personal information openly was once risk-free but now poses dangers in the digital age of cyberattacks and data breaches.

Risks associated with AI
- **Concerns About AI and Its Impact on Humanity**
  - Historian Yuval Noah Harari has raised concerns about the integration of AI and biotechnology. He feels that it could lead to the manipulation of human emotions, thoughts, and desires, fundamentally changing human existence.
  - Over 350 AI professionals have expressed concerns about the potential risks posed by AI technology.
  - There are also existential risks from advanced AI systems, such as the disruption of critical infrastructure like water and electricity, and the possibility of "runaway AI" causing catastrophic consequences.
  - Runaway AI are artificial intelligence (AI) systems that act independently of the human developers and may be harmful to both individuals and society as a whole.
- **Alignment of AI with Human Values**
  - Some people view AI as a potential catalyst for extinction due to its ability to rapidly improve itself and become a super-intelligence that surpasses human intelligence.
  - The alignment of AI with universally accepted human values is a major challenge.
  - Uncontrolled AI growth driven by market pressures might lead to neglecting safety considerations and raising concerns.
- **Regulatory Approaches and Challenges**
  - The lack of a unified global approach to AI regulation can be detrimental to ensuring the long-term safety and ethical deployment of AI technologies.
  - The AI Index from Stanford University shows that 127 countries have passed 37 laws related to AI, but there is no consistent approach to regulation.
  - The European Union's AI Act takes a "risk-based" approach. It identifies critical infrastructure where AI deployment could be risky.
  - Tying risk solely to the deployment area might overlook certain risks, requiring a more comprehensive view of AI risks for effective regulation.
- **Military AI and International Treaties**
  - There is a lack of international collaboration and cohesive action on AI regulation.
  - Unregulated AI advancements in some countries, like China, could lead to developments that don't align with global ethical standards, posing risks of destabilization and conflict.
  - It could also prompt a "race to the bottom" where safety considerations are compromised for rapid development and deployment.
  - The convergence of AI technology and warfare thus increases long-term risks.

Way Forward
- Long-term risks involve broader questions about AI's role in society and implications for humanity.
- Addressing this requires a multi-faceted approach that identifies current challenges and future consequences.
- Nations must clearly define unacceptable use of AI and enforce strict guidelines for its role in conflict.
- International treaties like the Treaty on the Non-Proliferation of Nuclear Weapons and the Chemical Weapons Convention could act as examples for establishing global norms for AI in warfare
- The decisions made today regarding AI will impact the future we inherit.

Nut Graf: *AI risks and challenges for humanity are multifaceted and evolving. Existential risks from advanced AI systems, such as runaway AI, and the alignment of AI with human values are key concerns. International regulation aligned with ethical norms are necessary to ensure safe use of AI.*

9. The explosion of digital uncertainty

Syllabus: Effects of scientific developments in everyday life

Mains: Growing concerns about the exponential rise in digital uncertainty

Context: Recent advancements in Generative Artificial Intelligence (AI) have gained widespread attention, with governments, businesses, and the public recognizing the opportunities and challenges it presents.
- In India, the government has released a comprehensive report on AI's potential. However, amidst this AI revolution, there's a growing concern about the exponential rise in digital uncertainty, which is poorly understood.
- This digital uncertainty poses significant threats and implications that demand our attention.

Concerns:
- **Scant Understanding of Implications**
  - The complexity of digital infrastructure, composed of machine intelligence, human-coded software, and hardware components, is not well understood by the majority.
  - This complexity leads to vulnerabilities, yet there's limited awareness of the potential risks.
- **Cognitive Warfare**
  - Cognitive warfare, akin to other forms of modern warfare, involves destabilizing institutions and manipulating media using advanced techniques.
  - It relies on technology to alter human cognition subtly, which can result in a loss of trust, breaches of confidentiality, and changes in population behaviour.
- **Digital Transformation Risks**
  - With companies investing heavily in intangible assets and migrating to the cloud, they expose themselves to AI-related risks.
  - As sensors continuously transmit sensitive data, these risks multiply, leading to concerns about the future.
- **Morphing into Radical Uncertainty**
  - Digital uncertainty is evolving into radical uncertainty at a rapid pace, with misinformation and disinformation causing "truth decay."
  - Governments are struggling to combat the impact of AI-driven misinformation and manipulation of information.
- **The Emergence of AGI**
  - Artificial General Intelligence (AGI), on the horizon, is seen as more disruptive and dangerous than current AI.
  - AGI's capacity to influence thinking and decision-making across various domains can have far-reaching consequences, including social and economic inequalities.
- **Geo-Political Implications**
  - AGI could reshape the geo-political balance of power, leading to digital colonialism where a few locations control AGI-based power centres.
  - This new form of exploitation, resembling data colonialism, can exacerbate inequalities and disparities.
- **The 'Oppenheimer Moment'**
  - There's a need to consider the ethical implications and control of AGI's development, as it has the potential to reshape the world in unexpected ways.
  - The challenges of controlling AGI development and fostering collaboration between states and the technology sector are complex.

Artificial general intelligence (AGI)
- Artificial general intelligence (AGI) is the representation of generalized human cognitive abilities in software so that, faced with an unfamiliar task, the AGI system can find a solution. The intention of an AGI system is to perform any task that a human being is capable of.
- An AGI system should have the following abilities and understanding:
  - Abstract thinking
  - Background knowledge
  - Common sense
  - Cause and effect
  - Transfer learning

The Hamas-Israel Conflict: A Case Study
- AI's role in the Hamas-Israel conflict highlights the dangers of over-reliance on AI. Israel's intelligence failure was attributed to an excessive dependence on AI, which Hamas manipulated. This incident serves as a cautionary tale against blind trust in AI.

Nut Graf: *The explosion of digital uncertainty, coupled with the imminent emergence of AGI, presents profound challenges and opportunities. As we stand at the crossroads of computing and technology ethics, it is crucial to understand and control the power of AI and AGI. Fostering collaboration between states and the technology sector is a necessary step in managing these transformations and preventing catastrophic consequences.*

10. Gaganyaan Mission: ISRO is set for first test flight today

Syllabus: Developments in science and technology in India

Mains: Gaganyaan Mission

Context: The Indian Space Research Organisation (ISRO) achieved a significant milestone by successfully completing the Test Vehicle Abort Mission 1 (TV-D1) flight, which was designed to simulate an abort situation and demonstrate the crew escape system for the Gaganyaan mission.
- This achievement comes after overcoming setbacks, including weather-related rescheduling and a temporary launch delay due to an anomaly in the system.

Details:
- **Crew Escape System Demonstration:** The TV-D1 flight was a crucial step in the Gaganyaan mission, which aims to send humans into space. The primary purpose of this test was to simulate an emergency abort situation and showcase the system's capability to safely carry the crew module out of the vehicle.
- **Launch Challenges:** The flight, originally scheduled for 8 a.m., experienced several delays, with the final launch taking place at 10 a.m. A technical anomaly just five seconds before the initial lift-off prompted a hold in the launch sequence. ISRO's quick response and correction of anomalies allowed for a successful launch.
- **Crew Escape System Validation:** The TV-D1 test flight confirmed that the crew escape system (CES) operated as intended. This critical component ensures the safety of astronauts by providing a means of escape in case of unforeseen emergencies during the mission.
- **Indian Navy's Role:** The Indian Navy played a significant role in the mission by recovering the crew module from the Bay of Bengal after it touched down. The module was then transported to Chennai port and handed over to ISRO.
- **Gaganyaan Mission:** Following the successful TV-D1 flight, ISRO's Chairman announced that the first unmanned Gaganyaan vehicle mission is scheduled for the beginning of 2024. This mission represents a significant step toward India's goal of sending humans into space.

Details:

Gaganyaan's First Flight Test – TV-D1:
- ISRO will conduct Gaganyaan's first Flight Test Vehicle Abort Mission-1 (TV-D1) on October 21.
- The mission's primary goal is to demonstrate the performance of the Crew Escape System (CES).
- The test vehicle is a single-stage liquid rocket equipped with the Crew Module (CM) and Crew Escape Systems (CES).
- The CM is an unpressurized version used for this flight, representing an abort scenario during ascent at Mach 1.2.
- The CES, along with the CM, will separate from the test vehicle at an altitude of about 17 km.
- The abort sequence includes the deployment of parachutes, ultimately leading to the safe landing of the CM in the sea, approximately 10 km from the coast of Sriharikota.
- The entire mission, from liftoff to CM recovery, is expected to take about eight and a half minutes.

Recovery by the Indian Navy:
- The Indian Navy will lead the recovery efforts of the TV-D1 Crew Module (CM) after touchdown.
- Recovery ships will be positioned in sea waters to approach the CM.
- A team of divers will attach a buoy, hoist the CM using a ship crane, and bring it to the shore for further examination.

Mission Objectives:
- The mission's primary objectives include the flight demonstration and evaluation of test vehicle subsystems.
- It also evaluates the CES and its various separation systems, along with the characteristics and deceleration systems of the CM at higher altitudes.
- The mission's fundamental purpose is to assess the safety and capabilities of the Crew Escape System (CES) in case of an emergency requiring an abort.

Gaganyaan Program Overview:
- The Gaganyaan mission seeks to demonstrate India's ability to launch three crew members into low Earth orbit and safely return them to Earth by landing either in the Bay of Bengal or the Arabian Sea.
- Prior to the first crewed flight, three test vehicle (TV) flights have been planned: TV-1, TV-2, and TV-3.
- Following the TV-D1 mission, the program will proceed with further testing and eventually carry a humanoid named VyomMitra in early 2023.

Significance:
- **Safety Assurance:** The successful test flight of the crew escape system is a vital assurance of the safety measures in place for the Gaganyaan mission. It demonstrates ISRO's commitment to astronaut safety.
- **Mission Progress:** Overcoming setbacks and successfully conducting the TV-D1 flight indicates progress in the Gaganyaan mission. The readiness to conduct the first unmanned mission in 2024 is a significant milestone.
- **Technological Achievement:** This achievement underscores India's growing capabilities in space exploration and technology, positioning the country as a player in crewed space missions.

11. Dark Pattern Cybercrime

Syllabus: Science and Technology

Prelims: Dark Pattern Cybercrime

Context:
- A rising issue within the aviation industry involves airlines and online travel agents employing deceptive tactics to coerce consumers into making unintended purchases while booking flight tickets.
- These unethical practices, known as 'dark patterns,' have raised concerns, with one government official branding them as "cybercrime."
- The Ministry of Civil Aviation has taken action, demanding that low-cost carrier IndiGo rectify its website.
- This comes on the heels of a scheduled meeting of the Consumer Affairs Ministry to address these complaints from air travellers.

  A Dark Pattern:
  - A Dark Pattern is one where an entity nudges consumers to buy products they didn't intend to, which is an unfair trading practice and can constitute a cybercrime.
  - "Interface Interference": where the website design highlights certain specific information and deliberately obscures other information.

Issues:
- **Deceptive Practices:** Airlines and online travel agents are using 'dark patterns' to manipulate consumers into making additional purchases, such as seat selections, without their clear consent.
- **Consumer Complaints:** The Ministry of Civil Aviation has received a significant number of complaints related to these practices, indicating the widespread nature of the issue. Nearly 10,000 complaints have been registered via the National Consumers Helpline over the last eight to nine months.
- **Lack of Transparency**: Many airline websites, apps, and online portals employ these dark patterns to obscure important information and guide consumers towards unintended purchases.

Solutions:
- **Regulatory Oversight:** The government, in collaboration with industry stakeholders, should establish clear regulations to prevent deceptive practices and protect consumer rights.
- **Transparency:** Airlines and online travel agents should be required to provide transparent and easily accessible information to consumers. Any additional charges or purchases should be clearly presented, and consumers should have the option to opt out without hindrance.
- **Consumer Education:** Educating consumers about their rights and how to identify and report dark patterns can empower them to make informed choices.

12. The act of photocopying

Syllabus: Science and Technology

Prelims: General Science

Introduction
- In his essay "The Work of Art in the Age of Mechanical Reproduction," the German philosopher Walter Benjamin underscores how mass reproduction affects art within a capitalist society.
- The advent of xerography, a dry photocopying method, revolutionised the way textual material is reproduced and disseminated.
- Xerography's impact extends beyond simple reproduction to copyright, surveillance, counterfeiting, and even the art scene.

Understanding Xerography
- Xerography, derived from the Greek word "xero" (meaning dry), involves a photocopying technique that doesn't require liquid chemicals.
- In xerography, a photoconductive surface is negatively charged, exposed to light, and used to duplicate printed material.
- A powdery substance called toner is applied to the charged surface, transferred to a sheet of paper, and heated to create a copy.

Invention of Xerography
- Inspired by Hungarian engineer Paul Selenyi, American attorney Chester F. Carlson developed xerography in 1938.
- Carlson sold his idea to the Battelle Memorial Institute in Ohio, where researchers refined the technique.
- The New York-based Haloid Photographic Company purchased a licence from Battelle and introduced the first Xerox machine in 1949.

Impact of Xerography

- **Counterfeiting:** Xerox machines have mechanisms to prevent the photocopying of banknotes with specific markings, making counterfeiting more challenging.
- **Copyright and Education:** Xerography enabled the reproduction of educational material at a low cost, benefiting students and institutions. It has also raised questions about copyright infringement.
- **Art and Creative Expression:** Xerography empowered artists, musicians, and writers to self-publish, advertise events, and explore their creative expressions outside traditional galleries and museums.

13. Climate change and infectious diseases

Syllabus: Science and Technology

Prelims: Infectious diseases

Context: In its latest report, the Intergovernmental Panel on Climate Change (IPCC) has indicated that climate change heightens the global risk of infectious diseases.

How is climate change linked to diseases?
- Habitat loss and zoonotic diseases
- Temperature and Disease Transmission
- Changing Patterns of Precipitation
- Impact on food security
- Altered Vector Behaviour
- Extreme weather events

Impact on India
- India, in particular, has felt the ominous impact, with early summers and erratic monsoons causing water scarcity across the Gangetic plains and Kerala. These climatic shifts are manifesting in severe health crises, including a dengue epidemic in Dhaka (Bangladesh) and Kolkata and the Nipah outbreak in Kerala.

Way forward
- Mitigating climate change
- Strengthening disease surveillance
- Capacity building
- International collaboration

14. M. S. Swaminathan

Syllabus: Science and Technology

Mains: Contributions of M. S. Swaminathan
Context: The "Father of Indian Green Revolution" passed away on 28th September 2023.

About Dr. M.S. Swaminathan: A Timeline
- **1925:** Born in Kumbakonam, Tamil Nadu
- The Bengal Famine of 1943 motivated him to improve Indian agriculture so as to address food shortage.
- **1947-49:** Joined IARI to work on plant genetics and breeding.
- 1954: Collaborated with Dr. Norman Borlaug.
- **1965-70:** Modified the grains to suit Indian soils, and encouraged farmers in Punjab, Haryana and Uttar Pradesh to conduct pilot trials.
- **1979-82:** Director general of ICAR.
- **1982:** DG of IRRI, the first Asian to hold the post – and worked to promote participation of women farmers on rice cultivation.
- **1988:** Set up the M.S. Swaminathan Research Foundation in Chennai.
- **2002:** elected as President of the Nobel Peace Prize-winning Pugwash Conferences on science and world affairs.
- **2004:** Chairperson of National Commission on Farmers
- **2005:** Joined the United Nations Millennium Project's Hunger Task Force.
- **2007:** nominated as a Rajya Sabha member. Introduced a Private member's bill in 2012, "Women Farmers' Entitlements Bill 2011" to increase women's role in farming due to the gradual migration of male farmers to cities in search of employment.
- Instrumental in setting up Agro-research institutes in multiple nations: China, Vietnam, Myanmar, Thailand, Sri Lanka, Pakistan, Iran and Cambodia.

Awards: International
- **1971:** Ramon Magsaysay Award
- **1986:** Albert Einstein World Science Award
- **1987:** 1st recipient of World Food Price
- **1994:** UNEP Sasakawa Environment Prize
- **1999:** UNESCO Gandhi Gold Medal
- **1999:** Indira Gandhi Prize for Peace, Disarmament, and Development
- **2000:** Franklin D. Roosevelt Four Freedoms Award

Awards: Indian
- Lal Bahadur Shastri National Award
- Indira Gandhi Prize
- All three civilian awards- Padma Shri in 1967, Padma Bhushan in 1972, and Padma Vibhushan in 1989

Learnings from the life of Dr. M.S. Swaminathan
- Empathy
- Inclusivity
- Environmentalism
- Scientific Rigour
- Community Engagement

Other "Coloured" Revolutions
- White Revolution: Milk
- Blue Revolution: Fish
- Operation Greens: Fruits and Vegetables (TOP)
- Black Revolution: Petroleum (Inception of Ethanol Blending)
- Grey Revolution: Fertilizers
- Yellow Revolution: Pulses and Oilseeds
- Golden Revolution: Horticulture, Honey and fruits
- Golden Fibre Revolution
- Brown Revolution: Coffee/Leather
- Round Revolution: Potatoes
- Red Revolution: Meat/Tomatoes
- Pink Revolution: Onion/Pharmaceutical/Prawn
- Silver Revolution: Eggs
- Silver Fibre Revolution: Cotton
- Protein Revolution
- Evergreen Revolution

15. Disease X and Monoclonal Antibodies

Syllabus: Science and Technology

Prelims: Disease X and Monoclonal Antibodies

About Disease X
- Name given by WHO to a possible new Pandemic.
- "Disease X refers to pathogen - known/potentially unknown that can cause large scale, serious pandemic leading to mass scale human disease."
- Could be many times deadlier than Covid Pandemic.
- We still have not discovered all the viruses present on Earth.
- **Sources:** Could be Zoonotic viral Disease. Incidental Laboratory Accident.
- Bioterrorism. Antimicrobial Resistance

Prevention and Mitigation Strategies?
- International Guidelines against Bioterrorism
- Global Collaboration to investigate, control and eliminate the disease.
- If patients are identified in a region: Travel Restrictions
- Ensure availability of test kits, vaccines, medicines.
- Mass testing, contact tracing, surveillance.
- Awareness creation.
- One Health Approach

Monoclonal Antibodies
- Type of laboratory-made proteins that can mimic the immune system's ability to fight off harmful pathogens
- Called "monoclonal" because they are derived from a single type of immune cell, known as a B cell.
- Designed to target specific molecules on the surface of these pathogens or the cells they infect.
- **Key Advantage:** specificity.
- **Uses:**
  - Therapeutic Uses
  - Diagnostic Uses
  - Research Tools
  - Immunotherapy
- Monoclonal antibodies have been used globally in various medical contexts, including for diseases like COVID-19.
- Also being used for Nipah.

DEFENCE AND INTERNAL SECURITY

1.   MQ – 9B drones

Syllabus: Defence technology

Prelims: MQ – 9B drones

Introduction
- India is set to acquire 31 MQ-9B Unmanned Aerial Vehicles (UAVs) from the United States.
- The agreement is projected to be finalised by February 2024, and deliveries are scheduled to commence in February 2027, marking a three-year gap after the contract is signed.

Key Developments
1. **Deal Status and Timeline**
- The MQ-9B UAV deal is progressing as planned.
- The Letter of Offer and Acceptance (LOA) from the U.S. government is awaited.
- The contract is anticipated to be finalised by February 2024.
2. **UAV Maker's Commitment**
- The UAV manufacturer, General Atomics (GA), is in the process of setting up a worldwide facility for maintenance, repair, and overhaul within India.
- The exact location for the facility is yet to be determined, but Bengaluru is a likely choice.
3. **Clearance and Costs**
- In June, India's Defense Ministry approved the procurement of 31 MQ-9B UAVs from GA, valued at an estimated cost of $3,072 million.
- The procurement consists of 15 Sea Guardians designated for the Navy, as well as eight Sky Guardians allocated to both the Army and the Air Force.
4. **Procurement Process**
- The Letter of Request (LoR) was issued to the U.S. government just before Prime Minister Narendra Modi's talks with U.S. President Joe Biden at the G-20 summit.
- The LoR serves as the basis for finalising the Letter of Offer and Acceptance (LOA), specifying equipment and procurement terms in line with the U.S. Foreign Military Sales (FMS) program.
5. **Approval and Conclusion**
- The U.S. administration is required to inform the U.S. Congress about the sale.
- The deal will then need approval from the Indian government's Cabinet Committee on Security before the contract can be concluded.

2.   Astra BVR missile

Syllabus: Defence technology

Prelims: Astra BVR missile

Introduction
- The Indian Air Force (IAF) has entered into contracts with Bharat Dynamics Ltd. (BDL) for the Astra Beyond Visual Range (BVR) air-to-air missile, with the first batch set for induction by year-end.

AstraMk2 Development
- Development is underway for the more advanced and longer-range AstraMk2 missile.
- Static firing tests have already been conducted.

Production Clearance for Astra-MK1
- BDL has received bulk production clearance for Astra-MK1 missiles from the Centre for Military Airworthiness and Certification (CEMILAC).
- The IAF plans to conduct proof firing and induction this fiscal year.

Integration and Successful Tests
- The Astra missile is fully integrated into the Su-30MKI aircraft.
- In August, successful test firings were conducted from the Light Combat Aircraft (LCA) Tejas off the coast of Goa.

IAF's Plans
- The IAF intends to equip its frontline fighters with the Astra-MK1.
- Astra-MK2 is expected to become the primary BVR missile in the IAF's arsenal, reducing dependence on imports.

Contract Details

- In May 2022, the Defence Ministry signed a ₹2,971 crore contract with BDL for supplying Astra Mk-I missiles and associated equipment to the IAF and Navy.
- The IAF is initially looking to acquire over 200 Mk-1 missiles.

3. ITBP on alert, conducting patrols along China border: Home Ministry

Syllabus: Issues relating to Internal security

Prelims: ITBP

Context: The Indo Tibetan Border Police (ITBP) has been maintaining heightened vigilance and conducting regular patrols along the China border, as revealed in the 2022-23 annual report of the Union Home Ministry.

ITBP's activities:
- **Increased Patrolling by ITBP:**
  - The ITBP conducted 2,899 patrols along the China border from April to December in 2022.
  - The patrols were aimed at ensuring the security of the border and maintaining strict vigilance.
- **Heightened Security Scenario:**
  - The number of patrols, averaging around 300 per month, has increased since the border tensions with China began in 2020.
  - In June 2020, a violent clash between Indian soldiers and the Chinese People's Liberation Army (PLA) resulted in the deaths of 20 Indian soldiers.

Issues:
- **Unpatrolled Patrolling Points:**
  - There are 65 patrolling points in eastern Ladakh, with 26 of them remaining unpatrolled by Indian troops since April-May 2020.
  - Several rounds of talks have been held between India and China to resolve the border issue, but challenges persist.
  - Some previously patrolled areas have been designated as "buffer zones," with neither side sending troops.
  - Patrolling points are crucial for asserting territorial claims along the undefined Line of Actual Control (LAC).
- **Lack of Mutually Agreed Border:**
  - The absence of a mutually agreed border on certain stretches of the LAC complicates the situation.
  - Face-offs with the Chinese PLA have occurred due to interruptions in patrols and an undefined LAC.

ITBP:
- Indo-Tibetan Border Police force
- Raised in 1962 after the Indo-China War.
- A Central Armed Police Force under the ITBPF(Indo-Tibetan Border Police Force) Act, 1992 (Earlier under the CRPF Act)
- Nodal Ministry: Ministry of Home Affairs
- Specialized Mountain force (most of the members are trained mountaineers.)
- Deployed along the Indo-China border.

ITBP's Role:
- ITBP mans 180 border outposts along the 3,488-km border with China in the western, middle, and eastern Himalayas.
- It conducts short- and long-range patrols, special missions, and joint patrols to secure unmanned gaps along the China border.
- Long-range patrols can last up to 30 days, depending on operational requirements and weather conditions.

4. Territorial Army inducts five Chinese language interpreters for border talks

Syllabus: Issues relating to Internal security

Prelims: Territorial Army

Context: The Territorial Army (TA) has inducted five Chinese language interpreters in August to assist the Army at the Border Personnel Meetings (BPM) with China, defence sources said. Also, there are plans for the recruitment of cyber experts.

About Territorial Army:
- Part-time, voluntary, and citizen's military reserve force.
- Under the Territorial Army Act 1948.
- Integral part of the Indian Army and provides an opportunity for civilians to serve the nation and support the regular

army in times of need.
- Currently has 60 units, of which 14 are deployed in counter-insurgency duties in support of the Army and two units are on the Andaman and Nicobar islands.
- It has departmental TA battalions funded by the Ministries of Environment and Forests, Jal Shakti, Railways and Petroleum.
- Two new ecological battalions are set to be raised in Maharashtra later this month on the request of the State government.
- **Recent Contributions:**
  ○ Deployed to support the Army in eastern Ladakh as part of Operation Snow Leopard at the peak of the stand-off with China in 2020
  ○ In May, as the crisis unfolded in Manipur, the TA oil units stepped in and took control of oil installations that were not operational and augmented manpower in order to ensure supplies of essential petroleum and oil products and refuelling of aircraft.

5. Study estimates count of UAVs required for the three Services

Syllabus: Issues relating to Internal security

Prelims: UAVs

Introduction
- The Chief of Defence Staff, General Anil Chauhan, has ordered two studies on significant military platforms used by the three Services in India.
- These platforms are unmanned aerial vehicles (UAV) and armoured helicopters.
- These studies aim to optimise the number of platforms, resources, and avoid duplication.

Studies on UAVs (Unmanned Aerial Vehicles)
- The study on UAVs has been completed, recommending the acquisition of 31 MQ-9B high-altitude long-endurance (HALE) UAVs and 155 medium-altitude long-endurance (MALE) UAVs.
- The Indian Services currently operate Israeli Heron MALE UAVs, and there's a pending upgrade to weaponize and incorporate satellite communication on these UAVs.
- Officials believe this upgrade may get cleared following the study's recommendations.

Procurement of MQ-9B UAVs
- In June, the Defence Ministry approved the procurement of 31 MQ-9B UAVs from General Atomics through the U.S. foreign military sales route.
- The Letter of Request (LoR) was issued to the U.S. government, and further details and terms of the procurement will be negotiated and finalised in the Letter of Offer and Acceptance (LOA).

Apache Helicopters
- The Army Aviation Corps inducted the first batch of light combat helicopters (LCH) and is awaiting government approval for a bigger deal to procure 156 LCH.
- The Cabinet Committee on Security approved the procurement of 39 AH-64 Apache attack helicopters from the U.S.
- The Air Force has already inducted 22 AH-64E Apaches, and further Apache procurements will go to the Army.
- The Army signed a deal for six more Apaches in February 2020, with deliveries expected to start in February 2024.
- The Army is discussing the procurement of 11 more Apaches with Boeing, and progress will be based on the outcome of the study on armoured helicopters.

6. Indian Army's Project Udbhav

Syllabus: Issues relating to Internal security

Prelims: Project Udbhav

Context: The Indian Army, in collaboration with the United Service Institution of India (USI), has initiated Project Udbhav to integrate India's ancient strategic knowledge into contemporary military practices. The project aims to develop an indigenous strategic vocabulary rooted in India's philosophy and culture.

Details:
- **Ancient Wisdom Integration:** The project seeks to combine ancient wisdom, philosophy, and cultural insights with modern military pedagogy, fostering a holistic approach to address current security challenges.
- **Cultural Heritage:** The project recognizes the deep cultural and philosophical roots of India and aims to derive valuable strategic insights from this heritage.
- **Educational Initiatives:** Through interdisciplinary research, workshops, leadership seminars, and the compilation of knowledge, Project Udbhav aims to educate military leaders and enrich military training curricula.

- **Heritage Preservation:** Project Udbhav contributes to the preservation and promotion of India's rich heritage by integrating ancient wisdom and knowledge into modern military thought.
- **Strategic Insights:** By exploring ancient texts like the Arthashastra and Mahabharata, the project aims to uncover previously underexplored strategic theories, contributing to a deeper understanding of warfare and statecraft.
- **Military Education:** The project enriches the education of junior and senior military leaders and academia by introducing them to classical texts and teachings from India's rich history.

Publication and Dissemination: Reports and papers prepared during the project should be documented and widely disseminated to share the insights gained and serve as valuable references for further studies.

7. Cyber Insurance for Cyber Crimes

Syllabus: Issues related to internal security through cyber risks

Mains: Significance of cyber insurance in addressing cyber risks for small and medium-sized enterprises.

Context
Small and Medium Enterprises (SMEs) and Micro, Small and Medium Enterprises (MSMEs) in India are increasingly vulnerable to cyberattacks, necessitating the adoption of cyber insurance.

Introduction
- Small and Medium Enterprises (SMEs) and Micro, Small and Medium Enterprises (MSMEs) play a crucial role in India's economic landscape, contributing over 28% to the GDP and generating employment opportunities.
- However, they are increasingly vulnerable to cyberattacks, with India experiencing a high number of cyber incidents, including data breaches, malware attacks, and phishing attacks.

Challenges Faced by SMEs and MSMEs
- Limited resources: SMEs often have fewer resources to invest in cybersecurity and lack dedicated security teams.
- Increased susceptibility: Statistics show that about 43% of all cyberattacks are directed at small businesses and startups.
- Multi-pronged consequences: Cyber incidents result in financial losses, damage to reputation, and operational disruptions.

Importance of Cyber Insurance
- Cyber insurance is essential for SMEs and MSMEs to mitigate the financial and operational risks associated with cyberattacks.
- It provides financial protection, covering costs related to data breaches, ransomware attacks, and other cyber incidents.
- For cash-strapped SMEs, cyber insurance can mean the difference between survival and insolvency.

Tailored Cyber Insurance for SMEs
- Insurers now offer specialised cyber insurance solutions tailored to the unique needs and digital reliance of SMEs and MSMEs.
- These policies consider the scale of operations, specific cyber risks, and often come with provisions to address operational disruption caused by cyber incidents.

Coverage Offered by Cyber Insurance
- Notifying customers and affected parties about data breaches.
- Legal expenses arising from data breaches.
- Restoring lost or compromised data.
- Compensation for lost income during operational downtime caused by cyber events.
- Access to experts who guide businesses through managing and mitigating cyber incident impacts.

Intangible Costs Addressed by Cyber Insurance
- Reputation management provisions help businesses navigate the aftermath of cyberattacks and rebuild trust with stakeholders.
- Cyber insurance acknowledges the intangible costs related to customer trust, client exodus, revenue impact, and talent acquisition challenges.

Nut Graf: *As SMEs and MSMEs contribute significantly to India's GDP, their vulnerability to cyberattacks poses a serious threat. Cyber insurance tailored to their needs is crucial to mitigate financial, operational, and reputational risks.*

8. Centre to introduce DNA, face matching systems at police stations across country

Syllabus: Internal Security

Prelims: DNA, Facial Recognition under Criminal Procedure Identification Act

Delayed Implementation of Criminal Procedure Identification Act
- More than a year after the Criminal Procedure Identification Act was passed by Parliament, the provisions of the Act have not been entirely implemented on the ground.
- There have been logistical and connectivity issues delaying its implementation, according to officials.

Key highlights:
- The CrPI Act replaced the British-era Identification of Prisoners Act, 1920, extending the scope to capture and record modern body measurements, including DNA and facial recognition.
- The NCRB plays a pivotal role in storing, processing, sharing, disseminating, and destroying records of measurements collected by police and prison officials.
- While police have been trained for fingerprint impressions, iris scanners, DNA sampling, and facial recognition systems are yet to be provided.
- The Act aims to modernize the process of capturing and storing data related to arrested individuals.
- It expands the scope to allow authorized individuals, including medical practitioners, to take measurements.
- Records are to be stored for 75 years, creating a comprehensive database accessible to authorized officials nationwide.

DNA and Face-Matching Systems to be Rolled Out
- Although the Act and its accompanying rules do not expressly address the gathering of DNA samples and face-matching procedures, the National Crime Records Bureau (NCRB) has communicated to State law enforcement officials that these measures are scheduled for implementation at approximately 1,300 sites, encompassing police districts, commissionerates, and specialised investigation units located at State headquarters.

Steps Towards Implementation
- The Union Home Ministry has constituted a Domain Committee for the successful implementation of the Act, comprising representatives from state police, central law enforcement agencies, and other stakeholders.
- A technical sub-committee is tasked with preparing standard operating procedures for capturing DNA as a measurement.
- States have been asked to identify suitable locations for the measurement collection unit (MCU) proposed by the NCRB.
- The central body under the Home Ministry will be the national repository of the database.

Role of NCRB:
- The central body has been entrusted with the task to "store, process, share, disseminate and destroy records of measurements." Impressions taken at any police station will be stored in a common database maintained by the NCRB.
- The database could be accessed by authorised police and prison officials across the country.
- Any person skilled in taking the measurements or a registered medical practitioner or any person authorised to take such measurements may also take them. The records are to be stored for 75 years.
- Police across States have been trained to record finger impressions through the National Automated Fingerprint Identification System (NAFIS).
- NAFIS, also under the NCRB, is a separate project that was launched in 2022. It assigns a unique ten-digit National Fingerprint Number (NFN) to all suspects arrested by the police. State police have their own fingerprint database.
- NAFIS integrates the data on a common platform, enabling the police to run a countrywide search to match fingerprint impressions lifted from a crime scene. NAFIS workstations are operational in many States.

Challenges
- Violation of fundamental rights, including the right to privacy,
- Issues with protection of such data
- Non clarity of rules for police officers
- Onus for destruction of data in this 75 year time period has also been placed on the people whose data has been collected
- Lack of training to handle DNA
- Lack of infrastructure such as internet connectivity.

National Automated Fingerprint Identification System
- NAFIS assigns a unique 10-digit National Fingerprint Number (NFN) to each person arrested for a crime.
- This unique ID will be used for the person's lifetime, and different crimes registered under different FIRs will be linked to the same NFN.
- The 2020 report states that the ID's first two digits will be that of the state code in which the person arrested for a crime is registered, followed by a sequence number.
- By automating the collection, storage, and matching of fingerprints, along with digitizing the records of fingerprint data, NAFIS will provide the much-needed unique identifier for every arrested person.
- It will be included in the CCTNS (Crime and Criminal Tracking Network & Systems) database.

Wayforward:
- Policymakers need to address concerns regarding the violation of fundamental rights, including privacy, and establish safeguards for the protection of collected data.
- Guidelines should specify the scope and circumstances under which measurements will be recorded, such as in offenses under the Protection of Children from Sexual Offences (POCSO) Act.
- Adequate training for handling DNA samples, secure storage, and connectivity should be ensured, especially in smaller states.

Nut Graf: The implementation of the CrPI Act is a significant step towards modernizing the process of capturing and storing data related to arrested individuals. Addressing privacy concerns and ensuring proper training and safeguards will be crucial for the successful execution of the Act.

9. Indian Air Force unveils new Ensign as it marks its 91st anniversary

Syllabus: Internal Security

Prelims: New Ensign

Introduction
- On the occasion of its 91st anniversary, the Indian Air Force (IAF) unveiled a new Ensign, marking a significant change in its emblem.

Changes to the Ensign
- The new Ensign features the Air Force Crest in the top right corner, towards the fly side.
- The Air Force Crest includes the national symbol, the Ashoka lion, along with the words "Satyameva Jayate" in Devanagari below it.
- Below the Ashoka lion, there is a Himalayan eagle with its wings spread, symbolising the fighting qualities of the IAF.
- A light blue ring encircles the Himalayan eagle, and the words "Bharatiya Vayu Sena" are inscribed above it. The IAF motto is in golden Devanagari below the eagle.

Air Force Day Parade 2023
- The Air Force Day parade took place at the Air Force Station, Bamrauli, in Prayagraj.
- The parade featured an air display, which attracted a significant audience, including a display of aerial manoeuvres.
- The newly inducted C-295 transport aircraft made its debut appearance, while the legacy MiG-21 Bison participated in what could be its last air display before planned retirement by 2025.

Achievements and Theme
- The IAF highlighted its achievements, including reducing dependency on imports by developing indigenous capabilities.
- The theme for this year's Air Force Day was "IAF — air power beyond boundaries," emphasising the global reach and importance of air power in future conflicts.

Women in Command
- Group Captain Shaliza Dhami, the first woman officer of the IAF to command a combat unit, commanded the Air Force Day Parade.
- An all-woman contingent of newly inducted Agniveer Vayu personnel participated in the parade.

Conclusion
- The unveiling of the new Ensign symbolises the IAF's commitment to its core values and its readiness to face future challenges. The Air Force Day Parade celebrated the IAF's achievements, showcased its capabilities, and recognized the contributions of its units and personnel.

ENVIRONMENT AND ECOLOGY

1. Developed countries to overshoot carbon emissions goal, says study

Syllabus: Conservation, Environmental pollution and degradation, Environmental impact assessment

Mains: Overshoot carbon emissions goals

Introduction
- Developed nations, responsible for a significant portion of global carbon emissions, are on course to exceed their emission targets by a substantial margin by 2030, reveals a study by the Delhi-based Council for Energy Environment and Water (CEEW).
- This concerning trend comes to light just ahead of the 28th Conference of Parties (COP-28) under the UN Framework Convention on Climate Change, scheduled for November and December in Dubai.

Emission Trajectory Distress
- The study's findings indicate that, based on current trajectories, developed countries are projected to emit 38% more carbon in 2030 than they have committed to under their Nationally Determined Contributions (NDCs).
- This overshoot of emissions is primarily driven by the United States, Russia, and the European Union, which account for 83% of the discrepancy.

Emission Reduction Commitments Shortfall
- The analysis underscores that the NDCs of developed nations fall short of the global average reduction requirement of cutting emissions to 43% below 2019 levels to limit temperature increases to 1.5 degrees Celsius.
- In contrast, developed countries' collective NDCs only amount to a 36% reduction, highlighting a considerable gap.

Historical Emission Reduction Obligations
- Developed countries have long been expected to lead global efforts to reduce greenhouse gas emissions and have had legally binding targets.
- Their commitments included reducing emissions by 5% from 1990 levels between 2008 and 2012, and by 18% from 2013 to 2020.
- The discrepancy between the commitments and the current emissions trajectory is a cause for concern.

Net Zero Emission Goals
- Many developed nations have pledged to achieve net-zero carbon emissions by 2050.
- Meeting this goal requires a consistent reduction in emissions every decade until 2050, with intermediate targets provided until 2030.
- To limit global warming to 1.5 degrees Celsius, developed nations must reduce emissions to 43% below their 2019 levels by 2030.

Struggle to Meet Targets
- The CEEW study highlights that, except for Belarus and Norway, none of the developed countries appear to be on track to meet their 2030 targets.
- Japan and Kazakhstan are among the closest but are still expected to fall short by just a single percentage point.

2. Pollution takes a front seat as stubble fires spike in Punjab

Syllabus: Conservation, Environmental pollution and degradation, Environmental impact assessment

Mains: Challenges and consequence of stubble burning

Prelims: About impacts of stubble burning

Context
During the ongoing paddy harvest in Punjab, stubble burning is on the rise, with a 63% increase in farm fire incidents compared to last year.

Introduction
- As the paddy harvest season progresses in Punjab, the issue of stubble burning, a major contributor to air pollution, is increasing.
- Punjab has seen a 63% rise in farm fire incidents compared to the same period last year.

Current Data
- According to the Punjab Pollution Control Board, 656 farm fire incidents have been reported in the state during the ongoing Kharif season, from September 15 to November 30, until October 4.
- This is a significant increase compared to the 415 incidents reported during the same period in the previous year.

Worst-Hit Districts
- Amritsar district has reported the highest number of farm fire cases, with 429 incidents.
- Tarn Taran Sahib district comes second with 88 cases.
- Kapurthala recorded 39 farm fire incidents.

Paddy Cultivation and Procurement
- Paddy has been planted on about 31 lakh hectares of land in Punjab this year, and its procurement has already begun.

Air Pollution Impact
- Stubble burning during the autumn season is a major contributor to air pollution in northern regions of India, including Delhi and its surrounding areas.

Challenges for Punjab Government
- The goal of the Punjab government was to decrease paddy stubble burning cases by a minimum of 50% this year, but meeting this objective appears to be quite challenging.
- Farmers are reluctant to stop stubble burning without viable alternatives or financial incentives.

Government's Response
- The government is making collective and coordinated efforts to curb stubble burning, focusing on in-situ and ex-situ methods for managing crop residue.
- Awareness campaigns are being conducted among farmers, and legal action may be taken if needed.

Nut Graf: *Punjab has reported 656 farm fire incidents during the current paddy harvest season, a significant rise from the 415 incidents during the same period last year. Stubble burning contributes to air pollution and all efforts must be taken to minimise its incidence.*

3.   Two out of five amphibians are facing extinction threat due to climate change: study

Context: A recent study published in the journal Nature highlights the increasing threat of extinction faced by amphibians due to climate change.
- The study, titled 'Ongoing declines for the world's amphibians in the face of emerging threats,' underscores the need for urgent conservation efforts to protect these vulnerable species.

Source: The Hindu

Details:
- **Study Overview:**
  ○ The study is based on two decades of global data and was published on October 4.
  ○ It analyzed the extinction risk of over 8,000 amphibian species worldwide, including 2,286 newly evaluated species.
  ○ Over 1,000 experts, including scientists from organizations like Aaranyak in Assam, contributed data and expertise.
  ○ Findings indicate that 40% of amphibian species are currently threatened with extinction.
- **Impact of Climate Change:**
  ○ Between 2004 and 2022, over 300 amphibian species moved closer to extinction, with climate change identified as the primary threat for 39% of these species.
  ○ Amphibians are highly sensitive to environmental changes, making them particularly vulnerable to climate-related shifts.
  ○ Climate change leads to extreme heat, wildfires, drought, and hurricanes, limiting amphibians' ability to adapt and survive.
- **Habitat Destruction and Degradation:**
  ○ 93% of threatened amphibian species are affected by habitat destruction and degradation.
  ○ Preservation of critical habitats and the creation of corridors for biodiversity are crucial to amphibian conservation.
  ○ Destruction of habitats exacerbates the challenges posed by climate change.
- **Urgent Conservation Measures:**
  ○ Conservation organizations, governments, and researchers must prioritize the protection of amphibians.
  ○ Mitigating climate change impacts on amphibians requires a multi-faceted approach, including habitat preservation, restoration, and climate change adaptation strategies.
  ○ International cooperation is essential to address this global issue.
- **Enhanced Data and Research:**
  ○ Continual monitoring and research are essential to understand how climate change affects amphibian populations.
  ○ Improved data collection and projections can help identify at-risk species and guide conservation efforts more effectively.
  ○ Increased collaboration between scientists, organizations, and governments is needed for comprehensive research.

4. How plastics affect our daily life

Syllabus: Environmental pollution and degradation

Mains: Impact of plastic pollution on our daily life.

Context: The UN Environment Programme (UNEP) points out that every day, the equivalent of 2,000 garbage trucks full of plastic are dumped into the world's oceans, rivers, and lakes.
- Plastics have become an integral part of modern life, transforming the way we consume and interact with products.

Where it all started and how is it going?
- **The Age of Plastics:**
  ○ Plastics revolutionized daily life, with their origins dating back to 1907 when Bakelite was synthesized.
  ○ Early plastic products, such as cameras, telephones, and radios, became icons of the 20th century.
  ○ Today, plastics are ubiquitous, found in water bottles, cutlery, bags, electronics, and even space missions like Chandrayaan.

The Downside of Plastics:
- **Environmental Impact:**
  ○ Massive plastic pollution in oceans, rivers, and lakes, equivalent to 2,000 garbage trucks daily.
  ○ 19-23 million tonnes of plastic waste leak into aquatic ecosystems yearly, harming ecosystems and livelihoods.
  ○ Plastics hinder ecosystem adaptation to climate change.
- **Economic Costs:**
  ○ Limited recycling and improper disposal lead to greenhouse gas emissions.
  ○ Plastics' **impact on global temperatures** costs over 300 billion dollars annually.
- **Microplastics:**
  ○ Majority marine plastic converts into them over time.
  ○ Difficult to track and study.
  ○ Can easily enter the food chain.
  ○ Have high affinity towards other intoxicants.
- **IUCN Reports:**
  ○ 14 million plastic waste enters oceans annually, mainly from land-based sources.
  ○ Plastic waste forms 80% of marine debris

Citizen Responsibilities:

- **Reuse Plastics:**
  - Avoid discarding plastic bottles and bags after single use, promoting reuse.
  - Follow the example of our grandparents in reducing waste.
- **Embrace Alternatives:**
  - Shift towards glass and steel products for daily use.
  - Reduce reliance on single-use plastics like straws and cutlery.
- **Promote Recycling:**
  - Support recycling efforts and facilities.
  - Explore alternative methods like thermal and catalytic degradation to recycle plastic waste into fuels.

Source: Nat Geo

Significance:

- Understanding the implications of plastic use is crucial in addressing the environmental, economic, and health challenges posed by plastics.
- Promoting responsible consumption and sustainable alternatives can mitigate the negative effects of plastics on our lives.

Solutions:

- Develop and implement stricter legislation on plastic production, use, and disposal.
- Promote awareness campaigns to educate citizens about responsible plastic usage.
- Invest in research and innovation for sustainable packaging materials and recycling technologies.

Nut Graf: Plastics have revolutionized our daily lives but come with significant environmental and economic costs. To mitigate these challenges, individuals and societies must adopt responsible consumption habits, embrace alternatives to single-use plastics, and support recycling initiatives. Balancing the convenience of plastics with sustainability is essential for a healthier planet and future generations.

5. Centre unveils tradeable Green Credit

Syllabus: Conservation, Environmental pollution and degradation

Prelims: Tradable Green Credit

Mains: Importance of tradeable Green Credit

Context: The Indian government has introduced a novel initiative aimed at promoting and incentivizing environmentally positive actions through the creation of "Green Credits." This program allows individuals and entities to earn Green Credits for specific activities that have a positive environmental impact, with the unique feature of trading these credits on a dedicated exchange.

Need for tradeable Green Credit:

- **Environmental Challenges:** The pressing environmental issues faced by India, including deforestation, water management, agricultural sustainability, waste management, air pollution, and conservation, necessitate innovative approaches to encourage positive actions.
- **Lack of Incentives:** Many environmentally beneficial activities often go unrewarded, which discourages participation and investment in these critical areas.

Significance:
- **Market-Based Incentives:** The Green Credit program leverages a competitive market-based approach to incentivize various stakeholders to engage in environmental actions.
- **Coverage:** The program encompasses a wide spectrum of activities, including tree plantation, water management, sustainable agriculture, waste management, air pollution reduction, and mangrove conservation and restoration.
- **Registration and Verification: T**o earn Green Credits, participants must register their activities through a website, and a designated agency will verify the activities. Successful verification results in the issuance of a Green Credit certificate.
- **Trading Platform:** The creation of a dedicated trading platform for Green Credits facilitates the exchange and trading of these credits in a domestic market.

Solutions:
- **Broadened Participation:** The program should encourage wider participation from industries, companies, and entities by offering financial incentives for environmentally responsible actions.
- **Effective Monitoring:** Ensuring the activities registered for Green Credits are genuinely beneficial to the environment will be crucial. Strict monitoring and verification processes are needed.
- **Education and Awareness:** The government should conduct awareness campaigns to educate the public and stakeholders about the program's benefits and how it aligns with environmental goals.

Nut Graf: The introduction of the Green Credit program is a noteworthy step towards promoting environmentally responsible actions in India. By offering a market-based approach to incentivize activities that benefit the environment, this initiative can contribute significantly to addressing the country's environmental challenges. Proper execution, effective monitoring, and broad participation are essential for the program's success in fostering a greener and more sustainable India.

6.   The Indian Himalayan Region needs its own EIA

Syllabus: Conservation, Environmental pollution and degradation, Environmental impact assessment

Mains: EIA of The Indian Himalayan Region

Introduction
- The Teesta dam breach in Sikkim and the recent floods and landslides in the Himalayas highlight the negative impact of our development model on the environment.
- It is essential to re-evaluate the environmental impact of development efforts.

Environment Impact Assessment (EIA)
- Defined by UNEP as a tool to identify environmental, social, and economic impacts of a project before implementation
- Evaluates alternatives and analyzes potential environmental impacts in different scenarios
- It also helps in deciding appropriate mitigation strategies
- However, the EIA requires comprehensive and reliable data for predicting future impacts

Origins of EIA in India
- India introduced EIA in 1976-77 with the Planning Commission directing the Department of Science and Technology to assess river valley projects from an environmental perspective.
- It was made mandatory for specified new projects and expansions/modernizations through the Environment (Protection) Act 1986.
- First EIA notification issued in 1994, amended 12 times in 11 years before being replaced by EIA 2006 notification
- EIA 2006 notification decentralized the environment clearance (EC) process and gave state governments powers to issue EC in certain cases
- Draft EIA notification floated in 2020 for public comments, sparking controversy over concerns of being pro-industry and compromising ecological concerns
- **EIA Notification 2006:**
  - Lays down procedure and institutional setup for giving environmental clearance for projects requiring such clearance
  - Projects listed in the schedule require prior EC, while others do not require an EIA
  - Categorizes projects into various heads such as mining, extraction of natural resources and power generation, and physical infrastructure
  - Threshold limits for EIA are the same across the country.
- **Draft EIA notification 2020**:
  - It reduced the time for public hearings from 30 to 20 days.
  - The classification of projects, such as into A, B1, and B2, are exempted from public scrutiny.
  - Post-clearance compliance.
  - Earlier, in the 2006 notification, compliance reports were to be submitted every six months, but through this proposal, the submission was proposed to be made annually.

- ○ Report Prepared Solely by Project Proponents.
- ○ The EIA Notification 2020 excludes reporting of violations and non-compliance by the public.
- ○ Post-facto clearance: If a project has been operating without environmental clearance before the notification, it can be allowed to apply for clearance.
- ○ Firms will have to pay the penalty if they are found violating the terms of their establishment.

Need for a unique assessment of the Himalayan region

- The regulatory system uses a graded approach to environmental impact assessments (EIA) based on location, with different levels of stringency for protected forests, reserved forests, national parks, and critical tiger habitats.
- However, the Integrated Himalayan Region (IHR) is treated similarly to other parts of the country despite its unique ecological importance and vulnerability.
- IHR is a sensitive region providing ecosystem services and acting as a "water tower" for the entire country, but it is not given special consideration in the EIA process.
- The region's vulnerability to extreme weather conditions, such as heavy rains, flash floods, landslides, and seismic activity, make it particularly susceptible to environmental damage.
- Climate change has further increased these vulnerabilities but there is no mention of differentiated environmental standards for projects located in the IHR.
- Increasing frequency of disasters in the Himalayan states due to extreme weather events highlights the need for more stringent environmental regulations in the region.
- Addressing the needs of the IHR could be done at all four stages of the EIA process – screening, scoping, public consultation, and appraisal – by ensuring projects and activities requiring Environmental Clearance (EC) in mountainous regions are aligned with the ecological needs of the region.

Institutional and Regulatory Concerns

- **Lack of Independent National Regulator:** In 2011, the Supreme Court of India highlighted the absence of an independent national regulator for environment clearances.
- **Reactive:** The current Environment Impact Assessment (EIA) process is reactive i.e reacting to development proposals instead of anticipating them and being proactive
- **Bias:** The EIA process is often funded by project proponents, which can lead to biased assessments that favor the project.
- **Lack of Holistic assessment:**
  - ○ The EIA process typically focuses on individual projects, without considering the cumulative impact of multiple projects in the same area.
  - ○ It also does not fully consider the environmental impact of a project's subcomponents or related developments.
- **Lack of commitment:** The EIA process is often seen as a formality, with project developers treating it as a box-ticking exercise to get environment clearance.

Conclusion: Alternative tools like Strategic Environmental Assessment could help regulators better understand and address the cumulative impact of development in the IHR.

Nut Graf: The Indian Himalayan Region (IHR) needs its own EIA process due to its unique ecological importance and vulnerability. The current EIA process does not adequately address the region's fragility, susceptibility to extreme weather conditions, and the cumulative impact of development. To address these concerns, the EIA process in the IHR should be proactive, with a focus on independent oversight.

7. When tigers and jackals get the same protection

Syllabus: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.

Prelims: The Wildlife Protection Act

Mains: Critical analysis of The Wildlife Protection Act

Introduction

- Many ecologists have criticized that a large number of species have been included in the new schedules of the Wildlife Protection (Amendment) Act, 2022, without a clear and consistent process.

Wildlife Protection Act – Schedules

- **The schedules include:**
  - ○ **Schedule I:** These species need rigorous protection and therefore, the harshest penalties for violation of the law are under this Schedule. Species under this Schedule are prohibited to be hunted throughout India, except under threat to human life.
  - ○ **Schedule II:** Contains endangered species requiring special protection and conservation efforts.
  - ○ **Schedule III and IV:** This list is for species that are not endangered. This includes protected species but the penalty for any violation is less compared to the first two schedules.

- ○ **Schedule V:** This schedule contains animals that are considered as vermin and can be hunted with permission, including certain birds and animals that are not endangered or protected.
- ○ **Schedule VI:** Focuses on plant species, including rare or threatened plants, and imposes restrictions on their collection, cultivation, or trade.

The Wildlife Protection Act (WLPA) – Concerns

1. **Lack of Clear Process in Listing Species**
   - The Wild Life Protection Act (WLPA) fails to clearly connect endangerment and conservation. The listing of species has the following effects:
   - Prioritization of species becomes difficult due to the large number of listed species (hundreds of mammals, over 1,000 birds etc).
   - The same level of protection is offered to tigers and jackals, to the great Indian bustard and common barn owls, to the king cobra and rat snakes.
   - Unintended consequences, such as promoting the planting of non-native trees instead of native trees, as seen in the Tree Preservation Acts of Kerala and Karnataka Acts. Owners can cut down planted non native species any time they want.
   - For example, inclusion of the spotted deer (chital) in Schedule 1. But the species is invasive in the Andaman Islands and cannot be legally culled or removed due to the WLPA.

2. **Impact on People's Lives and Livelihoods**
   - The WLPA ignores the impact of wildlife on people, particularly in rural areas where humans and animals coexist.
     - ○ Examples include crocodiles in the Andamans and elephants throughout India, which pose significant physical, mental, and economic threats to people.
   - Despite these risks, people are expected to coexist with wildlife without adequate support or protection.
   - The WLPA elevates wild pigs and nilgai to Schedule 1 species, limiting the culling options for states. These species have affected the livelihoods of marginal cultivators.
   - The WLPA imposes strict restrictions on using animals, even in cases where traditional practices have been in place for centuries.
   - Regulations were implemented due to population decline, but regulated use should be reconsidered for abundant species to support local communities.
   - However, this view is rejected by regulators without considering scientific evidence or societal impact.

3. **Effects on Research and Conservation Efforts**
   - The WLPA creates obstacles for researchers, making it difficult and time-consuming to obtain permits hindering conservation efforts.
   - Environmental NGOs may struggle to receive permits for research and conservation projects, including studies on common species like barn owls.

Way Forward

- Conservation, people's problems, and research require attention.
- Measures must be taken to protect people's lives and livelihoods to ensure long term conservation based on sustainability.
- Management strategies for species and habitats must be customized based on ecology, species biology, and context, which sometimes requires independent research or monitoring.
- Citizens and ecologists should have the right to study nature and collect data ethically, without causing unnecessary harm to populations.

Nut Graf: *Ecologists have criticized the new Wildlife Protection (Amendment) Act, 2022 for including a large number of species in the schedules without a clear and consistent process, ignoring the impact of wildlife on people's lives and livelihoods, and creating obstacles for researchers, hindering conservation efforts. Concrete measures must be taken to protect people's lives and livelihoods, ensure long-term conservation based on sustainability, and customize management strategies for species and context*

8.   The shape of climate justice in a warming India

Syllabus: Conservation, Environmental pollution and degradation

Mains: Implications of climate justice in the context of India's energy transition.

Context: The G-20 summit held in Delhi in September 2023 set ambitious targets for renewable energy capacity and energy efficiency improvement. The Delhi Declaration – Tripling of renewables and doubling of the rate of energy efficiency by 2030.
- While there was consensus on many issues, the phasing out of fossil fuels remained contentious.
- The principles of climate justice and internalizing costs for emissions have been discussed at the international level, but their domestic impact within India is often overlooked.

What is climate justice?

- "Climate justice" is a term, and more than that a movement, that acknowledges climate change can have differing social, economic, public health, and other adverse impacts on underprivileged populations.
- Advocates for climate justice are striving to have these inequities addressed head-on through long-term mitigation and adaptation strategies.

Impact within India:

- **Inequality Matrix:** Climate change and energy transition disproportionately affect the poor in India. Agrarian crises, droughts, and extreme climate events directly impact agricultural productivity, leading to income loss for farmers. Fishing communities are also suffering due to the rising ocean temperatures.
- **Economic Inequality:** Less equitable societies tend to have higher emissions per unit of economic activity. India's highly unequal economic structure contributes to this issue, making the cost of carbon emissions much higher in such contexts.
- **Greening Development:** India's energy transition policies, aimed at clean energy, may exacerbate existing class, caste, and regional disparities. Sectors like manufacturing, which are more energy- and carbon-intensive, are sensitive to energy price increases.
- **Just Transition:** The shift to renewable energy should focus on protecting livelihoods, creating alternative job opportunities, and ensuring vulnerable communities are not adversely affected. This requires a holistic approach that considers economic, social, and regional inequalities.
- **Greening Federalism:** The divide in economic inequality in India correlates with the energy source divide. Coal-rich regions are generally economically poorer, while renewable energy hubs are in wealthier areas. The coal sector is a significant source of revenue for state governments, and the transition strategy must address these regional inequalities.

Green development

- India's Intended Nationally Determined Contributions (INDC) – 40% of installed energy capacity is clean energy. Net Zero emissions by 2070.
- As of 2021 – Coal was the major energy contributor – 56%; crude oil – 33%
- Consumers of energy – Energy sector – 51%; transport – 11%; residential – 10%; agriculture – 3.6%.

Significance:

- Addressing climate justice issues is crucial for India's sustainable and equitable development.
- Inequalities in emissions and socio-economic factors are interlinked, and failing to address them simultaneously can hinder effective climate action.
- India's ambitious energy transition goals must consider the impact on the livelihoods of the poor and the existing disparities among different segments of the population.

Way Forward:

- **Holistic Approach:** India's energy transition must consider economic, social, and regional disparities. While promoting renewable energy is essential, it should not exacerbate existing inequalities. Protecting livelihoods, offering alternative job opportunities, and reducing inequality should be central to the transition strategy.
- **Green Investment:** Transitioning to renewables requires investment in green job creation and skill development. Strategies should focus on reducing inequality and promoting green investment simultaneously.
- **Federal Deal:** India's federal governance structure implies that state governments play a significant role in addressing climate concerns. To tackle regional inequalities, the transition strategy should transfer funds to coal-dependent states and create State-specific programs for reskilling and local rehabilitation.
- **Policy Alignment:** Aligning policies at the national and sub-national levels is essential. State governments should cooperate with the union government to ensure that climate justice and adaptation measures are in sync with local development aspirations.

Nut Graf: *While India has set ambitious targets for renewable energy, it must ensure that the transition addresses existing inequalities and doesn't adversely impact the livelihoods of the poor. A just transition requires a holistic approach that considers economic, social, and regional disparities and cooperation between the central and state governments to achieve a sustainable and equitable future.*

9.   Restoring the ecological health of the Himalayas

Syllabus: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.

Prelims: Carrying Capacity, Government initiatives to preserve Indian Himalayan Region

Mains: Sustainable Management of Indian Himalayan Region

Context:
- The Supreme Court of India has asked the Union government to suggest a way forward regarding the carrying capacity of the Indian Himalayan Region (IHR) in light of the recent disasters in Uttarakhand, Himachal Pradesh and Sikkim.

Carrying Capacity
- Carrying capacity refers to the maximum population size that an ecosystem or environment can sustainably support over a specific time period without causing significant degradation or harm to its natural resources and overall health.
- This is crucial to ensure long-term sustainability and balancing human activities with the preservation of natural ecosystems.

Union Government's Initiatives
- The Union government's affidavit recommends that the Director of the G.B. Pant National Institute of Himalayan Environment should lead the assessment of carrying capacity.
- The affidavit proposes that the carrying capacity of all 13 Himalayan States and Union Territories should be determined.
- A technical support group consisting of representatives from various institutions such as the National Institute of Disaster Management, National Institute of Hydrology, National Environmental Engineering Research Institute, Wildlife Institute of India etc should be formed.
- The affidavit suggests that representatives of State disaster management authorities, the Geological Survey of India, Survey of India, and member secretaries or nominees of the Central Pollution Control Board and Central Ground Water Board should also be included in the committee.
- The government has requested the Court to direct the Himalayan States/UTs to set up a committee headed by the Chief Secretary of the respective State, with members chosen by the Chief Secretary as deemed appropriate.
- The Indian government has launched various initiatives related to overall development in the Indian Himalayan Region (IHR), including:
  - National Mission for Sustaining the Himalayan Ecosystem
  - Indian Himalayas Climate Adaptation Programme
  - Secure Himalaya Project
  - Guidelines on 'Carrying Capacity in the IHR'
  - The Ministry of Environment and Forests reminded all states to submit an action plan (carrying capacity) if they had not already done so.

Challenges:
- Despite the January 2020 guidelines, little progress has been made in preparing action plans for carrying capacity in states.
- Critics point out that incomplete recommendations by the ministry and involvement of those responsible for mountain destruction in drafting the plan of action as the major reasons for the delay.
- Not assessing the overall sustainable capacity of the state's environment, including all biological species, food, habitat, water, ecology, and agriculture has been a key challenge.
- Concerned citizen's warnings about construction projects have been ignored, resulting in negative consequences and lack of citizen participation.

Conclusion:
- The focus should be on sustainable development that covers the broader dimensions of carrying capacity and involves people-centric processes.
- Measuring the carrying capacity of only towns and cities is insufficient; the entire region should be considered.
- Expert committees should prioritize social aspects of population sustainability and include adequate citizen representation.
- Each panchayat samiti and municipality should be encouraged to present recommendations based on established population sustainability criteria.

Nut Graf: *The Supreme Court of India has asked the Union government to suggest a way forward regarding the carrying capacity of the Indian Himalayan Region (IHR) in light of the recent disasters. The government has proposed a committee to assess the carrying capacity of all 13 Himalayan states and union territories. The focus should be on sustainable development that covers the broader dimensions of carrying capacity and involves people-centric processes.*

10. Mitigating tragedies in the Himalayan region

Syllabus: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.

Prelims: Glacial lake outburst flood, Moraine, South Lhonak and Shako Cho glacial lakes, National Remote Sensing Centre's (NRSC) Glacial Lake Atlas

Mains: Risks and mitigation of glacial lake outburst floods in India

Context
- The recent glacial lake outburst flood (GLOF) in Sikkim caused significant damage along the Teesta River, highlighting the risk of climate change-induced GLOF in the Indian Himalayan Region.

What are glacial lake outburst floods?
- In simple terms, a glacial lake outburst flood refers to the flooding that occurs when the water dammed by a glacier or a moraine is released suddenly.
- This flooding occurs because when glaciers melt, they accumulate behind moraine dams or glacial dams. When such natural dams break upon pressure from accumulating water, the water gushes down in a powerful flow due to the build-up.
- Moraine dams can break because they are generally weak structures and the pressure build-up can cause this rupture. They can also fail due to landslides, earthquakes or avalanches. Environmental pollution can also trigger GLOFs because of the rise in temperatures due to anthropogenic activities that cause quicker melting of glaciers.
- Failure of moraine dams can release millions of cubic metres of water in a short period.
- When the water flows downstream suddenly and with such force, any human or natural structure in its wake is destroyed, including villages, power plants, etc.

Glacial lake outburst flood – a global threat
- According to a study published in Nature, 90 million people across 30 countries reside in 1,089 basins with glacial lakes.
- One-sixth of these individuals live within 50 km of a glacial lake and 1 km of potential GLOF runout channels.
- Hazards in mountainous regions often occur in a cascading manner, for example, heavy rainfall triggers landslides, which can lead to glacial lake outbursts and further landslides downstream, creating conditions for flash floods.
- Predicting this chain of events is difficult.

Risks and Challenges
- The magnitude of the South Lhonak glacial lake disaster is still unfolding.
- NDMA led a preparatory mission in September and installed monitoring equipment at the South Lhonak and Shako Cho glacial lakes.
- Higher-than-normal temperatures were recorded in the four days leading up to the event, suggesting that global warming may have played a role.
- Scientists believe the key trigger in the process chain of the disaster was the collapse of a huge mass of rock/moraine from the northwestern bank of the lake.
- The Himalayan region is prone to various natural and human-induced hazards, including those related to water, weather, earthquakes, climate change, and human activities.
- To address these risks, a comprehensive approach is necessary, involving both monitoring and mitigation strategies, as well as early warning systems.
- While scientists have made progress in understanding the process of glacial melting, the sheer number of glaciers and the dynamic nature of their retreat pose significant challenges for accurate monitoring and risk assessment.
- The National Remote Sensing Centre's (NRSC) Glacial Lake Atlas of 2023 shows that there are 28,000 glacial lakes greater than 0.25 hectares in area in three major river basins: Indus, Ganga, and Brahmaputra, across five countries. Of these, 27% are in India.
- Many geotechnical solutions for the mitigation of GLOFs have been tried globally, but conditions above 5,000 meters above mean sea level create formidable challenges.
- Lack of accessibility, difficulties in transporting and maintaining excavation machinery, powerful winds, struggles to obtain power and connectivity, and intentional damage caused by individuals are some of these challenges.
- The most significant risk of such a disaster is to downstream hill communities and authorities who get a very short lead time to respond.
- Interviews show that people downstream are mostly unaware of the risks posed by sudden glacier melt and associated cascading hazards.

Mitigation Efforts

- GLOFs pose a significant threat in the Himalayas and require a coordinated approach across organizations to tackle them.
- The National Remote Sensing Centre's (NRSC) atlases offer high-resolution data for tracking spatial changes and identifying lakes prone to GLOFs.
- The Central Water Commission performs hydro-dynamic evaluations on lakes susceptible to GLOFs to chart water flow, elevation, and drainage patterns.
- The NDMA's national recommendations (2020) give states a scientific introduction to the danger and risk zoning and propose methods for surveillance, risk reduction, and alleviation measures.
  - The NDMA has suggested the use of Synthetic-Aperture Radar imagery to automatically detect changes in water bodies, including new lake formations, during the monsoon months.
  - It has also suggested that methods could be developed to permit remote monitoring of lakes from space.
  - To manage lakes structurally, the NDMA recommends decreasing the volume of water with methods like controlled breaching, pumping or siphoning out water, and making a tunnel through the moraine barrier or under an ice dam.
  - The guidelines also recommend restricting construction in GLOF-prone areas as an easy low-cost manner to mitigate the disastrous impact of such events.
- A comprehensive GLOF risk mitigation plan is currently in the final stages of approval.
- The plan includes the installation of monitoring and end-to-end early warning systems at high-risk glacial lakes.
- All governments and scientific institutions must collaborate and integrate their resources and capacities in disaster risk reduction efforts.

Conclusion:

- Risks from glacial melting, landslides, intense precipitation, and heat waves, among other hydro-meteorological and geophysical hazards, are rising.
- As synergies among different aspects of governance are created, an increased focus on prevention and mitigation will reduce loss and damage and bring stability into the lives of hill communities.
- While meeting the development needs of hill communities, disaster and climate resilience principles need to be assimilated into government policy as well as private investment.

Nut Graf: *Glacial lake outburst floods (GLOFs) are a major climate change-induced hazard in the Indian Himalayan Region, posing significant risks to downstream communities and infrastructure. Despite advances in monitoring and mitigation efforts, challenges such as inaccessibility, extreme weather conditions, and lack of awareness among people downstream remain formidable. A comprehensive approach involving all stakeholders is essential to reduce GLOF risks and build resilience in the region.*

11. International Solar Alliance & Global Solar Stocktake Report

Syllabus: Environment and Ecology

Prelims: International Solar Alliance

Introduction

- The International Solar Alliance (ISA), consisting of 116 member countries, aims to accelerate the global adoption of solar technology.
- ISA is preparing to release its first-ever 'global solar stocktake report,' inspired by the United Nations Conference of Parties' 'Global Stocktake.'

Global Stocktake Background

- The United Nations Conference of Parties conducts the 'Global Stocktake' to assess countries' actions in transitioning from fossil fuels and combating global warming.
- This follows the 2015 Paris Agreement and is scheduled every five years.

ISA's 'Solar Stocktake'

- ISA will release the 'solar stocktake' report in mid-November.
- It will evaluate the progress made by countries in solar technology adoption.
- Notable investments of approximately $300 billion in solar occurred in 2020, increasing to around $380 billion in 2022.
- China currently dominates solar manufacturing; the stocktake aims to explore diversifying manufacturing locations.

Key Focus Areas of ISA
- ISA, led by India and France, focuses on expanding solar installations in Africa and has established the Global Solar Facility.
- The Global Solar Facility includes three funds: a payment guarantee fund, an insurance fund to manage project risks, and an investment fund for technical assistance.

Global Solar Photovoltaic Installations
- As of 2022, global solar photovoltaic installations reached 1,133 gigawatts (GW), with 191 GW added in 2022.
- China, a non-ISA member, accounts for approximately 350 GW, followed by the United States (111 GW) and India (62 GW).
- ISA is committed to renewable energy and considers solar energy as a reliable, dependable, and accessible solution for universal energy access.

12. Anamalai Tiger Reserve

Syllabus: Environment and Ecology

Prelims: Anamalai Tiger Reserve

Introduction
- The Anamalai Tiger Reserve (ATR) in Tamil Nadu has embarked on an extraordinary endeavour, making headlines with its pioneering rewilding project.
- A committee appointed by the Chief Wildlife Warden visited ATR's core area to assess the progress of rehabilitating a tiger that was rescued as an abandoned cub in 2021.

Anamalai Tiger Reserve (ATR)
- ATR, located in the Western Ghats of southern India, is renowned for its rich biodiversity and is a designated protected area.
- The reserve is home to a significant population of tigers, making it a vital hub for tiger conservation and habitat protection.

Rewilding Initiative
- ATR's Forest Department has embarked on its first-ever attempt at rewilding a tiger, emphasising the importance of rehabilitating and preparing rescued animals for their potential return to the wild.
- This initiative signifies a remarkable step in wildlife conservation within ATR.

Committee's Assessment Visit
- The committee was appointed by the Chief Wildlife Warden, including ATR Field Director S. Ramasubramanian and WWF-India's Landscape Coordinator D. Boominathan, who visited a specialised 10,000 sq ft enclosure located at Manthirimattam in the Manambolly forest range within ATR.
- The enclosure serves as the rewilding site for the rescued tiger cub.

The Rescued Tiger
- The tiger in question was rescued in September 2021 from a tea estate near Valparai and is now approximately 30 months old.
- The rehabilitation process aims to ensure the tiger's preparedness for reintroduction into its natural habitat.

Expert Consultation
- In this ambitious undertaking, ATR collaborated with experts from the National Tiger Conservation Authority and the Wildlife Institute of India, emphasising the importance of a well-informed and scientific approach.

Assessment Parameters
- The committee's role was to evaluate various factors. These include the tiger's health and an assessment of its hunting abilities, based on surveillance camera footage that captured the tiger's interactions with small herbivores introduced into the enclosure over several months.

Future Prospects
- The committee's assessment findings will be compiled into a detailed report for the Chief Wildlife Warden.
- The decision on whether to release the rehabilitated tiger back into its natural habitat within the Anamalai Tiger Reserve will be made based on this report.

13. Animals in News

Asiatic Wild Dog

Context: The dhole or Asiatic wild dog (Cuon alpinus) is the only endangered wild pack-living canid in the tropical Indian forests and is considered at high risk of extinction.

- The dhole (Cuon alpinus) is a canid native to Central, South, East and Southeast Asia. Other English names for the species include Asian wild dog, Asiatic wild dog, Indian wild dog,whistling dog, red dog, red wolf,and mountain wolf

Key Findings

- Factors such as habitat loss, declining prey availability, persecution, disease, and interspecific competition have contributed to the ongoing fragmentation of its populations.
- The global population of adult dholes, now classified as endangered on the International Union for Conservation of Nature's Red List, is estimated to be between 949 and 2,215.
- Overlapping prey availability or habitat suitability could dictate a positive association between dholes and tigers, facilitating coexistence or even cooperative behaviours between the two species of carnivores, a new study has found
- The diurnal activity of the dholes had the highest temporal overlap with leopards and the lowest with clouded leopards.
- A surprising positive relationship between dhole habitat use and tiger, rejecting the habitat exclusivity hypothesis. This unexpected result challenges the assumption of antagonistic interactions between these two species and suggests a more complex ecological dynamic.

Paintbrush swift Butterfly

Context: The Paintbrush Swift, a rare butterfly species, has been sighted and documented for the first time in Himachal Pradesh's Chamba district. This significant discovery has been made under the Wild Bhattiyat Project initiated by the Bhattiyat Forest Range, highlighting the rich biodiversity of Himachal Pradesh.

Details:

- **Rare Butterfly Discovery:** The Paintbrush Swift, a butterfly species of the Hesperiidae family, was spotted for the first time in Himachal Pradesh. It was initially described by lepidopterist Frederic Moore more than 145 years ago in the eastern Himalayas.
- **Biodiversity Documentation:** The project has documented 120 butterfly species so far, including uncommon species like the anomalous nawab, blank swift, tailed jay, and siren.
- **Unique Characteristics:** The Paintbrush Swift can be identified based on specific characteristics, particularly the two separated spots in the upper forewing cell. This distinguishes it from closely related species like the blank swift and figure-of-eight swift.

Significance:

- **Biodiversity Richness**: The discovery of the Paintbrush Swift adds to the richness of Himachal Pradesh's biodiversity, which is home to approximately 25% of all butterfly species found in India.
- **Conservation**: This documentation provides valuable insights for butterfly conservation in the region and contributes to our understanding of rare and lesser-known species.
- **Research Opportunities:** The ongoing Wild Bhattiyat Project offers research opportunities for studying the diverse butterfly species and their habitats in the area.

Ganga-Ghagra basin canals pose a threat to dolphins: study

Context: A recent publication by scientists and researchers has revealed that 19 Gangetic river dolphins had been rescued from the irrigation canals of the Ganga-Ghagra basin in Uttar Pradesh between 2013 and 2020.
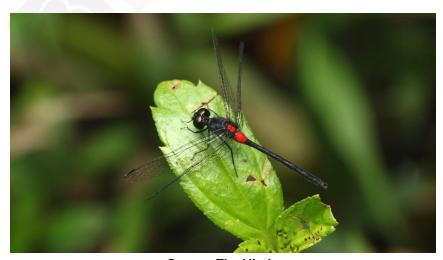
About Gangetic Dolphins:

Source: The hindu

- Gangetic dolphins getting stuck in the Ganga-Ghaghra Canal system.
- 24 rescue operations between 2013-2020 (19 saved; 5 casualties)
- Dams, barrages, and canals affecting their habitats:
- Habitat fragmentation.
- Larger animals and pregnant females look for an easier prey base in the canal system.
- Risk of injury or death in canals (receding water, heat stroke, human interventions).
- Enter canal systems mostly post-monsoons when water is released in them.
- National Aquatic Animal; State aquatic animal for UP.
- Belong to Schedule 1 of the Wildlife (Protection) Act, 1972.
- Also covered under Appendix 1 of both CITES (Convention on International Trade in Endangered Species) and CMS (Convention on Migratory Species)
- IUCN Status: Endangered

Red Humped Hawklet
- New Dragonfly specie identified in Wayanad
- Scientific Name: Epithemis wayanadensis
- Native and exclusive to Western Ghats

Source: The Hindu

Mytella Strigata Mussel (kaaka aazhi)
- Invasive Specie
- First spotted some two decades ago in the Ennore wetlands by local fishers.
- Case filed in NGT by a Tamil fisherman regarding spread of this specie, like a sheet over Ennore-Pulicat wetland.
- NGT has directed the Fisheries Department and Tamil Nadu State Wetland Authority to give a detailed report on removal of this specie

● The government pleader argued that it is not an alien species as it has an entry in the Wildlife Protection Act, 1972 (WPA) and that the NGT does not have jurisdiction to hear any matters relating to the WPA,

Source: Central Marine Fisheries Research Institute

Conocarpus

Context: Gujarat became the 2nd state of India to ban the use of Conocarpus species of trees in the state. First state is Telangana.

About Conocarpus Plant
● Also known as Buttonwood tree.
● A fast growing Mangrove species.
● 2 of its species used in India:
● Conocarpus erectus (more widely used in India): South America
● C. lancifolius: to East Africa.

Source: Plants of the World

Why the ban?
● Trees of this species flower in winter and spread pollen in nearby areas.
● Roots of this species go deep inside the soil and develop extensively. This can cause damage to drainage lines, telecommunication lines, freshwater systems, etc
● The leaves are not palatable for the local herbivores.

Other examples of invasive species across India
● Vilayati Kikar (Prosopis juliflora)
● Brought to Delhi by British in 1930s
● Fast growing even in arid conditions.
● Depletes water table.
● Kills off the competition (native trees like acacia, dhak, kadamb, amaltas) and the associated fauna.
● 2018 decision to clear the "Central Ridge" of this plant.
● Eucalyptus

- Introduced by British
- 2018: State government stopped its cultivation.
- Was causing decline in availability of fodder; reducing quality of habitat.

BYJU'S IAS Website

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Comprehensive news analysis

Video analysis of "The Hindu"

PIB summary and analysis

Topic of the day
A brief analysis of important topics for the exam

This day in history
A brief note on a major event that happened in the history of India and the world on this date

Weekly Updates

GK and current affairs quiz

Monthly Updates

BYJU'S current affairs magazine
Compilation of current affairs

Gist of magazines
Extracts of articles and points from "YOJANA" and "KURUKSHETRA"

HISTORY, ART AND CULTURE

1. Red Fort to host India's maiden art, architecture and design biennale

Context: India's iconic Red Fort will transform into a hub of creativity and innovation when it hosts the country's first Art, Architecture, and Design Biennale from December 9 to 15, 2023. This cultural extravaganza will feature replicas of significant Indian buildings, thematic exhibitions, interactive installations, and panel discussions, aiming to celebrate the nation's rich architectural and design heritage.

Significance:
- **Maiden Biennale:** The India Art, Architecture, and Design Biennale, 2023 (IAADB) marks the country's first attempt to bring together art, architecture, and design under one roof, offering a unique platform for creative expression.
- **Immersive Experience:** The event promises a week-long immersion in creativity, featuring replicas of iconic structures, thematic exhibitions, interactive installations, and panel discussions.
- **Thematic Diversity:** The IAADB will explore a range of themes, from India's architectural wonders to indigenous design and the role of women in architecture and **design.**
- **Cultural Space at Red Fort:** This event introduces the cultural space at the Red Fort, opening the doors to the historic site for artistic and creative endeavors.

2. Mehrauli park structures get facelift as Delhi digs deeper into its history

Context: A significant project, with an allocated budget of ₹2.6 crore, was initiated in March '23 to restore and conserve 55 historical monuments at the Mehrauli Archaeological Park in Delhi.
- The project aimed at reviving these historic structures, providing Delhi residents with an opportunity to delve into the city's rich history and heritage.
- This monumental undertaking, adjacent to the iconic Qutub Minar, was unveiled by Delhi's Lieutenant-Governor.

Historical Significance of Mehrauli Archaeological Park:
- The park, spread over 200 acres, is situated next to the UNESCO World Heritage Site, Qutub Minar.
- It houses 55 historic structures constructed by various empires, including the Khaljis, Tughlaqs, Lodhis, Mughals, and the British.
- Several monuments have undergone extensive restoration and conservation work, breathing new life into their historical charm.

Diverse Historical Structures:
- The restored monuments include the Jamali Kamali Mosque, Metcalfe House, Rajon ki Baoli, and the tombs of Mamluk king Ghiyas-ud-din Balban and Mughal governor Shah Quli Khan.
- The project aims to bring to life Delhi's historical legacy that predates the medieval-era monuments, providing a broader perspective of the city's history.

Multi-Agency Collaboration:
- The restoration project was a collaborative effort involving multiple agencies, spearheaded by the Delhi Development Authority (DDA) and the Archaeological Survey of India (ASI).
- The total expenditure for this endeavour was approximately ₹2.6 crore.

Comprehensive Restoration:
- Alongside monument restoration, the project also involved desilting water bodies within the park and creating pathways to connect the various historical sites.
- Traditional materials and techniques were employed during the restoration and repair work, preserving the historical integrity of the structures.
- The redevelopment work adhered to the principles of the Master Plan for Delhi-2021 and the Unified Building Bye Laws, 2016, which promote the adaptive reuse of historic buildings.

3. Tracing the roots of Islam in Kerala

Context: The Kerala government has initiated the creation of a microsite, 'Islam in Kerala,' to promote tourism by exploring the historical and cultural aspects of Islam in the state. This digital platform aims to showcase the rich history, traditions, and cultural evolution of Islam in Kerala dating back to the 7th century.

Details:
- **Promotion of Religious Tourism**: The microsite is part of Kerala's efforts to promote religious tourism, focusing on the historical significance of Islam in the state. This aims to attract both international and domestic tourists.
- **Cultural Heritage:** Kerala has a diverse cultural heritage, and this initiative aims to highlight the contributions of Islam to the state's culture, art forms, architecture, and cuisine.

- **Untapped Potential:** Spiritual tourism remains an underexplored sector in Kerala's tourism industry, and efforts to promote this sector are essential to tap into its potential.

Significance:
- **Cultural Preservation:** The microsite will contribute to the preservation and promotion of the cultural heritage associated with Islam in Kerala. It will provide valuable information for tourists interested in exploring the state's rich history.
- **Tourist Attraction**: By showcasing the historical mosques, pilgrimage centers, cuisine, and cultural aspects of Islam in Kerala, this initiative aims to attract tourists and promote religious tourism.

Diversity of Kerala: Kerala's cultural diversity is one of its unique selling points for tourism, and exploring the roots of different religions adds to the state's appeal as a tourist destination.

4.   Dogra Architecture

Context: In Srinagar's Maharaj Gunj market, a project is underway to restore the historical architectural elements introduced by Dogra Hindu kings between 1846 and 1947.
- The project is a collaboration between Srinagar Smart City Ltd. and the Kashmir chapter of the Indian National Trust for Art and Cultural Heritage (INTACH), aiming to revive the market's past glory by conserving vernacular elements of Kashmiri architecture.

Significance:
- **Historical and Cultural Preservation:** The restoration project seeks to conserve the architectural heritage of Maharaj Gunj, bringing back architectural elements introduced by the Dogra kings. It highlights the historical and cultural significance of the region.
- **Unique Architectural Features:** The market features distinct architectural elements, including colonnaded walkways, decorative pilasters, and exposed moulded brickwork, showcasing the blend of vernacular and colonial architectural styles.
- **Economic and Cultural Revival:** The revival of Maharaj Gunj has the potential to rejuvenate the area economically and culturally, attracting residents and visitors alike. Restoring its historic character can breathe new life into the market.

5.   Kathaprasangam – Kerala art form of narrating stories

Context: Kathaprasangam, a traditional Kerala art form of storytelling accompanied by music, has a rich legacy. It transcends language barriers and vividly brings stories to life.

About Kathaprasangam
- Kathaprasangam (lyrical narrative or story telling performance) is a performing art of Kerala, India.
- It combines speaking, acting, and singing to present a story.
- Costumes, make-up, or settings are not used. The main artist, the Kaadhikan, tells the story, acts and sings with two or three accompanying instrumentalists.
- Themes are largely from classical and popular literature.
- It originated from an earlier art form Harikathakalakshepam.
- Kathaprasangam has a long history, with its roots in stories of oppression, untouchability, and human triumphs.
- The tradition has faced challenges in the modern era, with new forms of entertainment taking precedence.

Significance:
- Kathaprasangam remains an integral part of the annual school arts festivals, Asia's largest youth gathering of its kind.
- It offers a unique way of communicating with people, addressing societal issues with urgency and directness.
- Notable Kathaprasangam artists like V. Sambashivan, Kedamangalam Sadanandan, and Kollam Babu have used the art form to mirror society effectively.
- The tradition was born out of the need to challenge the caste system and superstitions in Kerala society.
- It continues to be relevant today as religious identities are asserted at the expense of social harmony.

SOCIAL JUSTICE AND SOCIAL ISSUES

1. Circular Migration

Syllabus: Migration: Concept, factors affecting it and its impact.

Mains: Consequences of circular migration, geographical aspects of migration within India, including the movement from rural to urban areas and its impact on different states.
Prelims: Circular migration.

Context
The article discusses circular migration, a repetitive form of migration based on employment availability, and its impact, particularly in India.

Introduction
- Circular migration is a repetitive movement of people between their country of origin and a destination country based on employment opportunities.
- It primarily involves low-income groups seeking seasonal employment in various locations.

Origins and Definition
- Circular migration gained prominence with globalisation and improved transportation and communication.
- Philippe Fargues outlines criteria for circular migration, including temporary residence, multiple entries, freedom of movement, legal right to stay, migrant rights protection, and demand for temporary labour.

Defining Circular Migration
- The United Nations Economic Commission for Europe Task Force suggests that one completes at least 'two loops' between two countries to be considered a circular migrant.
- For instance, moving from Country A to B and back to A makes one a return migrant, while A to B to A to B completes two loops, defining circular migration.

Public Policy Challenges
- Migration is a global policy challenge with diverse impacts.
- Brain drain from the Global South to the West and rural-to-urban migration strain resources and create competition.

Importance of Circular Migration
- Circular migration balances development needs and individual economic advancement.
- Remittances from migrants contribute to the domestic economy of origin countries, fostering infrastructure development and job creation.
- Brain circulation, rather than brain drain, can encourage talent to benefit both countries.

Host Country Perspective
- Circular migration can help address labour shortages in host countries.
- However, it has also sparked concerns and cultural conflicts, leading to calls for migration restrictions.

Host Country Benefits
- For host countries, circular migration can alleviate concerns of migrants becoming a permanent part of the population.
- Migrants circulate back to their home areas, preventing long-term integration issues.

Circular Migration in India
- Internal migration within India has predominantly followed a circular pattern.
- Factors like job opportunities in manufacturing, construction, and services sectors have driven rural-to-urban migration.

Inter-State Migration in India
- Uneven development has led to inter-state migration in India.
- States like West Bengal, Odisha, and Bihar experience high rates of out-migration, often to Delhi and southern States.

Challenges for Circular Migrants in India
- Circular migrants, especially to southern States, face language barriers and exploitation by middlemen.
- They work in unsafe conditions with minimal protective measures.
- Indigenous wage groups may resent them, perceiving them as competition for jobs.

Precarious Nature of Circular Migration
- Circular migrants often experience job precarity as opportunities are seasonal and irregular.
- Job instability became evident during the 2020 pandemic when migrants had to return home due to lockdowns.

Addressing Migrant Precarity
- States should formulate policies to better understand and support circular migration.
- Initiatives like health insurance schemes for migrant workers can help safeguard their rights and well-being.

Nut Graf: *Circular migration, marked by repetitive movements for employment, presents policy challenges and opportunities, with a focus on balancing development needs and individual advancement.*

2. Govt. 'needs to prioritise childhood cancers'

Syllabus: Welfare schemes for vulnerable sections of the population by the Centre and the States, Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

Mains: Childhood cancer – challenges and government support

Context
Childhood Cancer Awareness Month sheds light on the global issue of paediatric cancers. This article focuses on the situation in Tamil Nadu, India, and the challenges and calls for action in managing these cancers.

Global Perspective
- The International Agency for Research on Cancer, World Health Organisation estimates that around 400,000 children and adolescents aged 0 to 19 are diagnosed with cancer each year worldwide.

Paediatric Cancers in Tamil Nadu
- In Tamil Nadu, there were 2,513 new cancer cases among children in 2022, accounting for 2.9% of all cancer cases.
- The occurrence rate was 100 per million boys and 80 per million girls.
- Common paediatric cancers include leukaemia, lymphoma, and brain and central nervous system tumours.

Challenges in Managing Paediatric Cancers
- Lack of awareness is a significant challenge, as symptoms often mimic common infections, leading to late diagnoses.
- The cost of care is increasing, and insurance coverage may not fully meet the expenses.
- India bears a substantial burden of paediatric cancer cases, around 18% to 20% of the global total.

Calls for Action
- There is a need for a policy shift to prioritise paediatric cancers and include them in the national cancer control policy.
- Tailored therapies have improved prognosis, but relapse remains a concern, particularly in cases of relapsed leukaemia.
- Comprehensive Health Insurance Schemes, like Tamil Nadu's CM's Comprehensive Health Insurance Scheme, provide coverage for treatments like Bone Marrow Transplantation.

Shared Care Pediatric Oncology Centres
- To reduce indirect expenses for families, there is a call for more shared care paediatric oncology centres.
- Proximity to treatment centres is crucial as paediatric cancer treatments often require lengthy stays and parental involvement.

Nut Graf: *Childhood cancers account for a small but significant portion of cancer cases in Tamil Nadu, with challenges including late diagnoses, rising treatment costs, and limited insurance coverage. Calls for policy prioritisation and shared care centres emerge as solutions.*

3. Defusing the ticking time bomb called diabetes

Syllabus: Issues related to the development and management of the social sector/Services relating to Health, Education, Human Resources

Mains: Mitigation of diabetes

Context: In June 2023, a study conducted by the Madras Diabetes Research Foundation in collaboration with the Indian Council of Medical Research and the Union Health Ministry revealed alarming statistics about diabetes in India.
- It found that 11.4% of India's population, approximately 10.13 crore people, are living with diabetes, and an additional 13.6 crore people are pre-diabetic.
- Furthermore, 28.6% of the population would be considered obese based on BMI measurements.

Reasons:
- According to the World Health Organization, one of the major contributing factors to this health crisis is the consumption of ultra-processed foods, which have been aggressively marketed and have replaced traditional diets.
- These foods include carbonated drinks, instant cereals, chips, fruit-flavoured drinks, instant noodles, cookies, ice cream, bakery products, energy bars, sweetened yoghurts, pizzas, processed meat products, and powdered infant formulas.

Issues:
- **Health Consequences:** Scientific evidence indicates that diets high in ultra-processed foods, especially those high in sugar, fat, and salt, pose significant health risks, including an increased risk of type-2 diabetes. A 10% increase in the daily consumption of ultra-processed foods is associated with a 15% higher risk of type-2 diabetes among adults.
- **Obesity and Chronic Diseases:** Ultra-processed foods can lead to obesity, which is a key risk factor for diabetes, heart disease, and premature death. Individuals consuming more than four servings of ultra-processed food daily are at a substantially higher risk of cardiovascular mortality.
- **Marketing and Advertising:** The food industry, to compensate for declining sales in high-income countries, targets low- and middle-income countries like India with extensive marketing and advertising of these unhealthy products. Children are particularly vulnerable and exposed to marketing tactics such as cartoon characters, incentives, gifts, and celebrity endorsements.

Significance
- The escalating prevalence of diabetes and obesity in India poses a severe public health crisis.
- It is imperative to address the role of ultra-processed foods in this crisis and take action to mitigate its impact.
- Additionally, the aggressive marketing and advertising tactics used by the food industry need to be curtailed to protect vulnerable populations, especially children.

Solutions:
- **Regulation of Marketing:** Implement strict regulations on the marketing and advertising of ultra-processed foods and beverages. This can include restrictions on the use of celebrity endorsements, cartoon characters, and incentives aimed at children.
- **Front-of-Package Labeling:** Enforce front-of-package labelling on unhealthy food products to inform consumers about the risks associated with their consumption. This labelling should be clear and easily understandable.
- **Defining "Healthy Food":** Develop a clear and standardized definition of "healthy food" to guide consumers in making informed choices. This definition should be based on established nutritional guidelines.
- **Warning Labels:** Introduce warning labels on junk food and beverages, highlighting their adverse health effects, especially for products high in sugar, fat, and salt.
- **Government Intervention:** The government should consider legislative measures, including the possibility of an ordinance, to regulate the consumption of ultra-processed foods. Such legislation can serve as a legal framework to protect public health.
- **International Examples:** Take inspiration from countries like South Africa, Norway, and Mexico, which have already implemented similar actions to regulate food labelling and marketing.

Nut Graf: The rising prevalence of diabetes and obesity in India, fueled by the consumption of ultra-processed foods and aggressive marketing tactics by the food industry, constitutes a ticking time bomb for public health. To defuse this crisis, the government must take decisive action through regulations, labelling, and defining "healthy food." The government has an opportunity to show its commitment to public health and emulate successful initiatives from other countries in this regard.

4. Aligning higher education with the United Nations SDGs

Syllabus: Issues related to the development and management of the social sector/Services relating to Health, Education, Human Resources

Mains: Role of Higher education institutes in achieving the Sustainable Development Goals.

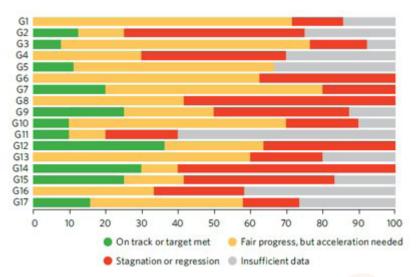**Context:** SDGs report 2023 stated how the world is NOT on the path to achieving the SDGs by 2023. More pronounced in Least Developed Countries. India too has suffered a setback.

Background:
- The United Nations Sustainable Development Goals (SDGs) encompass 17 goals and 169 targets aimed at global socio-economic and environmental transformation by 2030.
- SDGs necessitate urgent action and collaboration among UN member states.

SDG Report 2023
By UN DESA (Department of Economic and Social Affairs)

Source: SDG Report 2023

Slow Progress and Global Challenges:
- SDGs Report 2023 highlights slow progress due to factors like COVID-19, climate crisis, geopolitical conflicts, and economic challenges.
- Least Developed Countries experience a more pronounced lack of progress.
- India, despite its resilience, faces setbacks in achieving SDGs.

India's commitment to SDG 4

Role of National Education Policy (NEP) 2020:
- NEP 2020 aligns with most SDGs and emphasizes equitable and inclusive education.
- Higher education, a priority, empowers individuals and promotes creativity, critical thinking, and employment skills.
- Higher education's impact on various SDGs, including poverty reduction, hunger eradication, and gender equality.

How can universities help achieve SDGs?
- **Research-Teaching Nexus and Multidisciplinarity:**
  ○ Strengthening the research-teaching nexus benefits students and aligns with SDGs.
  ○ Multidisciplinary education fosters innovation and solutions to global challenges like sustainable energy, climate change, and economic growth.
- **Collaboration and Value-Based Education:**
  ○ Collaborating with private companies promotes innovation and start-ups (SDG 9).
  ○ Introducing value-based education encourages responsible citizenship and supports "Life on Land" (SDG 15).

Suggestions for Progress:
- Universities must align day-to-day operations with SDGs and embrace value-based education.
- Ranking universities based on SDG achievements is beneficial but insufficient.
- Stakeholders in higher education need education and orientation to ensure their activities contribute to SDGs.
- Collaboration among India's higher education institutions to achieve SDGs collectively.
- Universities should contribute to their local communities through health initiatives, energy conservation, skill development, and resource sharing.
- Sustainability should become integral to university strategies in administration, teaching, and research.
- **Integration with Socio-Economic Development:**
  ○ Higher education should be directly integrated with socio-economic development to impact SDGs meaningfully.
  ○ Universities must demonstrate how they contribute to citizens' well-being and nation-building.

Nut Graf: *Higher education institutions play a pivotal role in achieving the United Nations SDGs. Their commitment to aligning with these goals is crucial for a sustainable and equitable future. Collaboration, innovation, and a holistic approach to education can drive meaningful progress towards the 2030 agenda.*

5. Mental health and the floundering informal worker

Syllabus: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.

Prelims: World Mental Health Day, International Labour Organization, NCRB, The State of Inequality in India Report 2022, Code on Social Security, Sustainable Development Goals

Mains: Impact of informal work on mental health in India

Context
- The theme of World Mental Health Day (October 10) this year is 'Mental health as a universal human right'.
- A study by the International Labour Organization (ILO) states that 15% of working-age adults globally live with a mental disorder.

Factors affecting Mental health and caregiving:
- **Unemployment and job instability:**
  - More than 90% of India's working population operates in the informal sector where they are underpaid and work in unfulfilling job roles.
  - According to UNDP, unemployment and poor-quality employment have been linked to negative impacts on mental health.
  - According to the NCRB, 26% of individuals who committed suicide in 2021 were daily wagers.
  - Indian youth are highly susceptible to negative emotions due to unemployment and the stigma surrounding it.
- **Workplace Conditions:**
  - Lack of regulation and concerns around safety.
  - Long working hours.
  - Gender disparities.
- **Inadequate Social Security:**
  - Limited access to financial and social protections – For example, educated young women have a high unemployment rate of 42% (The State of Inequality in India Report 2022), indicating a need for long-term social security measures.
  - With the demographic shift and rapidly growing elderly population, there is no clear plan for their social security.
  - 33 million elderly individuals continue to work in informal jobs after retirement, with many experiencing poverty due to economic dependence and restricted access to financial resources.
  - Informal workers experience mental distress due to accumulating debt and rising healthcare costs, which are further reinforced by each other.
  - A WIEGO study found that post-COVID-19 recovery has been uneven among informal worker groups in Delhi, with many still experiencing food insecurity.
  - Concerns regarding the social security of India's casual labour force have not been addressed completely in the 2020 Code on Social Security.
- **Policy:**
  - India's mental health budget is only around 1% of the total health budget with a focus on digital mental health.

Way Forward
- Mental health must be considered essential for all employees because good mental health promotes better productivity at the workplace.
- Employers should prioritize creating mentally healthy workplaces where staff feels valued, respected, and supported.
- Job assurance initiatives can improve mental health outcomes in the informal sector. An updated version of the MGNREGA scheme can be considered in this regard.
- Social security measures should be promotional (boosting income), preventative (avoiding economic hardship), and protective (offering protection against external shocks).
- The World Mental Health Report 2022 suggests that community-based care, people-centred, recovery-oriented, and human rights-oriented care should be prioritized.
- Good mental health is a basic human right and essential for achieving SDG 3 (good health and well-being) and SDG 8 (decent work for all/economic growth).

Nut Graf: Unemployment, poor workplace conditions, inadequate social security, and insufficient mental health policies are major factors affecting mental health in India. Government and employers must take steps to create mentally healthy workplaces, expand social security measures, and prioritize mental health care.

6.   A key step by Bihar to promote social justice

Syllabus: Mechanisms, laws, institutions and Bodies constituted for the protection and betterment of vulnerable sections of the population

Mains: Significance of caste-based census

Context: On October 2, 2023, the Bihar government released the data for a caste-based survey known as the Bihar Jaati Adharit Ganana. This caste-based census marks a significant step in promoting social justice in India. The data obtained through this survey is crucial for evidence-based policy formulation and implementation.

Genesis of caste survey
- Introduced by the British in 1881 and continued till 1931.
- Independent India's governments abandoned the practice.
- Report by Backward Classes Commission headed by ex-CM of Bihar – BP Mandal submitted its report in 1980.
- It said: 'There is equality only among equals. To equate unequals is to perpetuate inequality'.
- The commission had extrapolated data from the 1931 census.

Background
- The demand for a caste-based survey in Bihar was first raised by Chief Minister Nitish Kumar, an OBC Kurmi caste member, in 2019.
- The Bihar legislature passed resolutions in 2019 and 2020 unanimously supporting a caste census.
- However, when the Union government declined to conduct a caste-wise census, Bihar proceeded with its own survey in June 2022, allocating ₹500 crore from its contingency fund for the exercise.
- The two-phase survey involved 2.64 lakh enumerators, documenting the details of 29 million registered households.

Addressing Caste-Based Discrimination and Injustices
- **Caste-based Discrimination and Oppression:**
  - India has a long history of caste-based discrimination and oppression.
  - The census can quantify the extent of historical injustices and disparities that persist in society.
- **Accuracy for Efficacy:**
  - Accurate caste-based data is essential for targeted welfare programs and tracking progress.
  - It ensures fair representation of marginalised communities in various sectors.
- **Preventing Misuse:**
  - Without accurate data, there's a risk of caste certificates being misused.
  - A caste-based census can help verify the caste status of individuals, reducing fraud.
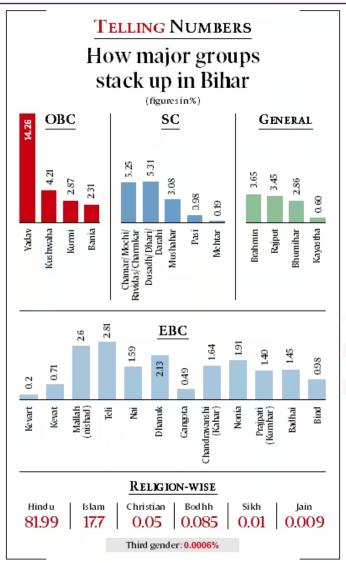
Significance:
- Accurate data enables the government to develop more effective and targeted welfare programs tailored to the specific needs of different caste groups.
- It allows for the evaluation of policies and affirmative action, ensuring the equitable distribution of resources and opportunities.
- Promotes transparency and accountability in government efforts to promote social justice.
- Increasing the OBC Quota beyond 27%. Redrawing of 50% Reservation Ceiling
- Fulfilment of Constitutional Obligations. Realisation of Sarvodaya.

TELLING NUMBERS

How major groups stack up in Bihar

(figures in%)

OBC
- Yadav — 14.26
- Kushwaha — 4.21
- Kurmi — 2.87
- Bania — 2.31

SC
- Chamar/Mochi/Ravidas/Charmkar — 5.25
- Dusadh/Dhari/Darahi — 5.31
- Mushahar — 3.08
- Pasi — 0.98
- Mehtar — 0.19

GENERAL
- Brahmin — 3.65
- Rajput — 3.45
- Bhumihar — 2.86
- Kayastha — 0.60

EBC
- Kevart — 0.2
- Kevat — 0.71
- Mallah (nishad) — 2.6
- Teli — 2.81
- Nai — 1.59
- Dhanuk — 2.13
- Gangota — 0.49
- Chandravanshi (Kahar') — 1.64
- Nonia — 1.91
- Prajapati (Kumhar') — 1.40
- Badhai — 1.45
- Bind — 0.98

RELIGION-WISE

Hindu	Islam	Christian	Bodhh	Sikh	Jain
81.99	17.7	0.05	0.085	0.01	0.009

Third gender: 0.0006%

Source: Indian Express

Procedure followed
- The survey was carried out in two phases, which each had its own criteria and objectives.
- **First Phase:**
  - During this phase, the number of all households in Bihar were counted and recorded.
  - Enumerators were given a set of 17 questions which were to be mandatorily answered by the respondent.
- **Second Phase:**
  - During this phase data on people living in the households, their castes, sub-castes, and socio-economic conditions were collected.
  - However, filling the Aadhaar number, caste certificate number and ration card number of the head of the family, were optional.

Need for a caste census
- Incomplete Data in present form
- Targeted Policies
- Equitable Development
- Historical and Contemporary Insights
- Evidence-Based Decision-Making

Issues with caste survey
- **Repercussions of a Caste Census:** There have been concerns that counting caste may help solidify or harden identities.
- **Caste is Context-specific:** People with Dalit last names are less likely to be called for job interviews even when their qualifications are better than that of an upper-caste candidate. They are also less likely to be accepted as tenants by landlords. Marriage to a well-educated, well-off Dalit man still sparks violent reprisals among the families of upper-caste women every day across the country.

Last caste census in India
● **Caste Census of 1931:** This caste census became the basis for the implementation of Mandal Commission Reports and subsequent reservation policies by the government for Other Backward Classes.
● **Census of 2011:** The Census of 2011 became the first time to collect Caste-based data after independence. However, the data related to caste were not made public due to fear of political favouritism and opportunism.

Way forward:
● **Government Intervention:** The government must take committed steps to address caste-based discrimination and historical injustices.
● **Constitutional Mandate:** The Indian Constitution recognizes caste-based discrimination and provides for affirmative action measures.
● **Human Rights:** Discrimination based on caste is a violation of human rights, and the government must protect citizens' rights.
● **Social Cohesion:** Government intervention is necessary to promote social harmony and unity.
● **Economic Development:** Affirmative action policies can bridge economic disparities and promote economic development.
● **Education:** Government intervention ensures access to quality education for all and eliminates discrimination.
● **Employment**: The government should enforce anti-discrimination laws and promote fair employment practices.
● **Political Representation:** Promoting political participation and representation is crucial for addressing the concerns of marginalized groups.
● **Awareness and Sensitization:** The government can play a significant role in creating awareness and promoting inclusivity.
● **Legal Framework:** Strengthening and enforcing anti-discrimination laws is essential.

Nut Graf: Caste discrimination is deeply rooted in India, requiring sustained and committed government intervention. Such intervention is necessary to rectify historical injustices and uphold principles of equality, justice, and human rights for all citizens, regardless of their caste or social background.

7. Tamil Nadu's Caste Survey

Syllabus: Government Policies and Interventions for Development in various sectors and Issues arising out of their Design and Implementation.

Mains: Reasons for the decline of Women's Labour Force Participation Rate and possible remedies

Context:
● The Bihar caste-based survey has triggered calls for a nationwide caste census and discussions on exceeding the 50% reservation limit.
● However, the experience in Tamil Nadu suggests that a caste census alone may not lead to increased reservations for Other Backward Classes (OBCs).

Second BC Commission:
● In 1980, the AIADMK government in Tamil Nadu, led by M.G. Ramachandran, increased BC reservations from 31% to 50%, reaching a total of 68% (including 18% for Scheduled Castes and Scheduled Tribes).
● This decision led to litigation in the Supreme Court, prompting the state government to form the Second Backward Classes Commission in October 1982, with J.A. Ambasankar as its head.
● The Commission submitted its report in February 1985.

Highlights of the Commission's Work:
● The Commission conducted a Socio-Educational-cum-Economic Survey in two stages during 1983-84.
● It conducted a comprehensive door-to-door enumeration for the classification of BCs, which was based on the 1983-84 data rather than projecting from the 1921 Census, as the previous panel did.
● The Commission identified 298 communities under main groups like BCs, Most BCs, Denotified Communities (DNCs), SCs, STs, and others.
● The BC population was estimated at 3,35,70,805, accounting for 67.15% of the state's overall population.

Recommendations of the Commission:
● Differences emerged among Commission members, with Ambasankar suggesting a reduction in BC reservations to 32% to stay under the 50% cap, while dissenting members argued for a reservation of at least 50% due to the BC population being around 67%.
● Another point of contention was whether there should be two separate lists of BCs, one under Article 15(4) and another under Article 16(4) of the Constitution. Ambasankar advocated for two lists, while the majority favoured a single list.
● The government chose not to alter the existing 50% reservation quota and did not agree to the deletion of 24 communities but did accept the inclusion of 29 communities.

Effect of 1992 Supreme Court Judgment on State Reservations:

- Following the 1992 Supreme Court judgment in the Mandal Commission case, Tamil Nadu had to enact a law to protect its 69% reservation quota and include it in the Ninth Schedule.
- In 2007-09, the DMK government allocated 3.5% each for Muslims and Christians within the BC reservation quota, but the separate Christian quota was later withdrawn.
- In May 2009, Arunthathiyars, a constituent of SCs, received 3% within the 18% quota for SCs.
- In February 2021, the AIADMK government passed a bill for 10.5% reservation for Vanniyars within the 20% MBC quota. However, the Supreme Court invalidated this law a year later, citing non-contemporaneous data from the Ambasankar panel.

Nut Graf: *In light of the Bihar caste-based survey, the Tamil Nadu experience reveals complexities in implementing caste-based reservations. The Second Backward Classes Commission (1982-85) conducted a comprehensive survey, highlighting significant differences in reservation recommendations and lists of backward classes. Despite the 1992 Supreme Court judgment safeguarding reservations, recent Tamil Nadu laws faced legal challenges, reflecting the intricacies of caste-based policies.*

8. Centre seeks inclusion of traditional medicine on WHO's list

Syllabus: Issues related to the development and management of the social sector/Services relating to Health, Education, Human Resources

Mains: Significance of inclusion of India's traditional medicine on WHO's list

Context: The Indian government is taking a significant step to elevate the status of traditional Indian medicine, particularly Ayurveda, by seeking inclusion in the 11th revision of the World Health Organization's International Classification of Diseases (ICD). This move aims to provide a standardized language and recognition on the global stage for traditional systems of medicine.

The Opportunity:

- **Recognition and Standardization:** Traditional Indian systems of medicine, including Ayurveda, lack standardized international recognition, making it challenging to integrate them into mainstream healthcare and research.
- **Evidence-Based Information**: To regulate traditional medicine effectively and integrate it into the healthcare system, there's a need for standardized, evidence-based information.
- **Integration Challenges**: Integrating traditional medicine into the conventional healthcare system requires a common classification standard.
- **Common Language:** The ICD serves as a global common language for healthcare professionals to share standardized information. Inclusion in the ICD would enable standardization in the reporting and diagnosis of traditional medicine conditions.
- **Research and Evaluation:** The traditional medicine chapter in ICD-11 is a crucial step in integrating traditional medicine into conventional medical standards. It also facilitates research and evaluation to establish the efficacy of these systems.
- **Regulation and Integration:** Inclusion in the ICD can help meet the growing demand for better regulation and integration of traditional medicine into mainstream healthcare and health information systems.

Way Forward:

- **Timely Inclusion:** The government aims to include Module-2 for Ayurveda in the ICD by January. Timely inclusion is crucial to expedite the integration process.
- **Support and Collaboration:** Collaboration between the Ministry of Ayush, the National Ayush Morbidity and Standardized Terminologies Electronic portal, and the Ayush Health Information Management System is vital in developing Module-2 for Ayurveda-related diagnostic systems.
- **Global Collaboration**: International collaboration with the WHO and other countries can further enhance the recognition and integration of traditional Indian medicine.

Nut Graf: *The move to include Ayurveda and related traditional Indian systems of medicine in the ICD-11 is a significant step towards recognizing and standardizing these systems on the global stage. This not only provides a common language for healthcare professionals but also supports research, regulation, and integration into mainstream healthcare. The collaboration between various entities and timely inclusion will be instrumental in achieving these goals and promoting traditional medicine's role in healthcare systems worldwide.*

9. Centralized procurement as a powerful health idea

Syllabus: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.

Prelims: Out-of-Pocket Expenditure (OOPE), National Health Accounts Estimates

Mains: Affordable Health Care, Affordable access to medicines

Introduction:
- According to the National Health Accounts Estimates for India, Out-of-Pocket Expenditure (OOPE) in Total Health Expenditure stands at 47.1% in 2019-20.
- Studies have shown that medicines form the biggest chunk of out-of-pocket expenditure.

Decentralized vs Centralized Procurement
- Decentralized procurement leads to problems with price negotiation and quality control.
  - Individual franchisees may not be able to negotiate as favorable prices as a centralized team due to economies of scale.
  - Different franchisees may have different standards for acceptable quality and taste, leading to inconsistent products across locations.
- Centralized procurement can help address these issues by leveraging larger volumes for better pricing and ensuring consistent quality.
- This raises questions about how hospitals could improve their drug procurement processes, suggesting potential benefits from adopting a similar centralized approach.

Success Stories
- A recent study titled "A National Cancer Grid pooled procurement initiative, India" demonstrated the effectiveness of group negotiation and uniform contracts in reducing drug costs.
- The study showed that hospitals associated with the National Cancer Grid saved ₹13.2 billion by pooling their procurement efforts for 40 drugs, resulting in savings ranging from 23% to 99%.
- The authors of the study concluded that group negotiation in pooled procurement can be applied to other health systems beyond cancer treatment.

Current Status in India
- The Central government has not realized the benefits of pooled procurement for schemes such as the Pradhan Mantri Jan Arogya Yojana (PMJAY), and the Employees' State Insurance Scheme (ESI).
- Corporate hospital chains are aware of the benefits of pooled procurement and have been conducting direct negotiations with pharmaceutical companies to avail significant discounts.
- Patients at these hospitals still pay the maximum retail price for the drugs, but the hospitals benefit from the lower costs due to their bulk purchasing power.
- The current system allows corporate hospitals to profit from the difference between the maximum retail price charged to patients and the lower price they pay due to their bulk purchasing power.
- It is unclear why more hospitals do not form buyer's clubs to benefit from better bargaining power and pass on the cost savings to patients.

Potential Solutions
- The government is already benefiting from pooled procurement and price discovery, as seen in the case of male contraceptives.
- In the male contraceptive procurement process, the government invites tenders from private manufacturers and then offers to buy from all those who are willing to match the lowest price.
- To prevent suppliers from colluding to keep prices high, the government uses HLL Lifecare Ltd., a public sector unit with the highest manufacturing capacity in India, to provide a benchmark price.
- The government can adopt a similar approach for most drugs it procures, using pharma PSUs to provide benchmark prices and ensure leveraging.
- By following this model, the government can avoid being forced to buy from private manufacturers and instead use competition from PSUs to negotiate better prices.
- Formation of Buyer's clubs among hospitals can also ensure better quality by having supplies tested independently, rather than relying on the drug regulator.

Advantages of Centralized Procurement
- Centralized or pooled procurement is a simple yet powerful idea that can:
  - Reduce costs.
  - Ensure better deployment of funds in other areas related to healthcare.
  - Ensure availability of life-saving drugs in India.
  - Third party assessments for use of quality drugs.
- This is also the standard operating procedure in many developed nations.

Conclusion

- Implementing centralized procurement on a large scale in India is a sound strategy, given its theoretical foundation and practical successes both in India and around the world.

Nut Graf: *Centralized procurement of drugs can help reduce costs, ensure better deployment of funds, and ensure availability of life-saving drugs in India. The government can adopt a centralized procurement model for most drugs it procures, using pharma PSUs to provide benchmark prices. Hospitals can also form buyer's clubs to benefit from better bargaining power and pass on the cost savings to patients.*

10. Cannot legalise same-sex marriage, says SC Bench

Syllabus: Social Justice

Prelims: Legalizing same-sex marriage.

Introduction

- A Constitution Bench of the Supreme Court in India recently delivered a ruling on the recognition and regulation of same-sex marriages and civil unions.
- The Bench held that only the legislature can recognize or regulate same-sex marriage.

Reasoning of the Constitution Bench

- The Court argued that since there is no fundamental or unqualified right to marry, it is beyond the court's jurisdiction to intervene in this matter.
- There was a lack of consensus among the judges on providing legally recognized "civil union" status to same-sex couples, despite unanimous agreement on ending discrimination against them.

Chief Justice of India's View

- Chief Justice D.Y. Chandrachud dissented from the majority view and stated that queer individuals have a fundamental right to form relationships, and the State must recognize and grant legal status to such unions.
- He emphasised that equality cannot be denied to same-sex couples based on their sexual orientation.

The 2018 Decriminalization and Recognition of Relationships

- The court's previous judgement decriminalising homosexuality in 2018 was not extended to include legal recognition of same-sex unions in the recent ruling.

Differing Perspectives on Legal Recognition

- The dissenting judges believed that legal recognition of same-sex relationships was a step towards "marriage equality" and noted that it aids social acceptance, promoting LGBTQ+ participation in public spaces.
- They suggested the establishment of a regulatory framework and a high-powered committee to determine the scope of benefits available to such unions.

Majority's Perspective

- The majority view held that legal recognition of queer unions could only be achieved through enacted law, and it was not within the court's purview.
- They rejected the idea of reading gender-neutral provisions in the Special Marriage Act to enable same-sex marriages.
- The majority judges held that queer and LGBTQ+ couples have the right to form relationships based on the right to privacy, choice, and autonomy.
- However, they argued that this does not extend to claiming entitlement to any legal status for the union or relationship, and the court cannot direct the creation of a regulatory framework for legal status.

11. An opportunity to recast India's food system

Syllabus: Issues relating to poverty and hunger

Mains: Challenges of India's food system and measures to be taken.

Context: World Food Day, celebrated on October 16, emphasizes the importance of viewing food as a comprehensive system. India, with its immense population, faces unique challenges in maintaining a sustainable and resilient food system.

- Achieving nutrition security for all is a primary goal, which is intricately linked to the economic returns of food producers and the resilience of natural ecosystems.

Issues:

- **Double Burden of Malnutrition:** India faces the challenge of both nutrient deficiencies and obesity. A significant portion of the population exhibits nutrient deficiencies, while unhealthy diets and sedentary lifestyles have led to rising obesity rates.
- **Insufficient Farm Incomes:** Many small and marginal farmers struggle to make ends meet, often resorting to non-farm activities. This situation is exacerbated by a lack of skills and income diversification opportunities.
- **Depleting Natural Resources:** The depletion of natural resources like soil health and groundwater, along with the impact of climate change, threatens the resilience of India's food production.

  Realities on the ground
  - **As per NFHS 2019-21:**
    - 35% of children are stunted; 57% of women and 25% of men are anaemic.
    - 24% of adult women & 23% of adult men are obese.
  - More than 68% of the marginal farmers supplement their income from non-farm activities.

Significance:

- Revamping India's food system is crucial for ensuring nutrition security, improving farm incomes, and safeguarding the environment.
- Achieving these objectives requires a holistic approach that engages consumers, producers, and middlemen in the food supply chain.

Way Forward:

- **Shift Consumer Demand:** Encourage consumers to adopt healthier and more sustainable diets. Collaboration between the private sector, civil society, health communities, and social media influencers can promote locally-grown, nutritious options. Public sector initiatives like the Public Distribution System and institutional procurement can also play a role in improving food choices.
- **Support Farmers' Transition:** Promote remunerative and regenerative agricultural practices. Increase funding for sustainable agriculture initiatives, broaden support for agroecological practices, and shift from input subsidies to direct cash support per hectare. Agricultural research and extension services should focus on sustainable practices.
- **Sustainable Value Chains:** Make farm-to-fork value chains more sustainable and inclusive. Encourage middlemen and corporations to procure directly from farmers and prioritize sustainably harvested produce. Facilitate trading of produce between Farmer Producer Organizations (FPOs) to ensure a greater share of value for farmers.

Nut Graf: India's food system is at a crossroads, facing challenges related to nutrition, farm incomes, and environmental sustainability. A comprehensive approach that involves consumers, producers, and middlemen is essential for transforming the food system. While the scale of the challenge is significant, India has a unique opportunity to demonstrate how a sustainable and resilient food system can be achieved, setting an example for the rest of the world.

12. Women, Marriage & Labour Market Participation

Syllabus: Role of Women and Women's Organization

Mains: Reasons for the decline of Women's Labour Force Participation Rate and possible remedies

Introduction:

- Claudia Goldin, the 2023 Economics Nobel laureate, provided groundbreaking insights into women's labour market outcomes.
- She explored historical and contemporary gender disparities in the labour market.

Data on Women's Labour Force Participation Rate (LFPR):

- Global LFPR for women was 47.3% in 2022, indicating relatively low participation.
- India experienced a decline in female LFPR from 28% to 24% between 1990 and 2022.
- Persistent gender disparities in labour market participation exist worldwide.

Causes of Low Women LFPR:

- **Impact of Marriage on LFPR:**
  - Marriage often leads to decreased LFPR due to factors like limited education, increased family responsibilities, and societal disapproval.
  - Marriage amplifies domestic obligations and cultural barriers affecting women's workforce participation.
- **Multiple Factors Affecting Women's LFPR:**
  - Individual and societal factors, including religion, caste, geographical location, household wealth, and societal norms, influence women's labour market entry.

- **Challenges Faced by Married Women:**
  - Women seeking to re-enter the labour market post-marriage prefer flexible opportunities close to their homes.
  - Gender-asymmetrical professional costs contribute to disparities in career choices, income, age at marriage, and fertility decisions.
- **Impact on Different Socioeconomic Strata:**
  - Upper-stratum women tend to conform to traditional roles, while lower-stratum women participate due to economic necessity stemming from poverty.
- **Age and Education Influence:**
  - A significant decline in female LFPR is observed in the 25-29 age group.
  - Women with lower literacy skills are more inclined to participate in the labour force after marriage.

Solutions to Pursue:
- **Addressing the Lack of Day-Care Services:**
  - Insufficient day-care services act as a barrier to female LFPR.
  - Enhance the quality and accessibility of day-care services for women in various socio-economic strata, including the formal and informal sectors.
- **Government Initiatives:**
  - The National Creche Scheme for The Children of Working Mothers is an example of government efforts.
  - Implement such schemes in both public and private sectors to increase married women's participation in the labour force.
- **Workplace Accommodations:**
  - Create work environments that prioritise women's needs and well-being.
  - Provide secure transportation options and expand part-time job opportunities to promote greater female labour force participation in India.

Nut Graf: Women's labour force participation remains low globally, with a significant decline in India. Marriage often leads to decreased participation, influenced by education, family responsibilities, and societal norms. Initiatives, like improved daycare services and accommodating workplaces, are needed to empower women and boost their participation in the labour market.

13. Women can make the world better

Syllabus: Role of Women and Women's Organization, Population and Associated Issues

Mains: Contributions of Women to make the world better

Context: Economic history and the field of economics have predominantly been presented through a male lens, sidelining the contributions of women. The scarcity of women Nobel laureates in economics highlights this gender imbalance. To create a more equitable and sustainable world, the value of women's work, both within and outside the traditional economic framework, must be recognized and elevated.

Issues:
- **Gender Disparities in Economics:**
  - The Nobel Memorial Prize in Economic Sciences has been awarded to only three women since 1969.
  - Claudia Goldin's Nobel Prize in 2023 emphasized the persistent gender wage gap and the undervaluing of women's work.
- **The Value of Women's Work:**
  - Women's contributions to family and community well-being, often overlooked in economic discussions, are vital but do not contribute to GDP growth.
  - Inadequate compensation for women in caregiving roles, such as domestic service and healthcare, remains a pressing concern.
- **Changing Global Economic Landscape:**
  - Economic growth patterns are shifting, with more informal and gig economy jobs and fewer long-term employment opportunities.
  - India, with a large youth population, faces the challenge of providing dignified work and social security amid these economic shifts.
- **The Sustainable Development Goals (SDGs):**
  - Progress toward achieving the SDGs by 2030 has been slower than anticipated, with only 12% of targets on track.
  - Achieving the SDGs requires a paradigm shift in problem-solving and a bottom-up, context-specific approach.

Solutions:
- **Empower Women's Work:**
  - Women's contributions to caregiving, family, and community must be valued and integrated into economic discussions.
  - Adequate compensation for caregiving roles and better work conditions for female workers in these sectors should be promoted.
- **Adapting to New Economic Realities:**
  - Policymakers need to address the challenges presented by the gig economy and changing employment trends, particularly for India's youth.
  - Investments in social infrastructure, including caregiving services, are necessary to enhance human development.
- **A Paradigm Shift in Economics:**
  - Reevaluate the current paradigm dominated by male-driven institutions and ideologies.
  - Promote a more cooperative, equitable, and sustainable paradigm that empowers local communities to find context-specific solutions.

Nut Graf: The future should focus on bottom-up problem-solving and embrace a paradigm shift that values cooperation, equity, and sustainability. Achieving the vision of "One Family, One Earth, One Future" requires the collective efforts of men and women to create a more inclusive world.

14. Unhealthy Urban India

Syllabus: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.

Mains: Multiple Health related problems due to current Urbanisation and Possible Solutions

Context:
- India's urban population is projected to reach 675 million by 2035, making it the second-largest in the world.
- While cities have contributed to India's economic growth, they fall short in delivering on health, environmental, and equity goals.

Urban India and Multiple Health Risks:
- **Urban residents in India face a range of health risks:**
  - Highest levels of air and noise pollution globally.
  - Limited green spaces and inadequate access to sidewalks and parks, hindering active lifestyles.
  - Outdated transportation systems that contribute to air pollution.
  - Poor access to nutritious food and exposure to toxic chemicals and heavy metals.
- These factors significantly increase the risk of cardiometabolic diseases like heart disease and diabetes.
- Physical activity is crucial for mitigating these health risks.

Double or Triple-Duty Actions:
- Key investments in clean energy and electric mobility are ongoing in India, offering opportunities to address health concerns while meeting climate and equity goals.
- Simultaneous improvements in food, mobility, and green infrastructure are essential to maximize health benefits.
- Small changes, such as creating safe walking and biking lanes, not only promote physical activity but also reduce air pollution's impact.
- Physical exercise helps combat obesity and diabetes risk, acting as a defence against heart disease.
- Overcrowded and poorly maintained sidewalks hinder walking and biking, making it hazardous and impractical.
- Active transportation has the potential for significant health and economic benefits.

Towards Holistic Urban Policy:
- Economic and health impact models of the clean energy transition in transportation mostly focus on air pollution reduction.
- Combining electric cars with active transport options like walking paths and bicycling lanes enhances economic viability.
- Policies encouraging healthier diets, and limiting sugar and salt in beverages, can reduce obesity, Type 2 diabetes (T2D), and cardiovascular disease risks, enhancing health and productivity.
- Urban policies should prioritize population health, but they are often an afterthought in national urban planning, especially in lower and middle-income countries.
- Unhealthy diets, reduced physical activity, and air pollution are major threats to health in Indian cities, surpassing the combined risks of drugs, tobacco, alcohol, and accidents. A concerted effort is needed to combat cardiovascular disease, obesity, and T2D in Indian cities.

Nut Graf: *India's urban areas, with a projected population of 675 million by 2035, are at a critical juncture. While they have driven economic growth, these cities grapple with severe health risks, including pollution and inadequate infrastructure. Addressing these issues through comprehensive urban policies and embracing double or triple-duty actions is essential to ensure a healthier and more sustainable future.*

15. Abortion Verdict & Reproductive Justice

Syllabus: Role of Women and Women's Organization, Population and Associated Issues

Mains: Debate around 'Abortion right of women' vs 'Right to life of child'

Context: The recent Supreme Court judgment in India, rejecting a woman's plea for abortion at 26 weeks, has raised significant questions about reproductive justice.

Interpretation of Women's Right to Choose:
- The verdict appears to dilute women's right to choose, as previously recognized in landmark cases like X v NCT.
- The court's stance on foetal rights is creating incoherence in the jurisprudence surrounding abortion rights in India.

Mental Health Ground for Abortion:
- The Supreme Court had previously acknowledged that continuing with an unwanted pregnancy can adversely impact mental health and be grounds for abortion.
- In the recent case, the court questioned the validity of the petitioner's argument regarding mental health, raising doubts about the practical application of this principle.

The 'Viability' Theory and Rights of the Foetus:
- The 'viability' theory, suggesting that abortion rights should be curtailed when the foetus is viable and can exist outside the womb with medical support, is discussed.
- The rights of a foetus under Indian law remain unclear and have not been explicitly articulated.

Abortion as a Matter of Equality:
- Abortion cases are often framed as a matter of privacy, but they also relate to women's equality.
- Denying abortions perpetuates women's disadvantages, puts their lives at risk, and has socio-economic implications.
- The denial of abortion can be seen as a violation of equality, perpetuating stereotypes and biases about women's roles as mothers.

Way forward:
- **Comprehensive Legal Reforms:** Enact comprehensive legislation that provides clear guidelines for abortion, addressing factors such as gestational limits, mental health considerations, and foetal status.
- **Public Education and Awareness:** Launch public education campaigns to raise awareness about reproductive rights and combat the stigma surrounding abortion, ensuring women are well-informed.
- **Healthcare Access and Quality:** Improve access to quality reproductive healthcare services, particularly in underserved areas, to support women's reproductive choices.
- **Gender Equality and Empowerment:** Promote gender equality and empowerment, challenging stereotypes and biases that hinder women's autonomy in making reproductive decisions.
- **Evidence-Based Policy:** Develop policies and regulations based on sound research and data, considering the impact of reproductive laws on women's health and equality, and involving diverse stakeholders in decision-making processes.

Nut Graf: *The recent Supreme Court verdict in India on abortion rights calls for urgent action to ensure reproductive justice. Key steps include comprehensive legal reforms, public education, improved healthcare access, gender equality promotion, and evidence-based policy development. These measures aim to protect women's autonomy, reduce stigma, and support informed, equitable reproductive choices.*

16. The COVID-19 death toll in India, getting it right

Syllabus: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.

Prelims: Civil Registration System, Sample Registration System

Mains: Need for improved mortality surveillance and measurement

Introduction
- The COVID-19 pandemic has taken a significant toll on human life globally in 2020 and 2021.
- This has raised major concerns for global public health.
- Due to difficulties in directly linking deaths to COVID-19 infections, experts have stressed the importance of measuring the pandemic's effect using excess mortality.
- Excess mortality is calculated by comparing actual mortality rates during the pandemic to predicted mortality rates based on pre-pandemic patterns.
- Accurate population-level mortality data from death registration systems are necessary for an accurate estimate of excess mortality.

Challenges in Measuring Mortality in India
- Death registration in India is incomplete, with variations across states and districts.
- The lack of weekly or monthly mortality data makes it difficult to calculate excess deaths.
- Variations in reporting, delayed registration, and data completeness issues may impact the accuracy of the findings.
    - Independent investigators compiled mortality records from local offices of the Civil Registration System (CRS) in 14 states and nine cities across India from January 2018 to May 2021.
    - Scientific teams used these data, along with other available mortality data from the Sample Registration System (SRS) and household surveys, to develop modelled excess mortality estimates for India.
    - Estimates of COVID-19-related deaths vary widely among different studies, with the highest estimate being 4.7 million excess deaths in India during 2020-2021.
- The official CRS report for 2021 is expected to provide valuable insights into mortality rates.

Proposed Solution
- To address these concerns, a national task force should be formed to thoroughly analyze the data.
- The task force should have access to all necessary microdata from the CRS, SRS, and other relevant sources.
- Using standard statistical methods and empirical data, the task force can measure excess mortality by sex and age at national, state, and district levels.

Benefits of Improved Mortality Measurement
- Evidence-based health actions to address the burden of maternal and child health conditions, infectious diseases, non-communicable diseases, and injuries.
- Improved mortality measurement will bring objectivity to pandemic mortality in India and establish capabilities for subnational mortality assessment.
- It will also provide valuable information for strengthening local data quality.
- Improving the attribution of causes of death through physician certification or retrospective interview techniques for statistical analysis.

Conclusion
- The proposed solution will significantly increase the usefulness of the Civil Registration System (CRS) for regular local and national mortality monitoring in India.
- Improved mortality measurement will provide valuable insights for public health action and strengthen the country's capacity for mortality surveillance.

Nut Graf: *Indian pandemic excess mortality estimates vary widely. Incomplete death registration and lack of weekly mortality data pose challenges, but a national task force could use standard statistical methods to produce accurate estimates.*

17. India's Hunger Index Ranking

Syllabus: Welfare schemes for vulnerable sections of the population by the Centre and the States, Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

Prelims: India's Hunger Index Ranking

Context: India has experienced remarkable economic growth in recent years and remains one of the fastest growing economies in the world. However, hunger and malnutrition are still areas of concern in spite of many strides.

Details:
● The Global Hunger Index (GHI) is a peer-reviewed report, published on an annual basis by Concern Worldwide and Welthungerhilfe.
● The GHI is a tool designed to comprehensively measure and track hunger at global, regional, and national levels, reflecting multiple dimensions of hunger over time.
● The GHI score is calculated on a 100-point scale reflecting the severity of hunger - 0 is the best score (implies no hunger) and 100 is the worst.
● In the Global Hunger Index 2023, India ranked 111th out of 125 countries, indicating a serious level of hunger.
● Neighboring countries, such as Pakistan (102nd), Bangladesh (81st), Nepal (69th), and Sri Lanka (60th), scored better than India.

India's GHI Score:
● India's GHI score 2023 stands at 28.7, categorized as "serious" on the GHI Severity of Hunger Scale.
● This shows a slight improvement from its GHI 2015 score of 29.2, which was also deemed serious.
● Also, compared to its alarming GHI scores of 38.4 in 2000 and 35.5 in 2008, India has made significant progress.
● Child stunting is prevalent at 35.5% (India's National Family Health Survey(NFHS) 2019-2021)
● The prevalence of undernourishment in India is 16.6% (State of Food Security and Nutrition in the World report 2023)
● India's child wasting rate is a concerning 18.7% (India's NFHS 2019-21), the highest among all countries in the report.
● The under-five mortality rate stands at 3.1% (United Nations Inter-Agency Group for Child Mortality Estimation January 2023)

What is the Indian Government's Response to GHI Report 2023?
● **Criticism of Methodology:** The Ministry of Women and Child Development has raised concerns about the report's methodology, suggesting "serious methodological issues" and "malafide intent."
● Data from the government's Poshan Tracker consistently shows child wasting prevalence below 7.2%, which contradicts the GHI's reported figure of 18.7%.
● **Focus on Child Health:** The government noted that three out of the four GHI indicators pertain to children's health and may not provide a complete representation of the entire population.
● **Small Sample Size:** The government expressed doubts about the accuracy of the "Proportion of Undernourished Population" indicator, as it is based on a small sample size opinion poll.
● **Complex Factors:** The government's argument is that indicators like stunting and wasting are outcomes of various complex factors, including sanitation, genetics, environment, and food utilization, and are not solely attributable to hunger.

GOVERNANCE

1.   Criminal law bills and a hollow decolonisation

Syllabus: Government policies and interventions aimed at development in various sectors and issues arising out of their design and implementation; Issues relating to development and management of Social Sectors; Important aspects of governance.

Mains: The criminal law Bills and their implications in the context of colonial legacies and the relationship between the state and citizens.

Context
India's 2023 criminal law bills were expected to decolonize its legal framework, but concerns have arisen that they perpetuate colonial-style powers and surveillance.

Introduction
- The 2023 criminal law bills in India, touted as decolonization efforts, are critiqued for failing to truly decolonize Indian criminal law.
- These bills, instead, seem to perpetuate and intensify colonial-style powers and attitudes.

Colonialism's Essence:
- Colonialism is an oppressive process where the colonised serve the colonial power's desires without question.
- Colonial laws prioritise protecting the colonial state, treating the subjects as inferior and suspicious.
- These laws aim to secure and safeguard the colonial state rather than the colonised.

Requirements for Decolonized Law
- Post-colonial laws should reflect a changed citizen-state relationship where the state serves the people.
- This shift alters the purpose and priorities of laws.

Failures of the Bills
- The 2023 bills fail to meet these requirements, viewing citizens with heightened suspicion, and positioning the state against its people.
- Major changes in the bills compromise individuals and empower the state, expanding suppression disguised as security.

Expansion of Suppression
- Colonisation involves suppression under the guise of security and unchecked executive police powers.
- Post-independence, India has continued to increase police powers, as seen in the Bharatiya Nagarik Suraksha Sanhita (BNSS), which repeals the Code of Criminal Procedure, 1973, expanding police custody periods.
- Some provisions in the bills grant police powers broader than harsh laws like the Unlawful Activities (Prevention) Act.

Need for Reform
- The bills lack any indication of police and prison reform, remaining rooted in colonial perspectives.
- Calls for decolonization will remain empty without reimagining these fundamental colonial institutions.

Punishments and Policing
- The bills increase punishment terms across the board while expanding police powers, resembling colonial criminal law logic.
- The implications for overcrowded prisons and policing methods are overlooked.

Broader Context
- The bills' narrative of decolonization must be considered alongside other developments in criminal law that reinforce colonial tendencies.
- Laws like the Criminal Procedure (Identification) Act, 2022, further surveillance and state control, aligning with colonial objectives.

Decolonization as Optimistic Endeavour:
- Decolonization is more than opposition to colonialism; it embodies the promise of people shaping their destinies and reordered state-citizen relationships.
- Behind the rhetoric of decolonization in the bills lie exaggerated anxieties of colonial power.

Nut Graf: Despite hopes for decolonization, India's criminal law bills are criticised for reinforcing colonial-era powers, increasing surveillance, and failing to prioritise citizen-centric lawmaking.

2.   Why SLLs also need to be reformed

Syllabus: Government policies and interventions aimed at development in various sectors and issues arising out of their design and implementation.

Mains: Legal reforms and the need for reforming Special and Local Laws

Context
The article highlights the importance of including Special and Local Laws (SLLs) in criminal law reforms in India, given their substantial role in the legal landscape.

Introduction
- Recent bills on criminal laws aim to reform substantive criminal law codified in the Indian Penal Code (IPC), Code of Criminal Procedure (CrPC), and Indian Evidence Act (IEA).
- However, the focus has been primarily on general criminal law, while a significant aspect of criminal laws lies within Special and Local Laws (SLLs).

Significance of Special and Local Laws (SLLs)
- SLLs are highly relevant in India's criminal justice system, accounting for approximately 39.9% of all cognizable offences registered in 2021.
- They have sparked critical debates concerning the limits of the state's power in criminalization and the impact on individual rights and liberties.

Reform Needs in SLLs
- SLLs suffer from vague definitions and ambiguity, exemplified by laws like the Unlawful Activities (Prevention) Act (UAPA) and the Maharashtra Control of Organised Crime Act (MCOCA).
- Concerns have arisen about criminalising conduct through SLLs that would otherwise be considered civil or regulatory offences, like consensual activities between minors.
- Due process values are being diluted through SLLs, granting authorities expanded search and seizure powers and allowing the admissibility of confessions recorded by police officers.
- Stringent bail provisions in various SLLs make securing bail nearly impossible.

A Shift in Criminal Laws
- Over time, there has been a significant shift in the landscape of criminal laws with a surge in SLL enactments.
- This shift differs from the original concept of comprehensive codification, as seen in the Indian Penal Code.
- The IPC was initially envisioned as an all-inclusive collection of rules, a "Pannomion," containing all criminal laws.
- Although the IPC is criticised for archaic and colonial elements, the idea of codification within it has been successful.

The Need for Comprehensive Reforms
- SLLs that criminalise or aim to criminalise specific conduct should be incorporated as separate chapters within the existing penal code.
- The procedural elements associated with Special and Local Laws (SLLs), covering aspects like reporting of offences, arrest, investigation, prosecution, trial, evidence, and bail, should be incorporated either as distinct procedures within the Code of Criminal Procedure (CrPC) or as special cases within its standard provisions.
- Omitting the substantive and procedural aspects of SLLs from ongoing reform initiatives is a significant limitation.
- Second-generation reforms are necessary to address these gaps and ensure the comprehensive reform of India's criminal laws.

Nut Graf: While India's recent criminal law reform bills address general laws, there's a significant gap in considering Special and Local Laws (SLLs). These laws are essential in the country's criminal justice system and have triggered crucial debates about individual rights and liberties. There is a need for comprehensive reform, including both substantive and procedural aspects of SLLs, to ensure a more holistic transformation of India's criminal laws.

3.   Not just a case about improving investigation

Syllabus: Government policies and interventions aimed at development in various sectors and issues arising out of their design and implementation; Issues relating to development and management of Social Sectors; Important aspects of governance.

Mains: Challenges and Need for Police Reforms in India

Context: A recent judgment by the Supreme Court of India in the case of Rajesh & Anr. vs The State of Madhya Pradesh emphasized the necessity of establishing a consistent and dependable code of investigation to prevent the guilty from escaping justice on technicalities.
- The Court expressed concerns regarding the quality of police investigations, illegalities in the process, and recommendations from previous committees and commissions.

Interpretation of Section 27 of the Indian Evidence Act:
- The Court pointed out issues related to Section 27 of the Indian Evidence Act, which defines the admissibility of facts discovered based on information from a person "accused of any offence" while in the custody of a police officer.
- The Court held that a person cannot be considered in police custody until formally arrested, particularly if they are not mentioned as an accused person in the First Information Report (FIR).
- However, this interpretation does not align with earlier legal precedents. The term "custody" has been broadly interpreted to include situations where a suspect is under police surveillance and control and even indirect control over a suspect's movements is considered "police custody."

Emphasis on Compliance with Criminal Procedure Code (CrPC):
- The Court gave significant importance to compliance with Section 100(4) and Section 100(5) of the Code of Criminal Procedure (CrPC), which pertain to the presence of independent witnesses during searches and seizures.
- It was noted that non-compliance with these sections could not dilute the evidentiary value of discoveries made under Section 27 of the Indian Evidence Act.
- However, earlier judgments have recognized that the procedures for search and discovery are distinct, and the safeguards for compulsion in search proceedings do not apply to voluntary discovery during an investigation.

Quality of Police Investigations:
- The Court expressed regret over the poor quality of police investigations and the low conviction rate due to ineffective and unscientific investigations.
- It referred to recommendations from committees and commissions, including the Malimath Committee and the Law Commission, highlighting issues such as understaffed police stations, insufficient priority given to crime investigation, and a lack of skill development in the investigation process.
- The **Malimath Committee had recommended the separation of the investigation wing from the law and order wing**, which, while essential, requires a comprehensive review of State efforts in this regard.

The Core Problem
- Seventeen states have taken measures to separate the investigative and law and order functions of the police.
- The remaining states are not opposed to this directive but have yet to initiate the necessary steps for separation.
- When it came to overall compliance with the seven directives, nine States fell under the 'good and satisfactory' category and 20 States in the 'average and poor' category.
- The police authorities are, however, aware that unless additional manpower is sanctioned, except in major cities such as Delhi and Mumbai, it is practically difficult to separate the two wings because of a lack of manpower.

Other Issues:
- The investigating officers are inadequate in number and unable to upgrade their skills because there is a shortage of officers.
- Only symptomatic treatment of police reforms by having some provisions in the rules and regulations will not help much.
- The police stations are understaffed.
- There is no periodic exercise to upgrade the skills of investigation.

Significance:
- The judgment underscores the importance of a consistent and dependable code of investigation to ensure the guilty are held accountable.
- It highlights the need to strike a balance between preserving legal standards and improving investigation quality.

Way Forward:
- The Court should provide clear and consistent interpretations of legal provisions to avoid ambiguity and discrepancies.
- Policymakers and law enforcement agencies should focus on comprehensive police reforms, addressing issues like understaffing and skills development.
- State and Union Territory governments should ensure the separation of investigation from law and order duties per the Court's directives.

Nut Graf: *There is a need for a consistent code of investigation along with improved investigations in India in order to solve the problem of low conviction rates.*

4. Court declines abortion plea, says it can't 'stop heartbeat' of viable foetus

Syllabus: Governance, Government policies and interventions aimed at development in various sectors and issues arising out of their design and implementation.

Prelims: Legal aspects of abortion and court decisions related to a viable foetus.

Introduction
- The plea of a married woman to terminate her 26-week pregnancy through medical means has been denied by the Supreme Court of India.
- The Court's decision is based on the premise that the pregnancy is not an immediate threat to the life of the woman or the foetus.
- The Medical Termination of Pregnancy Act allows abortion only in cases where the pregnancy poses a physical and immediate danger to the woman's life and health.
- The case raises complex ethical and legal questions about reproductive rights and the well-being of the unborn child.

Details of the Case
- The woman, who is already a mother of two, claimed she was physically, emotionally, mentally, financially, and medically unable to carry, deliver, or raise a child.
- The government presented medical reports showing a healthy foetus with no abnormalities and argued that the woman was past the abortion limit of 24 weeks under the Act.
- The Court's concern extended to the rights and well-being of the unborn child. The choice presented was between preterm or full-term delivery, with a full-term delivery considered better for the child's health and survival.
- Senior advocate Colin Gonsalves argued that the woman's right was absolute, emphasising that international law recognizes no right of the foetus or unborn child.

Conclusion
- The Supreme Court's decision in this case reflects the complex legal and ethical considerations surrounding late-term abortions.
- It underscores the importance of the viability of the foetus and the immediate health risk to the woman's life in such decisions.
- The case has sparked a broader conversation about reproductive rights and the legal framework governing abortions in India.

5. The concerns of using Aadhaar in welfare

Syllabus: Government policies and interventions for the development of various sectors

Prelims: Aadhaar

Mains: Issues of using Aadhaar in welfare

Context: Recently September 2023 report by Moody's Investor Service raised concerns like Security and Privacy Vulnerabilities on aadhar. How instead of centralised biometric systems like India's Aadhaar, we should have decentralized digital identity systems, but India has refuted the claims.

- **The History of Aadhaar:**
    - Concept introduced in 2009 by UIDAI.
    - The first Aadhaar numbers were issued in September 2010 in the state of Maharashtra. The program was gradually rolled out to other states and union territories.
    - In 2016, the Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act was passed by the Indian Parliament, providing a legal framework for the Aadhaar project.
- **Legal challenges put to rest in Puttaswamy Case.**
    - SC upheld its constitutionality
    - Restrictions on Mandatory linking of Aadhar.
    - Must be used on a voluntary basis for purposes other than government subsidies and welfare programs.
    - Section 57 Struck Down (that allowed private companies to use Aadhaar for verification.)
    - Limited the storage of Aadhaar authentication records to a maximum of six months.

Government's Favorable Stance on Aadhaar:
- **Welfare Schemes:** The government has advocated Aadhaar-based authentication for programs like the Public Distribution System (PDS) and government-to-citizen cash transfer initiatives like wage payments in MGNREGA. This approach aims to remove ghosts (those accessing benefits fraudulently) and fakes (those not entitled to benefits) from the system.
- **Savings Claims:** The government has claimed significant savings in welfare schemes through the use of Aadhaar by eliminating duplicate and unauthorized beneficiaries, reducing leakages, and improving the efficiency of cash transfers.

Challenges and Concerns:
- **Authentication Problems:** Critics point out that Aadhaar-based authentication poses several issues. In the case of PDS, quantity fraud (where beneficiaries receive less than their entitlement) is a significant concern, which Aadhaar does not address.
- **Authentication Failures:** Authentication failures are common, especially in rural areas with unreliable internet connectivity and fading fingerprints among manual laborers. These authentication failures result in beneficiaries being denied their entitlements.
- **Data on Authentication Errors:** The lack of transparency regarding data on authentication attempts and errors raises concerns about the system's effectiveness and accountability.
- **Payment Failures:** In cash transfer programs, any errors, such as misspellings or incorrect Aadhaar linkage, can lead to payment failures. Workers often lack awareness of which bank account their Aadhaar is linked to, leading to wage diversions.
- **Security Concerns:** Banking correspondents using Aadhaar-enabled Payment Systems (AePS) operate without proper accountability, potentially compromising the security of individuals' bank accounts. Unauthorized withdrawals and enrollments in government programs without consent have been reported.
- **Misleading Savings Claims:** Researchers have challenged the government's claims of substantial savings due to Aadhaar in MGNREGA, pointing to insufficient funds as the main cause of wage payment delays.
- **Privacy Vulnerabilities:** A recent Moody's report highlighted concerns about centralised ID systems like Aadhaar, citing security and privacy vulnerabilities. These concerns have sparked debates about the need for more decentralised digital identity systems.

Current Impasse:
- **Resistance and Deletions:** The government's efforts to make Aadhaar-based payments mandatory in MGNREGA have faced resistance from workers and field officials. Job card deletions, often on the grounds of being "ghosts," have raised accountability concerns.
- **Voter ID Linkage:** Critics worry about the government's intention to link Aadhaar with voter IDs, given the perceived dilution of accountability in welfare programs due to Aadhaar.

Nut Graf: The debate over Aadhaar's role in welfare programs underscores the need for a balanced approach that addresses concerns while acknowledging the potential benefits of the system. Achieving an optimal balance between the efficiency of Aadhaar-based systems and safeguarding the rights and privacy of beneficiaries remains a significant challenge for policymakers and regulators.

6. How the Digital India Act will shape the future of the country's cyber landscape

Syllabus: Government policies and interventions aimed at development in various sectors and issues arising out of their design and implementation.

Mains: Digital India Act 2023

Context
India introduced the Digital India Act 2023 (DIA) to update its digital regulations, aiming to adapt to the evolving digital landscape and ensure online safety.

Introduction
- India has announced the Digital India Act 2023 (DIA) to replace the two-decade-old Information Technology Act of 2000 (IT Act).
- This legislation is a proactive step toward establishing a modern legal framework for India's growing digital ecosystem, aligning regulations with the 21st century digital revolution.

Challenges and Opportunities
- The IT Act of 2000 was crafted during the internet's early stages and has struggled to adapt to rapid technological advancements and changes in user behaviour.
- India's internet user base has grown exponentially from 5.5 million to 850 million, with evolving internet usage patterns and emerging challenges like cyberstalking, trolling, and doxing.

Key Provisions of the Digital India Act
1. **Online Safety and Trust:** Emphasis on safeguarding citizens' rights in the digital realm while adapting to market dynamics and international legal principles.
2. **Guidelines for New-Age Technologies:** Provides responsible utilisation guidelines for technologies like artificial intelligence and blockchain, promoting ethical practices and accountability.
3. **Open Internet:** Balances accessibility with necessary regulations to protect users while maintaining an open internet.
4. **Stricter KYC for Wearable Devices:** Mandates stringent Know Your Customer requirements for wearable devices with criminal law sanctions.
5. **Review of "Safe Harbour" Principle:** Contemplates revising online platform liability related to user-generated content.

Concerns
- Balancing innovation and ease of doing business with stricter regulations, especially in emerging technologies.
- The review of the "safe harbour" principle might impact freedom of expression and online platform behaviour.
- Effective enforcement requires substantial resources and infrastructure.

Conclusion
- The Digital India Act 2023 is a significant step toward ensuring a secure, accountable, and innovative digital future for India.
- It takes a forward-looking approach to regulation in an era of constant change, potentially shaping India's digital landscape for generations to come.
- Vigilant monitoring and adaptability are essential to address potential unintended consequences in implementation.

Nut Graf: The Digital India Act 2023 (DIA) replaces the outdated Information Technology Act of 2000, addressing challenges posed by India's digital growth, including online safety, new technology guidelines, and an open internet approach, but it also raises concerns about potential impacts on innovation and business ease.

7. Students can choose to take Board exams once or twice a year

Syllabus: Governance, Government policies and interventions aimed at development in various sectors and issues arising out of their design and implementation.

Prelims: New Curriculum Framework (NCF)

Introduction
- Union Education Minister Dharmendra Pradhan has introduced the option for students to appear for Class 10 and 12 Board examinations once or twice a year.

New Curriculum Framework (NCF)
- The Union Ministry of Education introduced the New Curriculum Framework (NCF) in August 2023, which includes the provision for Board exams to be held at least twice a year.
- The goal is to provide students with more time and opportunities to excel in their exams and choose their best score.

Making Board Exams "Low Stakes"
- This initiative aligns with the objectives of the new National Education Policy (NEP) to make Board exams "low stakes."
- Students will have the option to appear for exams twice a year, similar to the engineering entrance exam JEE (Joint Entrance Examination).
- The best score will be retained, but participation in biannual exams is entirely optional, with no compulsion.

Reducing Student Stress
- The move is designed to reduce the stress and anxiety that students often experience due to the pressure of a single opportunity.
- If students feel adequately prepared and satisfied with their score in one set of exams, they can choose not to appear for the next exams.
- The goal is to offer flexibility and choice to students while reducing academic stress.

Addressing "Dummy Schools"
- The issue of "dummy schools" is also acknowledged, where NEET and JEE aspirants enrol in schools in their home states but do not attend classes, opting for coaching in places like Kota.
- This practice is not conducive to regular school attendance and learning.

Conclusion
- The introduction of biannual Board exams with the option to choose the best score is a student-centric approach aimed at reducing stress and providing more opportunities for success.
- While the initiative is not mandatory, it offers greater flexibility in the examination system, aligning with the principles of the NEP.

8. We need evidence based traditional medicine

Syllabus: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.

Prelims: Ministry of AYUSH, artemisinin, Ayurveda, Traditional Medicine

Mains: Importance of evidence-based medicine, Role of traditional medicine in modern world

Context:
- A case filed by a manufacturer of indigenous drugs against a medical practitioner due to their social media thread affecting their business has sparked debate in medical circles.
- The case raises questions about the role of traditional medicine in modern society and the importance of evidence-based medicine.

Evolution of Modern Medicine
- Modern medicine is not synonymous with allopathy.
- The term allopathy was coined by Hahnemann in the 18th century to differentiate it from his newly invented system i.e. homeopathy.
- Modern medicine became science-based only from the late 19th century onwards, with advances in technology. This allowed for accurate study of the human body and led to breakthroughs such as safe anaesthesia and surgery.
- Medical therapies were also evaluated based on the principle of falsifiability. Falsifiability is a concept in science that refers to the ability of a scientific theory or hypothesis to be tested and potentially disproven through experimentation or observation.
- Those practices which were found to be ineffective were abandoned after being subjected to modern scientific methods.
- Modern medicine is thus not limited to the Western world; rather, it is a global phenomenon that tests new therapies and accepts them into the canon if found effective, regardless of their origin.

Traditional Medicine
- Despite the advancements of modern medicine, the presence of alternative healing systems can't be denied. For example, Ayurveda, Unani, and Siddha are practiced in India.
- The physiological basis of Ayurveda may not be scientifically accurate, but that doesn't necessarily mean its therapies are not effective.
- Ayurveda, like other traditional medical systems, was limited by the technology available at the time in understanding the human body.
- Despite this limitation, the Ayurveda texts emphasized the importance of basing diagnoses and therapies on a sound understanding of the human body.
- Ayurveda is differentiated from other traditional medical systems by its reason-based approach, rather than being based on faith.
- In contrast to modern medicine, which isolates active principles and carefully calculates dosages, Ayurvedic medicines often combine ingredients, making it difficult to determine their interactions

Adoption of modern principles in Traditional medicine
- To increase the acceptance of Ayurvedic medicines in the scientific community, they should be evaluated using modern scientific methods that don't compromise the holistic nature of Ayurvedic formulations.
- New investigation methods and trial designs must be developed to evaluate Ayurvedic therapies without undermining their classical origins.
- All traditional medical systems should undergo evidence-based appraisals.
- For example,the development of artemisinin, an antimalarial drug, was made possible by researchers who drew inspiration from a 1,600-year-old Traditional Chinese Medicine text.
- Similarly, what is useful in traditional medicine can be retained and integrated into a comprehensive system of medicine accessible to everyone.
- The Ministry of AYUSH can facilitate this evaluation process.

Way Forward
- Claiming that everything was already known to ancient people does a disservice to Ayurveda and hinders its growth and development. It should evolve to integrate the learnings from modern science.
- Rejecting traditional systems without proper examination would lead to the dismissal of valuable medical knowledge that has been informally verified over many generations.
- It would also be a great disservice to both scientific inquiry and cultural achievements.
- Governments can play a role in ensuring public health by promoting evidence-based and scientific evaluation of traditional medicines.

Nut Graf: *Traditional medicine has the potential to be a valuable part of modern healthcare, but it needs to be evaluated and integrated using modern scientific methods. New investigation methods, trial designs and evidence-based appraisals are the need of the hour.*

9. Concerns about govt's fact check unit

Syllabus: Government policies and interventions aimed at development in various sectors and issues arising out of their design and implementation. Development processes and the development industry – the role of NGOs, Self Help Groups, various groups and associations, institutional and other stakeholders.

Mains: Government initiatives related to fact-checking; Important aspects of governance, transparency, and accountability.

Context
The article delves into a legal dispute within the Bombay High Court concerning the 2023 Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules. These regulations empower a Fact Check Unit (FCU) to identify and request the deletion of online content labelled as "fake or misleading" in connection with the Central Government's activities.

Introduction
- The Bombay High Court has reserved its verdict in a batch of petitions challenging the constitutionality of the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2023 (IT Rules).
- These rules allow the establishment of a Fact Check Unit (FCU) by the Union Government to identify and demand the removal of "fake, false, or misleading" online content related to the business of the Central Government.

Key Points
- In April 2023, the Ministry of Electronics and Information Technology (MEiTY) issued the IT Rules, which authorised the establishment of the FCU.
- Several petitions were filed before the Bombay High Court, including by political satirist Kunal Kamra, the Editors Guild of India, and the Association of Indian Magazines, challenging Rule 3(1)(b)(v) of the IT Rules.
- The petitioners argue that this provision could enable government-led online censorship and give the government the role of "prosecutor, judge, and executioner" in determining what constitutes the 'truth' online.
- The government defends the FCU, stating that it will only notify intermediaries or online platforms about the content identified as fake, false, or misleading, and intermediaries can choose whether to remove it or leave it up with a disclaimer.
- The High Court bench plans to pass its ruling on December 1, and the government has agreed not to notify the FCU until the judgement is delivered.

Details of the Amendment
- The amendment significantly alters Rule 3(1)(b)(v) of the IT Rules, 2021, which outlines the responsibilities of intermediaries.
- Intermediaries are now required to make "reasonable efforts" to ensure users do not share content that the Central Government's fact-check unit has identified as fake, false, or misleading, or risk losing safe harbour protection.
- The safe harbour protection exempts intermediaries from liability for third-party information hosted on their platforms.

High Court Observations and Concerns
- The High Court expressed concerns about the lack of necessary safeguards in the amended Rules, suggesting they do not protect fair criticism of the government, including parody and satire.
- Ambiguities in the term "any business of the Central government" raised questions about whether political speeches ahead of the 2024 Lok Sabha elections would be covered and whether content challenging the veracity of these speeches could be flagged as "fake."
- The Court also noted that the Press Information Bureau (PIB) has been effectively fact-checking for years, raising questions about the need for an FCU.
- The Court highlighted issues with vague terms like "fake," "false," and "misleading," noting their subjective nature and the lack of clarity.
- The Court raised concerns about editorial content online and whether hard-hitting critiques would be classified as "fake news."
- It found that the powers of the FCU resembled a 'diktat,' as there was no provision allowing an intermediary to justify or defend the flagged content.
- The Court was troubled by the lack of recourse or remedy for users whose posts were removed or accounts suspended based on FCU flags.

Nut Graf: *The Bombay High Court has reserved its verdict in a legal challenge against the 2023 IT Rules that permit a Fact Check Unit to identify and remove "fake, false, or misleading" online content related to the Central Government's business. The court has raised concerns about potential government-led censorship, vague terms, and the lack of safeguards in the rules.*

10. The case for caste census in India

Syllabus: Government policies and interventions aimed at development in various sectors, issues arising out of their design and implementation; Welfare schemes for vulnerable sections of the population, mechanisms, laws, institutions, and Bodies constituted for the protection and betterment of these vulnerable sections.

Mains: Caste senses: historical perspective, present demand and wayforward.

Context
The article discusses the demand for a nationwide caste census in India, highlighting socio-economic disparities, educational and employment inequalities, and the historical background.

Introduction
- The demand for a nationwide caste census in India has gained momentum in recent times.
- Caste-based data is crucial for understanding and addressing socio-economic disparities and inequalities in the country.
- This article explores the historical context, socio-economic implications, and the need for accurate caste data.

Socio-Economic Data and Caste-Based Deprivation
- Data shows that Scheduled Tribes (ST), Scheduled Castes (SC), and Other Backward Classes (OBC) face economic disparities.
- Estimates indicate that STs, SCs, and OBCs are disproportionately affected by multidimensional poverty, with a significant share of the country's poor.
- Caste-based discrimination and exclusion are linked to poverty and deprivation, as reflected in various studies.

Education and Employment Disparities
- Official data reveals disparities in education and employment based on caste.
- The general category has a higher proportion of literates, graduates, and post-graduates compared to OBCs, SCs, and STs.
- Employment statistics also show a concentration of STs, SCs, and OBCs in informal, low-paying jobs, while the general category has more formal employment opportunities.

Historical Context
- Caste surveys were introduced during British colonial rule and continued until the 1931 census.
- Independent India discontinued full caste enumeration due to concerns about reinforcing caste divisions and the caste system.
- The Mandal Commission's report in 1980 estimated that OBCs constituted 52% of India's population, leading to a 27% reservation for OBCs.

Indra Sawhney Judgment and OBC Reservations
- The Indra Sawhney judgement in 1992 upheld the 27% OBC reservation.
- However, the exact population share of caste groups in the OBC category remains unknown, which is a driving force for the demand for a caste census.
- Recent developments, such as the 10% EWS reservation for the general category, have also triggered discussions about expanding OBC reservations.

The Way Forward
- Accurate caste data is crucial for evolving scientific criteria for sub-categorization within the OBCs.
- A nationwide socio-economic caste census can help identify the numbers and proportions of individual caste groups within the OBC category.
- This is essential for addressing concerns about reservations and benefits getting concentrated among specific dominant caste groups.
- Such data will also be vital for states with their own state-level OBC lists, considering the diversity in caste composition.

Nut Graf: *Amid growing calls for a nationwide caste census, this article underscores the pressing need for accurate caste-based data to address socio-economic disparities, employment imbalances, and inequalities in India, offering historical context and highlighting the importance of such data for informed policy decisions.*

11. Palliative care, a way to reduce financial distress for people with life limiting diseases

Syllabus: Government policies and interventions aimed at development in various sectors. Welfare schemes for vulnerable sections of the population by the Centre and the States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

Mains: Palliative care as a means to reduce financial distress.

Context
The article addresses the financial burden imposed by non-communicable diseases (NCDs) on Indian patients, highlighting the need for palliative care to alleviate this burden.

Introduction
- Many Indians face severe financial burdens due to out-of-pocket healthcare expenses.
- Non-communicable diseases (NCDs), such as cancer, cardiac disease, renal failure, and stroke, require lifelong treatment and periodic check-ups.
- The financial implications of treating NCDs can lead to "financial toxicity," including bankruptcy, decreased treatment satisfaction, and poor quality of life.

Challenges in Healthcare Financing
- India's healthcare system spends only 1.35% of its GDP on government health services, leaving patients to bear most health expenses.
- Even in government hospitals where treatment is meant to be free, the costs of travel, purchasing medicines, and loss of wages due to time off work contribute to financial toxicity.
- A study reported that cancer patients spend ₹8,035 per outpatient visit and ₹39,085 per hospitalisation in tertiary care hospitals.
- Last-stage cancer patients, in particular, face impoverishment due to healthcare expenses.

Importance of Palliative Care
- Palliative care focuses on improving the quality of life for those with life-limiting illnesses, alleviating symptoms, and addressing social and economic realities.
- Early initiation of palliative care can reduce healthcare expenditures by up to 25%.
- Palliative care includes outpatient visits, inpatient care, and home-based care.
- Vocational rehabilitation and social reintegration are essential components of palliative care, helping patients maintain their dignity and independence.

Lack of Investment in Palliative Care
- Awareness about palliative care among healthcare workers and the general public in India is low.
- Palliative care is not covered by most insurance schemes.
- Public health centres struggle to provide palliative care due to poor funding, while private healthcare largely neglects it.
- Non-profit organisations often meet palliative care needs in India.

Incorporating Palliative Care
- Consistent funding for the National Program for Palliative Care needed to be introduced to allow long-term planning.
- Investing in palliative care can save money for patients and providers, improving bed utilisation and generating goodwill for corporate hospitals.
- Prioritising palliative care is a moral obligation for the healthcare system to provide support for individuals with life-long and life-limiting illnesses.

Nut Graf: *Non-communicable diseases (NCDs) in India result in significant financial strain on patients and their families, emphasising the critical role of palliative care in improving patients' quality of life, reducing financial hardship, and generating long-term benefits for healthcare providers.*

12. How synergistic barriers are affecting progress on SDGs

Syllabus: Government policies and interventions aimed at development in various sectors and issues arising out of their design and implementation. Development processes and the development industry – the role of NGOs, Self Help Groups, various groups and associations, institutional and other stakeholders.

Mains: Sustainable Development Goals (SDGs) and their importance in addressing various global challenges such as poverty, hunger, climate change, and sustainable development.

Prelims: About Sustainable Development Goals

Context
The article discusses the challenges faced in achieving the Sustainable Development Goals (SDGs), with a focus on the investment gap, synergies, and trade-offs within the SDGs.

Introduction
- At the recent SDG Summit in New York, world leaders expressed concern over the lack of progress on various Sustainable Development Goals (SDGs) and committed to an SDG stimulus of $500 billion annually.
- The 17 SDGs make up 169 targets, and the world is currently on track to meet only 15% of these targets, indicating a substantial gap.

The Investment Gap
- A 2023 report by the United Nations Conference on Trade and Development estimated that developing countries face an investment gap of over $4 trillion to achieve the SDGs.
- Almost $2 trillion of this amount is needed for the transition to clean energy.

Synergies and Trade-offs
- The SDGs are inherently interconnected, and their pursuit involves both synergies (positive interactions) and trade-offs (competing goals).
- Academic literature has identified five types of (dis)synergies that can be estimated in the value chain of an SDG intervention, which include resource allocations, enabling environments, co-benefits, cost-effectiveness, and saturation limits.
- The lack of synergistic action in SDG implementation is highlighted in a UN Expert Group Report titled 'Synergy Solutions for a World in Crisis: Tackling Climate and SDG Action Together.'

Policy Challenges
- While robust policymaking processes often acknowledge synergistic outcomes, policy implementation may face challenges in leveraging these synergies.
- The example of India's renewable energy push is cited, where the focus on energy security and air pollution lacked the necessary linkage to health benefits.
- The ambitious targets for renewables also created barriers for small-scale applications due to misalignment between targets and specific needs, such as those of health centres.

Addressing Barriers and Opportunities
- Recognizing interlinks between the SDGs is crucial, but it must be accompanied by an analysis and understanding of institutional barriers to realising synergies.
- Strengthening the environment for synergistic action and transparently assessing opportunities and limits to synergies are essential.
- Investments in high-carbon outcomes may result in higher trade-offs in achieving energy and climate goals.
- Investing in clean energy options can have a significant synergistic impact on air pollution and human health, making such interventions more attractive.

Nut Graf: *Understanding and addressing synergies and barriers to SDG implementation are critical to successful outcomes. The example of India's renewable energy push highlights the importance of comprehensive policy alignment and coordination to maximise synergistic benefits.*

13. Govt. preparing to release Vision India 2047 document

Syllabus: Governance, Government policies and interventions aimed at development in various sectors and issues arising out of their design and implementation.

Prelims: Vision India@2047

Introduction
- The Indian government is in the final stages of shaping a national vision plan to elevate India to a developed nation by 2047.
- This plan aims to prevent India from falling into the middle-income trap that many countries encounter during similar stages of development.
- Prime Minister Narendra Modi will unveil the plan, titled 'Vision India@2047,' within the next three months.

Ambitious Goals
- The plan outlines a set of reforms and desired outcomes to be achieved by 2030.
- The overarching objective is to transform India into a $30 trillion economy by 2047, with a per capita income ranging from $18,000 to $20,000.
- The plan focuses on structural governance changes that are critical to attaining these ambitious economic targets.

Two Years in the Making
- The National Institution for Transforming India (NITI Aayog) has been working on the plan for nearly two years.

Middle-Income Trap Concerns
- The plan acknowledges the risks associated with the middle-income trap.
- Many countries reach a per capita income of $5,000-$6,000 and then struggle to make further economic progress.
- The vision for India aims to avoid this pitfall and propel the nation to the next level of development.

Addressing Regional Disparities
- The plan seeks to address regional disparities in economic development within India.
- While some regions have seen rapid growth, others have lagged behind, and the vision emphasises balanced progress for the entire country.

Promoting Indian Dominance
- India's increasing share of global GDP, growing from 1.1% in 1991 to 3.5% in 2023, is acknowledged.
- However, it highlights that India lacks global dominance in sectors like banking, contracting, legal, consultancy, and accountancy.
- The vision aims to foster Indian firms as leaders in various domains and identify sectors and companies with the potential to become global champions.

Empowering India's Youth
- Developing the skill sets required by India's young population to meet global demands is a priority.
- The plan recognizes the demand for Indian nurses worldwide and aims to overcome obstacles to their international recognition.
- Ensuring that India's young talents find global opportunities is central to the vision.

DISASTER MANAGEMENT

1. What caused the flood in Sikkim?

Syllabus: Conservation, Environmental pollution and degradation, environmental impact assessment; Disaster Management.

Mains: Himalayan region and its fragility and cause and consequences of Glacier Lake Outburst Floods (GLOFs)

Prelims: About Glacier Lake Outburst Flood

Context
A massive flood triggered by a Glacier Lake Outburst Flood (GLOF) struck Sikkim, India, on October 4 2023, causing significant damage to infrastructure and raising concerns about future risks.

Introduction
- A massive flood occurred in Sikkim on October 4 caused significant destruction, including the Chungthang dam and several hydropower projects along the Teesta River.

What is a Glacier Lake Outburst Flood (GLOF)?
- GLOF, or Glacier Lake Outburst Flood, is a natural disaster where large lakes formed by the melting of glaciers suddenly break free of their natural dams made of rock, sediment, and debris.
- Such events have been associated with major disasters in the Himalayan region.

The South Lhonak Glacier
- The South Lhonak glacier in north Sikkim is one of the fastest retreating glaciers.
- It receded nearly two km from 1962 to 2008 and further retreated by approximately 400 metres from 2008 to 2019.

Trigger for Sikkim's GLOF
- The exact trigger for the Sikkim GLOF event is uncertain.
- Satellite imagery suggested that a significant portion of the glacier-fed lake drained out, but the depth of the lake made it challenging to estimate the volume of water.
- Water-monitoring data from the Central Water Commission (CWC) reported a surge in water levels and flow speed.
- Speculations include heavy rainfall and a series of earthquakes in Nepal as potential triggers, but definitive proof is lacking due to the remote and inaccessible terrain.

Resulting Damage
- The Chungthang dam, critical for the Teesta 3 hydropower project, was destroyed.
- Several other hydropower projects, including those operated by the National Hydropower Corporation (NHPC), were affected.
- Bridges were submerged or washed out, disrupting communication.
- Water pipelines, sewage lines, and hundreds of houses were destroyed in the affected districts.

Future Risks and Challenges
- Studies have warned of increasing GLOF risks from the Himalayas due to rising temperatures and climate change.
- The fragile Himalayan ecosystem is vulnerable to disruptions from hydropower and dam projects.
- Early warning systems, coordinated approaches, and monitoring of glacier lakes are necessary to mitigate future GLOF risks.

Nut Graf: The Sikkim GLOF event resulted from the sudden release of water from a glacier-fed lake, destroying critical infrastructure, including the Chungthang dam and hydropower projects, highlighting the growing threat of such disasters in the Himalayan region.

2.   Sikkim Flood & Dam Safety Act

Syllabus: Disaster Management in India

Prelims: Glacial Lake Outburst Flood (GLOF)

Mains: Flood management in India

Context: The devastating floods in Sikkim, triggered by a Glacial Lake Outburst Flood (GLOF) and compounded by the collapse of a hydropower dam, have raised significant concerns about the impact of such events on existing and proposed hydel power projects in the region.
- This situation has prompted calls for a reevaluation of these projects and their environmental and safety implications.

Issues
- **GLOF Triggered Flooding:** The recent floods in Sikkim resulted from a GLOF, which occurs when a glacier-fed lake experiences a sudden release of water. In this case, satellite images suggest that an ice chunk falling into the lake led to a moraine dam breach, causing flash floods downstream in the Teesta River.
- **Collapse of Chungthang Dam:** The Chungthang Dam, part of the 1,200 MW Teesta Stage III hydro power project, collapsed, adding to the destruction. The Chief Minister of Sikkim highlighted discrepancies in the dam's construction compared to what was approved by the Central Water Commission. This incident has halted electricity generation in the area.
- **Impact on Hydel Projects:** The floods have had a significant impact on all operational hydel power projects on the Teesta River in Sikkim. Electricity generation from these projects has come to a halt, leading to financial losses for the National Hydel Power Corporation (NHPC) and other stakeholders.
- **Calls for Rethink:** Activists and scientists are urging a reconsideration of proposed hydel power projects, particularly in the wake of GLOF-triggered floods and their devastating consequences. Concerns are raised about the safety and environmental implications of these projects.
- **Safety Concerns:** The discrepancies in the construction of the Chungthang Dam and its subsequent collapse raise questions about the safety and integrity of hydropower projects. This has prompted calls for stringent safety measures and thorough project assessments.
- **Energy Dependency:** India's reliance on hydropower remains significant, as highlighted by the Union Minister for Power and Renewable Energy. Balancing energy needs with environmental and safety considerations is a crucial challenge.
- **Need for Scrutiny:** The demands for a reevaluation of proposed projects and inquiries into existing ones underscore the importance of transparent and accountable decision-making in the energy sector.

Solution:
- **Project Review:** Comprehensive reviews of existing and proposed hydel power projects, considering safety, environmental, and geological factors, are essential. These reviews should involve experts and stakeholders to ensure informed decisions.
- **Environmental Assessment:** Rigorous environmental impact assessments should be carried out for all projects in ecologically sensitive areas. These assessments should consider potential risks and long-term consequences.
- **Safety Measures:** Strict adherence to safety standards and continuous monitoring of infrastructure is crucial to mitigate risks associated with hydropower projects.
- **Balanced Energy Policy:** Policymakers should strike a balance between energy generation and environmental protection. Sustainable and clean energy solutions should be explored and prioritized.

Nut Graf: *The Sikkim floods have raised critical concerns about the environmental and safety implications of hydel power projects, especially in the context of GLOF-triggered events.*

3.   The expansion of settlements into flood-prone areas

Syllabus: Disaster Management (Laws, Acts, etc.)

Mains: Urban flooding

Context
Urban areas in India are facing increasing flood risks as a study by the World Bank reveals a doubling of human settlements in flood-prone zones since 1985. This expansion into vulnerable areas raises concerns about the sustainability of urban development in the country.

Introduction
- Urban areas in India are experiencing increasing flood-related disasters, which jeopardise lives and livelihoods.
- A study led by the World Bank reveals that urban expansion into flood-prone zones has more than doubled since 1985, highlighting concerns about unsustainable urbanisation in India.
- India, as the third-highest contributor to global settlements expanding into flood-prone areas, is at significant risk of future flood-related issues.

India's Risk of Flood Hazards
- While India is not among the top 20 countries with the highest exposure to flood hazards, it ranks third in global settlements contributing to urban expansion in flood-prone regions, following China and the U.S.
- Experts emphasise that India must exercise caution to avoid exacerbating flood-related problems in the coming years.

Disproportionate Impact on Informal Housing
- Informal housing and low-income communities are disproportionately affected by flood hazards.
- Informal settlements often occupy low-lying flood-prone areas because they are less desirable and remain less regulated.
- Urbanisation into flood-prone zones results from inadequate governance processes and a lack of environmental sustainability consideration.

Challenges and Solutions
- Current regulations predominantly pertain to significant infrastructure undertakings, often overlooking smaller-scale urban alterations.
- To address flood risk effectively, cities must conduct comprehensive scientific mapping of flood-prone areas.
- Cities should prioritise making housing in flood-prone regions flood-resilient, with a particular focus on protecting low-income communities.
- Adaptation measures must differentiate between informal settlements and unauthorised elite structures, promoting sustainable urban planning.

Nut Graf: *The expansion of urban areas in India into flood-prone regions has more than doubled since 1985, posing significant flood hazards. Low-income communities residing in informal settlements are disproportionately affected. Addressing these challenges requires comprehensive scientific mapping of flood-prone areas, making housing flood-resilient, and sustainable urban planning.*

GEOGRAPHY

1. September rainfall washes off India's monsoon deficit

Syllabus: Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclones. etc., geographical features and their location – changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

Prelims: El Nino and Indian Ocean Dipole concept

Mains: El Nino and Indian Ocean Dipole impact on the Indian Monsoon

Context:
Despite experiencing the driest August in a century, India has managed to avoid a drought this year 2023, thanks to unexpectedly heavy rainfall in September. This turnaround in the monsoon pattern has significant implications for the country's agriculture and water resources.

Significance of September Rainfall:
- **Monsoon Deficit Mitigation:** The heavy rainfall in September has played a crucial role in mitigating India's monsoon deficit, bringing relief to farmers and water reservoirs.
- **Monsoon Season Overview:** As of September 30, which marks the official end of the monsoon season, India received 94% of the expected rainfall from June to September. While this falls slightly below the forecasted 96%, it remains within the acceptable error margin set by the India Meteorological Department (IMD). Rainfall in the range of 96% to 104% of the long-term average is considered 'normal.'
- **Regional Variations:** The monsoon distribution exhibited significant regional variations. Northwest India received its expected rainfall, but the northeast and eastern regions saw an 18% deficit, while southern India had an 8% deficit. Central India came close to its expected quota.
- **Rainfall Variation Over Months:** The monsoon months reported erratic swings. June had 9% less rainfall than normal, July received 13% more than normal, August reported a substantial 36% deficit, and September ended with a 13% surplus. July and August contribute the majority of the monsoon's total rainfall, making September's surplus particularly crucial.
- **Impact of El Nino:** Early in the monsoon season, the IMD had anticipated below-normal rainfall due to the influence of El Nino, a cyclical warming of the eastern and central Pacific associated with reduced rainfall in India.
- **Positive Indian Ocean Dipole:** However, the unexpected excess rains in September were attributed to favorable conditions in the Indian Ocean, particularly a positive Indian Ocean Dipole. This counteracted the El Nino effect, historically associated with weak September rainfall.

IMD's Monsoon Forecast:
- **Upcoming North-East Monsoon:** The IMD has forecast a 'normal' north-east monsoon from October to December, indicating a promising period for regions typically dependent on this monsoon phase.
- **Rainfall Projections:** Additionally, the IMD predicts 'normal to above-normal rainfall' for large parts of north-west India and the southern peninsula, further alleviating concerns about water scarcity and agricultural yields.

Nut Graf: The unexpected heavy rainfall in September has been a game-changer in India's monsoon narrative, rescuing the country from the brink of a drought. This sudden shift, influenced by factors like the positive Indian Ocean Dipole, highlights the complexity and variability of the monsoon system. As the north-east monsoon approaches, the forecast of 'normal' conditions offers hope for continued agricultural productivity and water availability in the coming months, underscoring the importance of meteorological monitoring and adaptability in India's agricultural sector.

2. Capturing the rains

Syllabus: Climatology, Physical Geography of India- Climate

Mains: Monsoon and the effects of anthropogenic warming on weather patterns.

Prelims: El Niño, La Niña

Context
India's 2023 monsoon, the first deficit since 2018, surprised with unusual variability. El Niño's influence and unexpected patterns call for resilient infrastructure and improved forecasting.

Introduction

- India has witnessed a deficit monsoon in 2023, marking the first occurrence of such an event since 2018.
- Over the period from June to September this year, India received 82 cm of rainfall, which is nearly 6% lower than the usual and expected 89 cm.
- From the outset in April, there were discernible indicators suggesting that the monsoon would be less vigorous due to the looming El Niño phenomenon.

Impact of El Niño and La Niña

- The El Niño phenomenon, characterised by cyclic warming of the central and eastern Pacific Ocean, is typically associated with diminished rainfall in India, particularly in the northwest region.
- Conversely, the converse phenomenon, La Niña, characterised by the cooling of the same oceanic regions, usually results in above-average rainfall in India.
- Considering these patterns, the initial expectations for a normal monsoon in 2023 were not overly optimistic.

Unusual Monsoon Variability

- The 2023 monsoon presented an unusual degree of variability, with approximately 9% of the country experiencing 'excess' rainfall, while 18% encountering 'deficient' rainfall.
- August, which is typically the second most critical month for the monsoon, recorded only a third of its normal rainfall.
- Unprecedented heavy rainfall struck several northern Indian states, leading to devastating floods and landslides.
- Notably, in July, Chandigarh, Haryana, and Himachal Pradesh experienced exceptionally heavy rainfall, resulting in severe floods and landslides.
- In August, Himachal Pradesh experienced cloudbursts, a phenomenon typically unrelated to the monsoon.
- These events, termed 'western disturbances,' originate from the Mediterranean region and are not expected to play a significant role in the Indian monsoon.
- The occurrences of these intense rains are indicative of the far-reaching impacts of anthropogenic warming.

Drought and Water Stress

- In stark contrast to the excessive rainfall, Maharashtra faced drought-like conditions.
- Additionally, there were reports of extreme water stress in Chhattisgarh, Bihar, and Karnataka.
- In the case of Karnataka, water-sharing disputes with neighbouring Tamil Nadu over the Cauvery River reached a critical juncture.

Meteorological Department's Forecast

- The India Meteorological Department has forecasted a 'normal' northeast monsoon from October to December.
- Moreover, it anticipates 'normal to above normal rainfall' over large parts of northwestern and south peninsular India.
- Signs of increased rains have also been observed in various parts of southern India.

Need for Resilient Infrastructure

- This variability in the monsoon underscores the urgent need to invest in more resilient infrastructure that can provide all-weather insurance against the increasingly unpredictable nature of the global climate.
- Recent trends emphasise the importance of improving forecast models that can offer better early warnings of significant weather changes, ideally one to two weeks in advance, rather than relying on approaches that struggle to capture the complex dynamics of the Indian monsoon.
- Adequate financial resources and expertise should be directed toward these efforts to enhance India's preparedness for future monsoon seasons.

***Nut Graf:** India faced an unexpected deficit monsoon in 2023 after indications of El Niño. This unusual monsoon exhibited significant variability, including heavy rainfall and drought-like conditions. The situation highlights the need for resilient infrastructure and advanced forecasting systems to cope with climate unpredictability.*

3. Why are earthquakes frequent in Afghanistan?

Syllabus: Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclones etc.

Mains: Understanding the causes of frequent earthquakes in a region.

Prelims: About Earthquakes

Context
Afghanistan experienced a recent earthquake of magnitude 6.3 following a series of tremors. Frequent earthquakes are not new to the region, and the country's history includes devastating quakes. Understanding the geological factors causing these earthquakes is crucial.

Introduction
- Afghanistan has recently been hit by a series of destructive earthquakes, with the most recent one having a magnitude of 6.3.
- The Afghan government has provided conflicting figures for the death toll, causing uncertainty in reporting.

Frequency of Earthquakes in Afghanistan
- Earthquakes are not new to Afghanistan, and the country has a history of experiencing devastating tremors.
- Notable earthquakes in the past include a 6.1 magnitude quake in 2022, resulting in over 1,000 casualties, and a major earthquake in 2015 that killed over 200 people in Afghanistan and neighbouring Pakistan.

How Do Earthquakes Occur?
- Earth's surface is divided into tectonic plates. Fault lines, which are fractures along these plates, are created due to tectonic forces and stress.
- Earthquakes happen when segments of these plates suddenly shift, releasing energy and generating seismic waves through the ground.
- The fault plane is where the lithosphere chunks slide and the earthquake's origin point is the focus or hypocentre, while the surface point above it is the epicentre.

Tectonic Activity in Afghanistan
- Afghanistan is situated in a region where the Indian and Eurasian tectonic plates meet, leading to frequent earthquakes.
- Western Afghanistan experiences the Arabian plate subducting northward under Eurasia, while the Indian plate does the same in the east.
- This geological complexity is amplified in the Hindu Kush mountain range and the Pamir Knot, where these plates interact.
- The ongoing northward movement of the Indian Plate contributes to the compression and uplift of the Himalayas, transmitting tectonic stress across the region, and causing crust deformation, fault creation, and earthquakes.
- Afghanistan is crisscrossed by various active fault systems such as the Chaman Fault and the Main Pamir Thrust, which are major sources of earthquakes in the region.

Nut Graf: Afghanistan's susceptibility to frequent earthquakes due to the complex interaction of tectonic plates at its borders and within the region poses significant geological risks.

4. Southwest monsoon withdraws from India

Syllabus: Geography, Monsoon

Prelims: Southwest and northeast monsoons

Introduction
- The southwest monsoon has concluded, and the onset of the northeast monsoon is anticipated within the next 72 hours, as per the India Meteorological Department (IMD).
- The northeast monsoon, also known as the 'retreating monsoon,' is expected to be relatively weak during its onset.

Transition from Southwest Monsoon
- The southwest monsoon began withdrawing from Rajasthan on September 25, which was about a week later than the usual withdrawal date of September 17.
- Although the withdrawal begins in Rajasthan, it takes until early to mid-October to fully retreat, making way for the northeast monsoon.

Monsoon Rainfall Statistics
- India officially considers rainfall received from June 1 to September 30 as monsoon rainfall.
- By September 30, India had received 94% of the expected rainfall from the four monsoon months, slightly below the IMD's forecast of 96% but still within the forecast margin.
- Rainfall ranging from 96% to 104% of the long-term average is classified as 'normal.'
- The 2023 monsoon experienced an El Niño effect leading to a dry August, partially offset by higher-than-expected rainfall in September.

Northeast Monsoon Forecast
- In early October, the IMD predicted a 'normal' northeast monsoon for the period from October to December.
- Large parts of northwest India and the southern peninsula are expected to receive 'normal to above-normal rainfall' during this season.
- States like Tamil Nadu, Kerala, Karnataka, and parts of Andhra Pradesh depend on the northeast monsoon for significant rainfall, even though it accounts for only about 11% of India's annual precipitation.
- Past experiences have shown extreme variability, with 2015 witnessing heavy rains and flooding in Chennai, while the 2019 northeast monsoon was weak and contributed to severe water shortages.

Cyclone Developments
- The IMD has reported two low-pressure areas developing, which are precursors to cyclones.
- These low-pressure areas are in the Arabian Sea and the Bay of Bengal, with projections suggesting they could intensify into 'depressions' by October 21, though their potential to develop into larger cyclones remains uncertain.

5. Planetary Boundaries

Syllabus: Geography

Prelims: Planetary Boundaries

Context: According to a new study, the world has breached six out of nine planetary boundaries necessary to maintain Earth's stability and resilience.

What are Planetary Boundaries?
- The planetary boundary (PB) concept, introduced in 2009, is aimed to define the environmental limits within which humanity can safely operate.
- There are 9 such planetary boundaries which are considered to be critical for the earth systems.
- According to a new study, the world has breached six out of nine planetary boundaries necessary to maintain Earth's stability and resilience.
- The relatively stable, 11,700-year-long Holocene epoch is the only state of the Earth System that we know for certain can support contemporary human societies.
- The planetary boundaries framework was first proposed by Johan Rockström and a group of 28 internationally renowned scientists in 2009 to define the environmental limits within which humanity can safely operate to maintain Earth's stability and biodiversity.

Impacted boundaries
- **Climate Change:** The established safe limit for CO_2 was set at 350 parts per million (ppm) ; this limit was surpassed in 1988. Currently, CO_2 levels stand at a staggering 417 ppm.
- **Land System Change:** The goal was to maintain 75% of the planet's original forest cover. Presently around 60%.
- **Biosphere Integrity:** Ideally the extinction rate should remain below 10 per million species-years. Tragically, the actual rate now exceeds a staggering 100 extinctions per million species-years.
- **Freshwater change:** Transgressions in both blue water (surface and groundwater) and green water (available water for plants) have been experienced.
- **Biogeochemical Flows:** Flows of nutrients like phosphorus and nitrogen in the environment have surged beyond safe limits.
- **Novel Entities:** The planetary boundary of novel entities was calculated to be zero.

6. Zealandia

Syllabus: Geography

Prelims: Zealandia

Context: New, detailed map of the potential 8th continent has been made by Geologists.

What is Zealandia and why is it considered as the 8th continent?

Apart from these, cultural and historical considerations can also differentiate continents, E.g. Europe and Asia.

Difference between an island and a continent?
- Why is Greenland not a continent? Why is Australia not an island?
- If two land masses are separated from each other just by the presence of water, and are part of the same continental crust, then the smaller landmass is an island.
- If two landmasses are separated by oceanic crust, then they are separate continents.

MISCELLANEOUS

1.   'Prof. Swaminathan's contributions will continue to inspire and guide us'

Syllabus: Contributions of Moral Thinkers and Philosophers from India and World.

Mains: Contributions of Prof. Swaminathan

Context: Prof. M.S. Swaminathan's recent passing marks the loss of a visionary in agricultural science. His profound contributions to Indian agriculture have left an indelible mark.

About Dr. M.S. Swaminathan
- **Early Life and Commitment to Agriculture:**
  ○ Prof. Swaminathan's deep love for India and its farmers.
  ○ Inspired by the 1943 Bengal famine, he dedicated his career to agricultural research.
  ○ Chose to work in India, rejecting a faculty position in the U.S.
- **Green Revolution Pioneer:**
  ○ The challenging circumstances of post-independence India.
  ○ Role in averting famine through increased wheat production.
  ○ Earned the title "Father of the Indian Green Revolution."
- **Pioneering Research:**
  ○ Contributions to combatting potato crop parasites.
  ○ Development of cold-resistant potato crops.
  ○ Early advocacy for millets as superfoods.
- **Impactful Interactions:**
  ○ Collaboration on the Soil Health Card scheme in Gujarat.
  ○ Endorsement of the scheme leading to agricultural success.
- **Farmer-Centric Approach:**
  ○ Recognizing Prof. Swaminathan as a "Kisan Vaigyanik" (farmers' scientist).
  ○ Emphasis on sustainable agriculture and ecological balance.
  ○ Dedication to improving the lives of small farmers and women farmers.
- **Innovation and Mentorship:**
  ○ Establishment of a not-for-profit research foundation with World Food Prize money.
  ○ Nurturing countless minds, fostering a passion for learning and innovation.
  ○ Legacy as an institution builder in agricultural research.
- **Enduring Inspiration:**
  ○ His contributions continue to inspire agricultural innovation and sustainability.
  ○ The establishment of research centres like the South Asia Regional Centre of International Rice Research Institute.

Learnings from the life of Dr. M.S. Swaminathan
- Empathy
- Scientific Rigour
- Grit and Commitment
- Selflessness
- Inclusivity
- Community Engagement
- Environmentalism

Nut Graf: *Prof. M.S. Swaminathan's contributions to Indian agriculture remain unparalleled. His dedication to farmers, sustainable agriculture, and innovation serve as a guiding light. We must reaffirm our commitment to his principles and ensure scientific innovation benefits all, fostering growth, sustainability, and prosperity for generations to come.*

2.   ICMR to conduct study to develop solutions to remedy childhood undernutrition

- The Indian Council of Medical Research (ICMR) is forming a team for a research study.
- The study aims to assess the effects of providing appropriate take-home foods.
- These foods will be combined with behaviour change interventions to ensure good complementary feeding practices for young children.
- This is important between the ages of 6 and 24 months to prevent issues like wasting, stunting, and undernutrition.
- Complementary feeding begins when breast milk alone can't meet an infant's nutritional needs.
- Challenges in complementary feeding include poor practices, insufficient food quality or quantity, and improper timing.

- The Take Home Ration (THR) program aims to improve children's nutrition but faces challenges.
- The ICMR suggests reevaluating the THR program and improving its quality and nutrition.
- Ensuring that infants and young children consume the provided food is equally important.
- The selected researchers will collaborate to create a research proposal and conduct a multi-centre research project coordinated by ICMR.

3. Space-tech Industry

Introduction
- Demand for satellite technology applications will primarily depend on Earth-based requirements and demands, according to a report by Deloitte India, published with the Indian Space Association and NASSCOM.
- The report focuses on analysing the 'downstream' opportunities in space technology (spacetech), referring to services like communications, earth imaging, and navigation facilitated by satellites.

Rising Importance of Earth-Based Demand
- The trajectory of satellite-enabled services is increasingly determined by the demand from people and organisations on Earth.
- Satellite constellations are already orbiting the Earth, providing internet coverage to areas without terrestrial networks, further highlighting the importance of consumer and organisational demand.

Challenges in the Indian Space Market
- Despite advancements in satellite technologies, India's share in the global spacetech market remains relatively small.
- The report highlights that India faces limitations in terms of significant growth opportunities for satellite applications.

Market Potential for Satellite Applications
- The report indicates that satellite internet for remote areas, a widely discussed application, is expected to have a market value of $263 million over the next five years.
- Other applications such as ecological monitoring, surveying, and logistics tracking are estimated to have market potentials that rarely exceed $1 billion.
- In contrast, DTH satellite TV, a relatively older technology, is estimated to have a market potential of $12.69 billion.

4. Tele-MANAS seva

Introduction
- Tele Manas Seva, a mental health counselling service launched last year on World Mental Health Day, has provided counselling to more than 350,000 individuals to date.
- The service currently assists around 2,000 individuals through 44 Tele Manas Cells, with more than 1,000 calls received daily.
- Union Health Minister Mansukh Mandaviya shared this information at the National Mental Health Conclave, held to observe World Mental Health Day.
- The Minister also inaugurated new facilities at the National Institute of Mental Health and Neuro-Sciences (NIMHANS) and unveiled the logo for Tele-MANAS.

Integration of Mental Health Services
- The Union Health Minister highlighted the integration of mental health services with primary health services, especially through Ayushman Bharat health and wellness centres, prioritising services for mental health, neurological disorders, and substance use disorders.

Recognition of State Performance
- The Minister recognized the performance of states and union territories and awarded certificates of appreciation along with mementoes to those achieving the highest number of calls in the National Tele Mental Health Program.
- In the larger states category, Tamil Nadu, Maharashtra, and Uttar Pradesh received recognition, while in the smaller states category, Telangana, Jharkhand, and Kerala were awarded.

5. P-20 summit

- Lok Sabha Speaker Om Birla spoke at the Parliamentary Forum on 'LiFE: Lifestyle for Environment' ahead of the ninth G-20 Parliamentary Speakers' Summit (P-20).
- He emphasised the need for collective efforts beyond policies and laws to address climate change.
- Prime Minister Narendra Modi will inaugurate the P-20 Summit.
- The pre-P-20 Summit event involved presiding officers of G-20 nations and invited countries and focused on Mission Lifestyle.
- Mr. Birla highlighted that while laws and policies are important, they alone cannot solve climate change issues.
- He referred to discussions in the Indian Parliament and the need for collective contributions to change daily routines.
- Mission Lifestyle encourages the principles of reduce, reuse, and recycle to protect the environment.
- Mr. Birla stressed that adopting such a lifestyle is an individual and collective responsibility to avoid harming the environment.

6.   Saraswati Samman

Introduction
- Noted Tamil writer Sivasankari has been honoured with the 'Saraswati Samman' for the year 2022.
- The prestigious award is presented for her memoir "Surya Vamsam."
- The 'Saraswati Samman' was established by the K.K. Birla Foundation and it includes an award citation, a commemorative plaque, and a cash prize of ₹15 lakh.

Memoir "Surya Vamsam"
- "Surya Vamsam" is a two-volume memoir that offers a unique perspective on the life journey of the author and the evolving society over the past seven decades.
- It traces the transformation of an innocent child into a celebrated author and reflects the societal changes during this period.

About Sivasankari
- Sivasankari, born in 1942, boasts a literary career spanning over five decades.
- Her extensive body of work comprises 36 novels, 48 novelettes, 150 short stories, five travelogues, seven essay collections, and three biographies.
- She is best known for her four-volume work "Knit India Through Literature," a comprehensive compilation of Indian literature.

7.   PM Modi confirms India's bid to host 2036 Olympics

Context: Prime Minister Narendra Modi has publicly announced India's aspiration to host the 2036 Summer Olympics, marking a significant milestone for the country. India aims to become the fourth Asian nation to host this prestigious sporting event, although the specific host city remains undisclosed.

Significance:
- **Historic Aspiration:** India's bid for the 2036 Olympics is a historic moment as it reflects the country's ambition to host this global event, underlining the nation's growing stature in the world of sports.
- **Asian Representation:** If successful, India would join the select few Asian countries that have had the privilege of hosting the Olympics, emphasizing its commitment to sports and international cooperation.
- **National Dream:** PM Modi expressed the collective aspiration of 1.4 billion Indians to bring the Olympics to their country. The event embodies a dream cherished by millions.

Government Commitment:
- **Full Support:** The Indian government is committed to making the dream of hosting the 2036 Olympics a reality. PM Modi reiterated the country's enthusiasm and determination.
- **Youth Olympics**: India has also expressed its willingness to host the 2029 Youth Olympics, highlighting the government's focus on promoting sports among the youth.

Indian Culture and Sports:
- **Integral Part of Culture:** PM Modi emphasized the integral role of sports in Indian culture and lifestyle. Festivals and celebrations in Indian villages often revolve around sports, highlighting the deep-rooted love for sports in the country.
- **Promoting Development:** Sports development in India has been a priority, with initiatives such as the Khelo India Games, Khelo India Youth Games, Khelo India Winter Games, and upcoming Khelo India Para Games. These efforts focus on nurturing talent and promoting a culture of sports.
- **Unifying Force:** Sports not only produce champions but also promote unity, peace, progress, and well-being. PM Modi acknowledged sports as a unifying force with the power to connect people worldwide.

IOC Session and Declaration:
- **40-Year Milestone:** PM Modi highlighted the significance of hosting the IOC session in India after 40 years, marking a pivotal moment for the country's sporting history.
- **Recent Victory:** The Prime Minister also celebrated India's victory against Pakistan in the World Cup in Ahmedabad, emphasizing the nation's sporting achievements.

Conclusion: This announcement marks a significant step in India's journey towards becoming a sports powerhouse and fostering international collaboration.

8. Centre likely to raise age of retirement of scientists to 65

Introduction
- The Indian Ministry of Science and Technology (MoST) is considering a proposal to increase the retirement age of scientists to 65.
- The primary motivation behind this proposal is to retain top senior scientists within government institutions and prevent them from seeking positions at universities and Indian Institutes of Technology (IITs) where the retirement age is already 65.
- Currently, scientists in most government departments retire at 60, while those working at the Indian Council of Agricultural Research (ICAR) and the Indian Council of Medical Research (ICMR) retire at 62.

Recent Developments
- On October 6, the Ministry issued a note to 14 autonomous bodies funded by the Department of Science and Technology (DST) regarding the proposal.
- The note requests information from these institutions, such as the total sanctioned strength of scientists, the number of scientists retiring in the next five years (from November 2023 to March 2028), and the additional financial implications of raising the retirement age.

Objective of the Proposal
- The proposal aims to bring parity in the service conditions of scientists working in various government departments and institutions.
- The Department of Biotechnology (DBT) is a significant contributor to this proposal due to concerns over senior scientists quitting government institutes to pursue academic careers.

Past Proposal (2015)
- In 2015, a draft Cabinet note led by the MoST had proposed raising the retirement age of scientists to 65, emphasising the need for uniformity in service conditions.
- While the government has previously provided extensions to scientists nearing retirement, the current trend is moving away from extensions and toward short-term contracts to retain senior employees.

9. President gives away film awards; actor Waheeda Rehman gets Phalke Award

- President Droupadi Murmu presented the National Film Awards for 2021 at the 69th edition of the ceremony.
- The awards recognize outstanding contributions to Indian cinema across various categories.
- The prestigious DadaSaheb Phalke Award was conferred upon veteran actor Waheeda Rehman.
- President Murmu praised Waheeda Rehman for her enduring contributions to the film industry and her exemplary qualities in her personal life. She highlighted Waheeda Rehman's role as a symbol of women's empowerment and encouraged women to take the initiative in this regard.
- Union Minister Anurag Thakur emphasised that good content, regardless of region, can find a global audience in today's world.
- "Rocketry: The Nambi Effect" was awarded the Best Feature Film, and Allu Arjun received the Best Male Actor award for "Pushpa (The Rise Part 1)."
- The Best Female Actor award was shared by Alia Bhatt for "Gangubai Kathiawadi" and Kriti Sanon for "Mimi."
- Vivek Ranjan Agnihotri's "The Kashmir Files" received the Nargis Dutt Award for Best Feature Film on National Integration.
- The Malayalam film "Meppadiyan" received the Indira Gandhi Award for Best Debut Director, while "Godavari (The Holy Water)" was honoured with the Best Director award.
- The film "RRR," directed by S.S. Rajamouli, received six awards, while "Gangubai Kathiawadi" by Sanjay Leela Bhansali won awards in five categories.
- "RRR" was also recognized as the Best Popular Film Providing Entertainment.

10. ST status for Meiteis examined and rejected in 1982 and 2001, govt. records show

Introduction
- A document reveals that a suggestion to incorporate the Meitei community into India's Scheduled Tribes list has undergone scrutiny and been declined on two occasions in the past four decades.
- The Office of the Registrar General of India rejected the proposal in 1982, while the Government of Manipur did so in 2001.
- This information was not publicly disclosed during the ongoing ethnic conflict in Manipur, where the issue of Meitei inclusion in the ST list has sparked violence and opposition from tribal groups.

Details of the Rejections

- In 1982, the Office of the Registrar General of India, on a request from the Ministry of Home Affairs, examined the inclusion of Meiteis in the ST list. They found that the Meitei community did not possess tribal characteristics based on "available information."
- It was noted that historically, the term "Meitei" had been used to describe the non-tribal population in the Manipur valley.
- In 2001, the Tribal Development Department of Manipur concurred with the 1982 opinion of the Registrar General's Office, asserting that the Meitei community should not be considered for inclusion in the ST list.

Criteria for Inclusion

- The criteria for being recognized as a Scheduled Tribe are grounded in characteristics such as primal traits, a unique culture, geographic seclusion, limited interaction with the wider community, and socio-economic disadvantage.
- Proposals for the inclusion of tribes can only be initiated by State governments and are subject to the opinion of the Office of the Registrar General. The final inclusion must be made by Parliament through constitutional amendments.
- The Ministry of Tribal Affairs had considered changing the criteria in 2014 but decided to keep the decades-old criteria.

Lack of Disclosure

- The Union government and the Manipur government did not present these records during the recent Manipur High Court case concerning the Meitei petition for ST status.
- The controversial court order on March 27 had issued notice to both governments regarding the petition but was unaware of these past rejections.

11.　Mahsa Amini, given EU human rights award

Introduction

- Mahsa Amini, a 22-year-old Kurdish-Iranian woman who died in police custody in Iran in 2022, has been posthumously honoured with the European Union's top human rights prize.
- The EU prize, bearing the name of Soviet dissident Andrei Sakharov, was established in 1988 to acknowledge those who champion human rights and basic freedoms, whether as individuals or groups.
- Andrei Sakharov, who was also a recipient of the Nobel Peace Prize, passed away in 1989.

A Turning Point

- Mahsa Amini passed away on September 16, 2022, following her arrest on charges of reportedly breaching Iran's compulsory headscarf regulation.
- Amini's death in police custody sparked global protests against Iran's conservative Islamic theocracy, highlighting human rights concerns.
- Roberta Metsola, President of the European Parliament, stressed that her "violent death" served as a pivotal moment, sparking a historic movement led by women.

Role of Women in Protests

- Women have played a significant role in the protests against Iran's mandatory headscarf law, with many publicly removing the hijab in defiance.
- The European Union has enforced sanctions against Iranian authorities and entities due to their involvement in human rights violations linked to the protests.

Award Ceremony

- The award ceremony is scheduled to take place on December 13, where Mahsa Amini and the Woman, Life, Freedom movement in Iran will be recognized for their dedication to human rights and freedom.

12.　PM flags off country's first Regional Rapid Transit System 'Namo Bharat'

Context: Prime Minister Narendra Modi inaugurated the country's first Regional Rapid Transit System (RRTS), known as 'Namo Bharat.' This monumental event marked a significant milestone in India's transportation infrastructure, with the Prime Minister personally taking a ride on a 17-km stretch from Sahibabad to Duhai Depot in Uttar Pradesh. The full 82-km Delhi-Ghaziabad-Meerut corridor is set to be operational by 2025.

Details:

The Namo Bharat Train:

- Prime Minister Modi called the Namo Bharat train a symbol of India's promising future.
- He emphasized that this train marks the beginning of a new journey for India, connecting various regions and states.
- Highlighted the significance of the Delhi-Meerut stretch as just the initial phase, with plans to expand to other regions of Delhi, Uttar Pradesh, Haryana, and Rajasthan.
- The system aims to enhance connectivity and generate new employment opportunities.

Completion of the Project:
- Mr. Modi pointed out that he had laid the foundation stone of the project four years ago, and now he was back to inaugurate it.
- The rest of the project is expected to be completed in about one and a half years.

Regional Rapid Transit System (RRTS):
- RRTS is a rail-based, semi-high-speed, high-frequency commuter transit system.
- Designed with a speed of 180 kmph, it is a regional development initiative, providing high-speed intercity commuting with trains running at intervals as short as 15 minutes, which can be increased to as frequent as every five minutes when needed.
- Developed at a cost of over ₹30,000 crore, this system will enable commuters to travel between Delhi and Meerut in less than an hour.

Expansion Plans:
- A total of eight RRTS corridors have been identified for development in the National Capital Region.
- In the first phase, three RRTS corridors are prioritized for implementation: Delhi-Ghaziabad-Meerut, Delhi-Gurugram-SNB-Alwar, and Delhi-Panipat.

State-of-the-Art Infrastructure:
- Officials from the Housing and Urban Affairs Ministry highlighted that the RRTS is a state-of-the-art regional mobility solution, comparable to the best in the world.

Significance:
- The Namo Bharat RRTS represents a leap forward in India's public transportation infrastructure, offering speed, connectivity, and convenience.
- It will substantially reduce travel time between Delhi and Meerut, enhancing the overall efficiency of transportation in the region.
- The project is a testament to the government's commitment to delivering on its promises and improving connectivity across states and regions.

13. OTT services, govt. reach uneasy compromise on smoking warnings

Context: Over-the-top (OTT) streaming services, including popular platforms like Netflix, Disney+ Hotstar, and Amazon Prime Video, have reached a compromise with the government regarding the inclusion of smoking warnings in their content.
- This compromise comes in response to the Ministry of Health and Family Welfare's notification on May 31, 2023, which required streaming services to display tobacco consumption warnings at the beginning of content containing smoking scenes, a move that deviates from international norms.

Differing Approaches by OTT Services:
- Some OTT platforms, like Hotstar, have incorporated video and on-screen warnings, even for older films.
- Others, such as Netflix, have opted for less intrusive messages, providing caution against tobacco consumption at the top left of the screen at the start of content featuring smoking scenes.

Government's Notification and Unique Requirement:
- The Ministry of Health and Family Welfare issued the Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Amendment Rules, 2023, on May 31.
- These rules mandated that streaming services, when depicting tobacco consumption, must display a warning at the beginning and include text scrolls during scenes featuring smoking.
- It's noteworthy that no other country has imposed such requirements on filmmakers and TV series creators.

Discussion and Disagreement:
- At a meeting, the Deputy Director of Mumbai's Tata Memorial Hospital advocated for stringent measures to reduce tobacco consumption.
- OTT services appealed for relaxed rules and extended compliance timelines, citing difficulties in implementing the requirements.
- Additional Secretary, resisted these appeals, emphasizing the necessity of implementing the rules despite any challenges.

Issues:
- OTT services, while acknowledging the importance of conveying anti-smoking messages, have concerns about the intrusive nature of the mandated warnings.
- The government's requirement to interrupt content with smoking warnings is unique and poses operational and artistic challenges for content creators.
- Balancing public health concerns with artistic freedom and the practicalities of content delivery has been a point of contention.

14. Food labels to have QR Codes: FSSAI

Introduction
- The Food Safety and Standards Authority of India (FSSAI) has recommended the use of Quick Response (QR) codes on food products to enhance accessibility for persons with visual disabilities.
- The FSSAI believes this will ensure access to safe food for all consumers, including those with special needs.

Fundamental Right of Inclusive Access
- In a recent advisory, the FSSAI emphasised that ensuring inclusive access to information is a fundamental right of citizens.
- Food products must be labelled in a way that ensures accessibility for all consumers, including those with visual impairments.

Existing Regulations and Information on Labels
- The FSSAI's Food Safety and Standards (Labelling and Display) Regulations, 2020, comprehensively outline the information that should be included on food product labels.
- This data encompasses details such as the product's name, its shelf life, nutritional information, labels indicating whether it is vegetarian or non-vegetarian, lists of ingredients, allergen alerts, and any other specific labelling criteria for the product.
- The aim is to empower consumers to make informed choices when selecting food products.

Rights of Persons with Disabilities Act, 2016
- The Rights of Persons with Disabilities Act, 2016, recognizes the rights and needs of individuals with disabilities, with a focus on accessibility and promoting health for persons with disabilities.
- The FSSAI promotes the integration of measures that make it simple for visually impaired individuals to access nutritional information in food products.

Use of QR Codes for Enhanced Accessibility
- To enhance accessibility, the FSSAI suggests incorporating QR codes on product labels.
- The QR codes should encompass extensive information about the product, covering elements such as ingredients, nutritional facts, allergens, production date, recommended consumption period, allergen alerts, and contact details for customer queries.

QR Codes Complement Mandatory Information
- The incorporation of QR codes for accessibility should not be interpreted as a substitution or annulment of the obligation to furnish compulsory information on the product label, as stipulated by pertinent regulations.

15. Ancient landscape under Antarctic ice

Introduction
- Antarctica, known for its desolate icy terrain, once hosted rivers and forests teeming with life.
- Through the use of satellite observations and ice-penetrating radar, researchers have exposed a sprawling ancient terrain concealed beneath the ice sheet of Antarctica.

Discovery of Antarctica's Lost World
- In the East Antarctic region of Wilkes Land, which borders the Indian Ocean, scientists have recently identified a vast and extensive landscape.
- This ancient landscape, covering an area roughly the size of Belgium, displays valleys and ridges believed to have been shaped by rivers before being engulfed by glaciation.
- The landscape dates back at least 14 million years and possibly even earlier, preceding Antarctica's deep freeze.

Snapshot of the Past
- Professor Stewart Jamieson from Durham University describes this hidden world as a "snapshot of the past," suggesting it was once warmer.
- Climate conditions could have ranged from modern-day Patagonia to something closer to a tropical climate.
- While the region likely supported wildlife, the incomplete fossil record doesn't reveal which animals inhabited it.

Beneath Thick Ice
- The ice above the ancient landscape measures 2.2-3 km thick, making it less understood than the surface of Mars.
- Unlocking its mysteries may involve drilling through the ice to obtain core samples of sediments below, potentially revealing ancient flora and fauna.
- Similar methods in Greenland provided evidence dating back 2 million years.

Research Methods
- The study employed satellite observations of the ice surface, which followed the contours of the buried landscape in some areas.
- Ice-penetrating radar data collected from a plane flying over the site unveiled this unique landscape.
- Previous studies have revealed various ancient landscapes beneath Antarctica's ice, but this discovery is the first of its kind.
- The landscape underwent alterations over geological time due to river activity, tectonics, and glaciation.

16. National Financial Reporting Authority

Introduction
- The National Financial Reporting Authority (NFRA) has initiated a significant investigation into a member firm of Ernst & Young (EY), S.R. Batliboi.
- S.R. Batliboi is responsible for auditing five prominent Adani Group companies.

NFRA's Role and Authority
- The NFRA is India's primary regulatory body responsible for overseeing financial reporting and accounting standards in the country.
- It was established to enhance transparency, reliability, and accountability in financial reporting, which is crucial for maintaining investor confidence and economic stability.
- The NFRA's authority extends to monitoring the conduct and performance of auditors, particularly in cases involving significant corporate entities.

Investigation Initiation
- The NFRA commenced its inquiry into S.R. Batliboi a few weeks ago, highlighting the authority's proactive approach to ensure adherence to accounting standards.
- The focus of this investigation is not only on S.R. Batliboi, but is part of a broader inquiry involving Adani Group companies.

Audited Adani Group Companies
- S.R. Batliboi serves as the auditing firm for three publicly listed Adani Group firms such as Adani Power, Adani Green Energy and Adani Wilmar.
- Additionally, it oversees the auditing of recently acquired cement companies within the group such as ACC and Ambuja Cements.
- In response to these developments, the Adani Group has issued a statement asserting that the group conducts its business activities in full accordance with applicable laws.

17. First public sector caravan park in Kerala to bring in more tourists to Bekal Fort

- Kerala is planning to establish a caravan park for tourists at Bekal Fort in Kasaragod.
- The caravan park will offer visitors the opportunity to experience the beauty of Bekal Fort and its lush surroundings while staying in caravans.
- The Kerala Tourism Development Corporation (KTDC) is responsible for developing the caravan park and camp shelter at Bekal Fort.
- Bekal Fort, known for its stunning architecture and location overlooking the Arabian Sea, will be developed under the "cinema tourism" project, aiming to showcase prime locations in Kerala featured in popular films to attract tourists.
- KTDC has also proposed setting up caravan parks at Ponmudi in Thiruvananthapuram and Bolgatty Palace in Kochi.
- This caravan park at Bekal Fort will be the first in the public sector in the state, with a sanctioned budget of ₹1.53 crore.
- Currently, there is only one caravan park in the state, operated by a private entity in Vagamon.

18. India Mobile Congress

Context: Prime Minister Narendra Modi, during the seventh India Mobile Congress, commended telecom operators for their swift rollout of 5G services in urban areas, highlighting that over 80% of India's urban population now enjoys access to high-speed Internet. He also expressed India's ambition to lead in 6G technology.

India Mobile Congress (IMC):
- India Mobile Congress (IMC) is the largest telecom, media, and technology forum in Asia, jointly organized by the Department of Telecommunications (DoT) and the Cellular Operators Association of India (COAI).
- Since its inception, IMC has established itself as a leading forum for bringing together industry, government, academia, and other ecosystem players to discuss, deliberate, demonstrate and display the latest trends in the realm of TMT and ICT.
- Not only is the India Mobile Congress the biggest technology event in Asia, but it is also the biggest networking event in India in the technology space.

Details:
- **5G Expansion:** India has made substantial progress in expanding 5G coverage, with approximately 4 lakh 5G base stations established within a year of the technology's launch.
- **Enhanced Internet Connectivity:** PM Modi emphasized that improved Internet connectivity and speed benefit various aspects of life, such as education, telemedicine, and tourism. It enhances the ease of living, making it easier for students to connect with teachers, patients to consult doctors online, and tourists to use online maps.
- **6G Aspiration:** India is actively researching and standardizing the next generation of telecommunications, aiming to become a leader in 6G technology.
- **Economic Growth:** The Prime Minister highlighted the growth of domestic electronics manufacturing, with major tech companies like Apple, Samsung, and Google assembling their products in India. This has contributed to a significant increase in electronics exports.
- **Secure Supply Chains:** PM Modi emphasized the need to secure electronics supply chains, possibly in reference to the dominance of Chinese electronics assembly and manufacturing. He underlined the importance of safeguarding democratic societies from potential threats.

Way forward:
- **Continued Investment:** The government and private sector should continue to invest in the expansion of high-speed Internet access, particularly in rural and underserved areas.
- **Research and Development:** Support for research and development in telecommunications technology is crucial to achieving leadership in 6G and beyond.
- **Promotion of Electronics Manufacturing:** Encourage more tech companies to assemble their products in India, fostering domestic manufacturing and boosting exports.
- **Cybersecurity Measures:** Implement robust cybersecurity measures to secure electronics supply chains and protect democratic societies from potential threats.

19. Rebels in Myanmar

Context: Alliance of ethnic rebels launches attacks across northern Myanmar.

Details:
- An alliance of ethnic rebel groups in Myanmar launched coordinated attacks on the military across the country's north, posing a fresh challenge to the junta as it struggles to quell resistance.
- The rebels were attacking 12 towns across a swathe of Shan state around 100 km across.

Source: Al Jazeera

20. WHO Southeast Asia members to meet

Context: Health Ministers and senior officials from the WHO Southeast Asia member countries will convene in New Delhi for the 76th session of the WHO Regional Committee for Southeast Asia.

- The session will focus on nominating the next WHO Regional Director for Southeast Asia and discussing critical health issues.

Details:

- Priority health issues to be discussed include accelerating the prevention and control of cardiovascular diseases.
- Other key topics involve ending neglected tropical diseases and ensuring regional health security.
- Two candidates, Saima Wazed from Bangladesh and Shambhu Prasad Acharya from Nepal, are competing for the position of WHO Regional Director.
- The meeting serves as the annual governing body session for the WHO at the regional level.
- It aims to address vital health concerns affecting the Southeast Asia region, home to over two billion people.
- The region has achieved significant milestones, such as eliminating polio, maternal and neonatal tetanus, and other diseases in several countries.
- Maternal, neonatal, and under-5 mortality rates have significantly reduced, and some countries have already met SDG targets.
- The region is actively investing in strengthening preparedness and response capacities following the lessons from the COVID-19 pandemic.
- Efforts are focused on controlling cardiovascular diseases, targeting 100 million individuals with hypertension and/or diabetes for protocol-based management by 2025.

WHO South – East Asia region:

- One of the six WHO Regions, WHO South-East Asia is home to over a quarter of the world's population. WHO is working with the 11 Member States to address persisting and emerging epidemiological and demographic challenges.
- The WHO South-East Asia Region has 11 Member States – Bangladesh, Bhutan, Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, Timor-Leste. WHO has country offices in all 11 Member States.
- The WHO South-East Asia Regional office is based in New Delhi India.
- The Region has eight flagship priorities. Measles and rubella elimination; preventing non-communicable diseases; reducing maternal, under-five and neonatal mortality; universal health coverage with a focus on human resources for health and essential medicines; combating antimicrobial resistance; scaling up capacities for emergency risk management; eliminating neglected tropical diseases and accelerating efforts to end TB.

21. Bangladesh is building memorial to honour Indian heroes of 1971 war

Context: Bangladesh is in the advanced stages of constructing a memorial to honor Indian heroes of the 1971 Liberation War between India and Pakistan.

- The memorial, located in Ashuganj, Bangladesh, is set to bear the names of approximately 1,600 Indian soldiers who sacrificed their lives during the conflict.
- This memorial marks a significant tribute to the shared history and sacrifices of Indian soldiers in the Liberation War.

Details:

- The memorial is dedicated to Indian soldiers exclusively, acknowledging their immense contribution to the Liberation War.
- It recognizes the sacrifices made by Indian soldiers who fought alongside the Mukti Bahini and Bangladeshi forces for the independence of Bangladesh.
- The completion of the memorial and its inauguration by both the Indian and Bangladeshi Prime Ministers is scheduled for March or April, pending the electoral schedules of both nations.
- The memorial underscores the deep historical and emotional bonds between India and Bangladesh, as the two nations fought together for the freedom of Bangladesh.
- It serves as a symbol of gratitude and respect towards the Indian soldiers who laid down their lives for the cause of Bangladeshi liberation.
- This will be the first memorial in Bangladesh exclusively dedicated to Indian soldiers, highlighting their unique role in the 1971 Liberation War.
- The foundation stone for the memorial was laid by Indian Prime Minister Narendra Modi and Bangladeshi Prime Minister Sheikh Hasina in March 2021, further cementing bilateral ties.
- The memorial aims to ensure that the names of the Indian soldiers are permanently etched in the collective memory of Bangladesh.

22. Cloud seeding

Context: The Indian Institute of Tropical Meteorology (IITM) in Pune has demonstrated that cloud seeding can effectively produce rainfall.

- The experiment involved cloud seeding in Solapur, a region with historically low rainfall, during the summer monsoon periods of 2018 and 2019.
- The results of this experiment have been published in the "Bulletin of the American Meteorological Society."

Details:

- Solapur, located on the leeward side of the Western Ghats, experiences relatively low rainfall, making it prone to water scarcity.
- The study aimed to investigate the efficacy of cloud seeding, particularly hygroscopic seeding in deep convective clouds.
- Not all cumulus clouds produce rainfall through cloud seeding, and the microphysics of clouds play a significant role in this process.
- The experiment, known as the Cloud Aerosol Interaction and Precipitation Enhancement Experiment (CAIPEEX phase-4), used two aircraft to study cloud parameters and conduct cloud seeding.
- The study found that cloud seeding was effective in enhancing rainfall in suitable conditions.
- Seeded clouds produced more rainfall compared to unseeded clouds, resulting in an 18% relative enhancement in rainfall.
- In total, the experiment contributed 867 million liters of enhanced water availability through cloud seeding.
- The study provides protocols and technical guidance for planning and conducting cloud seeding in India, helping stakeholders identify target locations and suitable seeding strategies.
- The approximate cost of producing water through cloud seeding was 18 paisa per liter, and this cost could be reduced by over 50% by using indigenous seeding aircraft.
- Cloud seeding is seen as a partial solution to addressing water requirements and potentially mitigating droughts.

23. New mushroom variety in Western Ghats

- The Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI) in Thiruvananthapuram has identified a new and fragile mushroom species.
- The mushroom, belonging to the genus Candolleomyces, showcases the rich biodiversity of the Western Ghats.
- The Western Ghats region is known for its unique and diverse ecosystems, making it a hotspot for biological diversity.
- Researchers at JNTBGRI conducted a study on the new mushroom species and published their findings in the scientific journal Phytotaxa.
- The new species has been named *Candolleomyces albosquamosus* due to the white woolly scale-like structures on its cap.
- This delicate mushroom reaches a height of approximately 58 mm.
- Seven previously reported species belonging to the genus Psathyrella in India have now been reclassified as members of the genus Candolleomyces.
- The discovery of a new species within the Candolleomyces genus in India is significant because there are only 35 known species in this genus worldwide.

24. Petition challenging Rohingya refugees' 'illegal detention'

Petition:

- The petition states that international refugee law prohibits states from treating refugees and asylum seekers on the same footing as economic migrants.
- Violates the: 2011 Ministry of Home Affairs (MHA) standard operating procedure to deal with foreign nationals who claim to be refugees
- Women and children are suffering in camps

25. Geospatial intelligence

What is Geospatial intelligence?

- Geospatial intelligence is the collection and integration of data from a network of technologies, including satellites, mobile sensors, ground-control stations and aerial images.
- The data is used to produce real-time maps and simulations to help identify when, where and to what extent a threat is likely to emerge.

Significance of geospatial intelligence

- Monitoring disasters like tropical storms
- Search and Rescue activities
- Environmental monitoring - Heat waves ; melting ice caps ; crop damage
- Border management
- Transportation and supply chain

- Urban planning
- Autonomous vehicle technology

Need for geospatial intelligence
- Policy measures
- A growing industry
- Food security
- Planned development

Challenges
- Not much awareness in India
- Unavailability of data
- Issues with data sharing and data privacy

26. Index of Eight Core Industries

- Includes 8 sectors of the Economy that also act as a feeder for the other industries.
- 40.27% of the weight of items in IIP
- In order of their Weightage: Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers
- Index released by: Office of Economic Advisor
- Base Year: 2011-12
- **IIP:** calculated by National Statistical Office.

27. Social Bonds

- Issued to fund projects and initiatives that have a positive social or environmental impact.
- Governments, public entities, development organizations, and private corporations can issue social bonds.
- A key feature of social bonds is the requirement for issuers to measure and report on the social or environmental outcomes of the projects funded.
- **Types of Social Bonds:**
  - **Green Bonds:** These bonds are specifically earmarked for environmentally friendly projects, such as renewable energy or conservation efforts.
  - **Social Impact Bonds:** These bonds are often used for social welfare programs, where investors are repaid based on the achievement of predefined social outcomes.
  - **Sustainability Bonds:** These bonds cover a broader range of projects that have both social and environmental benefits.
- One of the earliest examples of a bond issued with a clear social mission was the "World Bank's Kangaroo Bond" issued in 1989.
- Recently NABARD released India's first externally rated (AAA-) rupee denominated bond.

28. Toto Shabd Sangrah

- A dictionary, to be developed by University of Calcutta, in collaboration with Bhakta Toto.
- **Toto Language:**
  - Sino-Indian language of Toto Tribe.
  - Minority language.
  - Considered as Critically Endangered language according to UNESCO Standards.
  - Mostly spoken; script developed in 2015 by Dhaniram Toto.
- Since the script is nascent, a dictionary will be developed in Bengali.

YOJANA OCTOBER 2023

1. Road Infrastructure Getting Smarter

● The road infrastructure of India is classified into **six categories**. The road length in kilometres (km) of each of these categories and its compound annual growth rate (CAGR) in percentage over 1991, available most recently as of 31st March 2019, as per the 2022-23 annual report of the Union Ministry of Road Transport and Highways (MoRTH) is shown in the table below.

● **Pradhan Mantri Gram Sadak Yojana (PMGSY):** Initiated in 2001, it aims to provide all weather road connectivity in rural areas.
  ○ Rural roads constitute 70% of the total road length in India.

● Both the quantity and quality of roads are important drivers of economic development and social inclusion. In recent decades, focus has been more on quality with various enabling factors as discussed below.
  ○ **Delinking road development and direct employment generation** post India's economic liberalisation.
  ○ **National Highways Authority of India (NHAI)** became operational in 1995.
  ○ **Public Private Partnerships (PPP)**
  ○ **State Level Road Development Corporations:** The first such a corporation, the Maharashtra State Road Development Corporation Limited (MSRDCL) was established in 1996. It has developed the Mumbai-Pune Expressway (opened in 2002).
    ■ Many other states have also followed suit since. Uttar Pradesh is a leader in developing expressway-standard roads.
  ○ **National Highways Development Project (NHDP):** It was started in 1998 by NHAI.
    ■ **Phase I:** Four laned Golden Quadrilateral (GQ) connecting four metro cities.
    ■ **Phase II:** Four laned connecting the north-south and east-west corridors, connecting India's extreme points.
      ○ **Pradhan Mantri Gram Sadak Yojana (PMGSY)**
  ○ **Viability Gap Funding (VGF)** provision rejuvenated interest among bidders towards projects.
  ○ **Model Concession Agreement (MCA):** In the road sector, the first MCA was in 2000.
  ○ **Expressways**
  ○ **New Contracting Models and Asset Monetisation:** Along with classical models such as **Engineering, Procurement, and Construction (EPC)** and PPP through **Build, Operate, and Transfer (BOT)**, other models such as the **Hybrid Annuity Model (HAM)**, and **Toll, Operate, and Transfer (TOT)** have emerged.
    ■ The **Infrastructure Investment Trusts (InVITs)** have been operationalised to monetise built road assets.
  ○ **Other organisations:** Apart from the NHAI other organisations with specific mandates were set up.
  ○ **Road Making Technologies:** There has been improvement in technology over the years through easier import of road-making equipment under open general licence, technology transfers for domestic manufacturing, consortium of Indian bidders with foreign players for improved learning, and more.
  ○ **Electronic Toll Collection (ETC)**

● **Challenges in road infrastructure development:**
  ○ There is need for **better road safety**
  ○ Issues with **urban roads** such as lack of attention due to shift towards rural roads, low speeds leading to loss of time and money, poor last mile connectivity, poor urban goods movement, parking issues, coordination issues with urban public transport.
  ○ Need to focus on **lane kilometres rather than road kilometres** which will help to focus on access as well as capacity. Number of lanes needs to be specified in maps for better road choices by users.
  ○ Proper collection of **Origin to Destination (OD) data**
  ○ Improvement in **coordination with PPP players**

2. Rail Infrastructure

● The first train travelled 34 km from Mumbai to Thane in 1853. Since then, in over more than 167 years, Indian Railways (IR) has grown enormously.

● Railway planning has the main objective of developing transport infrastructure to carry the projected quantum of traffic and meet the Indian economy's developmental needs.

● Nine five year plans (FYPs) have been implemented since 1950-51 by Indian Railways apart from some annual plans.

● There are **12 Central Public Sector Enterprises (CPSEs)** under the administrative control of the Union **Ministry of Railways**.
  ○ RITES Limited
  ○ IRCON International Limited
  ○ Indian Railway Finance Corporation (IRFC) Limited
  ○ Container Corporation of India Limited (CONCOR)
  ○ Konkan Railway Corporation Limited (KRCL)
  ○ Mumbai Railway Vikas Corporation Limited (MRVC)
  ○ Indian Railway Catering and Tourism Corporation Limited (IRCTC)
  ○ Railtel Corporation of India Limited (RCIL)
  ○ Rail Vikas Nigam Limited (RVNL)

- ○ Dedicated Freight Corridor Corporation of India Limited (DFCCIL)
  - ○ Kolkata Metro Rail Corporation Limited (KMRCL)
  - ○ Braithwaite and Company Limited (BCL)
- The research and development (R&D) wing of Indian Railways is the **Research Design and Standards Organization (RDSO)** at Lucknow.
  - ○ It acts as consultant in technical matters to Indian Railways, and other organisations connected with railway manufacturing and design.
- **Railway Finance:** Owing to the Separation Convention of 1924, a separate railway budget was presented from 1924-25, even though part of the overall budget of the Government of India.
  - ○ The Railway Budget has been **merged with general Budget from Budget Year 2017-18**:
    - ■ To present holistic financial position of the government
    - ■ To facilitate multimodal transport planning between highways, railways, and waterways
  - ○ Instead of 16 demands for grants, the Union Ministry of Finance has introduced **one demand for grants for the Ministry of Railways**.
- **Railway Electrification:** Increasing railway electrification under Ministry of Railways' Mission 100% Electrification policy will not only help reduce the country's crude oil imports but also has environmental benefits.
  - ○ It increases average speeds, loadings for both freight and passengers, thereby, providing opportunity for modernisation.
- **Rail Tourism:** Indian Railways (IR) has introduced **Bharat Gaurav Trains Policy** to showcase cultural heritage and historical places of India to both domestic and foreign audiences with the help of tourism sector professionals and other service providers.
  - ○ Specialised tourism products are also introduced from time to time in association with IRCTC and states.

National Rail Plan (NRP)
- NRP for 2030 has been prepared by IR to create a 'future ready' railway system by 2030.
- It is aimed to formulate strategies based on both operational capacities and commercial policy initiatives to **increase the modal share of the Railways in freight to 45%** and to sustain it.
- **Creation of capacity ahead of demand** to cater for future demand growth right up to 2050 is the objective of NRP.
- To achieve this objective all possible financial models including Public Private Partnership (PPP) are being considered.

Vande Bharat Express Trains
- IR has launched India's first indigenous semi-high-speed train Vande Bharat Express as part of efforts under 'Make in India'.
- The first Vande Bharat Express train was flagged off on 15th February 2019, on the New Delhi-Kanpur-Allahabad-Varanasi route.
- They have been introduced to **upgrade maintenance technologies** and methodologies and achieve **improvement in productivity and performance** of all railway assets and manpower in which inter-alia would cover reliability, availability, utilisation, and efficiency.

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3.   Space Infrastructure

- Indian space activities began in 1962 with the establishment of the Indian National Committee for Space Research (INCOSPAR). In 1969, the Indian Space Research Organisation (ISRO) was formed, superseding INCOSPAR. Subsequently, in 1972, the Department of Space (DOS) was created to oversee the development and application of space technology to meet various national needs.

Indian Space Research Organisation (ISRO)
- **Headquarters:** Bengaluru
- ISRO's primary objective is the development and application of space technology to meet various national needs. ISRO has established several space systems for communication, television broadcasting, meteorological services, resource monitoring, and more.
- PSLV and GSLV are two trusted launch vehicles developed by ISRO.

Vikram Sarabhai Space Center:
- **Location:** Thiruvananthapuram
- Responsible for the design and development of launch vehicle technology.
- Major programs include the development of the Polar Satellite Launch Vehicle (PSLV), Geosynchronous Satellite Launch Vehicle (GSLV), Launch Vehicle Mark-3 (LVM3), Rohini sounding rocket, Small Satellite Launch Vehicle, and critical technologies for human spaceflight missions.

U R Rao Satellite Centre (URSC)
- **Location:** Bengaluru
- Involved in the design, development, and realisation of communication, navigation, remote sensing, and scientific satellite missions.
- The ISRO Satellite Integration and Test Establishment is equipped for assembling and testing spacecraft for flightworthiness.

Satish Dhawan Space Center (SDSC)- SHAR
● **Location:** Andhra Pradesh
● Provides launch base infrastructure for Indian space programs.

Liquid Propulsion System Centre (LPSC)
● **Locations:** Campus-1: LPSC, Valiyamala, Thiruvananthapuram, and Campus-2 LPSC Bengaluru
● Engaged in the design, development, and realisation of high-performance advanced propulsion systems for launch vehicles and spacecraft.

Space Application Centre (SAC):
● **Location:** Ahmedabad
● Focuses on the development of space-borne and air-borne instruments and payloads for national development. It designs and develops optical and microwave sensors for satellites, signal and image processing software, and GIS software for Earth observation programs.

Human Space Flight Centre (HSFC)
● **Location:** Bengaluru
● Established in 2019, it coordinates all developments related to human spaceflight programs.

National Remote Sensing Centre (NRSC)
● **Location:** Hyderabad
● It has a mandate for the establishment of ground stations for receiving satellite data, generation of data products, dissemination to the users, development of techniques for remote sensing applications including disaster management support, geospatial services for good governance and capacity building.

ISRO Propulsion Complex
● **Location:** Mahendragiri
● Responsible for the assembly, integration, and testing of liquid propulsion systems for launch vehicles. It provides a platform for simulation trials for interplanetary missions.

ISRO Telemetry Tracking and Command Network (ISTRAC)
● **Location:** Bengaluru
● Provides telemetry tracking and command and mission control services to major launch vehicles, interplanetary spacecraft missions of ISRO and the ground segment of the NaVIC satellite system.

Master Control Facility (NCF)
● **Location:** Hassan, Karnataka and Bhopal
● Responsible for On-Orbit Operations (OOP) and Launch and Early Orbit Phase (LEOP) operations of geostationary/ geosynchronous and IRNSS class spacecraft of ISRO. It monitors and controls all the geostationary satellites of ISRO.

ISRO Inertial Systems Unit (IISU)
● **Location:** THiruvananthapuram
● Engaged in the design and development of inertial systems for launch vehicles and satellites.

Laboratory for Electro-Optics Systems (LEOS)
● **Location:** Bengaluru
● Involved in the design, development, and production of attitude sensors, high-resolution image optics, and special-purpose science instruments.

Indian Institute of Remote Sensing (IIRS)
● **Location:** Dehradun
● Focuses on building capacity in remote sensing and geoinformatics through education and training programs at the postgraduate level.

Development and Educational Communication Unit (DEUC)
● **Location:** Ahmedabad
● Implementation of satellite communication-based societal applications in the country. It works with user agencies and facilitates the spread of space applications to reach the unreached.

Physical Research Laboratory (PRL)
● **Location:** Ahmedabad
● A premier research institute engaged in basic research in the areas of Astronomy and Astrophysics, Solar Physics, Planetary Science, and Exploration.
● PRL has an Infrared observatory at Mt. Abu, a Solar observatory in Udaipur and a Planetary exploration (PLANEX) programme at Ahmedabad.

National Atmospheric Research Laboratory (NARL)
- **Location:** Gandaki, Tirupati
- Engaged in atmospheric and space science with the vision of developing the capability to predict the behaviour of Earth's atmosphere.

North Eastern Space Application Centre (NE-SAC)
- **Location:** Shillong, Meghalaya
- An autonomous organisation under the Department of Science, with the aim of supporting the development process in the North Eastern region through advanced space technology.

Indian Institute of Space Science and Technology (IIST)
- First established in Thiruvananthapuram in 2007.
- Offers high-quality education in space science and technology to meet the demands of the Indian Space Program.

Antrix Corporation Limited (ACL)
- **Corporate Office:** Bengaluru
- Engaged in providing space sector products and services to customers globally.

New Space India Limited (NSIL)
- **Headquarter:** Bengaluru
- A wholly-owned government of India undertaking to provide space-related products and services from the Indian Space Program to global customers and promote the growth of the Indian space sector.

Indian National Space Promotion and Authorisation Centre (IN-SPACe)
- **Headquarter:** Ahmedabad
- An autonomous agency under the Department of Space (DOS), responsible for promoting, enabling, authorising, and supervising various space activities of non-governmental entities, including the building of launch vehicles and satellites and providing space-based services.

4. Unity Mall

- Unity Mall, an initiative of the Government of India, is poised to play a pivotal role in fostering economic development, providing recreational spaces, enhancing tourism, and celebrating the rich cultural heritage of India.
- It will serve as a **comprehensive marketplace within the states for the promotion and sale of One District One Products, GI Products, Handicraft Products, and other local items**.
- **Unity Malls will be established in each state**, preferably in the respective state capitals or any other location chosen by the state.
- The purpose of Unity Mall is to **foster national unity and make progress in the Make in India and Atma Nirbhar Bharat initiatives** by offering local artisans opportunities to sell their products, create employment opportunities, facilitate skill development, and contribute to overall economic growth.
- **Each Unity Mall will have one shop allocated for each state to showcase their GI-tagged products and One District One Product offerings.**

Scheme for special assistance to states for capital expenditure:
- Unity Malls are funded **under the scheme for special assistance to states for capital expenditure.**
- The scheme aims to stimulate capital expenditure and harness the significant multiplier effect of such expenditure to foster higher economic growth.
- Under the scheme, **States are given interest-free loans for 50 years**, **which do not count towards the annual borrowing limit of the state.**
- Rs 5,000 crore under the scheme has been earmarked for the construction of Unity Malls.
- **The state government needs to provide land for free** and also allocate additional funds for the project.

Design and Amenities of Unity Mall
- **Standardised design:** According to the guidelines of the Department of Expenditure, Ministry of Finance, the design and amenities of Unity Mall should symbolise the unity and grandeur of the country.
  - To ensure uniformity, all Unity Malls across India are required to adhere to a standardised design prescribed by the Department for Promotion of Industry and Internal Trade (DPIIT).
  - Multilingual languages and logos of One District One Product and Make in India must be integrated into the mall design.
- **Layout and commercial spaces: Each Unity Mall should incorporate a minimum of 36 commercial spaces** with uniform floor space and common rent allocated to each state and Union Territories.
- **Amenities:** Each Unity Mall should include a state-of-the-art food court, parking facilities, and spaces for recreational and cultural activities. Additionally, the mall should offer technology-driven experiences such as virtual reality, augmented reality digital displays, and interactive kiosks.
- **Public-Private Partnership: The operations and maintenance of Unity Mall will be structured under a public-private partnership.** The ownership of the mall remains with the state government while operational and maintenance responsibility will be entrusted to a private party.

- **Proposal and Approval Process:** State governments must submit proposals for Unity Mall to DPIIT, which further recommends them to the Department of Expenditure, Ministry of Finance for approval.
- The Ministry of Finance has approved the construction of Unity Malls in eight states, Assam, Gujarat, Chhattisgarh, Madhya Pradesh, Meghalaya, Nagaland, Maharashtra, and Tripura.

Key features of approved Unity Malls
- **Assam:** Planned in Guwahati, it incorporates a library, art gallery, museum dedicated to ethnic products, diverse food courts and yoga and meditation hall.
- **Chhattisgarh:** Planned in Raipur, the mall has been designed in an oval shape resembling a rice seed symbolising the state's agricultural abundance.
- **Nagaland:** Planned in Chumukedima, the mall features theme restaurants, conference rooms, commercial space, and gaming zones.
- **Madhya Pradesh:** Planned in Ujjain, the mall features an iconic Mahakal-Lok elevation design. The mall's architecture encompasses various distinct zones like Millet Lok reserved for food courts and restaurants, Ekam Lok designed for cultural activities, and Utsav Lok designed for open workshops and performances.
- **Meghalaya:** Planned in New Shillong, the mall serves as a cultural hub showcasing the cultural diversity of Meghalaya.
- **Gujarat:** Planned in Jevadia, the mall's design is centred around the Ashoka Chakra shape. The mall will have the design of Haveli architecture inside, which was prominent in the historic cities of Gujarat.
- **Tripura:** Planned in Agartala, the mall's roof will be adorned with the colours of the National flag.
- **Maharashtra:** Established in Navi Mumbai, the mall will include a variety of amenities like children's play areas, multipurpose halls, mini theatres etc.

KURUKSHETRA OCTOBER 2023

1.   Integrated Solar Village Scheme for inclusive development

- In its updated Nationally Determined Commitments (NDCs), India has targeted to achieve the goal of **net-zero by 2070**. It aims to achieve it by taking a citizen-centric approach while also achieving the sustainable development goals (SDGs).
    - This helps to ensure that India's **clean energy transition is just and inclusive**.
- Rural India offers tremendous opportunities with regards to production and use of renewable energy, both through **rooftop solar panels** and **distributed renewable energy applications**.
- **Solar villages:** The concept of solar villages needs to be defined in a manner which incorporates comprehensive economic development of rural areas by bringing in the elements of livelihoods and strengthening social service infrastructure.
    - It is also viable for DISCOMs because it can reduce subsidy burden as it **reduces cost of servicing rural HHs**.
    - The concept has been attempted by some states in areas such as Modhera in Gujarat, Dharnai in Bihar, Barapitha in Odisha.
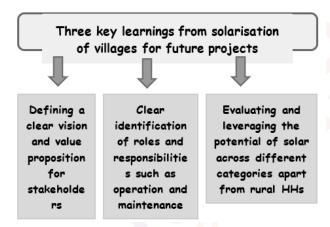

Figure: Three key learnings from solarisation of villages

- **Distributed Renewable Energy (DRE):** In rural areas, DRE enables access to an improved quality power supply, and involves communities in energy transition by transforming them into 'prosumers' ('pro'ducer and 'con'sumer both) of renewable energy such as biomass and solar.
    - In rural areas, DRE can help improve education and healthcare facilities, internet access, livelihood opportunities, and grid-resilience against extreme climate events.
    - Installation of DRE can create livelihood opportunities also as it is a labour-intensive exercise compared to utility scale solar projects.
- **Rooftop solar and decentralised livelihood applications** have been actively promoted by both Centre and states.
    - Under phase II of the **Grid Connected Solar Rooftop Programme** (launched in 2019), capital subsidies have been provided by the Union Ministry of New & Renewable Energy (MNRE) for rooftop solar installations.
    - Process for application and securing subsidies for rooftop solar has been simplified by MNRE through **SPIN portal**.
    - Framework to promote **integration of DRE livelihood applications**
    - **Initiatives by states** such as Jharkhand and Uttarakhand in promotion of renewable or solar energy
- **Quantity as well as quality:** As per the **'Energy Plus' framework** of the **United Nations Development Programme (UNDP)**, access to electricity is necessary but not sufficient condition for rural livelihood development.
    - In this regard, India has achieved near 100% electrification of HHs, it needs to ensure availability of reliable power.
- **Rural vs urban:** Rural India (with an average of 20 h supply per day) has **more power outages** than urban India. **Power quality issues due to voltage fluctuations** are also more in rural areas.
- Quality and quantity of **electricity supply to healthcare and educational institutions** impacts their service delivery.
- An **Integrated Solar Village Development Scheme** should
    - Improve reliability and quality of power supply
    - Boost rural income
    - Strengthen social services such as health and education
    - Generate employment by integrating solar into rural economy

2. Crop Residue Management: Challenges and Opportunities

- Crop residues refer to the non-economic parts of plants that remain in the field after harvest, including straws, stalks, stover, husk, bran, bagasse, and molasses.
- These crop residues have numerous practical applications, such as serving as bedding material for livestock, providing animal feed, aiding in soil mulching, and facilitating biogas generation. Additionally, they can be used to produce various value-added products, including papers and boards.

Challenges associated with crop residue burning
- **Greenhouse gas emissions:** The burning of crop residues is a major contributor to greenhouse gas emissions, releasing carbon dioxide, carbon monoxide, methane, sulphur oxides, and nitrogen oxides. These emissions have adverse environmental consequences
- **Air Pollution:** The emission of Particulate Matter from crop residue burning is approximately 17 times higher than emissions from other sources, such as motor vehicles, waste incineration, and industrial waste. These emissions pose severe health risks to both humans and animals
- **Soil Fertility:** Crop residue burning results in the deterioration of organic matter and essential soil nutrients like nitrogen, phosphorus, and potassium. The high temperatures generated during burning also lead to the loss of beneficial soil microorganisms. This, in turn, reduces farm productivity and hinders agricultural sustainability.

Why are crop residues burned?
- The farmers often resort to stubble burning mainly due to three factors
  - Shortage of farm labour.
  - Farmers have a very short span, usually 10-20 days, to prepare their fields for the subsequent wheat crop following the harvest of rice.
  - Large-scale use of combine harvester which leaves behind substantial amounts of crop residue, typically 20-30 cm of stubble on the ground.

Regulations and solutions for crop residue management
- **National Green Tribunal order:** In 2015, the National Green Tribunal issued an order that prohibited agricultural residue burning in the National Capital Territory of Delhi, Punjab, Rajasthan, Uttar Pradesh, and Haryana,
- **Promotion of Agricultural Mechanisation for In-Situ Crop Residue Management Scheme:** This central scheme provides **financial assistance of up to 50% to farmers,** and in the case of cooperative societies, farmer producer organisations, and Panchayats, up to 80%, **for the purchase of crop residue management machinery** such as Super Straw Management System, Happy Seeds, and Crop Reapers.
- **Custom Hiring Centers (CHC):** These are centres which supply farm implements to small and marginal farmers at nominal rates on hire.
- **Updated guidelines for off-site paddy straw management:** The central government has recently revised guidelines to facilitate efficient ex-situ management of paddy straw in Punjab, Haryana, Uttar Pradesh and Delhi.
  - Under these new guidelines, **techno-commercial pilot projects for the Paddy Straw Supply Chain will be established through bilateral agreements between beneficiaries** (farmers, rural entrepreneurs, cooperative societies, Farmers Producer Organizations, and Panchayats) **and industries that utilise paddy straw.**
  - The centre and state government will provide 65% financial support for the project cost, while the industry will contribute 25% and serve as the primary consumer of the collected feedstock.
- **Pusa Decomposer:** The **Indian Council of Agricultural Research has developed the "Pusa Decomposer" technology,** which is designed to biologically decompose paddy stubble in agricultural fields.
- **Alternative applications of paddy straw:**
  - **Mushroom Cultivation Substrate**: Paddy straw serves as an excellent substrate for mushroom cultivation. It can yield between 50 to 100 kilograms of mushrooms for every tonne of dry rice straw used.
  - **Biochar Production:** Paddy straw can be utilised to create biochar, a carbon-rich material employed as a soil amendment. It helps to improve soil fertility, increase carbon storage, and enhance water filtration capabilities.
- **Crop diversification:** Shifting to millet cultivation, can significantly reduce the generation of crop residues and thereby promote sustainable farming practices and minimise environmental impacts.
- **Education and awareness campaign:** In addition to the technical and financial support intensive educational and awareness campaigns are needed to improve scientific management of crop residue in India.

3. Harnessing the Power of Digital Technology for Greener Villages

India is utilising digital technologies to empower rural communities and promote green villages. In wake of this, Government departments, agencies, and nonprofits are disseminating sustainable practices, paving the way for a greener future.

Environmental challenges faced by rural India:
- **Inadequate waste disposal systems** contribute to water and air pollution, despite various governmental efforts to improve sanitation.
- **Increased food demand fueling deforestation** as more land is required for farming, depleting forest cover. Growing populations leading to over cultivation.
- **Air pollution with crop residue burning** and agricultural activities as major contributors.
- **Water pollution** arising from poor sanitation and limitations in sewerage planning. **Soil degradation** due to the excessive use of chemical fertilisers.

Role of Digital Technology:

Technology can be a key component in helping to address these concerns in the face of increasingly pressing challenges since it provides opportunities to improve environmental law enforcement and implementation as well as raise public knowledge of related issues.
- Digital platforms can be used for insights on **sustainable farming methods** and timely weather forecasts.
- Technology can be used to **remotely monitor air and water quality,** track deforestation, and pinpoint ecological red flags.
- **Social media and communication technology** can be used to disseminate and deliver the **message and know-how to make our villages green.**
- **Swachh Bharat Mission** makes use of digital tools like **geotagging and mobile apps** to track progress and engage communities in sanitation efforts.
- **Digital India initiative** has connected lakhs of villages with broadband internet, **bridging the digital divide** and providing rural communities with access to information and opportunities.

The Government's Approach and Initiatives:
- The government uses **social media platforms like Facebook, Twitter, and Instagram to promote environmental policies and initiatives.**
- The **government uses digital technologies to engage citizens in environmental protection** efforts, fostering an informed, sustainable society.

Use of Social Media	**The Namami Gange Project**
- The Ministry of Environment, Forest and Climate Change (MoEFCC) actively uses social media platforms like **Facebook, Twitter, and Instagram, to educate villagers about environmental issues** such as air and water pollution, as well as deforestation. - They also share inspiring stories of environmental successes and call on people to take action.	- It involves **utilising satellite imagery to track the extent of pollution** within the Ganga River. The data helps in identifying areas most severely affected by pollution and subsequently prioritising cleanup efforts. - **Geospatial technologies** are being used in mapping the river's intricate course.
The Watershed Organisation Trust	**The Centre for Environment Education**
- WOTR, established in 1993, is a nonprofit organisation and think tank that collaborates with various stakeholders to tackle the challenges faced by vulnerable rural communities in India. - **WOTR harnesses tools like geospatial technologies, ICTs, and social media** which aid in mapping water resources, communication, and fostering community engagement on environmental issues.	- The Centre for Environment Education is a **nonprofit organisation founded in 1984,** it is dedicated to promoting environmental education and sustainable development in India. - **CEE leverages social media such as Facebook and Twitter** to share information on environmental matters, promote educational initiatives, and foster community connections.

The Digital Green Initiative
- Digital Green is a global development organisation dedicated to improving the lives of smallholder farmers in countries like **India, Ethiopia, and Afghanistan.** - The organisation uses digital tools like video production, mobile phones, and data analytics to provide agricultural information, connect farmers with markets, and offer financial services.

Considering the fabric of the rural society, there exists certain challenges in the usage of digital technologies:

● **Lack of Awareness:** There is still a lack of awareness about environmental issues among many people in India making it difficult to engage people in environmental protection and awareness efforts.

● **The Digital Divide:** Lack of access to digital devices, limitations to connectivity, power supply, and a lack of digital literacy pose challenges to the success of digital initiatives.

● **Lack of Resources:** Limitations to the resources (human resources, and others) that can be deployed to implement all of the Government's environmental protection and awareness initiatives.

● **Lack of Coordination:** There can be a lack of coordination between different stakeholders involved in the processes, including the Central and State government agencies, non-profits, rural bodies, communities, and the private sector.

4. Strengthening Rural Economy with Clean and Green Initiatives

India's natural environment is a precious inheritance, and long-term clean and green initiatives are needed to protect it for future generations. The World Bank's 2019 'Beyond the Gap' report highlights the need for green development initiatives, as over a quarter of the planet's population relies on forests and nature for basic needs.

Need for Green and Clean Technologies

● Clean and green initiatives are needed to improve the overall human development index and ensure sustainable development.
  ○ Poor sanitation, hygiene, and clean drinking water are crucial for human development, but nearly half of the global population, up to 3.6 billion people, lacks safe sanitation **(WHO/UNICEF 2021)**.
  ○ WHO estimates that safe drinking water management could prevent 400,000 diarrheal deaths and 14 million **Disability Adjusted Life Years (DALYs)**, resulting in cost savings of up to $100 billion.
    ■ For instance, the WHO has highlighted the substantial benefits of the Har Ghar Jal programme in India. **There has been an increase in rural tap water connections from 16.64% in 2019 to 62.84% in 2023**, which resulted in averting 13.8 million DALYs.

Potential of Renewable Energy Generation - Vision and Mission

● The **National Institute of Solar Energy has assessed the country's solar potential at about 748 GW**.

● The **National Solar Mission** is one of the key missions in **India's National Action Plan on Climate Change**, which was launched in 2010.
  ○ The mission's objective is to establish India as a global leader in solar energy, and **India's cumulative installed renewable capacity reached 179.322 GW as of July 2023**. Among renewable sources, while solar energy maintained its dominance contributing 67.07 GW, wind energy contributed 42.8 GW.

● **India aims for 500 GW of installed renewable energy capacity and five million tonnes of green hydrogen by 2030.**

Government Policies and Initiatives

● The **Government of India is implementing the National Action Plan on Climate Change**, which includes eight missions focusing on various sectors such as solar power, energy efficiency, sustainable habitats, and more.

● India is poised to achieve its energy independence target through clean technology by 2047, with a major emphasis on the 'Make in India' initiative.

● The Government has also taken a policy decision by permitting foreign direct investment (FDI) up to **100 percent under the automatic route in the renewable energy sector**.

● **PM PRANAM (Prime Minister Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth)** programme aims to promote the use of bio-fertilisers and simultaneously reduce the use of chemical fertilisers.

Emerging Opportunities with Green Devel Initiatives

● **India's rural economy presents a significant market opportunity for mechanisation** through clean energy innovations in the farm sector, with potential uses of pesticide spraying, rice transplanting, and grain crop harvesting.

● The **government has incentivised 20 rural livelihood appliances** to run on decentralised renewable energy, aiming to reduce production costs and overall gains.

Challenges and way forward for the Shift to Green Technologies

● Technology change and adoption require significant financial resources; until 2030, at **least $4 trillion must be invested annually worldwide in renewable energy,** including infrastructure and technology purchases that will enable us to achieve net-zero emissions by 2050.

● For transition along a low-carbon path, **support from industrialised nations and international organisations like the World Bank is crucial**.

SCIENCE REPORTER OCTOBER 2023

1.   Street Lights Smart Solutions for Energy-Efficient Lighting in India

Street light designs frequently play a key role in the modernization of a city or town's infrastructure. They are crucial for both environmental beautification and public safety.

Types of Street lights
Street light design has significantly improved recently as a result of urban planning and technological breakthroughs. There are numerous forms of street lighting that are widely used in India. These consist of:
- **High-Pressure Sodium (HPS) Lamps:** These lamps emit a warm, yellowish light and are commonly used on arterial roads, highways and expressways.
- **Light Emitting Diode (LED) Lamps:** LED lamps are energy-efficient and have a longer lifespan than High Pressure Sodium lamps. They are used in residential areas, parks, and pedestrian walkways.
- **Metal Halide Lamps:** These lamps emit a bright white light and are used in commercial areas and stadiums.

Designing street lights Several design factors influence the design of street lights in India, including **power supply (230V AC, 50Hz), light intensity, and mounting height.**
- The use of LED lighting technology is among the most significant improvements in street light design in India. When compared to traditional lighting, LEDs are much more affordable and energy-efficient.

In 2015, India launched the Street Lighting National Program (SLNP) to replace conventional street lights with smart and energy efficient LED street lights across the country. According to the Bureau of Indian Standards, some of the significant difference between LEDs and conventional street lights are as follows:
- **Energy Efficiency: LED street lights offer significant energy efficiency, consuming less electricity and saving 50%-70% compared to traditional systems**, reducing carbon footprint and local government energy bills.
- **Longevity:** LED street lights offer a **longer lifespan, minimal maintenance**, reducing replacement frequency and overall cost of ownership.
- **Smart technology:** LED street lights, integrated with smart technology sensors, can **adjust their light output automatically by detecting the presence of vehicles**, pedestrians can detect and adjust. This helps to conserve energy by only illuminating the area when it's needed.
- **Environmental sustainability:** Conventional street lights, containing harmful chemicals like mercury, pose environmental threats. **LED street lights, on the other hand, are eco-friendly, non-toxic, and easily recyclable.**

National Lighting Code (NLC)
- The National Lighting Code (NLC) is a document that **sets out the minimum standards for lighting design, installation and maintenance in India**. The code was developed by the **Bureau of Indian Standards (BIS)**
- The code covers indoor and outdoor lighting systems, including street lighting, lighting in parks and public spaces, and lighting in commercial and residential buildings.
- One of the **key objectives of the code is to ensure that lighting is energy-efficient,** which helps to reduce energy consumption and greenhouse gas emissions.

A safe, livable, and sustainable environment is essential for creating public infrastructure. As professionals in India continue to innovate, we may anticipate more smart and green concepts for street lighting in the future.

2.   KEYSTONE SPECIES - Regulators of the Ecosystem

There are about 8.7 million different kinds of plants and animals. However, only about 1.2 million species have been found and named. In this millions of species a few species are given more weightage than others, because of the service they provide to the ecosystem. Keystone species are one such group of organisms that provide enormous service to the ecosystem.
- The concept of a keystone species was **first proposed by ecologist Robert T Paine** in the 1960s.
- A keystone species is a species that significantly impacts an ecosystem's structure and function. It plays a crucial role in maintaining biodiversity and stability.
- **Keystone species interact with other species**, influencing their populations and community dynamics.
- **The absence of a keystone species can lead to significant disruptions**, potentially allowing new species to colonise the habitat. **A keystone species can be any kind of organism, from plants to fungus.**
- **Keystone species provide valuable ecosystem services that benefit humans**. For example, pollinators like bees and butterflies are essential for plant reproduction and crop production.

Identifying a keystone species involves assessing its ecological impact. A keystone species can be recognised based on the following factors:

- **Species Interactions:** Keystone species often have strong interactions with other species in their ecosystem. Focus must be laid on species that have direct or indirect effects on the population dynamics, diversity, or community structure of other organisms.
- **Ecosystem Function:** Keystone species play critical roles in maintaining the structure and functioning of their ecosystems. Assessing the ecological functions a particular species performs and evaluate their significance in sustaining the ecosystem.
- **Disproportionate Impact:** Keystone species have a disproportionately large effect on the ecosystem relative to their abundance or biomass. Identifying species that have an outsized impact on ecosystem dynamics, resilience, or stability.
- **Trophic Influence:** Keystone species often occupy important positions in the food web and exert top-down or bottom-up control over other species. Focus must be on species that have trophic connections and influence multiple trophic levels in the ecosystem.

Consequences of loss of Keystone species:

- **Loss of Biodiversity: Keystone species maintain ecosystem diversity** through strong interactions, but their removal can disrupt balance, leading to species decline or extinction, affecting overall ecosystem functioning.
- **Altered Trophic Cascades: Keystone species play an important role in ecosystem trophic levels.** Their loss will lead to imbalances in predator-prey relationships and nutrient cycling, triggering a trophic cascade, causing population explosions or decline, impacting stability.
- **Habitat Degradation: Keystone species, such as beavers and coral reef-building, significantly shape and modify habitats through their activities**, such as creating wetland habitats and providing structural complexity for other organisms.
- **Decreased Resilience:** Keystone species enhance ecosystem resilience and stability, buffering against environmental disturbances. **Loss of these species can weaken ecosystem resilience, making it more vulnerable to invasive species**, climate change, and habitat destruction.

Protecting and preserving these keystone species can have significant positive effects on the overall health and stability of their respective ecosystems. By conserving keystone species, the continuation of these ecological services, which are essential for food security, clean air and water, and general human welfare, can be ensured.

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3.   Migratory Birds on Indian Postage Stamps

India is the home to a remarkably diverse range of birds. In addition to endemic birds, it is the wintering ground for massive flocks of migratory **birds that travel thousands of kilometres over the mountains of Central Europe, Northern Asia, and Africa each year**.

Migratory Birds in India

- In India, **a huge influx of migratory birds occurs every year starting from the month of October to the end of March.** The birds which dominate the migration map of the sub-continent include White stork, Pintail duck, Garganey, Eurasian wigeon, Gadwall, Common coot, Red-crested pochard, Common pochard, Marsh sandpiper, Common redstart, Booted eagle, Steppe eagle, Marsh harrier, Forest wagtail and Rosy Pastor.
- Migratory birds start entering India from three flyways or flight paths — **the Central Asian flyway**, **East Asian flyway and East Asian-Australasian flyway**. **Birds take flight to India due to harsh cold and non-availability of food and shelter in their parent countries.** The winter visitors originate mostly in northern and central Asia and migrate directly across the Himalayas to winter in the sub-continent.

Significance of Migratory Birds in India

- **The presence of migratory birds is a positive indicator of a healthy ecosystem.**
- Some of their **key contributions include controlling pests** by devouring insects and other organisms that harm crops, **help in dispersal of seeds** in the course of feeding and as **critical contributors in pollination**.

Steps taken by the Postal Department of India to Increase Awareness Related to Migratory Birds

- In the year 1992, postage stamps on migratory and resident birds of prey were issued depicting **Osprey (Pandion haliateus), Peregrine falcon (Falco peregrinus), Bearded vulture (Gypaetus barbatus) and Golden eagle (Aquila chrysaetas).**
- The Postal Department of India has also issued Special Covers (SC) and First Day Covers (FDC) on migratory birds, bird sanctuaries, wildlife reserves and wetlands of importance from time to time to sensitise people towards the importance and conservation of these priceless beauties of nature.
- On the occasion of the **66th Wildlife Week (from 2-8 October 2020), a special cover was issued on Magadikere Conservation Reserve,** Gadag City, Karnataka depicting a flock of Bar-headed goose (Anser indicus).
- The Postal Department of India has also issued special covers on important wetlands of India like **Okhla Bird Sanctuary, Delhi; Bhindawas Bird Sanctuary, Haryana; Haiderpur Wetland, Saharanpur, Uttar Pradesh and Gharana Wetland, Jammu** depicting various species of migratory birds and other wildlife.

Birds are vital to our wetlands and surroundings. However, they are sensitive to climate change. Mass killing, poaching, and hunting have led to species extinction and critical endangeredness. It is our moral duty to save them before they become extinct.

DOWN TO EARTH OCTOBER 2023

1. THE GREAT CARBON CAPTURE

- The **buying and selling of carbon credits** is said to be a prominent method to combat climate change.
- As per this concept, **credits** are assigned to projects that reduce greenhouse gases (GHGs). These credits are measured in **tonnes of carbon dioxide-equivalent (CO_2e)**. Prices are assigned to the credits and then they are traded.
- Businesses and individuals which seek to 'neutralise' their carbon footprint can buy these credits. Thus, they can offset the emissions which their activities have generated.
- **At present**, there is **no 'official' carbon market** to trade in these credits, as the global community is still discussing the rules governing such a trade.
- On the other hand, a **voluntary carbon market** has rapidly grown. The emissions-reducing projects are registered, verified and validated, and carbon credits traded in this marketplace. It is done with the hope that the money generated can help to mitigate carbon emissions.

Men in Black
- The carbon credit idea began in the early 2000s after coming into force of the **Kyoto Protocol** under the United Nations Framework on Climate Change (UNFCCC).
  - Under this, the Clean Development Mechanism (CDM) was set up by the countries for the purchase of carbon credits from developing countries.
  - After the expiry of the Kyoto Protocol, the CDM has been replaced by the **voluntary carbon market,** an unregulated global market of buyers and sellers.
  - Negotiations are still underway for an official global carbon market.
- In order to **finance their transition to a low-carbon energy system**, countries like India need investment in the form of buying and selling of carbon credits.
- **Communities which are impoverished, and often victims of climate change** can also benefit from this buying and selling of credits.

Due Credit
- On June 28, 2023, the Government of India issued a notification which provided the detailed framework for the **Indian carbon market** under the **Carbon Credit Trading Scheme, 2023**, but does not include the voluntary markets.
- Till June 2023, India had 860 registered and a total of 1451 projects under various stages of consideration at the top two leading carbon crediting programmes of the world.
- In terms of **volume of carbon credits** also **India is a major world player.**
- One of the **drawbacks of the voluntary carbon market is its opaque nature**. For instance, there is no clarity on the prices of carbon credits sold in the market.
- According to some estimates, if the global average price of carbon credit is taken to be US$ 4 per credit, India's carbon market can be evaluated at US$ 1.2 billion. The sellers must have also realised around US$ 652 million from India's retired carbon credits. Thus, **India** can be said to have a **lucrative carbon market.**

2. IT'S A COSY CLUB

- There is absence of a government database on the number of projects signed by different entities regarding carbon credits including in India.
- **Global carbon registries** are the sources of information regarding carbon credits.
  - The **standards and guidelines** for project development, verification and trading are made by these registries.
  - **Platform** for public as well as private entities is also provided by these registries **to register their projects** for these to be verified.
  - The registries **issue carbon credits** for verified projects on meeting their criterias and demonstrating greenhouse gas (GHG) reduction or removal.
- **Project developers** design the project, have responsibility for their implementation and monitoring, and ensure that the credits meet the standards for reduction or removal of GHG emissions.
  - The carbon credits earned by developers can be traded and used by companies to offset emissions done by them and for meeting their climate targets.
- **Validation and verification bodies** are hired by project developers to get their projects and claims about carbon offset 'independently' verified. On verification, the projects can be listed in the registries.
  - The methodologies used by these auditors vary as per different types of avoidance or removal projects.
  - Bengaluru-based EPIC Sustainability Services and Delhi-based Carbon Check (India) Pvt. Ltd. are two such validation and verification bodies in India.
- **Buyers** are those who need these carbon offset projects to set aside their GHG emissions.
  - They can buy carbon credits either from carbon exchanges (for example, London-based Carbon Trade eXchange) or can directly negotiate with project developers.
- There is a **lack of owners** (for example, the owner of a solar project, or a community on whose land plantation has happened) for these projects.
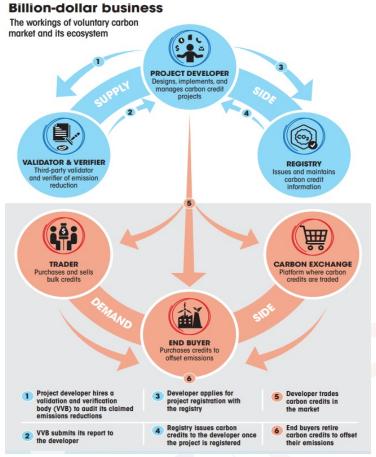
Figure: Workings of global carbon market
Source: Down to Earth

- There are two types of projects for which carbon credits are issued:
  - Those **avoiding GHG** by allowing **switching to clean sources**
  - Those **removing, or sequestering already emitted GHG** from atmosphere
- As per collected data, out of 1.4 billion credits (for 1.4 billion tonnes of CO_2e) renewable energy has received a major share of the credit.

Global stocktake

At least 6,481 projects are registered or listed with the world's two leading carbon registries, Verra and Global Standard. Till May 2023, these registries have issued 1.4 billion carbon credits

Project Type	Projects (registered and listed)			Credits (issued only for registered projects)		
	World	India	India's % share of world	World	India	India's % share of world
Agriculture	606	61	10.07%	15,401,128	570,092	3.70%
Chemical Processes	19	1	5.26%	11,428,040	408,975	3.58%
Forestry and Land Use	703	71	10.10%	525,406,487	2,229,948	0.42%
Household and Community	2,198	352	16.01%	124,132,149	11,769,724	9.48%
Industrial and Commercial	238	50	21.01%	96,737,867	14,028,974	14.50%
Renewable Energy	2,278	891	39.11%	583,862,426	268,241,741	45.94%
Transportation	45	11	24.44%	462,757	186,613	40.33%
Waste Management	388	14	3.61%	58,185,213	572,135	0.98%
Carbon Capture and Storage	6	0	0.00%	14,581	0	0.00%
Grand Total	**6,481**	**1,451**	**22.39%**	**1,415,630,648**	**298,008,202**	**21.05%**

Figure: Carbon credits with project types
Source: Down to Earth

- Majority of projects in nature-based solutions (afforestation) and in household devices (cookstoves) have been issued in countries of the global South. These act as cheap emission offsets for buyers as cost of carbon credits is much lower in these projects.
- The **price of carbon credit** is an arrangement between the buyer and seller. It also depends on the forces of supply and demand.
    - The cost of carbon credit does not actually reflect the actual cost of the project, which as per experts is the **fundamental flaw** with the system. This is because the carbon credits, being of cost which is just a small fraction of the actual project cost, end up benefiting only the developers and consultants and not the actual owners.
    - The prices can also vary depending upon the technology used in the project.

3. UNEARTHING REALITY

- Across India, as per recent data, around 1451 projects related to carbon credits are being implemented. These credits are in demand with the industries, especially in the West, for cleaning up their carbon footprint.
- As per some recent investigations by the Down to Earth (DtE) team, it was found that communities, their land and labour, were central to the projects.
- Despite this centrality, there is **severe lack of awareness** among members of the community regarding their contributions related to creation of carbon credits.
    - To make matters worse, they had **no idea that their rights on carbon credits have already been relinquished**.
    - Concerns have also been raised about the **accounting practices of these transactions** and the companies behind them.
- In India, roughly 90% of credits issued are for renewable energy projects.
- As per DtE investigation, a large number of projects is being implemented under the **household and community category**, largely through **improved cookstoves distribution** and setting up **biogas plants in households**.

INDIA'S VIBRANT CARBON MARKET

India has 860 projects eligible for carbon credits. Till May 2023, the projects have bagged 298 million credits; 55 per cent of these credits have been retired (used or claimed) by firms to offset their emissions

Projects by scope & type	Registered projects	Credits issued	% of credits issued	Credits retired	% of retired credits
Agriculture	10	570,092	0.19	511,373	0.31
Chemical processes	1	408,975	0.14	0	0
Forestry & land use	8	2,229,948	0.75	537,469	0.33
Household & community	121	11,769,724	3.95	4,525,043	2.76
Industrial & commercial	37	14,028,974	4.71	9,657,484	5.89
Renewable energy	675	268,241,741	90.01	148,460,360	90.57
Transportation	3	186,613	0.06	90,004	0.05
Waste management	5	572,135	0.19	138,807	0.08

Figure: India's carbon projects
Source: Down to Earth

Improved Cookstoves
- In some instances, the end users (households) **consent to the transfer of rights to carbon credits**, usually unknowingly at the time of installation. For instance, the residents of a village claimed about signing a form on receiving a cookstove but were unaware that it was related to transferring of their rights.
- The project developer gets carbon credits issued based on removal of CO_2e which is estimated from the number of cookstoves. But, the fact that the cookstoves may not be used frequently by the households who acquire it makes this system flawed.
- Some flaws observed by DtE during field visits:
    - **Baseline used to estimate GHG reduction:** It was assumed that the households are primarily dependent on non-renewable biomass, ignoring the fact that many possess LPG and use it, if not frequently.
    - **Behaviour change** of people assumed just by providing improved cookstoves.
- Some cookstoves required users (mostly women) to **chop wood to specification** before putting them. This is arduous and sometimes leads to usage of plastic waste.
- Under India's Pradhan Mantri Ujjwala Yojana many received LPG connections. As per some experts, the cost of refilling is the reason for less usage though. Hence, **actual emission reductions would depend on the usage of cookstoves and not its mere distribution**.
- There are issues regarding the **ownership of carbon credits** as well as **robust monitoring** of these projects.

Planting trees for carbon
- In some cases, it was noticed that **communities on whose land plantation has happened** have been guaranteed the right to fruits and other horticultural produce from the plantations. But, they **do not have the rights to carbon credits** generated by the project.
  - On inquiry, the communities (tribals as per report) were **unaware about carbon credits concept, their rights related to them, and their relinquishing of the same**.
- Another important factor was the **ownership of the trees in the tribal lands that had been transferred to private entities**. This leads to their deprivation from their carbon credit rights and profits generated from their sale.
- **Non-transparency** regarding the amount of credits issued to investors and many other associated matters.

Managing methane
- Under this, many farmers in India have been introduced to the **'alternate wetting and drying'** method to reduce methane emissions.
- A review paper by International Rice Research Institute (the Philippines) shows that **'alternate wetting and drying'** method helps in **43% reduction in methane emissions** and **20% water usage reduction**.
- As per Intergovernmental Panel on Climate Change (IPCC) guidelines, **draining of continuously flooded rice fields** at least once during the growing season, reduces global methane emissions by 4.1 million tonnes per year (approximately 2.5% of global methane emissions from agriculture in 2021).
- The **CDM methodology (called AMS-III-AU)** is currently used to reduce methane emissions from paddy fields.
- The farmers introduced with the **'alternate wetting and drying'** method, as per companies, have agreed to **transfer the carbon credit rights to companies**. But, as per DtE survey, **many farmers are unaware** of any such transfer. But, the farmers said that they have been **promised some incentives**. The farmers said that the **incentives may be insufficient** as the **method requires higher herbicide usage raising cost**.
- Careful management is needed so that the **change in cultivation system of a subsistence crop** benefits both farmers and the environment.

Biogas Bonanza
- Many people in certain parts of India have **built biogas plants in their backyard** for personal use **using government subsidies** (for example, Madhya Pradesh government's Biogas Vikas Yojana).
  - Concerns have been raised regarding the **role of carbon credits** in such projects even though the benefits by selling them have been claimed by private companies.
- **Unawareness among the beneficiaries** about them relinquishing their carbon credit rights.
- There is **lack of clarity about the usage of revenue**, if the project has received carbon credit.
- **Lack of proper monitoring** is a concern because such plants require to be fed with large amounts of biomass regularly and often maintenance to keep them working. **If the plants are counted for carbon credits then monitoring of usage needs to be done**.
- **Price per credit is low compared to capital cost of building the plant** as well as its management and maintenance later.
  - As per experts, it is **a major flaw** as it underestimates the real cost of reducing emissions.

Curious case of renewables
- The largest share of carbon credits are awarded for renewable energy projects. But, the projects in this sector have declined recently.
  - The reason for the decline is the **recent cost-competitiveness of these projects with fossil-fired power plants**, meaning that they **can compete on their own** and hence have become common practice.
- According to a recent scientific report, of the 472 wind farm projects in India registered under Clean Development Mechanism (CDM), 52% of the "approved offsets" were allocated to projects that would very likely have been built anyway.
  - Selling these **non-additional offsets** to emitters has allowed them to increase carbon emissions without any real benefit in terms of emission reductions in the real world.
  - But, the real issue it neglects is **the high cost of finance of these projects** which **causes lack of investment in them** in countries of the global South. A **carbon credit mechanism can help finance them** and help such countries transition to clean energy.
- Renewable energy projects have some of the **cheapest carbon credits** which highlight the fact that they are **not priced based on the project cost**.
- **Double counting vs short-changing government's clean energy efforts** by attribution of carbon credits to foreign entities

4. Reversal of Gains

Several Indian states have a skewed sex ratio at birth, which is often attributed to poor conviction rates under the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act of 1994 and limited utilisation of funds under the Beti Bachao Beti Padhao Scheme.

States/UTs	Sex ratio at birth for children born in the past five years (females per 1,000 males)	Court cases filed under PNDT Act*	Convictions made under PNDT Act*	% BBBP# funds utilised
Tripura	1,028	1	0	-
Meghalaya	989	0	0	-
Uttarakhand	984	49	4	-
Arunachal Pradesh	979	0	0	25
Karnataka	978	90	38	-

Figure: Top five states in sex ratio at birth
Source: Down to Earth

Rajasthan	891	766	155	104
Tamil Nadu	878	150	128	41
Himachal Pradesh	875	4	1	49
Chandigarh	838	4	0	231
Goa	838	1	0	-

Figure: Bottom five states in sex ratio at birth
Source: Down to Earth

Case study - Haryana
● Haryana initially demonstrated improvements in its sex ratio during the early years of implementing the Beti Bachao Beti Padhao scheme. However, these gains are now rapidly diminishing.
● Historically, Haryana had a very low sex ratio at birth, with 867 females per 1000 males in 1901.
● According to the 2011 census, Haryana's sex ratio at birth stood at 879 females per 1000 males and improved to 900 in 2016. The positive trend continued until 2019 when the state's sex ratio at birth reached a peak of 923.
● However, since 2019, the ratio has been on the decline, reaching 917 in 2022. In the first seven months of 2023, Haryana's sex ratio at birth dropped to 906 female births per 1,000 male births.
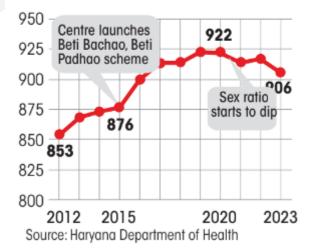

Figure: Haryana's Sex ratio at birth
Source: Down to Earth

Reasons for the declining Sex ratio in Haryana:
- **Son meta preference:** The societal preference for male children over female children is significant in Haryana.
- **Accessibility to sex determination facilities and techniques:** Portable ultrasound machines are used in mobile vans enabling sex-selective abortions to take place in more remote areas. Medications and vaccines are now available that can induce miscarriages.
- **Changes in PCPNDT Act:** The extension of abortions to 24 weeks of pregnancy from the earlier 12 weeks has led to an increase in the rate of abortions.
- **Limited utilisation of funds and sensitisation under the Beti Bachao Beti Padhao scheme.**

Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994
- The Pre-Conception and Pre-Natal Diagnostic Techniques Act of 1994 was introduced with the **primary objectives of combating female feticide and addressing the declining sex ratio.** Violations of this act are considered cognisable and non-bailable offences.
- The Act governs the utilisation of pre-natal diagnostic techniques, such as ultrasound and amniocentesis, by permitting their use exclusively for the detection of specific medical conditions like Genetic abnormalities, metabolic disorders, sex-linked disorders etc.
- The act **strictly prohibits laboratories or clinics from conducting any tests, including ultrasonography, with the intent of determining the sex of the foetus.**

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5. Abstract fund

The Seventh Assembly of the Global Environment Facility (GEF) has ratified the Global Biodiversity Framework (GBF) Fund with an initial seed funding of USD 200 million.

Global Biodiversity Framework Fund (GBFF)
- The fund will be **managed by the Global Environment Facility (GEF)** and the **World Bank will function as the trustee.**
- **GBFF Council:** The council comprises 32 members with developing nations having more participation (14 from developed countries, 16 from developing countries, and two from economies in transition).
- **Objective**: To assist countries in achieving the 23 targets outlined within the Kunming-Montreal Global Biodiversity Framework (KMGBF).
- Funds will be raised through **private, philanthropic and government investments** and also funds earmarked for biodiversity conservation under GEF.

Why is new funding necessary?
- According to the "State of Finance for Nature" report released by the UN Environment Programme (UNEP), the world is projected to face a **financing gap of $4.1 trillion for biodiversity conservation by 2050.**
- In 2019, spending on biodiversity conservation was estimated to be between $124 billion and $143 billion per year, whereas the estimated total requirement stood at $722 billion to $967 billion per year.
- Over **50 per cent of the world's Gross Domestic Product (GDP) relies on nature and its services**, highlighting the need to invest in biodiversity to protect the economy.

Solutions for bridging the financial gap in biodiversity protection
1. **Bio Credits:** A measurable and traceable unit of biodiversity that can be traded and sold for investment in biodiversity conservation and poverty reduction.
2. **Green Bonds:** debt securities designated to finance environmentally friendly projects.
3. **Payment for ecosystem services:** Individuals or entities compensate for the benefits they receive from ecosystems, like clean water, by paying those who maintain these services.
4. **Mainstreaming biodiversity in public schemes:** Integrating biodiversity conservation into public programs and policies.
5. **Augmenting public finance:** Increasing public funding to support investments in biodiversity preservation.
6. **Access and Benefit sharing** from biodiversity conservation
7. **Removing subsidies for activities harming nature:** Governments world over provide $700 billion in subsidies for farming, which is responsible for 14% of global deforestation.

Kunming-Montreal Global Biodiversity Framework (KMGBF)
- The KMGBF, adopted at the 15th Conference of Parties (COP15) to the UN Convention on Biological Diversity (CBD), outlines 4 goals and 23 targets to be achieved by 2030.

30 X 30 targets:

> Other effective area-based conservation measures (OECMs) are areas other than protected areas that help in-situ conservation of biodiversity. These also include private lands.

● According to KMGBF Target 3, countries are required to safeguard a minimum of 30 per cent of their terrestrial, inland water, marine, and coastal areas by 2030.
  ○ The protected areas include biodiversity-rich areas under indigenous people and local communities and Other effective area-based conservation measures (OECMs).
● According to the UN Protected Planet database, 16.05 per cent of global land and inland waters and 8.17 per cent of the world's oceans are currently protected.
● **Issues with 30 X 30 target:**
  ○ **Small target:** Currently, in 87 countries, indigenous people and local communities manage more than 32 per cent of global land, rendering the 30 X 30 target easily attainable.
  ○ **Rights of indigenous population:** Seven of the 23 KMGBF targets emphasise the importance of respecting the rights of indigenous peoples and local communities during conservation efforts, but ensuring compliance can be challenging.
  ○ **Financial constraints:** USD 103-178 billion in annual investments are needed to increase the coverage of protected areas to 30 per cent by 2030.
  ○ **Lack of data** in assessing the effectiveness of protected areas and OECMs

● **India's 30 X 30 target:** According to the Union Ministry of Environment, 27 per cent of the area is at present under conservation, including reserve forests, national parks, wildlife sanctuaries, mangroves, Ramsar sites, and eco-sensitive zones.

6.   Security in Recycling

India's Electric Push
● **India is a participant in the global EV 30@30 campaign,** which aims to achieve a minimum of 30% electric vehicle sales by 2030.
● **India is a signatory to the Zero Emissions Vehicle Declaration**, which mandates that only zero-emission cars and vans be sold by 2040.
● **India joined the Minerals Security Partnership** to catalyse investments from foreign governments and the private sector in the critical mineral supply and value chain.
● India's G20 Sherpa, Amitabh Kant, has proposed a 100% electrification of two- and three-wheelers and a 65-70% electrification of buses by 2030.
● India's ambitious electrification programs, coupled with the expansion of domestic battery manufacturing, necessitate a reliable supply of minerals essential for making batteries. However, India currently lacks sufficient mineral reserves to meet this demand.
● **Recycling retired batteries can help bridge this gap** and play a pivotal role in helping the sector mitigate geopolitical risks, enhance material security, reduce environmental hazards from e-waste, and stay on course to achieve net-zero emissions.
● According to NITI Aayog's report titled "Advanced Chemistry Cell Battery Reuse and Recycling Market in India," approximately **128 GWh of lithium-ion batteries will be available for recycling by 2030,** with 46 per cent originating from electric vehicles alone.
● The International Council on Clean Transportation, a US-based non-profit organisation, estimates that 1.2 million electric vehicle batteries will reach their end of life in 2030, rising to 50 million by 2050. Reusing and recycling can cut mining demand by 3% in 2030 and 28% in 2050.
● Recycling these retired batteries has enormous potential to power India's clean energy transition.

How does vehicle battery recycling happen?
● The vehicle's battery is retired once its performance degrades to 70-80 per cent of its original capacity. It is then passed through the following process:
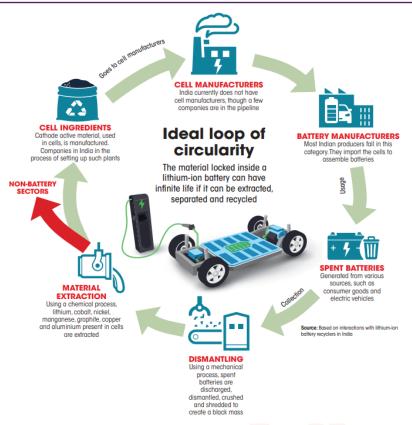
Figure: Recycling of Lithium-ion battery
Source: Down to Earth

Issues with battery recycling

- **Limited Capacity:** There is a lack of high-end refining capacity for the separation and recovery of battery-grade materials, hindering efficient recycling.
- **Capital Intensive:** Battery recycling is a capital-intensive process, requiring significant investment (typically between ₹100-300 crore) to establish end-to-end processing facilities.
- **Lack of Domestic Cell Manufacturing:** India currently lacks domestic cell manufacturing capacity, resulting in the need to import cells for battery production.
- **Limited Industry Footprint:** The recycling industry in India has a limited footprint, which restricts its ability to process battery scrap or black mass at full capacity.
- **Export Restrictions:** Many countries impose bans on the export of black mass, limiting India's access to this material for building its own battery recycling industry.

Battery waste management rules 2022

- **Extended Producer Responsibility (EPR):** Producers, including battery manufacturers, importers, and automakers using batteries, are obligated to manage the extended producer responsibility for the batteries they introduce into the market. This responsibility includes collecting waste batteries and ensuring their proper recycling, rather than being landfilled or incinerated.
- **Recovery Targets:** The rules set specific recovery targets, with a goal of achieving 90% recovery of battery materials.
    - Recovery targets include 70% by 2024-25, 80% by 2026, and 90% from 2026-27 onwards.
    - Additionally, the rules require producers to include 5% recycled material in the total dry weight of a cell by 2027-28, increasing to 20% by 2030-31.
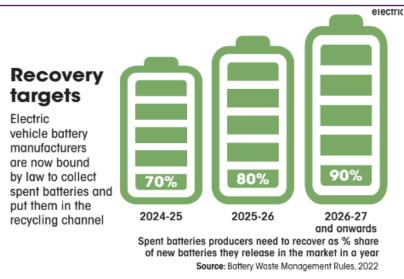
Figure: Recovery targets for battery recycling
Source: Down to Earth

- **EPR Registration System:** The EPR registration system is managed online through a portal by the Central Pollution Control Board (CPCB). It enables the trading of surplus EPR certificates among producers.
- **Environmental Compensation:** The rules empower the CPCB to establish guidelines for imposing and collecting "environmental compensation" from non-compliant producers and recyclers.

Issues with Battery Waste Management Rules 2022
- **Lack of information on labels:** The rules do not require labels on batteries to provide information about the metals in lithium-ion batteries, which would assist recyclers in identifying recoverable materials.
- **Non-standardized recycling-friendly design:** The rules lack standardised specifications for designing cells and batteries with recycling in mind, which would make automated disassembly more efficient.
- **No budget allocation requirement:** The rules do not specify the budget battery manufacturers should allocate for the collection and recycling of spent batteries, leaving this aspect unclear.
- **Changing battery composition:** The rules do not address the challenges presented by the changing chemical composition of lithium-ion batteries, especially with less energy-dense lithium iron phosphate (LFP) batteries, which could complicate recycling.
- **Safety concerns for electric vehicle batteries:** The absence of regulations for the storage, transport, and handling of electric vehicle batteries may raise safety concerns.
- **State-Level Policies:** The relationship and compatibility between state-level electric vehicle policies and the 2022 Battery Waste Management Rules are unclear and need further clarification.

Global initiatives for battery recycling and sustainability:
- **US Inflation Reduction Act (2022):** This act enables recycled battery materials, including lithium, cobalt, and nickel, to qualify for significant tax credits under the domestic materials clause.
- **EU's "Fit for 55" Package:** The European Union's "Fit for 55" package mandates the publication of battery carbon footprints and collection and recycling targets. It also establishes minimum recycled content requirements for newly manufactured batteries.
- **EU's Battery Passport:** The European Union mandates the deployment of battery passports by 2027. A battery passport is an electronic record of each battery in the market.
- **China's Battery Recycling Incentives:** China is actively incentivising battery recycling to leverage recycled raw materials available within the country, promoting sustainability and resource conservation.

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