IAS BABA

One Stop Destination For UPSC/IAS Preparation

Baba's Monthly
CURRENT AFFAIRS MAGAZINE

IRAN – ISRAEL CONFLICT

VVPAT

ONGOING ISRAEL – PALESTINE CONFLICT

INDIA'S EMPLOYMENT REPORT 2024

WHITE RABBIT TECHNOLOGY

VAIKOM SATYAGRAHA

TOPPER'S RECOMMENDED

BEST CHOICE

Contents

IAS BABA

PRELIMS

POLITY & GOVERNANCE

LADAKH'S RESIDENTS ON A HUNGER STRIKE

Context: On March 6, in Leh, Sonam Wangchuk, Ladakh's famous educationist and environmentalist, began a 21-day hunger strike. The strike was in support of thousands of Ladakh residents who have been demanding safeguards under the Sixth Schedule of the Indian Constitution.

Background:

- In August 2019, the State of Jammu and Kashmir was split into two UTs: Jammu and Kashmir and Ladakh. It ended people's exclusive rights on land and jobs. Under the Jammu and Kashmir Reorganisation Act, 2019, Ladakh became a UT without a legislature.

Why a hunger strike

- Residents of Ladakh says that the UT is administered by a Lieutenant Governor, who is a not a Ladakh resident. Several bureaucrats in key positions, influencing decisions for the region's future, were also not residents of Ladakh.

- The existing Ladakh Autonomous Hill Development Councils (LAHDCs) in Leh and Kargil were rendered powerless after the national government declared Ladakh a UT. LAHDCs have the powers to make decisions on land use and its management, the draft policy, which has been designed to attract investments in Ladakh, completely excludes them from having any powers related to land allotment- and lease-related decision-making.

- **The draft Ladakh Industrial Land Allotment Policy 2023** is a case in point.

- Considering more than 97% of Ladakh's population of over 2.74 lakh (2011 Census) is tribal, Ladakh was brought under the **Sixth Schedule in 2019**.

- Protestors contend that Sixth Schedule could help tackle these issues because it enables the establishment of regional and district councils with the authority to make laws regarding land use for grazing, agriculture, residential purposes, and cater to the residents' interests.

Source: The Hindu

REAL ESTATE (REGULATION AND DEVELOPMENT) ACT, 2016

Context: The Real Estate (Regulation and Development) Act, 2016 (RERA), which was passed by Parliament is currently under review by the **Union Ministry of Housing and Urban Affairs**.

Background:

- As part of this review, senior officials have initiated regular meetings with homebuyers to gather feedback on the Act's effectiveness. These meetings aim to assess key dimensions such as transparency, accountability, information dissemination, and grievance redressal.

About The Real Estate (Regulation and Development) Act, 2016:

- It aims to protect homebuyers and enhance transparency and efficiency in real estate transactions.

- It establishes a RERA in each state, serving as an adjudicating body for quick dispute resolution.

Applicability: RERA applies to under-construction projects with either of the following criteria:

- **Plot size exceeding 500 square meters.**

- **Projects with 8 apartments or more.**

Salient Provisions:

- **Mandatory Registration:** All real estate projects falling under the specified criteria must be registered with RERA.

- **Fast-Track Dispute Resolution:** RERA sets up an **appellate tribunal** and **dedicated adjudicating officers for settling disputes efficiently.**

- **Consent for Transfer:** If a promoter wishes to **transfer rights and liabilities to a third party,** written consent from two-thirds of allottees and RERA approval are required.

- **Complaint Mechanism**: Individuals can file complaints with RERA regarding violations by promoters, buyers, or agents.

Penalties for Non-Compliance:

- Promoters failing to follow orders may **face penalties up to 5% of the evaluated property cost.**

- Non-compliance with Appellate Tribunal orders can result in imprisonment or fines.

Jurisdiction:

- Civil courts have no jurisdiction over matters covered by RERA or the Appellate Tribunal.

Source: Indian Express

KERALA – CENTRE DISPUTE OVER STATE'S BORROWING POWERS

Context: The Supreme Court on Monday declined any interim relief to Kerala in its suit seeking that the Union government relax its borrowing restrictions to enable the State to borrow additional funds.

Background:-

- Kerala moved the top Court last year accusing the Union government of arbitrarily imposing a **Net Borrowing Ceiling (NBC) on the State**, which brought it to the brink of a financial crisis as it could **no longer pay salaries and pensions or fulfil other essential financial commitments.**

Fiscal autonomy under the Constitution

- **Article 293 of the Constitution** permits States to borrow only from within the territory of India on a guarantee from the consolidated fund of the State and within such limits as outlined by the legislatures of each State.

- The subject **"Public Debt of the State" finds mention in Entry 43 of the State List of the Constitution** and thus the Parliament cannot legislate or administer upon such matters.

- If a State wishes to borrow from the Centre, then such a transaction will be regulated by the **FRBM Act, 2023.**

- Pertinently, under Article 293(3), the State has to obtain the consent of the Centre to raise **"any loan," if "any part of the previous loan"** extended by the Centre is outstanding. The NBC has been imposed by **invoking the powers of the Centre under this provision**.

About Net Borrowing Ceiling (NBC)

- The **NBC imposes a limitation on borrowings of a State** from all sources including open market borrowings.

- The Union government decided to deduct liabilities arising from the public account of the States to arrive at such a cap. Additionally, borrowings by State-owned enterprises, where **the principal**

and/or interest are serviced out of the Budget or through assignment of taxes, cess or any other State revenue, are also deducted from the NBC.

- The NBC for States is fixed at 3% of the Gross State Domestic Product (GSDP) or ₹8,59,988 crore in absolute terms for the Financial Year (FY) 2023-24 as recommended by the 15th Finance Commission.

Source: The Hindu

VOTER VERIFIED PAPER AUDIT TRAIL (VVPAT)

Context: Supreme Court issued notice to the Election Commission of India on a petition calling for counting of all Voter Verified Paper Audit Trail (VVPAT) paper slips in elections.

Background:

- The petition argues that the current practice of sequential VVPAT verification, where only five randomly selected EVMs (Electronic Voting Machines) are verified, causes undue delay. Instead, the plea suggests simultaneous verification and deploying more officers for quicker counting.

About VOTER VERIFIED PAPER AUDIT TRAIL (VVPAT):

- It's an **independent verification system** attached to the EVMs that allows voters to verify that their votes are cast as intended and was first introduced in India in the 2014 Lok Sabha elections.
- **Components of VVPAT:** VVPAT Printer and VVPAT Status Display Unit (VSDU)

Working of VVPAT

- When a vote is cast, a slip is printed containing the serial number, name, and symbol of the candidate and remains exposed through a transparent window for 7 seconds.
- Thereafter, this printed slip automatically gets cut and falls into the **sealed drop box of the VVPAT.**

Verification Using VVPAT

- Voter verification, however, is only done in extreme circumstances, such as when there are accusations of fraud or miscalculation.
- The Election Commission of India (ECI) has the authority to request that votes be verified using VVPAT slips in response to such complaints.

Significance of VVPAT

- It provides a means to **audit the stored electronic results.**
- It serves as an **additional barrier to change or destroy votes.**
- The EVMs with VVPAT system ensure the accuracy of the **voting system with fullest transparency and restores the confidence of the voters.**

Source:Live Law

CANDIDATE ELECTED UNOPPOSED

Context: On April 22, the ruling Bharatiya Janata Party opened its tally in the Lok Sabha when its nominee for the Surat constituency in the western State of Gujarat, Mukesh Dalal, was elected unopposed.
Background:-

- This happened because of the rejection of the nomination papers of the Congress candidates (main and substitute nominees) the previous day and the withdrawal of other nominees.

How is a candidate declared elected before polling?

- **Section 53 (3) of the Representation of the People Act, 1951** deals with the procedure in uncontested elections.

- According to this provison, if the number of such candidates is less than the number of seats to be filled, the returning officer (RO) shall forthwith declare all such candidates to be elected.

- The RO's actions are governed by Section 33 of the Act which pertains to the presentation of nomination papers and requirements for a valid nomination.The sub-section 4 says: "On the presentation of a nomination paper, the returning officer shall satisfy himself that the names and electoral roll numbers of the candidate and his proposer as entered in the nomination paper are the same as those entered in the electoral rolls".

- In the given instance, three proposers of the Congress' candidate for Surat, Nilesh Kumbhani, claimed in an affidavit to the district election officer (DEO) that they had not signed his nomination form. They did not also turn up before the DEO on April 21 to support the candidate's nomination form.

What is the scope for negative voting in the election system?

- There is ample scope in the system. While the NOTA (none of the above) option has been in force since 2013, the Conduct of Election Rules, 1961, allows electors to decide not to vote through Rule 49-O. A remark to the effect that the elector has decided not to record his or her vote would have to be made in the "remarks column" against the entry relating to the elector in the Register of Voters by the presiding officer, after which the signature or thumb impression of the elector would have to be obtained against such a remark.

- The option of NOTA, introduced through the **Supreme Court's intervention**, has been available on EVM's since November 2013. This became a reality in the wake of a verdict given by Supreme Court in September 2013, while allowing a **petition filed by the People's Union for Civil Liberties.**

- The then CJI, who wrote the judgment, said: "Giving right to a voter not to vote for any candidate while protecting his right of secrecy is extremely important in a democracy. Such an option gives the voter the right to express his disapproval of the kind of candidates being put up by the parties." He expressed the hope that "gradually, there will be a systemic change and the parties will be forced to accept the will of the people and field candidates who are known for their integrity."

- There is a **difference between an elector exercising Rule 49-O and one using the NOTA option.** In the case of the former, the likelihood of such an elector compromising his or her secrecy is high, as there is a procedure to be followed manually at a polling booth. However, in the case of the latter, there is no such issue.

Source: Hindu

NATIONAL CENTRE FOR GOOD GOVERNANCE (NCGC)

Context: A delegation from India visited Bangladesh for bilateral discussions on renewing the Memorandum of Understanding (MoU) between India's **National Centre for Good Governance (NCGG)** and Bangladesh's Ministry of Public Administration.

Background:

- The primary agenda of the visit is to negotiate the renewal of the MoU for the period 2024-2029, focusing on **mid-career capacity-building programs for Bangladesh Civil Servants.**

National CENTRE FOR GOOD GOVERNANCE (NCGG):

- **The NCGG is an autonomous institute** under the aegis of the **Department of Administrative Reforms and Public Grievances, Government of India.**
- Its mission is to **facilitate governance reforms** through studies, training, knowledge sharing, and the promotion of innovative ideas.

Purpose and Functions:

- It focuses on public policy, governance, reforms and conducts policy-relevant research and prepares case studies and aims to **enhance the capacity of civil servants** in India and other developing countries.
- The **centre curates training courses for civil servants** from India and other developing countries.
- It collaborates with the **Ministry of External Affairs (MEA)** to provide training to civil servants from various nations.

Source: PIB

MUNICIPAL ELECTIONS

Context: The Supreme Court judgment on the Chandigarh mayoral election resurfaces the issues associated with the electoral processes of local urban bodies.

Background:

- Supreme Court has set aside the **Mayor election results** and declared the appellant Kuldeep Kumar to be the winner for Mayor post since the 8 wrongly invalidated votes were cast in his favour, giving him the majority over BJP candidate.

Status of Municipal Elections in India:

- According to the **Annual Survey of India's City-Systems 2023 by Janaagraha** (a non-profit institution), over **1,400 municipalities in India did not have elected councils** in place as of September 2021 which indicates a significant and widespread issue across the country.
- The **Comptroller and Auditor-General of India (CAG)'s audit** revealed that, between 2015 and 2021, over 1,500 municipalities didn't have elected councils. Even major cities like Chennai, Delhi, Mumbai, and Bengaluru faced delays ranging from months to years in holding elections.

Issues/Challenges associated with Local Bodies' Elections:

- Due to the ambiguous constitutional safeguards, **government officials like SECs currently possess discretionary powers when it comes to scheduling elections**. This flexibility can sometimes lead to inconsistent or delayed election timelines, which may undermine the democratic process's transparency and fairness.
- There is a **concern about the potential undue influence exerted by state governments to delay elections for political or strategic reasons.** Such interference can compromise the integrity of the electoral process and erode public trust in democratic institutions.
- The continued reliance on manual ballot paper-based processes introduces vulnerabilities, such as errors in counting, the potential for tampering, and delays in declaring election results. This traditional approach may not be as efficient or secure as modern EVM and VVPAT, which could **enhance the transparency and credibility of electoral outcomes**.

Way Forward:

- To deal with the challenges effectively, the **State Election Commissions (SECs)** need to play a more significant role in **overseeing the electoral process** using the powers mentioned in Articles **243K and 243ZA of the Constitution**.

- **Ward delimitation** is crucial for ensuring fair and equitable representation in municipal elections. SECs should be granted greater authority, including the power to conduct ward delimitation.

- **Holding election officials and authorities accountable for any delays or irregularities in the conduct of municipal elections.** This can be done through transparent investigation processes and appropriate disciplinary action.

- The idea of **'One Nation, One Election'** can be explored with a major focus on the efficient and timely election of the local bodies.

Source: SCC Online

INDELIBLE INK USED IN ELECTIONS

Context: With the first phase of voting for the 2024 Lok Sabha elections beginning on April 19, the classic symbol of Indian polls is visible everywhere – a left hand with only its index finger extended, marked by a purple-black indelible ink.

Background:-

- Devised as a method to prevent a person from casting more than one vote, the indelible ink has been used for decades in India. It has also travelled to other parts of the world to help in conducting elections.

About the Indelible ink used in elections

- **The Section 61 of Representation of the People Act (RoPA) of 1951** mentions the ink. It states that rules may be made under the **Act "for the marking with indelible ink of the thumb or any other finger of every elector who applies for a ballot paper or ballot papers for the purpose of voting at a polling station before delivery of such paper or papers to him**."Why papers? Because before EVMs, ballot papers existed at polling stations. They contained the list of contesting candidates alongside their party symbols and names. Voters had to mark their preference on the paper and then drop it in ballot boxes to vote.

- **Indelible ink contains silver nitrate**. It is a colourless compound which becomes visible when exposed to ultraviolet light, including sunlight. The water-based ink also contains a solvent like alcohol to allow its faster drying.

- For up to 72 hours after application it can remain resistant to soap, liquids, home-cleansing, detergents, etc.

- The indelible ink was first manufactured at the ECI's request by the government's Council of Scientific & Industrial Research (CSIR). It was later patented by the National Research Development Corporation (NRDC), New Delhi.

- Mysore Paints & Varnish Ltd. has been licensed to manufacture the ink and has been in the business since 1962. Earlier called Mysore Lac & Paint Works Ltd, it was established in 1937 by Nalwadi Krishnaraja Wodeyar, then the Maharaja of Mysore. **This Karnataka Government Undertaking is the sole manufacturer of the ink in India.**

- Currently, the indelible ink is exported to more than 25 countries.

Source: Hindu

THE SUPREME COURT OF INDIA

Context Context: The Prime Minister inaugurated the Diamond Jubilee celebration of the Supreme Court of India at the Supreme Court auditorium in Delhi on January 28th, 2024.

Background:

- The Prime Minister said that the makers of the Indian constitution saw the dream of a free India based on freedom, equality and justice and the Supreme Court has continuously tried to preserve these principles.

The Supreme Court:

- According to Article 124(1) of the Indian Constitution, the Supreme Court of India must have a Chief Justice of India (CJI) and a maximum of seven additional justices unless Parliament specifies a higher number through a statute. Currently, the Supreme Court comprises the Chief Justice and 33 other Judges.

- The Supreme Court's powers and jurisdiction are outlined in **Articles 124 to 147 of the Indian Constitution.**

Key Features of the Supreme Court of India:

- It's the **highest appeal court is also known as the apex court of India** and even the last resort, where the citizens of India can seek justice if they are **not satisfied with the judgment of the High Court.**

- As per **Article 143 of the Constitution,** the SC can advise the President of India that is related to the question of law, and the nature of the matter is associated with public importance.

- The Court resolves **disputes between the Union and the states and between different states (Article 131).**

- The Supreme Court reviews laws and actions of the executive to ensure they comply with the Constitution.

- The Court protects the fundamental rights of citizens by issuing writs and orders (Article 32).

- The Court can **take up cases on its own or on behalf of the public interest**. In some matters, the Supreme Court also acts on its own and can pass suo moto.

Issues/Challenges Faced by Supreme Court:

- As of 2023, there were over 80,439 cases pending in the Supreme Court alone.

- **Judicial Activism vs. Judicial Restraint** debate revolves around the appropriate role of the judiciary in policy-making and governance.

- The Law Commission of India's 230th Report highlighted a concern about potential favouritism in the appointment of judges to the High Court and Supreme Court, impacting the impartiality and fairness of the judicial system.

- The judiciary and executive have faced rising conflicts, marked by delays in judicial appointments, the tribunalisation of justice, and public criticism of the executive during COVID-19.

Way Forward:

- Implementing case management systems and leveraging technology for e-filing, video conferencing, and virtual hearings can help reduce case backlog and improve efficiency.

- Implementing judicial reforms, such as increasing the number of judges, improving infrastructure, and filling up vacancies promptly, can help address the backlog and ensure timely justice delivery.

- Ensuring that the judiciary is free from undue influence and interference from the executive or other branches of government can help maintain the integrity of the judicial system.

Source:PIB

ELECTION DAYS

Context: Votes in the first phase of the Lok Sabha election will be cast on April 19. The most critical time in the election process includes the l**ast day of the campaign period (72 hours before the poll), the non-campaign period (the last 48 hours), and the poll day.** Candidates are afforded the opportunity to make a final impression on the electorate, while the period of **"election silence"** allows voters to take a reflective pause.

Background:

- Several behind-the-scenes **logistical and operational activities** ensure that the elections are conducted smoothly**. The scale of the exercise is immense — around 97 crore voters, 10.5 lakh polling stations, 1.5 crore polling officials and security staff, 55 lakh EVMs, and 4 lakh vehicles across the country** — and timely and meticulous planning, rigorous implementation, and close supervision are essential to ensure free, fair, participative, and peaceful elections.

The last 72 hours

- The monitoring of campaign expenditure includes the last check of candidates ′expenditure registers and strengthening the inspection teams. **There are Flying Squads (FSs), Static Surveillance Teams (SSTs), Excise Teams, and a 24X7 District Control Room.**

- The **FSs operate in three shifts** round the clock in each Assembly constituency, swiftly responding to complaints. They can seize cash or items intended as bribes, document evidence, and initiate legal proceedings.

- **SSTs are stationed at critical locations**, and focus on intercepting illicit goods such as liquor and large amounts of cash to deter malpractices and prevent undue influence.

- The **District Election Officers (DEOs)** collaborate with senior police officials to develop strategies to manage any potential disturbances during the critical 72 hours leading up to the close of the voting.This includes the sealing of borders to keep out anti-social and disruptive elements.

- The final assessment is made of the **Assured Minimum Facilities (AMFs)** at the polling stations, which include the provision of drinking water, shade, wheelchairs, clean toilets, etc for the comfort and convenience of voters.

The last 48 hours

- **Under Section 126 of the Representation of the People Act, 1951**, the election campaign halts during the "**silent period" that lasts for 48 hours** ending with the conclusion of the poll.

- The **District Magistrate issues orders under Section 144 of the CrPC, 1973,** prohibiting unlawful assemblies, public meetings, and the use of loudspeakers, and limiting gatherings to no more than five persons. Door-to-door campaigning is still permitted.

- This period also sees "**area domination" activities by the Central Armed Police Forces**, a restriction on opinion polls, and political advertisements through electronic and social media, and the enforcement of a ban on the sale of liquor.

- To ensure transparency at critical polling stations, measures including the deployment of micro-observers, video and still cameras, webcasting, and CCTV surveillance are implemented.

- On the day before polling, randomly-formed polling parties are dispatched to the polling stations with electronic voting machines (EVMs) and other election materials. They move with security personnel in designated vehicles. Reserve EVMs are allocated to the Sector Officers.

The Polling Day

- The general restrictions on the poll day include using only one vehicle for the candidates, their agents, and party workers. However, using these vehicles to ferry voters to polling stations is

considered a corrupt practice under Section 133 of the Representation of People Act (1951), attracting penal action under Section 123(5) of the Act.

- The use of mobile phones (except by officers on duty), canvassing, using campaign-related posters or banners, and loudspeakers or megaphones within 100 metres of a polling station are banned.

- Under **Section 135(B) of the RP Act**, employees are given a paid holiday on the poll date. Only persons entitled under Rule 49D of the Conduct of Election Rules, 1961, are allowed inside polling stations, including polling officers, public servants on duty in connection with the election, a child in arms accompanying an elector, etc.

- **Booth Level Officers are stationed at Voter Assistance Booths** to help voters locate their details in the alphabetical electoral roll locator for the polling station. **Before polling commences, the Presiding Officer must demonstrate a marked copy** of the Electoral Roll and the EVMs, and conduct a mock poll before the candidates´ polling agents.

Source: [Indian Express](#)

ILLEGAL MIGRATION

Context: **The Gujarat Crime Investigation Department (CID)** is probing the case of possible illegal immigration related to the Nicaragua-bound plane carrying Indians, which was grounded in France.

Background:

- Days after the statements of passengers in the infamous Nicaragua-bound flight were recorded, the Gujarat Police filed a First Information Report (FIR) against 14 immigration agents for reportedly being involved in human trafficking**.** The Police have discovered an international network of agents engaged in this operation, offering illegal immigration through the U.S.-Mexico border and the help of attorneys in the U.S. thereon.

Illegal Migration:

- It refers to the **transboundary migration of people** from one country to another without valid documents, using illegal means.

- In the Indian context, as per the **Citizenship Act, of 1955, an illegal migrant** is defined as, a foreigner who enters India,

  o without a valid passport or other prescribed travel documents, or

  o with a valid passport or other prescribed travel documents but remains in India beyond the permitted time period.

Reasons for Illegal Migration:

- **Economic factors** include poverty, lack of economic opportunities, stagnation of income, etc., that may force an individual or a group to look beyond their home country for better economic opportunities.

- Real or Perceived promise of **better opportunities** in destination countries.

- **Smuggling of migrants** is a highly profitable illicit activity with a relatively low risk of detection. As of October 2023, 2925 illegal agents have been notified in India through the e-Migrate portal.

- **Political and religious persecution** has led to refugees and illegal immigrants from Tibet, Afghanistan, Sri Lanka, Myanmar, Pakistan, and Bangladesh finding shelter in India.

- **Natural disasters** may force people to migrate for survival and better living conditions. E.g., Illegal migration from the Sahel region of Africa due to frequent droughts.

- Social networks established by previous migrants attract more migrants from similar communities, often resulting in migration through illegal routes in the absence of other options.

Impacts of Illegal Migration:

- Illegal and undocumented migrants **lack legal safeguards** and thus are prone to **informal, temporary, or unprotected jobs and even forced labour.**

- Illegal migrants are **vulnerable to multiple inhumane conditions** and criminal offences like assault, rape, or extortion during their arduous journeys or at the destination region.

- Illegal migrants face constant fear of being deported by the authorities and may also be mistreated during detention.

- Large-scale illegal migration may distort existing demography and pose a threat to existing socio-cultural identity. The threat to Assamese identity due to illegal migration from Bangladesh has given rise to various socio-political tensions in Assam.

Issues/Challenges in Tackling Illegal Migration:

- Centre in an affidavit filed in SC held that the **'clandestine and surreptitious'** manner of entry of illegal migrants makes it difficult to have an accurate data collection.

- Porous borders facilitate the flow of illegal migrants across multiple countries using Donkey routes/flights.

- Poor regulation of travel agencies has led to the **cropping up of unscrupulous travel and placement agents running illegal operations**, particularly in regions where demand for moving abroad is high.

- Lack of coordination due to cross country dimension of international human trafficking networks requires extensive international cooperation of law enforcement agencies.

- Organized criminals have established professional networks that transcend borders and encompass all regions.

Source:The Hindu

INTERNATIONAL RELATIONS

WTO INFORMATION TECHNOLOGY PRODUCTS AGREEMENT (ITA)

Context: India and Chinese Taipei have jointly requested the World Trade Organization (WTO) not to adopt any ruling regarding New Delhi's import duties on specific information and technology (ICT) products until July 26.

Background:

- ICT products fall under the WTO's Information Technology Products Agreement (ITA). India's involvement with the ITA has led to disputes due to the imposition of customs duties on certain ICT products.

INFORMATION TECHNOLOGY PRODUCTS AGREEMENT (ITA):

- It's a significant **trade agreement under the World Trade Organization (WTO)** that was adopted in 1996.

- The ITA **aims to eliminate all import duties** and other charges on specified information technology products.

- The commitments under the **ITA become binding on a country under Articles II of the General Agreement on Tariffs and Trade (GATT)** only if they are incorporated into the Goods Schedule.

Key aspects of the ITA include:

- **Trade Liberalization:** The ITA **promotes trade liberalization** by eliminating duties on IT products among participating WTO member countries.

- **Product Coverage:** The agreement **covers a wide range of IT products**, including computers, telecommunication equipment, semiconductors, software, and scientific instruments.

- **Expansion:** The ITA has been expanded since its inception to include more products and participants, reflecting the evolving nature of technology and global trade.

Source: Business Standard

JOE BIDEN'S COMMENTS OFFENDS PAPUA NEW GUINEA

Context: Papua New Guinea Prime Minister James Marapecriticised US President Joe Biden for implying that **his uncle was eaten by cannibals in New Guinea during World War II.** Biden had said that after his uncle's plane was shot down in New Guinea, **"they never found the body because there used to be, there were a lot of cannibals, for real, in that part of New Guinea."**

Background:

- The people of New Guinea have long tried to shed the cannibal label. While there have been documented cases of **cannibalism among tribes on the island, the use of the stereotype has as much to do with European ideas on race and civilisation.**

Key takeaways:

- The Korowai tribe of New Guinea number between 2,000 and 4,000. Anthropologist Rupert Stasch wrote that "their spectacular treehouses, their limited possession of factory-made commodities such as cotton clothing, and their practice of cannibalism" make them "a perfect fit with Westerners' stereotypes of 'primitive' humanity".

- **"The Korowai** have no knowledge of the **deadly germs that infest their jungles**, and so believe that mysterious deaths must be caused by khakhua, or witches who take on the form of men," a 2006 Smithsonian Magazine article said. When a member of the tribe dies, his or her male relatives kill the khakhua responsible (the dying person names him). And then they eat him. As a Korawai man told the Smithsonian Magazine: "We don't eat humans, we only eat khakhua."

- Cannibalism in New Guinea has also been documented among the Fore (pronounced FOR-ay) people who live in the highlands of Papua New Guinea. This tribe of approximately 20,000 individuals (today) consumed human flesh as part of mortuary rituals till about the 1960s.

- For the Fore, this was an act of love and grief. "If the body was buried it was eaten by worms; if it was placed on a platform it was eaten by maggots; the Fore believed it was much better that the body was eaten by people who loved the deceased than by worms and insects

- The Fore stopped consuming human flesh in the 1960s after it was discovered that it was this practice that was leading to the spread of a deadly disease — kuru (literally "shivering" or "trembling"), later identified as a form of transmissible spongiform encephalopathy — that was annually killing as many as 200 Fore in the mid-20th century. The incidence of kuru has now declined, and no Fore has succumbed to the illness since 2010.

- New Guinea's famous cannibal tribes did not eat just anybody, as Biden's remarks appeared to imply. They were not "savages" — stereotype that has historically followed cannibals.

- Biden's remarks — and Papua New Guinea's reaction to them — must be seen in this context, where the cannibal stereotype has been used to justify the excesses of European colonialism.

Papua New Guinea

- Papua New Guineais a country in Oceania that **comprises the eastern half of the island of New Guinea and its offshore islands in Melanesia** (a region of the southwestern Pacific Ocean north of Australia).

- It encompasses the **eastern half of New Guinea, the world's second largest island** (the western half is made up of the Indonesian provinces of Papua and West Papua); the Bismarck Archipelago (New Britain, New Ireland, the Admiralty Islands, and several others); Bougainville and Buka (part of the Solomon Islands chain); and small offshore islands and atolls.

- Officially the Independent State of Papua New Guinea, it shares its only land border with Indonesia to the west and it is directly adjacent to Australia to the south and the Solomon Islands to the east.

Source:Indian Express

CRITICAL MINERALS SUMMIT

Context: The Ministry of Mines is organizing the "Critical Minerals Summit".

Background:

- This significant event take place from April 29th to April 30th, 2024, at the India Habitat Centre in Lodhi Estate, New Delhi.

About CRITICAL MINERALS SUMMIT

- The Summit 2024 is set to be a significant event, focusing on the strategic importance of critical minerals.

- It is **organized by the Ministry of Mines**, in collaboration with the Shakti Sustainable Energy Foundation **(Shakti),** Council on Energy, Environment and Water **(CEEW),** and Indian Institute of Sustainable Development **(IISD).**

- **Aim**: to knowledge sharing, and innovation in the field of critical mineral processing.

- **Address**: importance of domestic production of critical minerals for India's economic development and clean energy targets.

- Discussions about **eight key minerals**: Glauconite, Lithium, Rare Earth Elements, Chromium, Platinum Group, Graphite, Tungsten, and Vanadium.

- **Critical minerals are essential for** economic development, national security, and are vital for various industrial sectors including technology, defence, energy, and healthcare.

Source: [AIR](#)

IRAN – ISRAEL CONFLICT

Context: Iran launched a significant attack on Israel, deploying over 300 projectiles, including approximately 170 drones, cruise missiles, and over 120 ballistic missiles.

Background:

- Tit-for-tat confrontation between Israel and Iran has sparked concerns about escalation dragging the Middle East into all-out war.

What led Iran to attack Israel?

- In 2018, Israel hails US withdrawal from Iran's nuclear deal with world powers after years of lobbying against the agreement, calling Trump's decision "a historic move".

- In 2020, Israel welcomed the assassination of General Qassem Soleimani, commander of the overseas arm of Iran's Revolutionary Guards, in an American drone strike in Baghdad. Iran strikes back with missile attacks on Iraqi bases housing American troops.

- In October 2023, Hamas (the Iran-backed terrorist group) launched a missile attack targeting Israel. In response, Israel conducted airstrikes on Gaza.

- In November 2023, Israel started conducting raids and attacking medical facilities as Hamas was reportedly operating from these hospital buildings and carrying out their warfare.

- In November 2023, The Iran-backed Houthi group, based in Yemen, landed their helicopter on the Galaxy Leader cargo vessel as it was passing via the Red Sea. This marked the start of the 'Red Sea Crisis,' which eventually led to supply chain issues.

- In December 2023, Israel's ground offenses in the Gaza Strip intensified at a rapid pace. This led to an increase in the death toll and the number of refugees. India urged for an 'early and durable resolution' between the warring nations.

- A suspected Israeli air strike on the Iranian embassy compound in Damascus kills seven officers of the Islamic Revolutionary Guard, including two senior commanders. Israel neither confirmed nor denied responsibility.

- In April 2024, Iran launched a missile attack on Israel. The attack was, allegedly, in response to a suspected Israeli strike on Iran's consulate in Syria. This marked the first instance of Iran directly targeting Israel from its domestic territory.

- **The Israel Defence Forces (IDF)** claimed that the Israeli air defence system intercepted 99% of the incoming projectiles from Iran. The United States, the United Kingdom, France, and other Middle Eastern allies also helped defend Israel.

Impact of the Iran-Israel War on the world:

- Given the widely held Israeli belief that a nuclear-armed Iran is an existential threat to Israel, retaliation cannot be ruled out of the decision-making matrix. Failure of diplomatic efforts to de-escalate tensions or negotiate a peaceful resolution could leave military action as the only option, increasing the likelihood of regional escalation.

- Iran is the third-largest producer of crude oil within **OPEC (Organization of the Petroleum Exporting Countries).** If the tensions between Iran and Israel escalate further, the supply of crude oil prices will be severely disrupted. This will hit Indian share market sentiment as India is the third-largest consumer and importer of crude oil, importing over 80% of its crude oil needs.

- If geopolitical tensions increase from hereon, commodity prices will move up due to supply disruptions. Globally, inflation will remain high due to geopolitical tension as it will affect crude oil prices and other commodity prices such as copper, zinc, aluminium, nickel, etc. As a result of these concerns, investors are expected to become cautious and may move their money out of riskier assets like Indian stocks and into safer options like gold (bullion).

- India's long-standing strategic relationships with both Iran and Israel present challenges on both policy and operational fronts. India values its strategic partnership with Israel, which includes defence cooperation, technology exchange, and intelligence sharing. However, India also maintains historical and economic ties with Iran, including energy imports and infrastructure projects. India seeks to maintain stability in the Middle East to safeguard its interests, including energy security and the welfare of its diaspora.

Way Forward:

- Israel should accept a sustainable ceasefire in Gaza as soon as possible, open the borders for international humanitarian aid to Gaza, and respect the UN resolutions to end the 70-year-old crisis by realizing a two-state solution. The two-state solution is the only feasible way ahead for long-term security, peace, and stability in the region. It is not an easy goal, but both sides are familiar with the challenges and opportunities.

- An international initiative must mediate a sustainable ceasefire between Israel and Iran. Encouraging both countries to engage in direct talks facilitated by international mediators could help build trust and find common ground. Iran and Israel could engage in direct talks facilitated by a neutral third party, such as the European Union or the United Nations.

- Iran could adhere to the terms of the Joint Comprehensive Plan of Action (JCPOA) and allow international inspections of its nuclear facilities to ensure compliance with the agreement. In return, Israel could recognise Iran's right to peaceful nuclear energy and commit to refraining from military strikes against Iranian nuclear facilities.

- Iran and Israel could take steps towards normalizing diplomatic relations, such as exchanging ambassadors, reopening embassies, and facilitating people-to-people exchanges, similar to the peace agreements between Israel and some Arab states like the United Arab Emirates and Bahrain.

Source: AP

ONGOING ISRAEL – PALESTINE CONFLICT

Context: Six months after the October 7 attack, Israel's war to eliminate Hamas has resulted in the near-complete destruction of Gaza and a dire humanitarian crisis with the area on the verge of famine. Iran and its allies have militarily united behind the Palestinian cause and expanded the confrontation to other parts of the region.

Background:

- The dynamics of war have drastically changed following the massive Iranian drone and missile attacks on military targets in Israel on April 14. This was in retaliation to Israeli aerial strikes on an Iranian diplomatic compound in Damascus on April 1 in which top Iranian generals were killed. Israel had not seen direct attacks by a state on its soil since 1991 when Saddam Hussein fired 42 Scud missiles.

A volatile Middle East: The geopolitics of the region has **already undergone a sea change since October 7 in four substantive ways:**

- First, thawing of the hitherto icy Shia-Sunni relationship, with Hezbollah, Houthis and Iran (all Shia entities) extending open support to "Sunni" Palestinians, presenting regional unity via the Axis of Resistance, opposing US-Israel domination. The first signs of the Resistance surfaced early on in the war, with conflict with Hezbollah in northern Israel leading to the displacement of thousands of Israeli civilians who are yet to return. This active front is likely to simmer.

- Second, the war has expanded across the region, pushing the US to become the fulcrum of efforts to contain expansion and making it a primary target.

- Third, the Saudi-aligned Sunni Arab States have adopted the political and diplomatic route, advocating a ceasefire, supporting humanitarian assistance, and calling for a two-state solution while remaining in line with US-led initiatives.

- Fourth, the Yemen-based Houthis — a non-state actor devoid of a navy — have managed to successfully disrupt a critical sea lane of communication for five months, impairing trade substantively.

Source: Indian Express

RWANDA PLAN OF UNITED KINGDOM

Context: The British parliament is set to finally approve a divisive law this week to pave the way for asylum seekers to be deported to Rwanda, but further legal hurdles could yet hold up or derail one of Prime Minister Rishi Sunak's key policies.

Background:

- The Prime Minister Rishi Sunak belongs to the Conservative Party.He has invested huge political capital in the Rwanda scheme whose success or failure might be crucial to his political party.He has promised that this scheme will stop migrants arriving without permission in the country.

About Rwanda Plan:

- **Under a five-year agreement,** the government said some asylum seekers arriving in the UK would be sent to Rwanda, to have their claims processed there.

- **If successful, they could be granted refugee status and allowed to stay**. If not, they could apply to settle in Rwanda on other grounds, or seek asylum in another "safe third country". No asylum seeker would be able to apply to return to the UK.

- Under the policy, anyone "entering the UK illegally" after 1 January 2022 could be sent to Rwanda, with no limit on numbers.

What was the Supreme Court ruling and is Rwanda safe?

- In November 2023, the UK Supreme Court ruled unanimously that the Rwanda scheme was unlawful and genuine refugees would be at risk of being returned to their home countries, where they could face harm.

- This breaches the European Convention on Human Rights (ECHR)/ which prohibits torture and inhuman treatment.

- The ruling also cited concerns about Rwanda's poor human-rights record, and its past treatment of refugees.

What is in the Rwanda bill?

- After the Supreme Court ruling, the **government introduced a bill to make clear in UK law that Rwanda is a safe country.**

- It orders the courts to disregard key sections of the Human Rights Act, in an attempt to sidestep the Supreme Court's judgement and also compels the courts to disregard other British laws or international rules - such as the international Refugee Convention - which stand in the way of deportations to Rwanda.

Source: BBC

GULF COOPERATION COUNCIL (GCC)

Context: Recently, for the first time since its inception, the Gulf Cooperation Council (GCC) announced its 'Vision for Regional Security' in Riyadh.

Background:

- The GCC plays a significant role in regional affairs, promoting cooperation across various domains.

About GULF COOPERATION COUNCIL (GCC)

- It's also known as the **Cooperation Council for the Arab States of the Gulf,** is a regional, intergovernmental, political, and economic union.

- **Comprises:** six countries in the Arabian Peninsula:Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates and was established in 1981 with a formal charter.

- **Aim:** to foster economic, scientific, and business cooperation among its member states and serves as a platform for regional collaboration and coordination.

- The main headquarters of the GCC is located in **Riyadh, the capital of Saudi Arabia.**

- The Peninsula Shield Force serves as the military arm of the GCC, formed in 1984.

Source: Arab News

INDIA – ITALY RELATIONS

Context: The Union Cabinet had approved the Migration and Mobility Agreement between India and Italy last December.

Background:

- India and Italy are ancient civilisations with links going back 2,000 years. Italian port cities were important trading posts on the spice route. The Venetian merchant Marco Polo traveled to India in

the 13th century and wrote about his experiences.After Independence, political relations between India and Italy were established in 1947. Since then, there has been a regular exchange of visits at political and official levels between both countries, including several visits by Heads of States.

India and Italy Relations:

- There has been a regular exchange of visits at political and official levels between both countries. For instance, the Indian PM paid his first official visit to Italy in October 2021 to attend the G20 Summit. In March 2023, the Italian PM paid her first-ever state visit to India as the guest of honour of Raisina Dialogue.

- **Italy is India's 4th largest trading partner in the EU.**

- India - Italy **Military Cooperation Group (MCG) is a forum established to boost defence cooperation.** Both sugned a **defence cooperation agreement** (in 2023) to promote cooperation in varied defence domains such as security and defence policy, and defence industrial cooperation among others.

- A connection was identified between the Indo-Pacific, in which India plays a leading role, and the enlarged Mediterranean where Italy sits at the centre of the Mediterranean Sea and acts as a natural bridge towards the Indo-Pacific. **Italy's decision to withdraw from the Belt and Road Initiative aligns** with common goals in global connectivity between Rome and New Delhi.

- Italy supported India's entry into the **Wassenaar Arrangement and Australia Group. The Blue-Raman project** (with an Italian company at its core) will bring the Mediterranean and the Indian Ocean closer in exchange for digital data through a submarine cable system. Italy supported India's major initiatives including the International Solar Alliance (ISA), the India-Middle East-Europe Economic Corridor (IMEC), and the Global Biofuels Alliance (GBA).

Concerns/Challenges/Issues in India-Italy Relations:

- Italian Mariners' case sparked a **conflict over legal jurisdiction and functional immunity,** which ended only in 2020 with the verdict of the Permanent Court of Arbitration.

- In the **Agusta Westland helicopter scandal**, the defence firm owned by Italian company Leonardo was accused of bribery, resulting in India cancelling the procurement deal and banning Leonardo from the Indian defence market in 2015.

- In 2021, the **India-Italy-Japan trilateral partnership** was launched yet it has not been operationalised.

Way Forward:

- If the India and EU sign a trade pact in the coming time, Italy and India can enjoy major two-way trade benefits. It would also add fodder to the reinvigorated EU-India partnership.

- Italy and India can converge on multilateral issues, sharing a common imperative to shape and endorse a new global agenda together.

- Celebrate and promote the culinary heritage of both countries through food festivals and gastronomic events, with Italian pasta and pizza finding a place on Indian tables, and Indian spices adding a punch to Italian dishes.

Source: MEA

Economy

INDIA'S EMPLOYMENT REPORT 2024

Context: The India Employment Report 2024, prepared jointly by the Human Development and the International Labour Organization, was released recently.

Background:-

- It has analysed trends and patterns of the Indian labour market for two decades, including the COVID-19 years, and listed the "emerging characteristics of the employment challenges now confronting the economy as well as the impact of growth on employment."

key findings

- Basic long-term feature of the employment situation in the country continues to be insufficient growth of the non-farm sectors and the ability of these sectors to absorb workers from agriculture.

- India's working-age population (aged 15–59) increased from 61% in 2011 to 64% in 2021 and is projected to reach 65% in 2036.About 7-8 million young people are added each year to the labour force.

- In 2022, the share of unemployed youth in the total unemployed population was 82.9%," report noted, adding that the share of educated youth among all unemployed people also increased, from 54.2% in 2000 to 65.7% in 2022.

- Also, among the educated (secondary level or higher) unemployed youth, women accounted for a larger share (76.7%) than men (62.2%).

- There is a significant gender gap in the labour market, with low rates of female labour force participation. The gender gap in the LFPR has remained almost consistent over the past two decades.

- In 2022, the LFPR of young men (at 61.2%) was almost three times higher than that of young women (at 21.7%), and the gender gap was similar in both rural and urban areas.

- While India's large young workforce is a demographic dividend, the report noted that they don't appear to have the skills to deliver — with 75% of youth unable to send emails with attachments, 60% unable to copy and paste files, and 90% unable to put a mathematical formula into a spreadsheet.

Reports Recommendations:

- Make production and growth more employment-intensive by improve the quality of jobs.

- Bridge the deficits in knowledge on labour market patterns and youth employment.

- Integrating employment creation with macro and other economic policies to boost productive non-farm employment.

- The ILO and IHD recommended that measures such as crafting policies to boost women's participation in the labour market including larger provision for institutional care facilities, adaptable work arrangements, improved public transport, improved amenities and enhanced workplace safety must be taken in mission mode to address this gender gap in employment.

Source: The Hindu

EXCHANGE RATE

Context: National Bank for Agriculture and Rural Development **(NABARD)** recently unveiled its **Climate Strategy 2030 document** which aims to address India's need for green financing.

Background:

- **NABARD's Climate Strategy 2030** is structured around four key pillars which include accelerating **green lending across sectors, playing a broader market-making role**, internal green transformation and strategic resource mobilisation.

What is Green financing

- It refers to **any structured financial activity** – a product or service – that has been designed to ensure a better environmental outcome.

- It **encompasses a variety of loans, debt mechanisms, and investments** aimed at promoting the development of green projects or minimizing the climate impact of regular projects.

Purpose and Importance:

- Green finance aims to align financial activities with environmental goals and plays a crucial role in achieving several of the United Nations' Sustainable Development Goals by supporting sustainable development priorities.

Examples of Green Finance Projects:

- **Renewable Energy and Energy Efficiency**: Funding projects related to clean energy sources and energy-saving technologies.

- **Pollution Prevention and Control**: Financing initiatives that reduce pollution and promote cleaner practices.

- **Biodiversity Conservation**: Supporting efforts to protect and preserve biodiversity.

- **Circular Economy Initiatives**: Investing in projects that promote resource efficiency and waste reduction.

Green Bonds:

- Green bonds are a common green finance instrument which adhere to specific criteria, including the use of proceeds, project evaluation, proper management, and detailed reporting.

- The United States, China, and France are the three largest issuers of green bonds.

Source:Hindu

FALL IN HOUSEHOLD SAVINGS

Context: The fall in household savings has been at the heart of recent debates in India. The decline in household savings is brought about by a drastic reduction in net financial savings as the household net financial savings to GDP ratio attained a four-decade low. The sharp reduction in household net financial savings in 2022-23 has been associated with an overall fall in household savings despite marginal recovery in physical savings.

Background:-

- **The net financial savings of the household is the difference between its gross financial savings and borrowing.** The gross financial savings of a household is the extent to which its financial assets change during a period. **The financial assets of households typically comprise** bank deposits, currency and financial investments in mutual funds, pension funds, etc.

- Though household borrowing includes credit from non-bank financial corporations and housing corporations, the bulk of the borrowing comprises credit from commercial banks.

Key Takeaways
- In general, there are **at least three distinct factors** that can potentially bring about a reduction in household net financial savings:
- **First,** households typically finance their additional consumption expenditure by **increasing their borrowing or depleting their gross financial savings.** By financing higher consumption expenditure at any given level of disposable income, lower net financial savings provide stimulus for aggregate demand and output in this case.

Figure 1: Household savings, physical savings and financial savings as a share of GDP
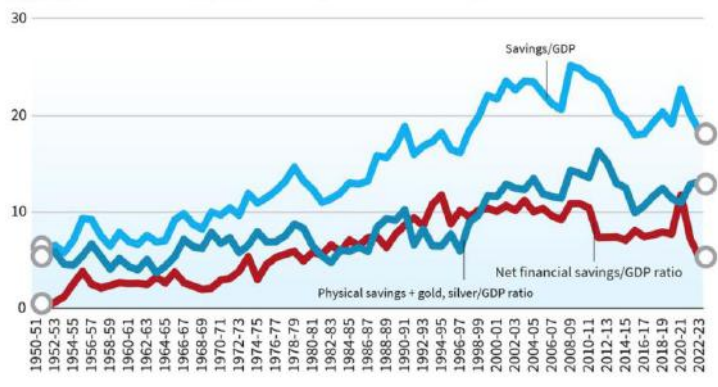
  o **It hardly played any role in the sharp reduction in gross financial savings in 2022-23** as the consumption to GDP ratio remained largely unchanged between 2021-22 (60.95%) and 2022-23 (60.93%).

  - **Secondly, when households finance higher tangible (physical) investment by increasing their borrowing or depleting their gross financial savings.** The reduction in net financial savings in this case stimulates aggregate demand and output through the investment channel.

  o This factor **played only a limited role. While the gross financial savings to GDP ratio declined by 3 percentage points (7.3% to 5.3%) in 2022-23**, household physical investment to GDP ratio increased only by 0.3 percentage point (12.6% to 12.9%) during the same period. Though higher borrowing is partly financed by interest income from financial assets, it can be largely attributed to higher interest payments of the household in the recent period.

- **Third**, when interest payment of a household increases say due to higher interest rates, households can meet the increased burden through borrowing or through depleting gross financial savings thereby inducing a reduction in net financial savings.

  o The share of household borrowing in household (disposable) income registered **a sharp spike in 2022-23.**

Implication of higher debt burden: The rise in household debt burden has two concerns for the macroeconomy.
- **The first concern is about debt repayment and financial fragility.** Since the repayment capacity depends on the income flow, a key criterion for evaluating a household's debt sustainability is the difference between interest rate and the income growth rate.

  o On the flip side, the interest payments from the households are the interest income of the financial sector. If households fail to meet their debt repayment commitments, then it reduces the income of the financial sector and deteriorates their balance sheets, which in turn can have a cascading effect on the macroeconomy if the latter responds by reducing their credit disbursement to the non-financial sector.

- **The second concern pertains to the implication on consumption demand.** Over and above disposable income, the consumption expenditure of the household can be affected by their wealth,

debt, and interest rate. Reduction in household wealth can lead to lower consumption expenditure as households may attempt to preserve their wealth position by increasing their savings.

Source: Hindu

100% FDI IN SPACE SECTOR

Context: The Finance Ministry has notified amended rules under the **Foreign Exchange Management Act** to operationalise its earlier decision to allow up to 100 per cent **foreign direct investment (FDI)** for the space sector. The new rules came into effect from April 16.

Background:-

- The notification dated April 16 comes ahead of Tesla chief Elon Musk's visit to India early next week where he is expected to meet space startups, make a push for his space venture Starlink's plans and announce his electric vehicle (EV) investment plans.

About FDI (Foreign Direct Investment)

- It's defined as an investment in which a company takes controlling ownership of a business entity in another country. Therefore, foreign companies get directly involved with day-to-day operations in other countries.

- **India gets FDI through two routes:**

    o **Automatic route:** Under this route, the non-resident or Indian company does not require a prior nod from the **Reserve Bank of India (RBI)** or the government of India for FDI.

    o **Government route:** Under this route, the government's approval is mandatory. The company will have to apply through **Foreign Investment Facilitation Portal,** which facilitates single-window clearance.

Key takeaways:

- In February, the Union Cabinet had approved the amendment to the FDI policy for the space sector, allowing up to 100 per cent investment in certain categories.

- As per the latest Finance Ministry notification, 100 per cent FDI has been allowed for the space sector category of manufacturing and operation of satellites, satellite data products, and ground segment and user segment, out of which up to 74 per cent would be through the automatic route and government nod would be required for investment beyond 74 per cent.

- Automatic FDI has also been permitted up to 49 per cent for launch vehicles and associated systems or subsystems, and creation of spaceports for launching and receiving spacecraft. Government approval would be required for investments beyond 49 per cent.

Source: Indian Express

IMPORTED INFLATION

Context: The Asian Development Bank (ADB) has recently issued a cautionary note regarding India's vulnerability to imported inflation.

Background:

- The ADB's warning underscores the need for vigilance in managing currency fluctuations and interest rate dynamics to mitigate the potential impact of imported inflation on India's economy.

About IMPORTED INFLATION

- It refers to a situation where the general price level in a country rises due to an increase in the costs of imported products.

The factors behind the Imported Inflation:

- **Exchange Rates:** Fluctuations in exchange rates play a significant role. When a country's currency depreciates against foreign currencies, the cost of imports rises.

- **Commodity Prices:** Many countries heavily rely on imported commodities such as oil, metals, and agricultural products. When global commodity prices increase, it directly impacts the cost of imports, potentially leading to higher inflation within the importing nation.

- **Trade Policies and Global Supply Chains:** Changes in trade policies (such as tariffs and quotas) can influence the cost of imported goods.

- **Impact on Production Costs:** Imported inflation affects companies' production costs. These companies often pass on the increased costs to consumers by raising prices, leading to general inflation across the economy.

Recent Scenario in India:

- Factors such as growing risk aversion among investors, geopolitical tensions, and changes in monetary policy have contributed to the rupee's depreciation.

- India's reliance on imports of crude oil and gold makes it susceptible to price fluctuations in these commodities. Rising prices of these products can directly impact the country's import bill and overall inflation.

Source: Hindu

SPECIAL RUPEE VOSTRO ACCOUNT (SRVA)

Context: The Indian government has simplified the payment mechanism for traders importing pulses from Myanmar by implementing the Rupee/Kyat direct payment system through the Special Rupee Vostro Account (SRVA) via Punjab National Bank.

Background:

- This move aims to streamline trade transactions and enhance efficiency. India heavily relies on imports of pulses, including tur and urad dals, from Myanmar to meet domestic demand.

About SPECIAL RUPEE VOSTRO ACCOUNT (SRVA):

- RBI introduced the SRVA mechanism to settle international transactions in rupees.

- **SRVA is an account that domestic banks hold** for foreign banks in the former's domestic currency, which, in this case, is the Indian Rupee (INR).

- It allows domestic banks to **provide international banking services to their clients** who have global banking needs without physically being present abroad.

- **The primary objectives were to promote the growth of global trade**, emphasize Indian exports, and position the rupee as an international currency.

Why SRVA?

- The existing system primarily **uses freely convertible currencies** (like the US dollar or pound) for trade transactions.

- However, the **SRVA serves as an additional arrangement to this system,** specifically focusing on transactions denominated in INR.

- **Aim:** to reduce costs associated with currency conversions and streamline trade processes.

Key Components of SRVA:

- **Invoicing:** All exports and imports must be denominated and invoiced in Indian National Rupee (INR).

- **Exchange Rate:** The exchange rate between the currencies of the trading partner countries is market-determined.

- **Final Settlement:** The ultimate settlement also takes place in INR.

Benefits and Significance:

- **Promoting Trade:** SRVA facilitates smoother trade between India and other nations, including those facing sanctions (e.g., Russia).

- **Reducing Currency Risks:** By using INR, both parties avoid currency fluctuations and associated risks.

- **Cost-Efficiency:** Eliminating the need for multiple currency conversions saves costs for businesses.

Source: Livemint

SHRINKFLATION

Context:Shrinkflation is again became a topic of concern within the fast-moving consumer goods (FMCG) industry.

Background:

- As input costs rise, companies are faced with the challenge of maintaining profitability while also addressing consumer needs.

About SHRINKFLATION:
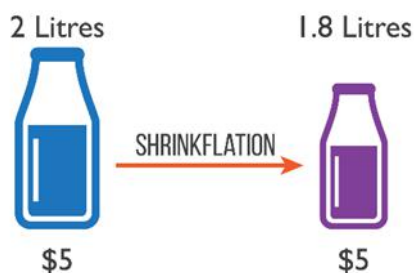
- It refers to the practice of reducing the size of a product while maintaining its sticker price. It's a form of hidden inflation.

- Companies, especially in the **food and beverage industries, employ this strategy** to stealthily boost profit margins or maintain them in the face of rising input costs.

- It involves reducing the quantity or volume of a product while keeping the retail price unchanged.

- Companies use shrinkflation to improve profit margins without overtly raising prices.

- In macroeconomic context shrinkflation **can also refer to a situation where the economy contracts while experiencing rising prices.**

Causes:

- **Higher Production Costs:** Rising costs of ingredients, raw materials, energy, and labour lead companies to downsize products.

- **Intense Market Competition:** In competitive markets, producers seek ways to maintain customer favour and profits simultaneously.

Source: Financial Express

NATIONAL INVESTMENT AND INFRASTRUCTURE FUND (NIIF)

Context: The National Investment and Infrastructure Fund (NIIF) recently made a significant investment of $200 million (approximately ₹1,660 crore) in iBUS Network and Infrastructure, a player in the digital infrastructure space.

Background:

- This investment reflects NIIF's commitment to supporting digital technology's transformative power for India's economy. It also aligns with the projected capital expenditure of $35-40 billion in the digital infrastructure sector over the next five years.

About NATIONAL INVESTMENT AND INFRASTRUCTURE FUND (NIIF)

- NIIF is India's first sovereign wealth fund and is **registered under SEBI Regulations as a Category II Alternative Investment Fund (AIF).**

- **Established in 2015, NIIF serves as a platform for both national and international investors** to invest equity capital in domestic economic and social infrastructure.

- **Aim:** enhance infrastructure financing by investing in greenfield (new), brownfield (existing), and stalled projects.

- **It's an investor-owned fund manager**, anchored by the Government of India (GoI) in collaboration with leading global and domestic institutional investors.

- **Types of NIIF Funds:**

  o **Master Fund:** This fund primarily invests in infrastructure-related projects such as roads, ports, airports, power and enterprises operating in regulated environments.

  o **Fund of Funds:** This fund invests in **funds managed by renowned fund managers with excellent track records.** It acts as an anchor investor, enabling fund managers to attract more institutional investments.

  o **Strategic Fund:** Registered as an **Alternative Fund II under SEBI,** this fund primarily invests in equity and equity-linked instruments.

Source: Hindu

NEW FEATURE OF UPI

Context: The Reserve Bank of India (RBI) has recently introduced two new features for the Unified Payments Interface (UPI).

Background:

- These new features are poised to make UPI even more versatile and user-friendly, benefiting both consumers and financial institutions.

About Unified Payments Interface (UPI):

- It's a **real-time payment system** that allows instant transfer of funds between two bank accounts through a mobile platform.

- **Developed:** by the National Payments Corporation of India (NPCI) and is regulated by the RBI on April 11, 2016, as an advanced version of the **Immediate Payment Service (IMPS).**

- **It integrates multiple bank accounts** into a single mobile application, offering features like seamless fund routing and merchant payments.

- Some of the **top UPI apps include** PhonePe, Paytm, Google Pay, Amazon Pay, and BHIM, with BHIM being the government's offering.

New Features: UPI Access for Prepaid Payment Instruments (PPIs) through Third Party Apps:

- Previously, **UPI payments from Prepaid Payment Instruments (PPIs)** could only be made using the web or mobile app provided by the PPI issuer.

- Now, RBI proposes to **permit the use of third-party UPI apps** for making UPI payments from PPI wallets.

Enabling UPI for Cash Deposit Facility:

- Traditionally, depositing cash at **Cash Deposit Machines (CDMs)** primarily required the use of debit cards.

- Building on the **success of card-less cash withdrawal using UPI at ATMs,** RBI now proposes to facilitate cash deposits in CDMs using UPI.

- Soon, customers will be able to deposit cash at CDMs in banks and ATMs through the UPI app.

Source: Times of India

GEOGRAPHY

AFAR TRIANGLE

Context: Geologists predict that the African continent's rift in the Afar Triangle could lead to the formation of a new ocean in 5 to 10 million years.

Background:

- Over millions of years, this rift could continue to widen and eventually fill with seawater, leading to the formation of a new ocean. However, this is a process that would take millions of years and is based on current geological understanding and predictions. It's a fascinating example of how our planet is constantly changing and evolving.

About AFAR TRIANGLE
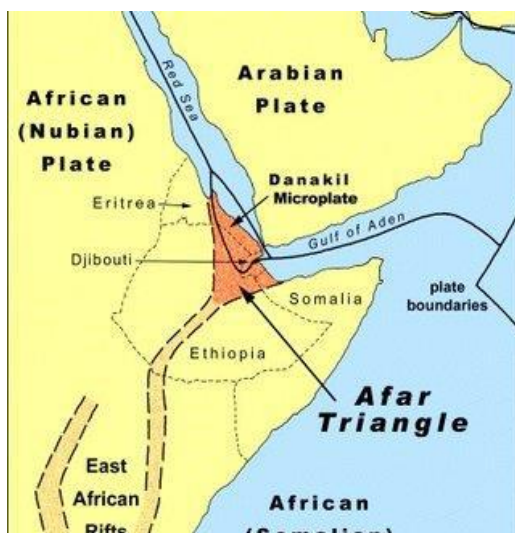
- Also known as the **Afar Depression, is a geological depression situated in the Horn of Africa**.

- Located in the **northeastern part of Africa**, is one of the most geologically active regions in the world.

- It's here that the **Arabian, Nubian, and Somali tectonic plates are moving apart from each other.** This movement has created a rift system, which is causing the African continent to split.

Geological Context:

- The Afar Triangle is caused by the Afar Triple Junction, which is part of the Great Rift Valley in East Africa.

- The region is characterized by its **unique geological features and has revealed fossil specimens of the earliest hominins—the earliest members of the human clade.**

- Some paleontologists consider it the cradle of human evolution.

Geographical Highlights:

- The Afar Triangle contains **Lake Assal in Djibouti**, which is the lowest point in Africa, lying 155 meters (509 feet) below sea level.

- The **Awash River flows into the region**, providing a narrow green belt that sustains flora, fauna, and the nomadic Afar people living in the Danakil Desert.

- The northern part of the Afar Depression is also known as the **Danakil Depression.**

Source: Times of India

HEAT WAVES

Context: The **Indian Meteorological Department (IMD)** announced that India will see more than average heat wave days in this year's hot weather season (April to June).

Background:

- The announcement comes even as India is already struggling to keep up with its power demand, which increases significantly during summer season.

About Heat wave:

- A period of abnormally high temperatures is called a heat wave. The IMD declares a heat wave if the maximum temperature of a weather station reaches at least 40 degrees C in the plains and at least 30 degrees C in hilly regions, with a departure of around 4.5-6.4 degrees C from the normal maximum temperature. The IMD can also declare a heat wave if the actual maximum temperature crosses 45 degrees C, and a 'severe heat wave' if it crosses 47 degrees C.

- Heat waves in India are typically recorded between March and June, and tend to peak in May.

- A study published in the journal PLOS Climate in April 2023 found heat waves all over the world are getting more "recurrent, intense and lethal" due to climate change.

Source:The Hindu

KAMBALAKONDA WILDLIFE SANCTUARY

Context: Nine people died and more than 800 got injured in Taiwan after the island was hit by its biggest earthquake in at least 25 years

Background:-

- Notably, Taiwan is prone to earthquakes as it lies along the Pacific "Ring of Fire" — where 90% of the world's earthquakes take place. The island and its surrounding waters have registered about 2,000 earthquakes with a magnitude of 4.0 or greater since 1980, and more than 100 earthquakes with a magnitude above 5.5.
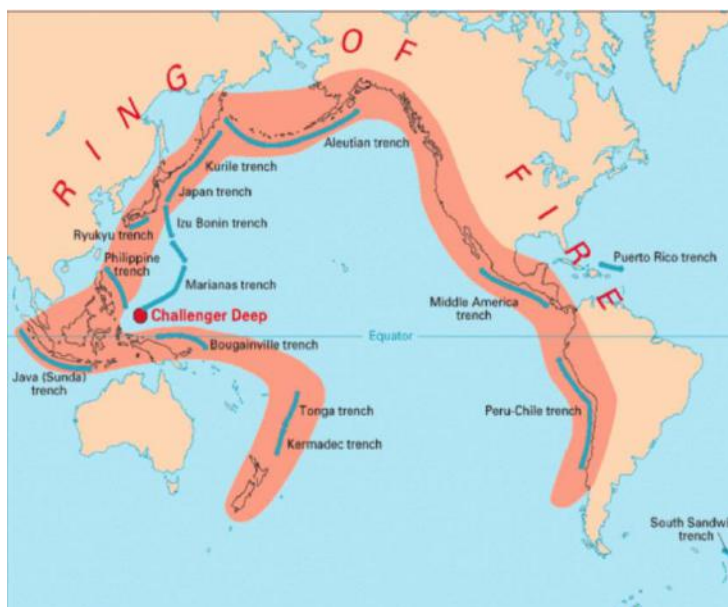
Ring of Fire

- It's essentially a **string of hundreds of volcanoes and earthquake-sites** which runs along the Pacific Ocean.

- The Ring of Fire traces the meeting points of numerous tectonic plates, including the Eurasian, North American, Juan de Fuca, Cocos, Caribbean, Nazca, Antarctic, Indian, Australian, Philippine, and other smaller plates, which all encircle the large Pacific Plate.

- It runs through 15 more countries including the USA, Indonesia, Mexico, Japan, Canada, Guatemala, Russia, Chile, Peru, and the Philippines.

Why is the Ring of Fire vulnerable to earthquakes?

- The Ring of Fire **witnesses so many earthquakes due to constant sliding past**, colliding into, or moving above or below each other of the tectonic plates.

- As the edges of these plates are quite rough, they get stuck with one another while the rest of the plate keeps moving. An earthquake occurs when the plate has moved far enough and the edges unstick on one of the faults.

Why are there so many volcanoes in the Ring of Fire?

* The existence of volcanoes in the Ring of Fire is also due to the movement of tectonic plates.

* Many of the volcanoes have been formed through a process known as **subduction.** It takes place when two plates collide with each other and the heavier plate is shoved under another, creating a deep trench.

* When a '**downgoing' oceanic plate** [like the Pacific Plate] is shoved into a hotter mantle plate, it heats up, volatile elements mix, and this produces the magma. The magma then rises up through the overlying plate and spurts out at the surface, which leads to the formation of volcanoes.

Source: Indian Express

SWELL WAVES

Context: Recently, Swell waves have inundated coastal areas in central and southern districts of Kerala, causing concern for coastal communities and prompting district-level disaster management authorities to be on high alert.

Background:

* These swell waves flooded beaches along the coastal regions in Thiruvananthapuram, Kollam, Alappuzha, and Thrissur districts.

About Swell waves:

* They refer to **ocean waves that have travelled over long distances** from their area of origin, usually generated by distant weather systems or storms.

* These waves typically have a **consistent and smooth appearance and can travel thousands of kilometers across the ocean's surface without breaking.**

* Swell waves are a **significant factor in shaping coastal areas** and can cause inundation and erosion when they reach shore.

* They are composed of a series of surface gravity waves.

* They occur not due to the local winds, but rather due to distant storms like hurricanes, or even long periods of fierce gale winds.

* During such storms, a huge energy transfer takes place from the air into the water, leading to the formation of very high waves.

* These waves can propagate in directions that differ from the direction of the wind, in contrast to a wind sea.

Source: Indian Express

ENGLISH CHANNEL

Context: Recently, five asylum seekers died while crossing the English Channel from France to Britain in an overcrowded small boat.

Background:

* In recent years, the English Channel has become a focal point for migrants and asylum seekers attempting to reach the UK. Many undertake dangerous journeys in small boats, hoping to find safety and better opportunities.

About English Channel:

- It's also known as **"La Manche,"** is an arm of the Atlantic Ocean that separates Southern England from northern France.

- It links to the **southern part of the North Sea via the Strait of Dover** at its northeastern end.

- Notably, it is the busiest shipping area in the world.

- Historically, the channel played a pivotal role in Britain's naval supremacy and served as a natural defence mechanism against invasions during significant events like the Napoleonic Wars and World War II.

Source: Reuters

IRAN

Context: Iran recently launched a series of air strikes on Israel, employing 200-300 drones and ballistic missiles.

Background:

- The attacks, executed by Iran's para-military force, the Iranian Revolutionary Guard Corps, were in response to Israeli war jets targeting an Iranian consulate in Syria. Iran dubbed the attack "Operation True Promise".

About Iran :

- Iran, officially known as the Islamic Republic of Iran, is situated in Western Asia.

- The vast majority of Iranians adhere to Islam. Specifically, they follow the Ithnā ʿAsharī (Twelver) branch of Shi'a Islam, which is the official state religion.

- Iran has one of the longest land borders of any country in the region, covering approximately 3,662 miles.

- **Iran shares this extensive land border with seven countries:** Iraq: To the west, Turkmenistan: To the north, Afghanistan: To the east, Pakistan: To the southeast, Turkey: To the northwest, Armenia: To the north, Azerbaijan: To the north.

- Additionally, Iran has maritime borders with several countries, including Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

Source: Hindu

NIOBIUM

Context: Recently, The Union Cabinet recently approved royalty rates in respect of 3 critical and strategic minerals, including **niobium,** and Rare Earth Elements.

Background:-

- The other two were lithium and Rare Earth Elements.

About Niobium:-

- Niobium is a beautiful, **white metal** that **changes to varying shades of blue, yellow and green** when exposed to the air and the elements.
- It is a rare, **soft, malleable, ductile, grey-white metal and** has a **relatively high melting point**, and in its elemental form, its melting point can go up to 2,468 °C.
- It has a **density that is lower than most other refractory metals and** is **anti-corrosive** and has **high superconductivity properties**.
- It usually **forms layers of dielectric oxides** when exposed to air.
- It is almost identical in terms of size, to **tantalum** atoms and **exhibits Lanthanide contractions.**
- It is **not found free in nature** but in minerals such as **columbite and tantalite.**
- Commercially, niobium is **extracted by first forming the oxide (Nb2O5).**
- **Brazil** is the world's largest supplier, with **Canada** trailing far behind.

Applications:-

- It is utilized in the manufacture of **high-temperature-resistant alloys** and specific stainless steels.
- It is also utilized to **construct superconducting accelerating** structures for particle accelerators in their pure form.
- Because they do not react with human tissue, niobium alloys are employed in **surgical implants.**

MUST READ: Indian Bureau of Mines
SOURCE: THE NEW INDIAN EXPRESS

MOUNT RUANG VOLCANO

Context: Indonesia witnessed a series of eruptions from Mount Ruang.

Background:

- At least 16 eruptions have been recorded from Mount Ruang, with the first one occurring in 1808.

About MOUNT RUANG VOLCANO:

- Mount Ruang is situated in Indonesia's North Sulawesi province.
- It is a stratovolcano, characterized by a tall, steep, cone-shaped structure.
- Stratovolcanoes are known for their explosive eruptions due to the build-up of gas pressures in their more viscous lavas.
- The volcano is part of the Pacific Ring of Fire, which is prone to frequent seismic and volcanic activity due to its position on subduction zones.

Source: Times of India

LAKSHMANA TIRTHA RIVER

Context: The Lakshmana Tirtha River has completely dried up due to severe drought conditions and intense heat.

Background:

- This year, by early April, the river has run dry, leaving no trace of water. The drying up of Lakshmana Tirtha can be attributed to the extreme weather conditions exacerbated by last year's deficit rainfall in Kodagu, which recorded only 40% of its average rainfall.

About LAKSHMANA TIRTHA RIVER:

- It's a significant river in Karnataka which originates in the Brahmagiri hills of Kodagu (Coorg) District, Karnataka. It is a significant tributary of the Cauvery River.

- It flows eastward, traversing a flat area south of Coorg and joins the Cauvery River in the Krishna Raja Sagara Lake.

- The Lakshmanatirtha Falls, also known as the Irupu Falls, is located on the river. It borders Kerala and lies on the way to Nagarhole National Park.

- **Tributaries of the Cauvery River**: the Harangi, Hemavati, Shimsha, and Arkavati on the left bank, and the Lakshmantirtha, Kabbani, Suvarnavati, Bhavani, Noyil, and Amaravati on the right bank.

Source:Hans India

DUBAI FLASH FLOODS AND CLOUD SEEDING

Context: Following the floods, questions were raised whether cloud seeding, a process that the UAE frequently conducts, could have caused the heavy rains.

Background:

- A storm hit the United Arab Emirates and Oman this week bringing record rainfall that flooded highways, inundated houses, grid-locked traffic and trapped people in their homes.

Did cloud seeding cause the storm?

- **Rainfall is rare in the UAE** and elsewhere on the **Arabian Peninsula**, that is typically known for its dry desert climate. Summer air temperatures can soar above 50 degrees Celsius.

- Cloud seeding is a process in which chemicals are implanted into clouds to increase rainfall in an environment where water scarcity is a concern.

- The UAE, located in one of the hottest and driest regions on earth, has been leading the effort to seed clouds and increase precipitation.

- The huge rainfall was instead likely due to a normal weather system that was exacerbated by climate change, experts say.

- Climate scientists say that rising global temperatures, caused by human-led climate change, is leading to more extreme weather events around the world, including intense rainfall.

- Rainfall from thunderstorms, like the ones seen in UAE in recent days, sees a particular strong increase with warming. This is because convection, which is the strong updraft in thunderstorms, strengthens in a warmer world.

- Rainfall was becoming much heavier around the world as the climate warms because a warmer atmosphere can hold more moisture. It was misleading to talk about cloud seeding as the cause of the heavy rainfall, experts say.

Source: The Hindu

MARINE COLDWAVES

Context: The effects of ocean warming are profound and well-documented. But sometimes changes in the patterns of winds and ocean currents cause seawater to suddenly cool, instead.

Background:

- When a "killer coldwave" manifested along South Africa's southeast coast in March 2021, it killed hundreds of animals across at least 81 species. More worrying still was the fact these deaths included vulnerable manta rays and even specimens of notoriously robust migratory bull sharks.

About Cold waves

- Sometimes changes in the patterns of winds and ocean currents cause seawater to suddenly cool. Surface temperatures can plummet rapidly — by 10ºC or more over a day or two. When these conditions persist for several days or weeks, the area experiences a "coldwave".

- Certain wind and current conditions can cause the sea surface to cool, rather than warm. This happens when winds and currents force coastal waters to move offshore, which are then replaced from below by cold water from the deep ocean. This process is known as upwelling.

- In some places, such as California on the US west coast, upwelling happens regularly along hundreds of kilometres of coastline. But localised upwelling can occur seasonally on a smaller scale, too, often at the edges of bays on the east coasts of continents due to interactions of wind, current and coastline.

- Studies reveal an increasing trend in the number of annual upwelling events over the past 40 years. We also found an increase in the intensity of such upwelling events and the extent to which temperatures dropped on the first day of each event – in other words, how severe and sudden these cold snaps were.

- During the extreme upwelling event along the southeast coast of South Africa in March 2021, at least 260 animals from 81 species died. These included tropical fish, sharks and rays.

- Overall, our oceans are warming. The ranges of tropical and subtropical species are extending towards the poles. But along some major current systems, sudden short-term cooling can make life difficult for these climate migrants, or even kill them.

Source: The Hindu

LAKE KARIBA

Context: Water levels at Lake Kariba in Zimbabwe have dropped dramatically because of the latest El Nino drought.

Background:

- El Niño leads to hotter temperatures and significantly reduced rainfall in southern Africa for extended periods.

About LAKE KARIBA :

- Lake Kariba is renowned as the **world's largest artificial lake and reservoir by volume.**

- It situated along the border between Zambia and Zimbabwe and was created following the completion of the Kariba Dam at its northeastern end, which flooded the Kariba Gorge on the Zambezi River.

- The lake was filled between 1958 and 1963 and is a significant source of hydroelectric power for both countries.
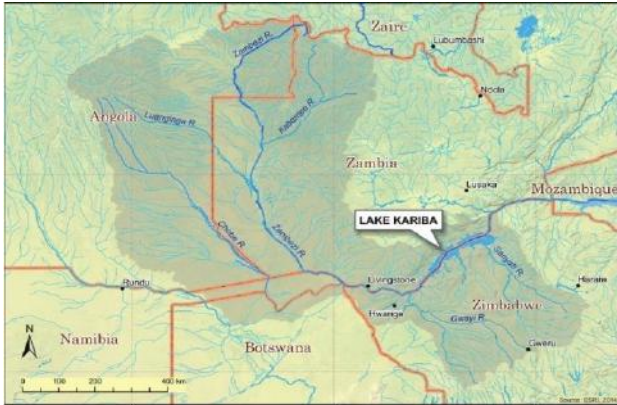
- This drastic decline in the water level of the Lake Kariba has a severe consequence for local communities, affecting livelihoods, economic activities, and the environment.

- The Zimbabwean government has declared a national disaster in response to this unfolding crisis.

Source: Down To Earth

EXO – ATMOSPHERIC INTERCEPTORS

Context: Recently, Israel asserted that its air-defence system, which employs exo-atmospheric interceptors, successfully neutralized 99% of the missiles launched by the Islamic Republic of Iran.

Background:

- The recent Iran-Israel tensions saw Iran launching 170 drones, over 30 cruise missiles, and more than 120 ballistic missiles against Israel, with the majority being intercepted by Israel's defence systems.

About Exo-atmospheric interceptors:

- They are a **critical component of missile defence systems and** are designed to **counter ballistic missiles** in the outer atmosphere, demonstrating exceptional long-range interception capabilities.

- They are **deployed to destroy incoming ballistic missiles** before they re-enter the atmosphere and reach their intended targets.

- **The Arrow 3 Missile defence system,** developed and produced primarily by Israel Aerospace Industries (IAI), plays a crucial role in this defence mechanism.

- The Arrow 3 (also known as Hetz 3) is an **exo-atmospheric hypersonic anti-ballistic missile** jointly funded, developed, and produced by Israel and the United States.

Source: Livemint

NETAJI SUBASH CHANDRA BOSE ISLAND

Context: The unchecked population growth of spotted deer (Chital) is creating problems in Netaji Subhash Chandra Boss Island.

Background:-

- Introduced to the Andaman and Nicobar Islands for game hunting in the early 1900s by the British, the herbivore multiplied unchecked for years in the absence of large predators. It has become an "invasive" problem for the Union Territory's authorities.

About Netaji Subhash Chandra Bose Island

- **Earlier Ross Island, now officially known as Netaji Subhash Chandra Bose Island,** is an island of the Andaman Islands.

- The Island is situated three kilometres East of Central Port Blair and belongs to the South Andaman administrative district, Andaman and Nicobar Islands.

- **The Andaman and Nicobar Islands are strategically located** in the Indian Ocean between the Indian mainland, Myanmar, and Indonesia, and are close to important maritime routes.

- The islands were **first controlled by the Dutch, then by the British, and were taken over by the advancing Japanese military during World War II.**

- **The Azad Hind government was able to obtain de jure control of the islands** from the Japanese by the end of 1943, and Subhash Chandra Bose arrived in Port Blair on December 29.

Source: Indian Express

GLACIAL LAKE OUTBURST FLOOD'S (GLOF'S)

Context: The Uttarakhand government has constituted two teams of experts to evaluate the risk posed by five potentially hazardous glacial lakes in the region. These lakes are prone to Glacial Lake Outburst Floods (GLOFs), the kind of events that have resulted in several disasters in the Himalayan states in recent years.

Background:

- **The National Disaster Management Authority (NDMA), which operates under the Union Ministry of Home Affairs,** has identified 188 glacial lakes in the Himalayan states that can potentially be breached because of heavy rainfall. Thirteen of them are in Uttarakhand.

About Glacial Lake Outburst Floods (GLOFs)

- GLOFs are disaster events **caused by the abrupt discharge of water from glacial lakes** — large bodies of water that sit in front of, on top of, or beneath a melting glacier. As a glacier withdraws, it leaves behind a depression that gets filled with meltwater, thereby forming a lake.

- The more the glacier recedes, the bigger and more dangerous the lake becomes. Such lakes are mostly dammed by unstable ice or sediment composed of loose rock and debris.

- GLOFs can be **triggered by various reasons**, including glacial calving, where sizable ice chunks detach from the glacier into the lake, inducing sudden water displacement.

- Incidents such as avalanches or landslides can also impact the stability of the boundary around a glacial lake, leading to its failure, and the rapid discharge of water.

- GLOFs can unleash large volumes of water, sediment, and debris downstream with formidable force and velocity.

- In recent years, there has been a rise in GLOF events in the Himalayan region as soaring global temperatures have increased glacier melting. Rapid infrastructure development in vulnerable areas has also contributed to the spike in such incidents.

Source: Indian Express

TORNADOS

Context: Recently, a tornado hit the Mainaguri area of Jalpaiguri district in West Bengal.

Background:

- The tornado hit caused significant destruction, resulting in the tragic loss of five lives and injuring over 300 people.

About TORNADOS

- A tornado is a **violently rotating column of air that forms a connection between the surface of the Earth and a cumulonimbus cloud** (or, in rare cases, the base of a cumulus cloud).

- They are the smallest but **most violent and disastrous of all the storms and** generally occur in middle latitudes.

- Steep pressure gradients result in **fast movement of air towards the center.**

Types of Tornadoes:

- **Multiple-Vortex Tornado:** Contains several smaller whirls rotating around a common center.

- **Landspout**: A non-supercellular tornado that develops over land.

- **Waterspout**: A spiraling funnel-shaped wind current that connects to a large cumulus or cumulonimbus cloud. Waterspouts generally form over bodies of water and are less common at high latitudes.

Occurrence:

- **Are most common in the mid-latitudes** of both the Northern and Southern Hemispheres in the spring and summer when thunderstorms are present.

- These storms **convert potential and heat energy into kinetic energy**, allowing the agitated atmosphere to settle back down.

- In India, **tornadoes and cyclones occur,** but tornadoes occur on a relatively infrequent basis.

- Tornadoes of moderate strength strike the country's northwestern and north-eastern regions, causing significant damage to people and property.

Source: Down To Earth

Environment and Ecology

ECO

CLEAN ENERGY TRANSFORMATION PROGRAMME (CEPT)

Context: Recently, the International Energy Agency (IEA) launched the Clean Energy Transitions Programme annual report 2023.

Background:

- The CETP Annual Report 2023 provides an in-depth overview of the program's accomplishments during the past year.

About Clean Energy Transitions Programme (CETP)

- CETP is launched by the International Energy Agency (IEA) in 2017, is a **flagship initiative aimed at accelerating progress toward a global net-zero energy system.**
- **It leverages the insights and influence of the world's leading energy authority** to accelerate clean energy transitions, particularly in emerging and developing economies.

Three Pillars of Activity:

- **Setting Transition Goals:** The first pillar assists emerging and developing countries in establishing clean energy transition goals aligned with the Paris Agreement and UN Sustainable Development Goals.
- **Multilateral Coordination:** The second pillar facilitates collaboration among organizations like the Group of 20 (G20) and UN-affiliated bodies.
- **Global-Level Support:** The third pillar enables and accelerates clean energy transitions globally.

PELAGIA NOCTILUCA

Context: In an unusual occurrence, a bloom of venomous jellyfish was reported by marine researchers across the Visakhapatnam coast on April 3 (Wednesday) morning.

Background:

- Rarely seen in the East coast of India, scores of the venomous jellyfish species, with three to five centimetres long diameter of bell, were spotted across RK Beach and other parts of the coast, which are frequented by tourists and visitors.

About Pelagia noctiluca:

- Pelagia noctiluca is a venomous species of jellyfish which is also known as the **mauve stinger or purple-striped jellyfish.**
- These are bioluminescent, having an ability to produce light in the dark.
- Pelagia noctiluca is found worldwide in tropical and warm-temperature seas. Unlike other jellyfish species, it has stingers not just on the tentacles, but on the bell too.
- According to marine biologists, **jellyfish blooms are reported frequently as a result of rising ocean temperatures,** one of the main causes of substantial population growths.
- Venomous jellyfish blooms have in the past been known to have caused massive damage to the fishing industry and impacted tourism. In the past, a bloom of Pelagia noctiluca had damaged penned salmon at a fish farm in Ireland.

CLIMATE TECHNOLOGY CENTRE AND NETWORK (CTCN)

Context: The **Climate Technology Centre and Network (CTCN)** celebrates its 10-year anniversary as a key player in advancing climate technology and innovation.

Background:

- The CTCN's commitment to climate resilience and emissions reduction remains unwavering as it continues to drive technological advancements for a sustainable future.

About CLIMATE TECHNOLOGY CENTRE AND NETWORK (CTCN):

- CTCN is a vital initiative that connects countries to climate solutions and is the **operational arm of the UNFCCC Technology Mechanism**, hosted by the **UN Environment Programme and the UN Industrial Development Organization (UNIDO).**

- It was **established under the United Nations Framework Convention on Climate Change (UNFCCC)** to facilitate the transfer of environmentally sound technologies to developing countries for low carbon and climate-resilient development.

- **Goal:** facilitate the transfer of environmentally sound technologies to developing countries.

Source:UNEP

GLOBAL TREATY ON PLASTIC WASTE

Context: On Tuesday (April 23), thousands of negotiators and observers from 175 countries arrived in Ottawa, Canada, to begin talks regarding the very first global treaty to curb plastics pollution. Scheduled to run till April 29, this is the fourth round of negotiations since 2022, when the UN Environmental Assembly agreed to develop a legally binding treaty on plastics pollution by the end of 2024. The final round will take place in November this year, in South Korea.

Background:-

- A global plastics treaty is urgently required to limit plastic's contribution to climate change, biodiversity loss, and pollution.

Key Takeaways
- Since the 1950s, plastic production across the world has skyrocketed. It increased from just 2 million tonnes in 1950 to more than 450 million tonnes in 2019. If left unchecked, the production is slated to double by 2050, and triple by 2060.

- **As plastic takes anywhere from 20 to 500 years to decompose**, and less than 10% has been recycled till now, nearly 6 billion tonnes now pollute the planet, according to a 2023 study published by The Lancet.

- **Much of this plastic waste leaks into the environment, especially into rivers and oceans, where it breaks down into smaller particles (microplastic or nanoplastic).** These contain more than 16,000 chemicals which can harm ecosystems and living organisms, including humans.

- **According to a report by the OECD, in 2019, plastics generated 1.8 billion tonnes of GHG emissions** — 3.4% of global emissions.Roughly 90% of these emissions come from plastic production, which uses fossil fuels as raw material.

What can the treaty entail?
- Experts believe that the proposed treaty will be the most important environmental accord since the 2015 Paris Agreement on climate change.

- While none of the treaty's details have currently been finalised, experts believe that it can go beyond just putting a cap on plastic production in UN member states. The treaty can theoretically lay out guidelines on how rich nations should help poorer ones meet their plastic reduction target.

- It may also ban "particular types of plastic, plastic products, and chemical additives used in plastics, and set legally binding targets for recycling and recycled content used in consumer goods," according to a report by the Grist magazine.

What are the roadblocks to the treaty?

- **Treaty negotiations, so far, have been deeply polarising.** Since the first round of talks in Uruguay in November 2022, oil-producing nations like Saudi Arabia, Russia, and Iran have opposed plastic production caps, and are using myriad delay tactics (like arguing over procedural matters) to derail constructive dialogues.

- On the other end, **there is a coalition of around 65 nations — known as the "High-Ambition Coalition" —** which seeks to tackle plastic production. The coalition, which includes African nations and most of the European Union, also wants to end plastic pollution by 2040, phase out "problematic" single-use plastics, and ban certain chemical additives that could carry health risks.

- The US has not joined the HAC. **While it has said it wants to end plastic pollution by 2040,** unlike the HAC, it advocates that countries should take voluntary steps to end plastic pollution.

Source: Indian Express

GREEN TAXONOMY

Context: The RBI and the Finance Ministry could take inspiration from the developing world, especially the ASEAN region, where a layered green taxonomy as a living document keeps getting updated with sectoral views of possible sustainable trajectories.

Background:

- This taxonomy continually evolves, incorporating sector-specific perspectives on potential sustainable pathways.

Green Taxonomy :

- It serves as a framework for defining environmentally sustainable investments.

- It classifies economic activities and assets based on their environmental impact. Essentially, it helps identify which activities are "green" or environmentally sustainable.

Purpose and Benefits:

- **Preventing Greenwashing**: Taxonomies play a crucial role in preventing greenwashing—the deceptive practice of conveying false impressions about a company's environmentally friendly products or practices.

- **Informed Investment Decisions**: By providing clear criteria, taxonomies assist investors in making informed decisions by identifying genuinely sustainable opportunities.

- **Channelling Investments**: They guide investments toward sustainable economic activities and assets.

Structural Aspects:

- **Environmental Objectives:** Most taxonomies include goals related to climate mitigation and adaptation. Some also address other environmental objectives like biodiversity conservation.

- **"Do No Significant Harm" Criteria:** Activities considered green should not harm other environmental objectives.

- **Social Safeguards:** Compliance with human rights is often part of taxonomies.

Source: Hindu

SEA LEVEL RISES

Context: A quarter of the coastal land of China will sink below sea level within a century, putting hundreds of millions of people at risk of being flooded, due to land subsidence and climate change, according to a new study, published in the journal Science on Friday (April 19).

Background:-

- The land subsidence in China is primarily a result of rapid urbanisation — activities such as excessive groundwater extraction and the weight of buildings lead to subsidence. The situation has been exacerbated by climate change, which is resulting in the rise of sea levels.

- **It is a global issue that is projected to affect between 130 million to half a billion people** depending on different temperature scenarios in the long run, according to a UN report.

How fast is the global sea level rising?

- The global sea level has risen by about 8–9 inches or 21–24 centimetres since 1880, according to a report by the **National Oceanic and Atmospheric Administration (NOAA).**

- The more worrying sign is that since 1993, the rate of increase has been accelerating. Global average sea level rose by about 0.3 inches or 0.76 centimetres from 2022 to 2023.

- Experts said there was a huge jump in global sea level between the two years mainly due to the development of El Niño, a weather pattern associated with warmer oceans, in June 2023. Now that El Niño is weakening, the rate of sea level rise is expected to slow down.

How climate change is leading to sea level rise?

- The key driver behind rising sea levels is global warming. As temperatures across the world continue to soar, more and more glaciers and ice sheets are melting and adding water to the ocean.

- **Global warming is also making the ocean warmer**, which is leading to something called thermal expansion — when water becomes warmer, it expands in volume. This is contributing to sea level rise as well.

Why does sea level rise matter?

- The most visible consequence of sea level rise will be the flooding of coastal areas. Take the example of coastal cities in India. A 2022 analysis by RMSI, a global risk management firm, found that some critical properties and road networks in Mumbai, Kochi, Mangalore, Chennai, Visakhapatnam, and Thiruvananthapuram will be submerged by 2050.

- The rise of sea level also leads to more intense storm surges — the rise in seawater level caused solely by a storm — flooding, and damage to coastal areas. That's because higher sea level can allow more water inland during hurricane-related storm surges.

- With sea level rise, saltwater contaminates freshwater aquifers, many of which are used by communities for agricultural and drinking purposes.

Source: Indian Express

EARTH DAY

Context: Every year, April 22 is observed as Earth Day, an international event celebrated around the world to pledge support for environmental protection.

Background:

- The year 2024 marks the 54th anniversary of the annual celebrations.

About Earth DAY :

- **Earth Day was first observed in 1970 when 20 million took to the streets to protest against environmental degradation.** The event was triggered by the 1969 Santa Barbara oil spill and other issues such as smog and polluted rivers.

- **The landmark Paris Agreement, which brings almost 200 countries** together to set a common target to reduce global greenhouse emissions, was signed on Earth Day 2016.

- In 2009, the United Nations designated Earth Day as International Mother Earth Day.

- **Aim:** "build the **world's largest environmental movement to drive transformative change** for people and the planet." The movement's mission is "to diversify, educate and activate the environmental movement worldwide."

- This day also recognises a collective responsibility, as called for in the 1992 Rio Declaration, to promote harmony with nature and the Earth to achieve a just balance among the economic, social and environmental needs of present and future generations of humanity.

- **This year, the theme is 'Planet vs. Plastics'.** The theme highlights the threat plastics pose to the planet and human health. It calls for an end to all plastic waste by demanding a 60% reduction in the production of plastics by the year 2040.

Source: Indian Express

CHIPKO MOVEMENT

Context: The Chipko Movement, which began in the Uttarakhand region of the Himalayas in early 1973, has now reached its 50th anniversary.

Background:

- The Chipko Movement's tireless efforts and commitment to the environment continue to inspire new generations of activists.

About CHIPKO MOVEMENT:

- It's also known as the **Chipko Andolan,** was a non-violent environmental movement that originated in Uttarakhand (formerly part of Uttar Pradesh) in 1973.

- During the movement, villagers embraced trees to prevent them from being cut down by loggers.

- **Aim:** to protect the Himalayan range trees from the axes of builders and commercial interests.

- Sunderlal Bahuguna, a Gandhian and environmentalist, played a pivotal role in the Chipko Movement.

- He coined the famous Chipko slogan: "Ecology is permanent economy."

Major Achievements:

- **Rights to Forests:** The movement made people aware of their rights to forests and demonstrated how grassroots activism could influence policy-making regarding ecology and shared natural resources.

- **Ban on Commercial Felling:** In 1981, the movement led to a ban on commercial tree felling above 30 degrees slope and above 1,000 meters above mean sea level (msl).

Source: [Down To Earth](#)

CLIMATE CHANGE AND HUMAN RIGHTS

Context: The Supreme Court of India acknowledged the right to protection from climate change impacts as part of the fundamental rights to life (Article 21) and equality (Article 19) enshrined in the Indian Constitution.

Background:

- The arguments were a part of a verdict by a three-judge bench headed by the Chief Justice of India DY Chandrachud hearing a case on the conservation of the great India bustard and the lesser florican.

The intersection of climate change and human rights:

- **Climate change can directly affect people's right to life** by causing extreme weather events like hurricanes or floods, which can lead to loss of life and property. For example, in low-lying coastal areas, rising sea levels due to climate change can threaten people's homes and livelihoods, forcing them to relocate.

- **Climate change can impact water sources,** leading to water scarcity or contamination. This affects people's right to clean water and sanitation. In regions where droughts are becoming more frequent due to climate change, communities may struggle to access safe drinking water, leading to health issues.

- **Climate change can exacerbate health problems,** especially for vulnerable populations. For instance, increased heat waves can lead to heat-related illnesses and deaths, affecting the right to health.

- **Climate change-induced events such as** sea-level rise, extreme weather events, or desertification can force people to migrate or be displaced from their homes. This intersects with human rights, particularly the right to residence and the right to seek asylum.

The Supreme Court's interpretation of constitutional provisions concerning climate change:

- **Article 48A which mandates environmental protection and Article 51A(g)** which promotes wildlife conservation, implicitly guarantee a right to be safeguarded from climate change.

- **Article 21 recognises the right to life and personal liberty while Article 14** indicates that all persons shall have equality before the law and the equal protection of laws. These articles are important sources of the right to a clean environment and the right against the adverse effects of climate change.

- **In MC Mehta vs Kamal Nath Case, 2000, the Supreme Court stated** that the right to a clean environment is an extension of the right to life.

Issues/Challenges in balancing climate change mitigation with human rights protection:

- **Some climate mitigation measures may conflict with human rights**, such as restrictions on land use for conservation projects or displacement due to renewable energy infrastructure development. Finding solutions that minimise negative impacts while maximising benefits is challenging.

- **Climate actions like transitioning to renewable energy or implementing carbon pricing** can impact access to essential resources like energy, water, and food, especially for marginalised communities.

- **Climate-induced migration can strain social systems** and lead to conflicts over resources and rights in host communities. Managing migration flows in a way that respects the rights of both migrants and host populations is a multifaceted challenge.

Source: Down To Earth

EFFECTS OF TEMPERATURE ON HEALTH

Context: A study of 266 studies worldwide, revealed that heat waves were associated with a 11.7 per cent increase in mortality. The highest specific risk was for stroke and coronary heart disease.

Background:-

- Even as we must try energetically to mitigate the drivers of climate change and global warming, we must prepare adaptation plans.

Heat Waves and Health

- **The consequences of climate change, mostly mediated through global warming,** adversely affect human, animal and plant health in several ways: Direct effects of heat exposure on the body; extreme weather events; water scarcity; vector-borne and water-borne infections; non-communicable diseases (strokes; heart attacks; diabetes; respiratory disease; cancers); mental health disorders; food and nutrition insecurity due to reduced yield and nutrient quality of crops.

- **Health systems will face increased demand due to these and the movement of displaced climate refugees.** They will also be affected by the adverse impact of extreme weather events on healthcare infrastructure, supply chains and personnel.

- The India Meteorological Department (IMD) says that such "moist heat" stress has increased by 30 per cent between 1980 and 2020.

- Heat acts through dehydration, inability of the skin to cool the body through perspiration, dilatation of blood vessels and thickening of blood with increased risk of clot formation (thrombosis).

- Infants and young children are more vulnerable than adults, since their bodies have higher fluid content than grownups. Among adults, vulnerability is high among the elderly, persons with disabilities and in those with serious comorbidities. Women are more vulnerable than men.

- **Non-communicable diseases (NCDs)** contribute to 65 per cent of deaths in India. The heat effects of climate change will only exacerbate the problem.

- **Wildfires triggered by excessive heat release particulate matter (PM 2.5) and toxic chemicals** (ozone, carbon monoxide, polycyclic aromatic compounds and nitrogen dioxide) **can cause extensive inflammation, increasing the risk of cardiovascular disease** (heart attacks, strokes, heart rhythm abnormalities, pulmonary embolism, heart failure), respiratory disease, diabetes and pre-diabetes.

- **Less immediate, but with a long lasting impact on health, is the impact on food systems which threatens nutrition security.** Countries in South Asia and sub-Saharan Africa currently grow staples (like rice and wheat) at the highest levels of heat tolerance. A further increase of 1 degree centigrade will lower their yield by 10 per cent. **The crops will also be more deficient in** zinc, protein and iron.

- **Rising ocean temperatures will flood coastal agriculture while reducing fish yields.** Loss of biodiversity will reduce access to nutritious "wild foods". Heat will kill us not only through its effect on our skin but also our stomachs.

Source: Indian Express

FOURTH GLOBAL MASS CORAL BLEACHING

Context: The fourth global mass coral bleaching event has been triggered by extraordinary ocean temperatures, the US National Oceanic and **Atmospheric Administration (NOAA)** said on Monday (April

15). This could have serious consequences for ocean life and millions of people who rely on reefs for food, jobs, and coastal defence.

Background:

- Since mid-March 2023, the average **sea surface temperature (SST)** has been abnormally high.

What are corals and coral reefs?
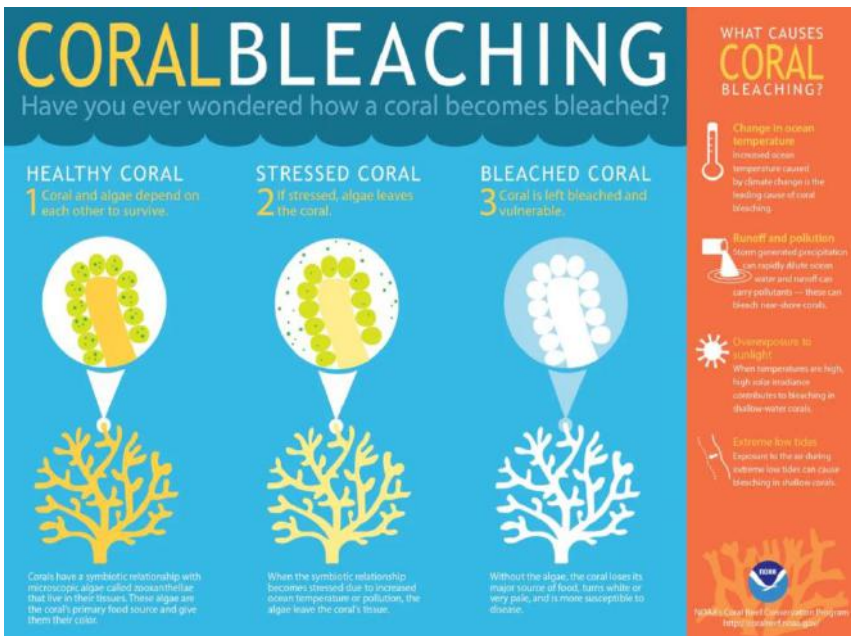
- Corals are essentially animals, which are sessile, meaning they permanently attach themselves to the ocean floor. They use their tiny tentacle-like hands to catch food from the water and sweep into their mouth. **Each individual coral animal is known as a polyp and it lives in groups of hundreds to thousands of genetically identical polyps that form a 'colony'.**

- Corals are largely classified as either hard coral or soft coral. It is the hard corals that are the architects of coral reefs — complex three-dimensional structures built up over thousands of years.

- "**Unlike soft corals, hard corals have stony skeletons** made out of limestone that are produced by coral polyps. When polyps die, their skeletons are left behind and used as foundations for new polyps," according to NOAA.

What is the significance of corals?

- **Coral reefs have a crucial role in marine ecosystems.** Thousands of marine species can be found living on one reef. For instance, the Great Barrier Reef contains over 400 coral species, 1,500 fish species, 4,000 mollusc species and six of the world's seven sea turtle species.

- More than 500 million people across the world depend on coral reefs for food, income and coastal protection from storms and floods.

- Coral reefs can absorb up to 97% of the energy from waves, storms, and floods, which prevents loss of life, property damage, and soil erosion. **Therefore, the absence of coral reefs would not only result in severe ramifications for marine life but also for humans.**

What is coral bleaching?

- Most corals contain algae called **zooxanthellae** — they are plant-like organisms — in their tissues.

- **Corals and zooxanthellae have a symbiotic relationship.** While corals provide zooxanthellae a safe place to live, zooxanthellae provide oxygen and organic products of photosynthesis that help corals to grow and thrive. **Zooxanthellae also give bright and unique colours to corals.**

- Corals are very sensitive to light and temperature and even a small change in their living conditions can stress them. When stressed, they expel zooxanthellae and turn entirely white. This is called coral bleaching.

- **Coral bleaching reduces the reproductivity of corals** and makes them more vulnerable to fatal diseases. If the bleaching is not too severe, corals have been known to recover.

- Global mass bleaching of coral reefs is when significant coral bleaching is confirmed in the Atlantic, Indian and Pacific oceans, according to a report published by The Conversation.

- Such events are a relatively new phenomenon. The first one took place in 1998 in which 20% of the world's reef areas suffered bleaching-level heat stress. The next two global bleaching events occurred in 2010 (35% of reefs affected) and between 2014 and 2017 (56% of reefs affected).

What is happening right now?

- NOAA has confirmed that the **fourth global bleaching event is currently underway.** Nearly 54 countries, territories and local economies — from Florida, the US, Saudi Arabia to Fiji — have confirmed bleaching, according to a report by The New York Times.

- The Great Barrier Reef is witnessing its most severe bleaching event. "**About a third of the reefs surveyed by air showed prevalence of very high or extreme bleaching, and at least three quarters showed some bleaching,**" the NYT report said.

- The key driver behind the current event is higher ocean temperatures. However, the situation has been exacerbated by El Niño, a weather pattern which is associated with warmer oceans. Given that El Niño is weakening and a cooler La Niña may set in by the end of the year, the event may not last for very long.

Source: [Indian Express](#)

GLOBAL METHANE TRACKER 2024

Context: The International Energy Agency's Global Methane Tracker 2024 indicates that methane emissions from fuel usage in 2023 were nearly at their highest level on record, representing a slight increase compared to 2022.

Background:

- Methane is responsible for around 30 per cent of the rise in global temperatures since the preindustrial era. The energy sector — including oil, natural gas, coal and bioenergy — accounts for over a third of methane emissions from human activity.

Key highlights of the Global Methane Tracker 2024:

- In 2023, methane emissions from fossil fuels totalled close to **120 million tonnes (Mt).**

- **Bioenergy (largely from biomass use)** contributed a further 10 Mt methane emissions. This level has stayed constant since 2019.

- **Major methane emissions events increased by over 50% in 2023 compared to 2022.** These events included more than 5 million metric tons of methane emissions from significant fossil fuel leaks globally. One prominent incident was a major well **blowout in Kazakhstan that lasted over 200 days.**

- Cutting methane emissions from **fossil fuels by 75% by 2030** is crucial for limiting global warming to 1.5 °C. The IEA estimated that this goal would require about USD 170 billion in spending. This is less than 5% of the income generated by the fossil fuel industry in 2023. Around 40% of emissions from fossil fuels in 2023 could have been avoided at no net cost.

Methane:

- It is the primary component of natural gas and is odourless, colourless, and tasteless gas.

- It is **lighter than air and burns with a blue flame in complete combustion,** yielding carbon dioxide (CO_2) and water (H_2O) in the presence of oxygen.

- Methane ranks as the second most important **greenhouse gas (GHG) after carbon dioxide (CO2).
  Its 20-year global warming potential (GWP) is 84**, indicating that it traps 84 times more heat per
  mass unit than CO2 over a 20-year period, making it a potent GHG.

- It contributes to the formation of ground-level ozone.

Major sources of Methane Emission:

- Wetlands, both natural and human-made, are significant sources of methane emissions due to
  anaerobic decomposition of organic matter.

- Excreta from cattle and other livestock undergo enteric fermentation, producing methane as a
  byproduct.

- Burning of fossil fuels, including oil and natural gas, releases methane emissions.

- Biomass burning, such as wood and agricultural residues, also contributes to methane levels.

- Industrial activities like landfills and wastewater treatment plants generate methane during organic
  waste decomposition in anaerobic environments.

Source:Down To Earth

GLOBAL FOREST WATCH

Context: According a recent report of **Global Forest Watch**, India lost 2.33 million hectares of tree cover
since 2000.

Background:

- The Global Forest Watch, which tracks forest changes in near real-time using satellite data and
  other sources, said the country lost 4,14,000 hectares of humid primary forest (4.1 per cent) from
  2002 to 2023, making up 18 per cent of its total tree cover loss in the same period.

About GLOBAL FOREST WATCH (GFW)

- GFW is an **online platform that provides data, technology, and tools to help people everywhere
  protect forests.**

- GFW is an initiative of the **World Resources Institute (WRI),** with partners including Google, USAID,
  the University of Maryland (UMD), Esri, Vizzuality, and many other organizations.

- It empowers users like conservation organizations, policymakers, journalists, and companies to
  manage and share information about forest cover and land use effectively.

Source: Hindu

GREEN CREDIT PROGRAMME (GCP)

Context:The Union Environment Ministry has recently introduced modifications to the Green Credit
Programme (GCP).

Background:

- These changes aim to strike a balance between environmental conservation and sustainable
  development.

About GREEN CREDIT PROGRAMME (GCP):

- The green credit represents a unit of incentive for a specific environmentally positive activity.

- Eg: Each tree planted and evaluated by the **Indian Council of Forestry Research and Education
  (ICFRE) after two years yields one 'green credit.'**

- **These credits serve two purposes:**

- o **Compliance with forest laws:** Necessitating recompense for forest land diversion.

- o **Reporting under environmental, social, and governance norms:** Meeting corporate social responsibility requirements.

Green Credit Programme (GCP)

- **The GCP notified on October 13, 2023, is a market-based mechanism** introduced by the Ministry of Environment, Forest and Climate Change under the **'LiFE' - 'Lifestyle for Environment' initiative.**

- The GCP aims to incentivize voluntary environmental actions by individuals, communities, private sector industries, and companies.

Key features of the GCP include:

- **Incentivizing Environmental Actions:** Participants can earn Green Credits for activities that positively impact the environment, such as water conservation and afforestation.

- **Governance Framework**: An inter-ministerial Steering Committee supports the GCP, and The Indian Council of Forestry Research and Education (ICFRE) serves as the GCP Administrator.

- **Green Credit Registry and Trading Platform:** This platform will allow for the buying and selling of Green Credits.

- **Ecomark Scheme:** Alongside the GCP, the Ecomark Scheme accredits and labels eco-friendly consumer products.

Guidelines and Modifications:

- The Environment Ministry now empowers States to determine afforestation density based on local conditions, recognizing the variability in forest ecosystems.

- Indigenous species are prioritized, and naturally occurring seedlings are retained to foster ecosystem resilience.

Source: The Hindu

SOLAR WASTE MANAGEMENT

Context: A report titled 'Enabling a Circular Economy in India's Solar Industry – Assessing the Solar Waste Quantum' shed light on India's escalating solar waste crisis. It was conducted by the Ministry of New and Renewable Energy (MNRE) in collaboration with experts from the Council on Energy, Environment and Water.

Background:

- Recycling solar waste to recover materials will reduce import dependency and enhance India's mineral security.

Key highlights of the Report:

- The current **solar capacity of India, as of FY23, has generated about 100 kilotonnes (kt) of cumulative waste,** which will increase to 340 kt by 2030. This volume will increase 32 times by 2050 resulting in about 19000 kt of cumulative waste.

- Around **67% of the projected waste by 2030 is expected to be produced by five states** - Rajasthan, Gujarat, Karnataka, Tamil Nadu, and Andhra Pradesh. Rajasthan will account for 24% of the waste generated by 2030, followed by Gujarat accounting for 16%, and Karnataka accounting for 12%.

- Discarded solar modules contain critical minerals essential for India's economic development and national security, including silicon, copper, tellurium, and cadmium. The projected 340 kt of waste by 2030 is estimated to comprise 10 kt of silicon, 12-18 tonnes of silver, and 16 tonnes of cadmium and tellurium.

Recommendations made by the Report:

- **The Ministry of New and Renewable Energy (MNRE)** should maintain and periodically update a database of the installed solar capacity (containing details such as module technology, manufacturer, commissioning date, etc.) for accurate mapping of plausible waste generation centres.

- The Ministry should issue guidelines for collecting and storing solar waste. Furthermore, it should promote the safe and efficient processing of stored waste.

- **Solar cell and module producers should start developing waste collection** and storage centres to adhere to the responsibilities assigned in the Electronic Waste Management Rules 2022.

Challenges for recycling Solar Waste in India:

- The absence of specific comprehensive laws governing solar waste management hinders the establishment of standardised recycling practices and may contribute to inconsistent recycling efforts.

- Solar panels contain various materials like silicon, glass, aluminium, and toxic elements like lead and cadmium. Separating these components for effective recycling requires specialised technology, which is often expensive and not widely available in India.

- In India, the lack of adequate demand for materials such as silicon wafers or glass cullet from recycled panels undermines the economic feasibility of recycling efforts.

Ways to manage Solar Waste in India:

- India can create a comprehensive regulatory framework to guide collection, recycling, and material-specific recovery targets for solar waste. The framework can also encourage incentives like green certificates to encourage recycling and mineral recovery. It should also include developing and implementing comprehensive policies to promote circular economy principles within the solar industry, encouraging resource efficiency, recycling, and reuse.

- By establishing dedicated refurbishment facilities, India can clean, repair, and retest slightly damaged panels, diverting them from the waste stream and providing affordable options for consumers.

- Encouraging and incentivising green innovators to design and prototype new sustainable products using recycled solar materials, thereby fostering creativity and effective utilisation.

Source:Indian Express

AGRO FORESTRY

Context: Uptake of agroforestry remains restricted to farmers with medium or large landholdings.Small scale farmers are yet to adapt agroforestry.The adoption of agroforestry at scale in India must include smallholders, who hold most of India's agricultural land.

Background:-

- Agriculture in India has historically been a diversified land-use practice, integrating crops, trees, and livestock. This technique, broadly called agroforestry, can enhance farmer livelihoods and the environment and is slowly gaining in popularity after decades of the modus operandus of monocropping inspired by the Green Revolution.

Small scale farmers and Agroforestry

- India's efforts to promote agroforestryreceived an impetus nearly 10 years ago with the establishment of the National Agroforestry Policy (2014).Yet the uptake of agroforestry remains restricted to farmers with medium or large landholdings.

- This pattern is unsurprising since smallholder farmers seldom grow trees because of their long gestation, a lack of incentive or investment-based capital, and weak market linkages.

Challenges:
- The Ministry of Agriculture recognised water availability as a challenge when it drafted the National Agroforestry Policy in 2014.

- Yet the problem remains relevant and is especially acute for smallholders, who need additional funding to secure water and/or who incur additional debt in doing so. Moreover, water availability is critical during the sapling stage but remains a constant concern if the trees compete with crops for water in water-constrained environments.

- Choosing the right species for the right place and the right reason is elemental for agroforestry to enhance the sustainability of livelihoods.

- Farmers, however, are drawn to tree species that are fast-growing and repel herbivores, but such species are also generally non-native and threaten soil health and human well-being.

- New and existing government policies and schemes that can facilitate transition to agroforestry are standardised, accounting neither for land-holding size nor, importantly, regional biophysical variabilities. As a result, these schemes inherently exclude smallholders.

Source: Hindu

ASHWAGANDHA (WITHANIA SOMNIFERA)

Context: Ashwagandha is gaining global attention and popularity for its numerous health benefits.

Background:

- Scientific research highlights its potential in stress management, cognitive function, physical performance, and more.

About ASHWAGANDHA (WITHANIA SOMNIFERA)

- Ashwagandha (Withania somnifera), also known as Indian ginseng or winter cherry, is a prominent herb in Ayurveda, the traditional medicine system of India.

- It is renowned for its adaptogenic properties, which help the body manage stress.

Some of the Potential Benefits and Uses of Ashwagandha:

- Stress and Anxiety Reduction: Ashwagandha may lower cortisol levels and mitigate stress and anxiety symptoms.

- Athletic Performance: It could potentially enhance physical performance and strength.

- Cognitive Function: There's evidence suggesting it may improve memory and brain function.

- Anti-inflammatory Effects: Withanolides in Ashwagandha have anti-inflammatory properties.

- Sleep Improvement: Some studies indicate it may help improve sleep quality.

Source: Hindu Businessline

IMPORT RESTRICTIONS ON SOLAR PV CELLS

Context: Recent government orders on attempts to increase local sourcing of solar modules to support India's renewables manufacturing ecosystem has been widely reported in the media as import restrictions.

Background:

- Ministry of New and Renewable Energy's (MNRE), on March 29 ordered to re-implement its 2021 notification of an 'Approved List of Models and Manufacturers of Solar Photovoltaic [PV] Modules', also called the ALMM list.

Approved List of Models and Manufacturers of Solar Photovoltaic [PV] Modules:

- This list consists of manufacturers who "are eligible for use in Government Projects/Government assisted projects/ projects under Government schemes & programmes including projects set up for sale of electricity to the Central and State Governments." However, this notification was "kept in abeyance" two years after it was issued, for the past financial year.

- While the government did not give an explicit reason for this, it has been reported that it stems from concerns and demands of renewable power producers who had secured sale contracts with the government before these rules were issued, when solar modules and cells were overwhelmingly imported from China at highly competitive rates.

- India's domestic renewables sector, at the time, was unlikely to meet the spike in demand for solar power production equipment at rates offered by Chinese manufacturers.

- The government's re-introduction of this rule has been premised on the estimation that following measures, such as the Production Linked Incentive (PLI) scheme, India's domestic sector has boosted its production capacities and bettered price competitiveness to meet local demand.

- This is an import substitution effort, and not an attempt to restrict imports.

Does India rely on solar PV imports?

- India is overwhelmingly import dependent to meet its demand for solar cells and modules — with China and Vietnam being the country's major suppliers.

- According to a reply by the Minister for New and Renewable Energy in Parliament in February last year, India imported about $11.17 billion worth solar cells and modules in the past five years.

- And until January of 2023-24, data from the Ministry of Commerce's Import-Export showed that China accounted for 53% of India's solar cell imports, and 63% of solar PV modules.

- Ratings agency ICRA estimates that China commands more than 80% share of the manufacturing capacity across polysilicon, wafer, cell and modules.

- "In comparison, the manufacturing capacity in India is relatively low and is largely restricted to the last manufacturing stage," ICRA stated in its report, adding that the PLI scheme is expected to change this, with integrated module units expected to come up in India over the next 2-3 years.

How have our policies responded?

- To address this over dependence, India made three significant efforts over the past five years.

- It began with the notification of the ALMM order in January 2019.

- Finance Minister Nirmala Sitharaman proposed the ₹19,500 crore PLI scheme in the Union Budget of 2022-23. This was to scale domestic manufacturing of the entire solar supply chain — from polysilicon to solar modules.

- The government also introduced a steep 40% customs duty on PV modules and 25% on PV cells. These duties were halved as solar capacity additions slowed and as Reuters had reported, developers had quoted "aggressively low tariffs" to win power purchase contracts based on imports of Chinese equipment.

Why is China a leading exporter?

- The International Energy Agency (IEA) noted that China was the most cost-competitive location to manufacture all components of the solar PV supply chains. This is mainly because of the lower cost of power supplied to the industry, the agency observed, as electricity accounts for more than 40% of production costs for polysilicon and almost 20% for ingots and wafers.

- The IEA also observed that Chinese government policies prioritised solar PV as a strategic sector, and growing domestic demand enabled economies of scale and supported continuous innovation throughout the supply chain.

Source: The Hindu

AI WASHING

Context: The US Securities and Exchange Commission (SEC) has taken action against companies engaging in AI Washing.

Background:

- SEC Chairman Gary Gensler emphasized the importance of truthfulness in AI-related marketing. He warned that companies should ensure their representations about AI usage are accurate and not deceptive.

About AI WASHING

- AI washing is a **marketing tactic where companies exaggerate the involvement of Artificial Intelligence (AI)in their products and services.**

- This term is derived from "**greenwashing**", which refers to companies making misleading claims about their environmental impact.

- AI washing **refers to the practice of making exaggerated or false claims about the use of artificial intelligence (AI) in marketing, advertising, or business operations.**

- Companies engage in AI washing to make their offerings seem more advanced than they are, capitalizing on the growing interest in AI technology.

- This can mislead consumers and investors who may assume that the company is using advanced AI technologies.

- For instance, a company might claim that its product is "powered by AI" when in reality, the AI component is minimal or non-existent. This can be misleading as consumers might assume that the product is more sophisticated or capable than it actually is.

- AI washing has become a global phenomenon, with regulatory bodies like the US Securities and Exchange Commission (SEC) taking action against companies for misleading AI claims.

Source: Down To Earth

IAS BABA

WHITE RABBIT TECHNOLOGY

Context: Recently, CERN launched the White Rabbit Collaboration.

Background:

- CERN, officially known as the European Organization for Nuclear Research, stands as one of the world's most esteemed centers for scientific exploration. Its core mission revolves around fundamental physics, aiming to unravel the mysteries of the Universe and decipher its composition and workings.

About WHITE RABBIT TECHNOLOGY

- White Rabbit (WR) is an **innovative technology developed at CERN** (the European Organization for Nuclear Research) which **provides sub-nanosecond accuracy and picoseconds precision** for synchronization in various applications.

- The technology is open source, **adheres to standards, and has been integrated into the Precision Time Protocol (PTP), a worldwide industry standard governed by the Institute of Electrical and Electronics Engineers (IEEE).**

- Its applications **extend beyond particle physics**, making it a powerful example of open-source collaboration and innovation.

Applications Beyond Particle Physics:

- Finance Sector: White Rabbit is already used in financial systems.

- Research Infrastructures: It finds applications in various research facilities.

- Future Quantum Internet: Evaluation for use in the future quantum internet.

- Global Time Dissemination: Potential role in global time dissemination technologies, reducing reliance on satellites.

Source: CERN

ATOMIC CLOCKS

Context: Recently,India is taking a significant step by deploying atomic clocks across the nation to synchronize all digital devices with Indian Standard Time (IST).

Background:

- This initiative aims for "one nation, one time," enhancing uniformity and national security.

About ATOMIC CLOCKS

- An atomic clock is a highly **accurate timekeeping device that combines a quartz crystal oscillator** with an atom (typically caesium or hydrogen).

- It uses the **consistent frequency of atoms to maintain accurate time**, making it more stable than conventional quartz clocks.

- These clocks were invented in 1955 by Louise Essen.

How Do Atomic Clocks Work?

- Atomic clocks use atoms, specifically the **electronic transition from one state to another**, as their "pendulum."

- The vibrations of atoms (such as caesium or rubidium) serve as the basis for precise time measurement.

- By sending microwaves to these atoms, we can make them vibrate even more regularly. We then compare these vibrations with the vibrations of a quartz crystal in a regular clock.

Types of Atomic Clocks:

- **Caesium Atomic Clocks**: These are widely used and serve as the primary standard for defining the SI second.

- **Hydrogen Maser Atomic Clocks**: Even more accurate than caesium clocks, hydrogen maser clocks find applications in scientific research.

Atomic Clocks in India:

- The Council of Industrial and Scientific Research (CSIR)-National Physical Laboratories (NPL) in New Delhi maintains Indian Standard Time (IST) using caesium and hydrogen maser clocks.

- To enhance uniformity and national security, India is deploying atomic clocks nationwide.

- New atomic clocks are being set up in Bhubaneswar, Jaipur, and Hyderabad, in addition to existing ones in Faridabad and Ahmedabad.

- By June, these new clocks will be installed, and the government will require all device manufacturers to sync with Indian Standard Time.

- The goal is to connect all atomic clocks using optical cables for enhanced security.

Why Indigenous Atomic Clocks?

- Ensures national security and independence in timekeeping.

- During the Kargil War in 1999, the US turned off GPS for the Indian Army, causing location inaccuracies. This incident prompted India to develop its own precise clock.

- Currently, most software operating modules rely on US-based Network Time Protocol servers.

- Only four countries—the United States of America, the United Kingdom, Japan, and South Korea—have developed their atomic clocks.

Indian Standard Time (IST):

- IST was adopted on September 1, 1947, with only one time zone for the entire country.

- It is calculated from 82.5 degrees East longitude, near Mirzapur (Allahabad), Uttar Pradesh.

- IST is 5.30 hours ahead of Greenwich Mean Time (GMT) .

Source: Livemint

KODAIKANAL SOLAR OBSERVATORY

Context:The Kodaikanal Solar Observatory (KSO), an iconic institution, recently celebrated its 125th anniversary.

Background:

- Established by the British East India Company, the KSO has played a pivotal role in solar research and observation in India.

About Kodaikanal Solar Observatory:

- The Kodaikanal Solar Observatory was established in 1899.

- The idea of a **Solar Physics Observatory was sanctioned by the Government of India in August 1893.**

- The Kodaikanal Solar Observatory is **located on the southern tip of the Palani Hills in Southern India.**

Key Contributions and Discoveries:

- **Evershed Effect**: In 1909, the KSO confirmed the Evershed effect, which describes the radial motion in sunspots.

- **Data Repository**: Over a century of solar imaging has enriched the KSO's data repository. This historical data helps reconstruct the Sun's past behaviour and predict its future impact on Earth and space weather.

- **Solar Observation**: The KSO diligently observes and records the Sun's characteristics, including daily white light photography.

- **Equatorial Electrojet Monitoring:** Located in the Palani Hills of southern India, the KSO plays a central role in observing changes to the equatorial electrojet, an electric current in Earth's ionosphere.

- **Public Outreach**: The KSO actively engages in public outreach through workshops and educational initiatives.

Source: Indian Express

INS VIKRANT

Context: On March 5, both aircraft carriers of the Indian Navy, INS Vikramaditya and INS Vikrant, showcased "twin carrier operations" with MiG-29K fighter jets taking off simultaneously from both and landing cross deck as Defence Minister Rajnath Singh looked on from onboard one of them.

Background:

- An aircraft carrier is fundamental to command, control and coordination of operations from the sea and to project combat power ashore, over the seas or in the air.

What does INS Vikrant signify?:

- The design work on the **Indigenous Aircraft Carrier (IAC)-I**, later christened Vikrant, began in 1999; however 2005-2006 were probably the **most crucial years for the carrier and for India's war shipbuilding.**

- The crucial decision was on the warship grade steel, which till then was procured from Russia. After much brainstorming, it was decided that it would be **developed and produced in India, a collaborative effort between the Steel Authority of India, the Defence Research Development Organisation (DRDO) and the Indian Navy.DMR grade steel was developed.**

- Vikrant can **operate an air wing of 30 aircraft comprising MiG-29K fighter jets, Kamov-31, MH-60R multi-role helicopters,** in addition to indigenous Advanced Light Helicopters and Light Combat Aircraft (Navy).

- It uses the **STOBAR (Short Take-Off but Arrested Recovery) method** to launch and recover aircraft for which it is equipped with a ski- jump to launch aircraft, and three 'arrester wires' for their recovery.

- Noting that among manufacturing activities, shipbuilding has one of the highest employment multipliers of 6.48, the economic Survey 2022-23 said that Vikrant alone engaged approximately 500 MSMEs, 12,000 employees from ancillary industries, and 2,000 CSL employees.

- While the present Vikrant was the first carrier built in the country, India has had a long history of operating carriers. The erstwhile 19,500 tonne Vikrant was India's first carrier purchased from the U.K., which arrived in 1961 and played a vital role in the 1971 war. Then came the 28,700 tonne INS Viraat commissioned in 1987, formerly HMS Hermes, also from the U.K. INS Vikramaditya procured from Russia and commissioned in 2013 is India's third carrier.

Source:Hindu

ETHYLENE OXIDE

Context: Food Safety and Standards Authority of India (FSSAI) will conduct checks on products of spice brands MDH and Everest Group after authorities in Hong Kong and Singapore last week determined that four of their spice mixes contained high levels of carcinogen ethylene oxide.

Background:-

- FSSAI doesn't permit use of ethylene oxide in any food product.

About Ethylene Oxide

- Ethylene oxide is a pestic**ide that has been classified as a Group 1 carcinogen by the International Agency for Research on Cancer**, meaning there is sufficient evidence from human studies that it can cause cancer.
- It is **used by the spice industry as a fumigant to reduce microbial contamination, such as E. coli and Salmonella.**
- **It is a colourless, highly flammable and very reactive gas that kills bacteria, viruses and fungi. It is an industrial chemical.**
- Ethylene oxide can **damage DNA during sterilisation procedures.**
- While the risk from occasional, low-level exposure may be minimal, spices and spice blends like those flagged are commonly used in household cooking across multiple dishes. This can lead to chronic, persistent exposure over time, which has been linked to an increased risk of cancers like leukemia, stomach cancer and breast cancer.
- It can even **lead to respiratory irritation and lung injury, headache, nausea, vomiting, diarrhoea and shortness of breath.**
- Ethylene oxide was **banned by the European Union (EU)** in 2011 for fumigation of food and animal feed during transport and storage. The use of ethylene oxide is now only permitted in disinfection and sterilisation of medical devices.

Additional information

- **Escherichia coli (E.coli) is a bacterial strain** that is commonly found in the intestines of people and animals, fecal waste of cattle and humans.

- **Salmonella is a group of bacteria** that can cause food-borne illnesses known as salmonellosis. The World Health Organisation (WHO) identifies Salmonella as one of four key global causes of diarrhoeal diseases.Individuals who develop salmonellosis may show symptoms such as nausea, diarrhoea, fever, and abdominal cramps 12-72 hours after contracting the infection.

Source: Indian Express

VOYAGER 1 SPACECRAFT

Context: NASA Voyager 1 spacecraft has begun sending readable communications again after months of transmitting gibberish back to Earth.

Background:

- NASA's Voyager flight team detected a glitch in November and worked to fix the problem via code, leading to the successful return of readable data.

About VOYAGER 1 SPACECRAFT:

- Voyager 1 was launched by NASA on September 5, 1977.
- Voyager 1 is part of the Voyager program, which also includes Voyager 2.
- **Mission Objective**: To study the outer Solar System and beyond, including flybys of Jupiter and Saturn.
- **Discoveries**: It discovered a thin ring around Jupiter and two new Jovian moons: Thebe and Metis. At Saturn, it found five new moons and a new ring called the G-ring.
- **Interstellar Achievement:** Voyager 1 was the first human-made object to cross the heliosphere and enter interstellar space in August 2012.
- **Current Status:** It is the most distant human-made object from Earth and is expected to send data until at least 2025.
- **Golden Record:** Carries a golden record with sounds and images representing life and culture on Earth.

Source: Live Science

REPORT FLAGS SWEETENED NESTLE PRODUCTS

Context: Nestlé's products for babies in Asia, Africa and Latin America were found to contain added sugars, while the same products sold in Europe did not have it, according to a recent report.

Background:-

- The report ('How Nestlé gets children hooked on sugar in lower-income countries') faulted Nestlé for employing different nutritional standards in its offerings, depending on the country it served. Nestlé also did not make the quantity of sugar content clear on the products' packaging, it said.

Key Takeaways

- Sugar is a simple carbohydrate. Some food items have sugar that is naturally occurring.
- According to the **American Heart Association (AHA), it is "found in milk (lactose) and fruit (fructose). Any product that contains milk (such as yogurt, milk or cream) or fruit (fresh, dried) contains some natural sugars."**
- **Free sugar or added sugar is added separately** to a food item during preparation or processing.
- In 2015, the **WHO's guideline recommended that "adults and children reduce their daily intake of free sugars to less than 10% of their total energy intake."**
- WHO advises **against the introduction of added sugars before the age of 2.**
- Excessive sugar consumption can **lead to increased overall energy intake in a person's overall diet. It may be at the cost of food items having nutritionally adequate calories, eventually leading to an unhealthy diet.**
- The risks of contracting non-communicable diseases, such as diabetes, obesity and heart-related ailments, are then increased.
- Tooth decay is also associated with early exposure to sugar.
- A 2017 report from the WHO ('Incentives and disincentives for reducing sugar in manufactured foods') said, "The fact that sugar is a relatively cheap and abundant ingredient is not a direct incentive to use it, but means there is little incentive from the supply side not to use it."
- Adding sugar to a food item **often makes it more palatable, meaning consumers will opt for it repeatedly.**

Source: Indian Express

ARTEMIS ACCORD

Context: Sweden has officially joined the Artemis Accords.

Background:

- Sweden became the 38th country join in Artemis Accords.

About ARTEMIS ACCORDS:

- The Artemis Accords are a **set of principles for space exploration cooperation among nations, particularly those participating in NASA's Artemis program.**
- The Artemis Accords were established by the U.S. State Department and NASA in 2020, with seven other **founding members**: Australia, Canada, Italy, Japan, Luxembourg, the UAE, and the UK.
- They **aim** to set common principles to govern civil exploration and use of outer space, the moon, Mars, comets, and asteroids for peaceful purposes.
- The Accords build upon the **Outer Space Treaty of 1967,** emphasizing space as a shared resource for humanity, prohibiting national appropriation, and encouraging the peaceful use of space.

Key Commitments:

- Conduct space activities for peaceful purposes and in accordance with international law.
- Ensure registration and data sharing of relevant space objects and openly share scientific data in a timely manner.
- Preserve heritage, including historic landing sites and artifacts on celestial bodies.
- Support sustainable and safe utilization of space resources without interfering with other signatories' activities.
- Plan for the safe disposal of spacecraft and limit the generation of harmful debris.

Significance for India:

- India joined the Artemis Accords in 2023, becoming the 27th country to sign the nonbinding agreement.
- This will involve collaboration between NASA and ISRO, including sending Indian astronauts to the International Space Station (ISS) in 2024.
- By joining the Artemis Accords, India agrees to follow the finest space exploration practices and firmly backs a US-led alliance on space issues, which currently excludes significant spacefaring states like Russia and China.

Source: [Wion](#)

TIME STANDARD FOR MOON

Context: The United States officially directed the National Aeronautics and Space Administration (NASA) to create a time standard for the Moon, which different international bodies and private companies can use to coordinate their activities on the lunar surface.

Background:-

- According to Reuters, the head of the White House Office of Science and Technology Policy (OSTP) told the space agency to work with other parts of the US government to finalise the strategy by the end of 2026 for establishing what it called a Coordinated Lunar Time (LTC).

Time Standard for Moon:

- Most of the clocks and time zones are based on coordinated Universal Time (UTC), which is set by the International Bureau of Weights and Measures in Paris, France.
- UTC is essentially an internationally agreed upon standard for world time.
- It is tracked by a weighted average of more than 400 atomic clocks placed in different parts of the globe.

- If a country lies on the west of the Greenwich meridian, it has to subtract from the UTC, and if a country is located on the east of the meridian, it has to add.
- UTC cannot be used to determine time on the Moon because time on the Moon flows differently than it does on the Earth.

Why do we need a time standard for the Moon?

- Time flows differently on the Moon, and cannot be determined using UTC. Time is not absolute and it ticks slightly faster on the Moon as compared to the Earth. It is due to Einstein's theory of general relativity which tells us that gravity bends space and time.
- On the Moon, the Earth-based clock will appear to lose on average 58.7 microseconds per Earth day with additional periodic variations.
- Improper time standards can create problems for spacecraft trying to dock on the Moon, transfer of data at a specific time, navigation, and communication.
- There may be a problem with multiple spacecraft working together at the same time. For example, NASA's Artemis program aims to send humans back to the Moon after September 2026, and China and India intend to send their own astronauts to the lunar surface by 2030 and 2040 respectively.
- According to a 2023 report by the journal Nature, there will be a need to place at least three atomic clocks on the lunar surface that will tick at the Moon's natural pace, and whose output will be combined by an algorithm to generate a more accurate virtual timepiece.
- These clocks have to be placed on the Moon at different locations since the Moon's rotation and even local lumps of mass, called mascons, beneath the crust of the Moon affect the flow of time ever so slightly.

What are atomic clocks?

- Atomic clocks measure time in terms of the resonant frequencies — the natural frequency of an object where it tends to vibrate at a higher amplitude — of atoms such as cesium-133.
- In atomic time, a second is defined as the period in which a caesium atom vibrates 9,192,631,770 times.

Source: Indian Express

TSAT -1A SATELLITE

Context: Tata Advanced Systems Limited (TASL) has achieved a remarkable milestone by successfully deploying the TSAT-1A satellite into space.

Background:

- This groundbreaking achievement resulted from a strategic collaboration between TASL and Satellogic Inc., a leader in sub-meter resolution Earth Observation (EO) data collection.

About TSAT-1A SATELLITE:

- TSAT-1A is the **first military spy satellite initiative in India's private sector**.
- It is an **Optical sub-metre-resolution Earth observation satellite**.
- It is Built by Tata Advanced Systems Limited (TASL) in collaboration with Satellogic Inc.
- **SpaceX's Falcon 9 rocket** lauched it from Kennedy Space Center, Florida.

Capabilities:

- Military-grade **imagery with sub-meter resolution**.
- Multispectral and hyperspectral imaging for detailed analysis of land, water, and natural resources.

Applications:

- Used by **Indian defence forces** for intelligence gathering.
- Information sharing with friendly nations to enhance preparedness and strategic decision-making.

Source: Hindustan Times

DARK ENERGY

Context: An international team of researchers has just released the most comprehensive "three-dimensional" map of the universe, which, scientists hope, could reveal some clues about dark energy.

Background:-

- Dark energy, the mysterious form of energy that makes up about 68% of the universe, has intrigued physicists and astronomers for decades. Dark energy has been noted as "the most profound mystery in all of science"

About Dark Energy

- Everything we see – the planets, moons, massive galaxies, you, me, this website – makes up less than 5% of the universe. About 27% is dark matter and 68% is dark energy. While dark matter attracts and holds galaxies together, dark energy repels and causes the expansion of our universe.

Takeaways from the research:

- Using Dark Energy Spectroscopic Instrument or DESI,which is mounted over the Mayall 4-Meter Telescope in Arizona, United States, researchers have been able to measure light from six million galaxies — some of which existed as far back as 11 billion years ago — to prepare the most detailed map of the universe as yet with very precise information about the distances between these galaxies.
- The hypothesis of dark energy comes mainly from the observed phenomenon of the universe expanding at a rapid rate.
- The vast empty spaces between stars and galaxies have been measured to be expanding at an accelerating pace, despite the countervailing force of gravitation that has the effect of pulling things together.
- Scientists have been unable to find any explanation for this rapid expansion, and have been forced to hypothesise that there must be some "dark" energy causing this expansion.
- Understanding the nature of dark energy is one of the fundamental problems in science right now, because it can offer key insights into the origin and evolution of the universe, as well as its eventual fate.

Source: The Indian Express

ELECTRIC VEHICLES

Context: In March, the Union government had approved a new e-vehicle policy with the aim to facilitate the entry of global EV manufacturers in the country.

Background:

- Attracting global EV players will provide Indian consumers with access to latest technology, boost the Make in India initiative, strengthen the EV ecosystem by promoting healthy competition among EV players leading to high volume of production, economies of scale, lower cost of production, reduce imports of crude Oil, lower trade deficit, reduce air pollution, particularly in cities, and will have a positive impact on health and environment.

About the policy and Indias EV landscape:

- The policy involves lowering the duty for EV imports — this has been a long-standing demand for EV majors like Tesla — for companies setting up a manufacturing plant with a minimum investment of Rs 4,150 crore.

FOUR TYPES OF EVs

HEVs: Conventional hybrid electric vehicles (such as variants of the Toyota Hyryder Hybrid or Honda City e:HEV in India) combine a conventional ICE system with an electric propulsion system, resulting in a hybrid drivetrain that substantially lowers fuel usage. The onboard battery in a conventional hybrid is charged when the IC engine is powering the drivetrain.

PHEVs: Plug-in hybrid vehicles (such as the Chevrolet Volt) also have a hybrid drivetrain that uses both an ICE and electric power for motive power, backed by rechargeable batteries that can be, in this case, plugged into a power source.

BEVs: Vehicles like the Tata Nexon in India, or the Nissan Leaf and Tesla Model S, have no ICE or fuel tank, and run on a fully electric drivetrain powered by rechargeable batteries.

FCVs: Fuel cell vehicles (such as Toyota's Mirai and Honda's Clarity) use hydrogen to power an onboard electric motor. FCVs combine hydrogen and oxygen to produce electricity, which runs the motor, and the only residue of the chemical process is water. Since they're powered entirely by electricity, FCVs are considered EVs — but unlike BEVs, their range and refuelling processes are comparable to conventional cars and trucks.

- Alongside, the policy also lays out clear localisation targets that companies have to achieve — 25 per cent by the third year and 50 per cent by the fifth — in order to boost domestic value addition.

- Access to one of the largest and fastest growing markets in the world — India is the third largest auto market behind China and the US — at a time when others are slowing down, will be a big draw for electric vehicle manufacturers like Tesla.

- While the EV market is currently small in the country, it is gaining traction — in 2023, sales of electric vehicles surpassed 1.5 million, dominated by two-wheelers and three-wheelers.

- The scope for growth in various segments is immense, especially considering the government wants to increase the share of electric vehicles to 30 per cent by 2030.

Source: Indian Express

LEAP SECONDS

Context: A recent study highlighted that Earth's changing rotation may prompt clocks to skip a second, potentially necessitating a "negative leap second" around 2029.

Background:

- Earth's rotation is a dynamic process influenced by a complex interplay of gravitational forces, geological shifts, and climatic changes.

About LEAP SECONDS

- A leap second is a one-second adjustment occasionally applied to Coordinated Universal Time (UTC) to accommodate the difference between precise time (International Atomic Time, TAI) and imprecise observed solar time (UT1).

- This difference arises due to irregularities and long-term slowdown in the Earth's rotation.

- Since the introduction of leap seconds in 1972, 27 leap seconds have been added to UTC, with the most recent occurring on December 31, 2016.

Negative Leap Seconds

- A negative leap second is a second subtracted from our clocks to keep them in sync with the Earth's rotation.

- It is the opposite of a positive leap second, which is a one-second addition to our clocks.

- So far, all leap seconds have been positive.

- The International Earth Rotation and Reference Systems Service (IERS) monitors Earth's rotation and decides when to add or subtract leap seconds.

- Due to Earth spinning faster than usual, timekeepers are considering negative leap seconds for the first time.

Source: Live Mint

OZONE

Context: An international team of scientists, including from India, has discovered strong evidence indicating the presence of ozone on Jupiter's moon Callisto.

Background:

- This finding shed light on the complex chemical processes occurring on icy celestial bodies within our Solar System.

About OZONE

- Ozone, also known as trioxygen, is an inorganic molecule with the chemical formula O_3.

- Ozone is produced from dioxygen (O_2) through the action of ultraviolet (UV) light and electrical discharges within Earth's atmosphere.

- Ozone occurs in very low concentrations throughout the earth's atmosphere.

- Its highest concentration is found in the ozone layer of the stratosphere, where it absorbs most of the Sun's ultraviolet (UV) radiation.

- The ozone layer plays a crucial role in protecting life on Earth by preventing excessive UV radiation from reaching the surface. Without this protective layer, solar UV radiation could cause severe damage to living organisms.

- The presence of ozone on Jupiter's moon Callisto suggests the existence of a stable oxygen-rich atmosphere, which is essential for the development of complex organic molecules and, potentially, life.

- The discovery of ozone on Callisto has significant implications for the moon's potential habitability and the search for life beyond Earth.

Source: Hindu

HEALTH

CERVIVAL CANCER

Context: The first-ever Global Cervical Cancer Elimination Forum took place in Colombia last month.

Background:

- The Forum aimed to catalyse governments, donors, civil society, and others to commit to cervical cancer elimination and galvanize the global community.

Cervical Cancer:

- Cancer is a disease in **which cells in the body grow out of control**. When cancer starts in the cervix, it is called cervical cancer.
- It occurs most often in women over age 30 and is the fourth most common cancer in women globally.
- It is the **second most common cancer among females in India.**
- The main cause of cervical cancer is the persistent infection with the **human papillomavirus (HPV).**

Initiatives for the prevention of cervical cancer:

- The Cervical Cancer Elimination Initiative (by the World Health Organization) has outlined the '90-70-90' targets for each country by 2030 -
- 90% of girls fully vaccinated with the HPV vaccine by the age of 15;
- 70% of women screened by the age of 35, and again by the age of 45;
- 90% of women with pre-cancer treated and 90% of women with invasive cancer managed.
- The Union Government in India proposed it in the Interim Budget 2024-25. The programme will be for girls in the age group of 9 to 14 years for the prevention of cervical cancer.

Human Papilloma Virus (HPV):

- HPV is a common sexually transmitted infection that can affect the skin, genital area, and throat.
- In most cases, the immune system clears HPV from the body.
- Persistent infection with high-risk HPV can cause abnormal cells to develop, which go on to become cancer.
- There is currently no treatment for HPV infection.

Preventive steps taken regarding HPV:

- There are 6 HPV vaccines available globally. All protect against the high-risk HPV 16 and 18, which cause most cervical cancers.
- HPV vaccines (1 or 2 doses) should be given to all girls aged 9–14 years.
- Screening, every 5-10 years, from the age of 30 (25 years in women living with HIV) can detect cervical disease, which when treated, also prevents cervical cancer.
- Early detection is followed by prompt quality treatment. There is no treatment for the virus itself. However, there are treatments for the health problems that HPV can cause like cervical cancer.

Source: WHO

MEN5CV VACCINE

Context: Nigeria became the 1st country to rollout a new meningitis vaccine, known as Men5CV.

Background:

- This historic achievement underscores the importance of global collaboration and the critical role of vaccines in safeguarding public health. Nigeria's proactive approach sets a precedent for other countries in the fight against meningitis.

About MEN5CV VACCINE:

- Men5CV **vaccine provides protection against five strains of the meningococcus bacteria.**

- Nigeria has taken the **lead as the first country globally to introduce this vaccine, which is recommended by the World Health Organization (WHO).**

- By covering multiple serogroups, Men5CV has the potential to dramatically reduce meningitis cases and contribute to the fight against this deadly disease

- Nigeria is one of the 26 meningitis hyper-endemic countries in Africa, situated within the region known as the African Meningitis Belt.

- The Men5CV vaccine holds the potential to change the trajectory of meningitis, preventing future outbreaks and saving lives.

- The Men5CV vaccine aligns with the global goal to eliminate meningitis by 2030.

Source: [Hindustan Times](#)

HEPATITS

Context: India is one of the countries with the highest burden of viral hepatitis — with 2.9 crore people living with Hepatitis B infection and 0.55 crore living with Hepatitis C infection, according to the Global Hepatitis Report 2024 released by the World Health Organisation (WHO)

Background:-

- There were over 50,000 new Hepatitis B cases and 1.4 lakh new Hepatitis C cases reported in 2022. And these infections killed 1.23 lakh people in India in 2022 as per the report.

About Hepatitis:

- Hepatitis means **inflammation of the liver**. The liver is a vital organ that processes nutrients, filters the blood, and fights infections. When the liver is inflamed or damaged, its function can be affected. Heavy alcohol use, toxins, some medications, and certain medical conditions can cause hepatitis. However, hepatitis is often caused by a virus.

- There are five main strains of the hepatitis virus, referred to as types A, B, C, D and E. While they all cause liver disease, they differ in important ways including modes of transmission, severity of the illness, geographical distribution and prevention methods.

- **Hepatitis B (HBV) is known to cause acute infection** with nausea, vomitting and yellowing of the eye and skin for several weeks. Liver failure happens in severe cases. But the challenge is the chronic, life-long liver disease that it causes, especially when children get it. The chronic infection can lead to scarring of the liver called cirrhosis and increase the risk of liver cancer.

- Many people with the **hepatitis C (HCV) virus don't have symptoms** or know they are infected. Those who do develop symptoms two to 12 weeks after exposure report yellow skin or eyes, loss of appetite, nausea, stomach ache, fever, dark urine, light-coloured stool, joint pain and exhaustion.

- Both infections are transmitted from mother to child during delivery, during transfusion of blood that hasn't been screened properly, during contact with the blood of an infected person or while sharing needles by drug users.Both viruses can also be transmitted sexually.

- **Since hepatitis B can be prevented through vaccination, the report highlights the need to ensure coverage. Hepatitis C is curable with medicines**

Source: Indian Express

HISTORY AND ART & CULTURE

VAIKOM SATYAGRAHA

Context: Hundred years happened since the famous Vaikom Satyagraha-the first among temple entry movements.

Background:-

- Vaikom, a temple town in the princely state of Travancore, saw the start of a non-violent agitation on March 30, 1924 — the first among temple entry movements that would soon sweep across the country.

About Vaikom satyagraha

- The princely state of Travancore had a feudal, militaristic, and ruthless system of custom-ridden government.

- The idea of caste pollution worked not only on the basis of touch but also sight — lower castes were forbidden entry to any "pure" place, such as temples and the roads surrounding them.

- The second half of the 19th century, **Travancore saw several social and political developments ushering in unprecedented social change.**

- First, Christian missionaries converted large sections of lower castes seeking to escape the clutches of caste oppression. Second, the reign of Maharaja Ayilyam Thirunal Rama Varma (1860-80) saw many progressive reforms, such as universal free primary education — including for the lower castes.

- While religion and custom remained pervasive, the absolute material and intellectual deprivations of lower castes did not continue. **The Ezhavas, in particular, emerged as the most educated and organised untouchable community in Travancore.**

- While a small Ezhava elite had started to emerge, in many cases, the ritual discrimination, overrode material and educational progress.

- **The issue of temple entry was first raised by Ezhava leader T K Madhavan in a 1917 editorial in his paper Deshabhimani.**

- It was the entry of the Indian National Congress into the picture that changed the dynamics. Madhavan met Gandhi in 1921, and secured the Mahatma's support for a mass agitation to enter temples.

- In the 1923 session of the INC in Kakinada, a resolution was passed by the Kerala Provincial Congress Committee to take up anti-untouchability as a key issue. **This was followed by a massive public messaging campaign and a movement to open Hindu temples and all public roads to avarnas. Vaikom, with its revered Shiva temple, was chosen as the location for the very first satyagraha.**

- **Madhavan and other leaders** took the strategic decision to initially focus on opening up the four roads around the temple — not the temple itself — to avarnas.They were promptly stopped and arrested. So, the next morning, another three men entered the forbidden roads and courted arrest. This went on every day — until the police stopped making arrests and barricaded the whole area instead.

- From then through September, protesters sat in front of the barricades, fasting and singing patriotic songs. Leaders such as Periyar and C Rajagopalachari came to Vaikom to offer support and lead the protesters. At the same time, counter-agitations raged on.

- In March 1925, **Gandhi was finally able to iron out a compromise:** three out of the four roads surrounding the temples were opened up for everyone, but the fourth (eastern) road was kept reserved for brahmins. This was finally implemented in November 1925, when the government completed diversionary roads that could be used by the low castes "without polluting the temple". The last satyagrahi was recalled from Vaikom on November 23, 1925.

- The final compromise disappointed many. **Famously, Periyar, who had envisioned a far more spectacular outcome, fell out with Gandhi over the issue.**

- In November 1936, the Maharaja of Travancore signed the historic Temple Entry Proclamation which removed the age-old ban on the entry of marginalised castes into the temples of the state.This, along with the demonstration of Gandhian methods of civil disobedience as effective tools of protest, was the great success of the Vaikom satyagraha.

Source: [The Indian Express](#)

MOHINIYATTAM

Context: Recently, Kerala Kalamandalam, a prestigious deemed university for arts and culture, has lifted gender restrictions for boys to learn Mohiniyattam.

Background:

- This historic move was unanimously approved during the governing council meeting of the Kalamandalam. Starting from the next academic year, boys will be eligible for admission to the Mohiniyattam course, which was previously restricted to female students.

About MOHINIYATTAM

- Mohiniyattam is an **Indian classical dance** form that originated in the state of **Kerala**.

- It derives its name from the word '**Mohini', a female avatar of Lord Vishnu**.

- Its roots date back to the **age-old Sanskrit Hindu text on performing arts called 'Natya Shastra'**.

- Mohiniyattam used to be **performed by Devadasis (temple dancers)** in temples during the rule of the Chera kings from 9 to 12 C.E.

- The dance form developed further as a **performing art during the 18th and 19th centuries** due to the patronage of several princely states.

Features

- It is conventionally a solo dance performed by female artists.

- It adheres to the Lasya type that showcases a more graceful, gentle, and feminine form of dancing.

- It emotes a play through dancing and singing, where the song is customarily in Manipravala, which is a mix of Sanskrit and Malayalam language.

- The dance is characterized by its graceful swaying body movements with no abrupt jerks or sudden leaps.

- More than the footwork, emphasis is given to hand gestures and Mukhabhinaya or subtle facial expressions.

- The hand gestures, 24 in number, are mainly adopted from 'Hastha Lakshana Deepika', a text followed by Kathakali.
- Costumes in Mohiniyattam include plain white or ivory cream traditional sari embroidered with bright gold-laced brocade.
- Musical instruments include Mridangam, Madhalam, ldakka, flute, Veena, and Kuzhitalam(cymbals).

Source: The Hindu

EGYPT'S MUMMIFIED BABOONS

Context: The mystery origin of **Egypt's mummified baboons** has been finally cracked recently.
Background:-

- The scientists have recently retrieved ancient mitochondrial DNA (Deoxyribonucleic acid) from a mummified baboon found at the Gabbanatel-Qurud site in Egypt, which will help discover its origin.

About Egypt's mummified baboons:-

- The Egyptian god Thoth was represented by a baboon — which is odd because **baboons aren't native to Egypt.**
- In 1905, Egyptologists **Louis Lortet and Claude Gaillard** discovered **mummified baboons in Gabbanatel-Qurud which** is also known as the 'Valley of the Monkeys'.
- The baboons belonged to the ancient city of **Adulis** in present-day coastal Eritrea, **a trade centre between the 1st and 7th centuries AD.**
- The **lost city of Punt** the potential locations of its origin, was mentioned in accounts of Greco-Roman historians and was associated with the **trade of leopard skin, gold, and live exotic animals.**

Significance of discovery:-

- The study aligns with historical accounts, drawing attention to the **significance of the Red Sea in traderelationships between India, Egypt, and Europe**.

About Baboons:-

- Baboons are some of the **world's largest monkeys which** have a strong torso, a snoutlike face, the same dentition with **long, sharp canine teeth, and powerful jaws.**
- **Distribution:** Africa & Arabia.
- **Habitat:** prefer savanna and other semi-arid habitats, though a few live in tropical forests.
- Baboon social behaviour is matrilineal, in which a **network of social relationships**is sustained over three generations by the female members of the species.

MUST READ:India-Egypt relations
SOURCE:THE HINDU

TIPPU SULTAN

Context: The BJP president of Keralasaid the renaming of Sulthan Bathery in Kerala's Wayanad district is "inevitable". He said, "Sulthan Bathery should be renamed as Ganapathyvattam.

Background:-

- One of the three municipal towns in Wayanad, along with Mananthavady and Kalpetta, is Sulthan Bathery.

Key takeaways

- Sulthan Bathery is home to a **stone temple that was formerly known as Ganapathyvattam**.

- The temple was established by Jains who came **to Wayanad from regions in what is now Tamil Nadu and Karnataka in the 13th century**. It is designed in the dominant Vijayanagara architectural style.

- The temple was partly destroyed during the invasions of Tipu Sultan, the ruler of Mysuru in the second half of the 18th century.

- Archaeological Survey of India has **declared it as a monument of national importance.**

About Tipu Sultan

- Tipu Sultan was born Sultan Fateh Ali Sahab Tipu on November 10, 1750 in Devanahalli, present-day Bangalore.

- He was born to Hyder Ali, who rose through the ranks of the army of the Wodeyars, the then Hindu rulers of Mysore. Hyder Ali ceased power in 1761 with Tipu succeeding his father in 1782.

- While fighting the British in 1767, Tipu first came in contact with European culture and lifestyle, something that would fascinate him. This fascination would be reflected in his rule of Mysore:

- Tipu undertook various policies and reforms which would modernise the princely state and go on to become a lasting aspect of his legacy.

- Hyder Ali died in 1782, during a period of conquest and expansion of his realm. Thus, Tipu inherited the throne under trying circumstances, with his primary motivation being to consolidate the territory he had inherited from his father.

- Over the past 20 years, the kingdom of Mysore had slowly expanded by capturing disputed areas at its borders. Tipu inherited rebellious provinces in Malabar, Kodagu, and Bednur, all of which were crucial to Mysore's strategic and economic interests.

- The Mysuru ruler's military used Ganapathyvattam as a battery for their ammunition and the town became known as 'Sultan's Battery' in British records.

- Tipu Sultan died defending his fortress of Srirangapatna against British forces in the Fourth Anglo Mysore War in 1799. His forces were heavily outnumbered and his French allies had not been able to come to his aid.

Source: Indian Express

OPERATION MEGHDOOT

Context: Recently, the Indian Army commemorated 40 years of 'Operation Meghdoot'.

Background:

- Operation Meghdoot was a significant military endeavour executed by the Indian Army.

About OPERATION MEGHDOOT

- Is the codename for the Indian Army's operation to take full **control of the Siachen Glacier in Ladakh.**

- Executed on the morning of April 13, 1984, in the highest battlefield in the world, Meghdoot was the first military offensive of its kind.

- Operation Meghdoot was in response to the intelligence reports about Pakistan's Operation Ababeel, which aimed to capture the Siachen Glacier.

- Siachen region had become a disputed area between India and Pakistan following a vague demarcation of territories in the Karachi Agreement of 1949.

- As a result of Operation Meghdoot, India gained the 70 kilometers long Siachen Glacier and all of its tributary glaciers, as well as the three main passes on the Saltoro Ridge: Sia La, Bilafond La, and Gyong La.

- **This strategic advantage allowed India to hold higher grounds in the region,** and currently, the Indian Army remains the first and only army in the world to have deployed tanks and other heavy ordnance at altitudes well over 5,000 meters

Strategic Importance of Siachen:

- The Siachen Glacier, located at a height of around 20,000 feet in the Karakoram Mountain range, is known as the highest militarized zone globally.

- It dominates the Shaksgam Valley (ceded to China by Pakistan in 1963) in the north, controls routes from Gilgit Baltistan to Leh from the west, and also dominates the ancient Karakoram Pass in the east.

Source: Hindu

AZAD HIND GOVERNMENT

Context: Kangana Ranaut, in a recent interview, claimed that Subhas Chandra Bose, not Jawaharlal Nehru, was the first prime minister of independent India. After being criticised for the historicity (or lack thereof) of her comments, Kangana doubled down, citing the provisional government setup by Bose in 1943 as evidence of her claim.

Background:

- Notably, 28 years before the Azad Hind government came into existence, the Provisional Government of India was formed in Kabul by a group known as the Indian Independence Committee (IIC).

About the Azad Hind government:

- Subhas Chandra Bose proclaimed the **formation of the Provisional Government of Azad Hind ("Free India") in Singapore on October 21, 1943.**

- **Bose was the Head of State of this provisional government**, and held the foreign affairs and war portfolios.

- **A C Chatterjee was in charge of finance, S A Ayer became minister of publicity and propaganda, and Lakshmi Swaminathan was given the ministry of women's affairs.** A number of officers from Bose's Azad Hind Fauj were also given cabinet posts.

- The Azad Hind government claimed authority over all Indian civilian and military personnel in Britain's Southeast Asian colonies (primarily Burma, Singapore, and Malaya) which had fallen into Japanese hands during World War II.

- It also claimed prospective authority over all Indian territory that would be taken by Japanese forces, and Bose's Azad Hind Fauj, as they attacked British India's northeastern frontier.

- To give legitimacy to his government, much like Charles de Gaulle had declared sovereignty over some islands in the Atlantic for the Free French, Bose chose the Andamans.

- Diplomatically, Bose's government was recognised by the Axis powers and their satellites: Germany, Japan, and Italy, as well as Nazi and Japanese puppet states in Croatia, China, Thailand, Burma, Manchuria, and the Philippines.

- Notably, 28 years before the Azad Hind government came into existence, the Provisional Government of India was formed in Kabul by a group known as the Indian Independence Committee (IIC).

- Much like Bose allied with the Axis powers during World War II to fight the British, during World War I, Indian nationalists abroad (mostly in Germany and the US), as well as revolutionaries and Pan-Islamists from India, attempted to further the cause of Indian independence with aid from the Central Powers.

- The IIC, with the help of the Ottoman Caliph and the Germans, tried to foment insurrection in India, mainly among Muslim tribes in Kashmir and the British India's northwestern frontier.

- To further this cause, the IIC established a government-in-exile in Kabul under the presidency of Raja Mahendra Pratap, and prime ministership of Maulana Barkatullah.

Source: Indian Express

RAKHIGARHI

Context: The NCERT recently introduced certain revisions to the history syllabus of Class 12 students, highlighting that Harappans were based out in Rakhigarhi.

Background:

- These revisions reflect a deeper understanding of the Harappan civilization and its historical context, shedding light on their origins and societal structures.

About RAKHIGARHI
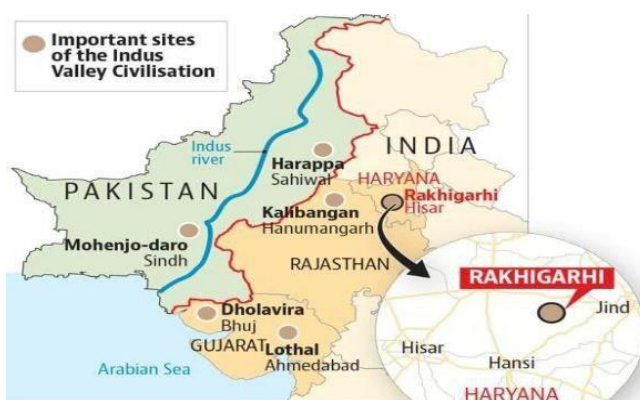
- It's an archaeological site **located in Hisar, Haryana,** and is recognized as one of the largest Harappan (Indus Valley Civilization) sites in the Indian subcontinent.

- Rakhigarhi is **situated in the plains of the Saraswati River,** about 27 km from the seasonal Ghaggar river.

- The site showcases continuity from the **Harappan age to the present times**.

- It is recognized for its extensive Harappan heritage, offering insights into ancient urban life and culture.

- Excavations were carried out at Rakhigarhi to study its evolution from 6000 BC (Pre-Harappan phase) to 2500 BC.

- In order to study the genetic history of the Harappans, DNA was extracted from the skeletal remains excavated at Rakhigarhi.

GURU TEG BAHADUR

Context: Recently, Prime Minister Narendra Modi paid tributes to Sikh **Guru Teg Bahadur** recalling his martyrdom.

Background:-

- He said his teachings, emphasizing unity and righteousness, "light our way" in the pursuit of brotherhood and peace.

About Guru Teg Bahadur:-

- **Born: at Amritsar in 1621 and Died: 17 December,1675.**
- [Guru Tegh Bahadur](#) was the **ninth of ten Gurus of the Sikh religion**., was the youngest son of Guru Hargobind.
- He was born to **Mata Nanki and Guru Hargobind**, the sixth Sikh guru, who raised an army against the Mughals and introduced the concept of warrior saints.
  - **After Guru Ram Das**, the fourth Sikh guru, the guruship became hereditary.
- **Guru Tegh Bahadur was also an excellent warrior, thinker, and poet**, who wrote **detailed descriptions of the nature of God, mind, body, and physical attachments among other things spiritual.**
- His writings are housed in the sacred text, '**Guru Granth Sahib,**' in the form of **116 poetic hymns.**
- He founded the town of **Chak-Nanki in Punjab**, which later became a part of Punjab's Anandpur Sahib.
- He was **publicly killed in 1675** on the **orders of Mughal emperor Aurangzeb in Delhi** for refusing Mughal rulers and defying them.
- **Gurudwara Sis Ganj Sahib and Gurdwara Rakab Ganj Sahib** in Delhi mark the places of execution and cremation of his body.

MUST READ: [Guru Nanak Dev](#)
SOURCE: [TIMES OF INDIA](#)

BAHMANI KINGDOM

Context: Recently, Karnataka HC asked authorities to remove the encroachments of **Bahmani** Sultans' fort in Kalaburagi.

Background:-

- The High Court bench in Kalaburagi instructed civic authorities to clear 62 houses constructed inside the fort and 114 houses that have emerged in the surroundings of the fort.

About Bahmani Kingdom:-

- The Bahmani Sultanate was a significant **medieval Muslim state in the Deccan region of South India.**
- It is also known as the **Bahmanid Empire** was **established in 1347**.
- The Bahmani Sultanate was founded by **Hasan Bahman Shah**, a governor appointed by the Delhi Sultanate.
- He declared independence and established his **capital at Gulbarga.**
- It **lasted until 1527** when it fragmented into five smaller states.
- The Sultanate was administratively divided into **four provinces (Daulatabad, Bidar, Berar, and Gulbarga) with tarafdars or subedars governing each.**

- The sultanate was governed through a **decentralized feudal system.**
- Trade and commerce flourished in the Bahmani Sultanate due to its strategic location. The region was a center for international trade, particularly in horses, textiles, and spices.
- Around 1518, **Krishnadeva Raya of the Vijayanagar Empire defeated** the last ruler of the Bahmani Empire. (**Kingdom of Vijayanagara**)

Art and Architecture:-

- The Bahmanis followed the **Indo-Islamic style of architecture** with a few changes.
- The buildings were constructed using **local materials.**
- An **influence of Persian architecture** could be seen in the buildings of this period.
- Examples of architecture could be found at **Gulbarga (Shah bazaar mosque, Hafta Gumbaz, Jama masjid),** at Bijapur **(Gol Gumbaz, Ibrahim Roza, Bara Kaman, etc.),** and at **Bidar (Rangeen mahal, Janata mahal).**
- It was during this period when a new dialect, '**Dakhini Urdu' prevailed**.

MUST READ: Malik Ahmed and Ahilyabai Holkar
SOURCE: THE LAST MINUTE

DEFENCE & SECURITY.

EXERCISE POORVI LEHAR (XPOL)

Context: Recently, the Indian Navy conducted extensive exercise Poorvi Lehar.

Background:

- Exercise Poorvi Lehar plays a crucial role in ensuring the Indian Navy's capability to safeguard our coastal waters and maintain security in the East Coast region.

About EXERCISE POORVI LEHAR (XPOL):

- XPOL is a significant **maritime exercise conducted** by the Indian Navy along the East Coast.

- Under the operational direction of the Flag Officer Commanding-in-Chief, Eastern Naval Command, this **exercise aims to validate procedures and assess the Indian Navy's preparedness to meet Maritime Security challenges in the region.**

Key Points :

- **Objective**: The exercise focuses on enhancing the Indian Navy's readiness to address security threats in the maritime domain.

- **Participating Assets:** It involves Ships, Submarines, Aircrafts, and Special Forces.

- **Phases**: XPOL is conducted in multiple phases, including combat training during the Tactical Phase and successful firings during the Weapon Phase.

- **Interoperability**: The exercise demonstrates a high degree of interoperability among different services, with participation from assets of the Indian Air Force (IAF), Andaman & Nicobar Command, and Coast Guard.

- **Maritime Domain Awareness**: Continuous awareness of the maritime area of operations is maintained through the operation of aircraft from diverse locations.

Source: PIB

NATIONAL SECURITY GUARD (NSG)

Context: Senior IPS officer Nalin Prabhat has been appointed as the Director-General of National Security Guard (NSG).

Background:

- The NSG plays a pivotal role in protecting India from terrorist threats and maintaining security during critical situations.

About NATIONAL SECURITY GUARD (NSG):

- NSG's commonly known as the **"Black Cats," is a specialized counter-terrorism unit in India**.

- It operates under the Ministry of Home Affairs was established on October 16, 1984, following the Operation Blue Star.

Mission and Vision:

- **Mission**: To train, equip, and maintain a special force capable of swiftly and effectively combating terrorism, living up to its motto: "Sarvatra Sarvottam Suraksha" (Everywhere and Always Supreme Security).

- **Vision**: To be a world-class "zero error force."

Role and Functions:

- The NSG is a federal contingency deployment force that handles various critical tasks:
- Anti-hijack operations: Responding to hijacking threats.
- Rescue operations: Providing assistance during crises.
- Tough support: Backing up Central Para Military forces.

Composition:

- The NSG comprises officers and personnel from the Central Armed Police Forces, Indian Army, and State Police Forces.

Source: Indian Express

ANTI – MOIST OPERATIONS

Context: At least 29 alleged Maoists were killed in a gunfight with security forces in the forests of southern Chhattisgarh's Kanker district on Tuesday (April 16).

Background:

- The operation is the largest (in terms of Maoists' bodies recovered) since the creation of Chhattisgarh in 2000, and among the **biggest successes for security forces in their decades-long fight against left-wing extremism (LWE).**

What happened in the operation?

- The operation saw security forces push deep into the Maoist stronghold of Abujhmad (literally, "the unknown hills") — a 4,000 sq km swathe of forest land in southern Chhattisgarh's Bastar region, mainly covering the districts of Narayanpur, Bijapur, and Dantewada, just south of Kanker. Only a small part of the forest falls in Kanker.
- The difficult terrain, absence of roads, and presence of LWE has meant that 90% of Abujhmad, bigger in terms of area than Goa, remains unsurveyed by the government.
- These jungles are, thus, used both as safe havens and transit corridors by Maoists to travel between Maharashtra (to the west), Andhra Pradesh (to the south), Telangana (to the southwest), and Odisha (to the east) via Chhattisgarh's Sukma district.

LWE in Chhattisgarh

- Chhatisgarh is the **only state in which Maoists continue to have a significant presence, and retain the capability to mount big attacks.**
- According to the Ministry of Home Affairs (MHA) website, there are 70 LWE-affected districts in the country. Of these, 15 are in Chhattisgarh alone. Of the 25 "Most LWE affected Districts", seven are in Chhattisgarh, while eight are in Jharkhand.

The government's 'final push 'against LWE

- Chhattisgarh, and to a lesser extent Jharkhand, is a part of the government's "final push" against LWE.
- This has seen central forces such as CRPF setting up bases deeper inside Maoist strongholds such as the jungles of Abujhmad. In the past few years, more than two dozen bases have been set up in Abujhmad, with Kanker's Rowghat jungles too seeing new camps.

Criticism

- Critics say that there are **major flaws in the government's approach to tackling the Naxal problem**. There is no overall strategic plan and the states have been tackling the challenge as per their perception and the political appreciation of its gravity.

- States consider LWE a national problem. The problem will not be conclusively dealt with until state forces take the **lead in anti-Naxal operations** and the central armed police forces play a subsidiary role only.

Source: Indian Express

TIGER TRIUMPH-24 EXERCISE

Context: The Tiger Triumph-24 exercise has concluded recently.

Background:

- Thisexercise reinforces the robust strategic partnership between India and the United States in humanitarian assistance and disaster relief efforts.

About TIGER TRIUMPH-24 EXERCISE:

- It is a bilateral **tri-Service Humanitarian Assistance and Disaster Relief (HADR) Exercise** conducted between India and the United States.

- **Aim:** to develop **interoperability for conducting Humanitarian Assistance and Disaster Relief operations and refine Standard Operating Procedures (SOPs)** for rapid and smooth coordination between the forces of both countries.

- **The exercise included activities such as** amphibious landings, setting up field hospitals, and establishing camps for displaced persons.

- It represents the **strategic partnership between both nations** and their commitment to sharing best practices in multinational HADR operations.

- Participating units included the Indian Navy, Army, and Air Force, as well as the US Navy and Marine Corps.

Source: Hindustan Times

PROJECT AKASHTEER

Context: The Indian Army has initiated the induction of control and reporting systems under 'Project Akashteer' to bolster its air defence capabilities.

Background:

- Akashteer revolutionizes air defence operations, empowering India's armed forces with cutting-edge capabilities.

About PROJECT AKASHTEER:

- It is a significant initiative aimed at **enhancing the air defence capabilities** of the Indian Army.

- Developed by: **Bharat Electronics Limited (BEL) as part of the 'Atmanirbhar Bharat' initiative**.

- This project is designed to **automate air defence control** and reporting processes by digitizing them.

- The system integrates **radar and communication systems at all levels** into a unified network, providing an unprecedented level of situational awareness and control.

- This enables swift engagement of hostile targets, significantly reduces the risk of fratricide, and ensures the safety of friendly aircraft in contested airspace.

- A noteworthy aspect of **'Akashteer' is its emphasis on mobility and resilience**.

- The system's control centers, designed to be vehicle-based and mobile, can maintain operational capabilities even in challenging communication environments.

Source: Economic Times
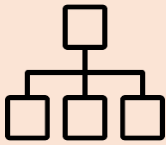
GOVT. initiatives, schemes and policies, organisation

NATIONAL DISASTER RELIEF FUND (NDRF)

Context: The Union government releases disaster relief funds for Karnataka and Tamil Nadu from the National Disaster Response Fund (NDRF).

Background:

- Move comes weeks after the two State governments approached the Supreme Court seeking relief funds for calamities such as Cyclone Michaung, floods and drought in 2023.

About NATIONAL DISASTER RESPONSE FUND (NDRF)

- NDRF is a crucial component of disaster management in India.
- It is a **fund managed by the Central Government** to meet expenses related to emergency response, relief, and rehabilitation during threatening disaster situations or actual disasters.
- **Aim:** to provide immediate assistance when natural or man-made calamities strike.
- Decisions on NDRF expenses are made by the **National Executive Committee (NEC) of the National Disaster Management Authority.**
- The NDRF accounts are **audited annually by the Comptroller and Auditor General (CAG).**

Supplementing State Disaster Response Funds (SDRF):

- The NDRF operates alongside the State Disaster Response Funds (SDRF) to **provides additional financial assistance for natural calamities of severe nature.**
- When a state faces a disaster that exceeds the available funds in its own SDRF, the NDRF steps in to offer support.

Eligibility and Coverage - NDRF guidelines cover a range of disasters:

- **Natural Calamities**: Cyclones, drought, earthquakes, fires, floods, tsunamis, hailstorms, landslides, avalanches, cloud bursts, pest attacks, and cold waves.
- **Man-Made Disasters**: These include terrorist attacks, chemical or biological incidents, and nuclear disasters as notified by the Central Government.
- **States seeking NDRF funds must submit a memorandum detailing the damage and funding requirements.**
- The NDRF provides **immediate relief assistance, not compensation for property or crop loss**.

Sources of Financing:

- The NDRF is financed through a **cess on certain items, chargeable to excise and customs duty, approved annually through the Finance Bill.**
- If additional funds are needed beyond what the NDRF provides, they **come from general budgetary resources.**

Source: The Wire

RASHTRIYA AAROGYA NIDHI (RAN) SCHEME

Context: The Delhi High Court has raised concerns about the low-income threshold for financial assistance under the **Rashtriya Arogya Nidhi (RAN) scheme.**

Background:

- The court's observation highlights the need for a re-evaluation of the income threshold to ensure equitable access to healthcare assistance for those in need.

About RASHTRIYA AROGYA NIDHI (RAN) SCHEME:

- The umbrella scheme of Rashtriya Arogya Nidhi (RAN) is a **central sector scheme** designed to **provide financial assistance to poor patients living below the poverty line.**

- It provides **one-time financial assistance to poor patients living below State/UT wise threshold poverty line and suffering from life threatening diseases.**

- RAN offers **financial support for treatments** such as organ transplants, cancer treatment, and other critical procedures and the assistance is provided as a **one-time grant to eligible patients.**

The Umbrella Scheme of RAN has three components as under:

- **Rashtriya Arogya Nidhi (RAN)** - Financial assistance for treatment of life-threatening diseases relating to heart, kidney, liver, etc. at Government hospitals/institutes having Super Specialty facilities; (Maximum financial assistance is Rs. 15 lakhs)

- **Health Minister's Cancer Patient Fund (HMCPF)** - Financial assistance for treatment of cancer at Regional Cancer Centres (RCCs)/ Tertiary Care Cancer Centres (TCCCs) and State Cancer Institutes (SCIs); (Maximum financial assistance is Rs. 15 lakhs)

- Financial assistance for **poor patients suffering from rare diseases** - for specified rare diseases for treatment at Government hospitals/institutes having Super Specialty facilities; (Maximum financial assistance is Rs. 20 lakhs)

Source: PIB

NATIONAL SERVICE SCHEME

Context:Trained **National Service Scheme (NSS)** volunteers from 153 NSS units are stepping up to make a difference in Kozhikode district during the upcoming polls.

Background:

- These dedicated volunteers will extend their helping hands to differently abled individuals and senior citizens, ensuring their well-being and facilitating their participation in the democratic process.

About NATIONAL SERVICE SCHEME (NSS):

- **NSS is a Central Sector Scheme** launched in 1969, during the birth centenary year of Mahatma Gandhi, involving 40,000 students across 37 universities, implemented by the Government of India, under the Ministry of Youth Affairs & Sports.

- It aims to provide an **opportunity for student youth across different educational levels to participate in various government-led community service activities and programs**.

- It encourages students to actively **engage in community service** while pursuing their education.

- NSS promotes the development of students' personality and character through voluntary community service.

Source:Hindu

SPICES BOARD OF INDIA

Context: In response to the recent ban on certain Indian spice brands in Singapore and Hong Kong due to quality concerns, the Spices Board of India has taken proactive measures.

Background:

- The Spices Board will now conduct **mandatory testing for ethylene oxide** in spice consignments destined for Singapore and Hong Kong. This decision comes after the ban on products from Indian brands MDH and Everest in these countries.

About SPICES BOARD OF INDIA

- The Spices Board of India is a **statutory body established under the Spices Board Act of 1986,** operates under the Ministry of Commerce & Industry, Government of India.
- It resulted from the **merger of two entities**: the erstwhile Cardamom Board and the Spices Export Promotion Council.
- **Purpose: facilitate spice trade, promote exports**, and safeguard the interests of Indian spice growers and exporters.
- The Board serves as an **international link between Indian spice** exporters and importers abroad.

Spices Production and Export:

- India is the largest producer, consumer, and exporter of spices globally.
- India produces about 75 out of 109 varieties listed by the International Organization for Standardization (ISO).

The country's diverse climatic conditions allow for the cultivation of a variety of spices, including:

- **Black Pepper**: Often referred to as the "King of Spices," native to the Western Ghats of India.
- **Cardamom**: Known as the "Queen of Spices," produced in Kerala, Tamil Nadu, and Karnataka.
- **Turmeric**: Key ingredient in Indian cooking, known for its vibrant colour and anti-inflammatory properties.
- **Major spices-producing states in** India include Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh, Telangana, Karnataka, Maharashtra, Assam, and others.

Source: Times of India

NATIONAL ORGAN AND TISSUE TRANSPLANT ORGANISATION (NOTTO)

Context: As per the recent directive by the Union Health Ministry, all cases of organ transplants will now be assigned a unique National Organ and Tissue Transplant Organisation (NOTTO)-ID for both the donor and the recipient.

Background:

- This initiative aims to streamline and enhance the process of organ allocation and transplantation across the country.

About NATIONAL ORGAN AND TISSUE TRANSPLANT ORGANISATION (NOTTO):

- NOTTO is the apex body in India for the **coordination and networking of organ and tissue procurement and transplantation,** operates under the **Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India.**

- It also oversees the **National Human Organ and Tissue Removal and Storage Network and the National Biomaterial Centre (National Tissue Bank),** which are crucial for maintaining the supply and quality of transplantable tissues.

Primary Functions:

- **Coordination and Networking**: Facilitating the procurement and distribution of organs and tissues across the country.

- **Registry Maintenance**: Keeping a registry of organ and tissue donations and transplants.

- **Policy and Protocol Development:** Establishing guidelines, protocols, and standard operating procedures for tissue procurement, distribution, and transplantation.

- **Training and Assistance**: Providing training and assisting in the registration of other tissue banks.

- **Public Awareness**: Promoting organ and tissue donation awareness.

Source: Hindu

FSSAI (FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA)

Context: The Union Consumer Affairs Ministry asked the Food Safety and Standards Authority of India (FSSAI) to initiate "appropriate action" against the Nestle group for allegedly selling baby products with high sugar content in India.

Background:

- The violations are primarily found in Asian, African, and Latin American countries, while in developed nations like the United Kingdom and Germany, these products remain sugar-free.

About FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA (FSSAI) :

- FSSAI is an autonomous statutory body established under the Food Safety and Standards Act, 2006, operates under the **Ministry of Health & Family Welfare, Government of India,** with its headquarters in Delhi.

- The FSS Act, 2006 **consolidated various acts & orders related to food safety previously handled by different Ministries and Departments.**

Functions:

- Framing regulations for food safety standards and guidelines and **grant food safety licenses and certification for food businesses.**

- Laying down procedures for food testing laboratories and advises the government on policy-making.

- Collecting data on food contaminants and managing risks and creating a national information network on food safety.

Legislative Framework:

- The FSS Act aims to **establish a single reference point for all matters relating to food safety and standards and establishes** State Food Safety Authorities for each state.

- The Food Safety and Standards Rules, 2011, provide for the Food Safety Appellate Tribunal and the Registrar of the Appellate Tribunal.

Recent Development:

- In May 2023, FSSAI established a comm**ittee to examine issues relating to nutraceuticals and highly processed foods, focusing on sustainable standards and reducing adulteration.**

Source: Hindu

PRADHAN MANTRI UJJWALA YOJANA (PMUY)

Context: The government under its flagship Pradhan Mantri Ujjwala Yojana has been able to extend the benefits of clean cooking fuel to 103.3 million households between the start of the scheme and the end of 2023-24, according to data from the Petroleum Planning and Analysis Cell.

Background:

- This significant achievement underscores the positive impact of PMUY in improving the lives of millions of families by ensuring access to LPG connections and reducing reliance on traditional solid fuels.

About PMUY:

- PMUY is a flagship scheme introduced by the **Ministry of Petroleum and Natural Gas (MOPNG)** in India.

- **Objective:** to provide **clean cooking fuel,** specifically liquefied petroleum gas (LPG), to rural and deprived households.

- These households were previously reliant on traditional **cooking fuels like firewood, coal, and cow-dung cakes,** which had adverse effects on both women's health and the environment.

- The applicant must be an **adult woman belonging to a BPL household.** The scheme prioritizes women from SC, ST, and other marginalized communities.

Key features of the PMUY:

- **Empowering Women and Health Protection:** Traditional fuels often led to respiratory illnesses due to indoor air pollution.

- **Reducing Deaths:** The PMUY seeks to reduce deaths caused by unclean cooking fuels in India.

- **Financial Support:** The scheme provides a financial support of ₹1600 for each LPG connection to below poverty line (BPL) households.

- **Ujjwala 2.0:** Under this extension of the scheme, beneficiaries receive a deposit-free LPG connection, the first refill, and a hotplate at no cost.

Source: Financial Express

ATHLETICS FEDERATION OF INDIA (AFI)

Context:The Athletics Federation of India (AFI) recently took an unprecedented step by disaffiliating 16 district associations across the country.

Background:

- These districts failed to send teams for the National inter-district junior athletics meet held in Ahmedabad in February.

About ATHLETICS FEDERATION OF INDIA (AFI):

- The AFI is the **apex body responsible for overseeing athletics in India** formed in 1946.

- It has played a crucial role in promoting and managing athletics across the country and has contributed significantly to the development and success of Indian athletes on both national and international stages

- It is **affiliated with World Athletics**, the Asian Athletics Association (AAA), and the Indian Olympic Association.

- The AFI has 32 affiliated state units and institutional units.

Responsibilities:

- **National Championships:** The AFI organizes the National Championships.

- **Training and Selection**: It trains Indian Athletics National Campers and selects Indian Athletics Teams for various international competitions, including the Olympics, Asian Games, Commonwealth Games, World Championships, and other international meets.

- **Promotion and Development**: The AFI conducts international and national championships, as well as various meets, to promote the sport and make athletics commercially attractive for further growth.

- **Grassroots Promotion**: It supervises and assists state units, plans coaching camps, and initiates development programs for grassroots promotion of athletics in India.

Source: The Hindu

X- CLASS SOLAR FLARE

Context: Earth was recently hit by an X-class solar flare that was strong enough to ionize part of the planet's atmosphere.

Background:

- This intense solar outburst was detected by satellites from the **National Oceanic and Atmospheric Administration (NOAA)**, specifically their Space Weather Prediction Center.

About X- CLASS SOLAR FLARE

- The Solar flares are **massive eruptions of charged particles on the sun.** They emit intense bursts of electromagnetic radiation.

- These flares come in various intensities, with smaller **A-class and C-class flares denoting relatively minor events**. In contrast, the **stronger M-class flares can amplify the auroras visible on Earth.**

- The X-class flares are **the most powerful type of solar flares**.

Effects X-class Solar Flares on Earth

1. **Geomagnetic Storms:**

- **X-class flares** release an immense amount of energy, including charged particles and electromagnetic radiation. These particles reach Earth and interact with our planet's magnetosphere, causing geomagnetic storms.

- During a severe geomagnetic storm, the **magnetosphere weakens temporarily,** allowing solar radiation to penetrate deeper into the atmosphere.

2. **Satellite Disruption:**

- Long-lasting radiation storms from X-class flares **can harm satellites orbiting Earth**. **Satellites may experience malfunctions** or even permanent damage due to increased radiation exposure.

- Airline passengers flying near the poles during such events may receive small radiation doses.

3. **Global Transmission Problems and Blackouts:**

- X-class flares have the potential to create **global transmission problems.** Intense bursts of radiation can **interfere with communication systems**, including radio signals and satellite communication.

- In extreme cases, widespread blackouts could occur if critical infrastructure is affected.

4. **Solar Maximum and Solar Cycle:**

- The occurrence of X-class flares is a **clear sign that the sun is nearing its solar maximum**.

- Solar maximum is part of the sun's roughly 11-year cycle of activity. During this phase, X-class flares become more common, **posing challenges for Earth's technology and space operations.**

Source: Live Science

C-VIGIL

Context: Since the announcement of General Elections 2024, the C-Vigil app has been inundated with over 79,000 complaints from vigilant citizens.

Background:

- The term 'C-VIGIL' stands for Vigilant Citizen, emphasizing the proactive and responsible role citizens can play in the conduct of free and fair elections.

About C-VIGIL APP

- The C- VIGIL app is an innovative **mobile application launched by the Election Commission of India**.

- It allows citizens to **report violations of the Model Code of Conduct (MCC)** and expenditure violations during elections.

- The app provides time-stamped evidentiary proof of violations, including live photos/videos with auto location data.

- This unique combination of timestamping, live photo with auto location can be fairly relied upon by election machinery to navigate to the right spot and take prompt action.

- It also includes a **GIS-based dashboard that provides a strong decision tool to drop and dispose of frivolous and unrelated cases** even before they are acted upon, thereby reducing the workload of election machinery on ghost complaints.

Source: PIB

HAVANA SYNDROME

Context: Russia dismissed a joint media investigation which found evidence that a Russian military intelligence unit might be responsible for the **mysterious health condition known as 'Havana syndrome'** that affected US diplomats and spies across the world.

Background:

- Havana syndrome typically involves symptoms such as hearing certain sounds without any outside **noise, nausea, vertigo and headaches, memory loss, and balance issues.**

About Havana syndrome

- Refers to a set of **mental health symptoms that are said to be experienced by United States intelligence and embassy officials in various countries.**

- Generally, the word 'syndrome' simply means a set of symptoms. It does not mean a unique medical condition, but rather a set of symptoms that are usually experienced together whose origins may be difficult to confirm.

- It typically involves symptoms such as **hearing certain sounds without any outside noise, nausea, vertigo and headaches, memory loss, and balance issues**.

- As the name suggests, it traces its roots to Cuba in late 2016. This was about a year after the US opened its embassy in the capital city of Havana after ties between the two countries were normalised in 2015.

- Some US intelligence officials and members of the staff at the embassy began experiencing sudden bursts of pressure in their brains followed by persistent headaches, feelings of disorientation and insomnia.

- Since the Cuban incident, American intelligence and foreign affairs officials posted in various countries have reported symptoms of the syndrome.

What did the investigation find?

- The investigation claims that members of a Russian military intelligence unit, called 29155, could have targeted the brains of US officials by using "directed energy" weapons.

- The 29155 unit, which has been operational for more than a decade, has been previously accused of carrying out foreign assassination, subversion, and sabotage.

What are the causes of Havana syndrome?

- Study by scientists in the US and examination of the victims began to suggest that they may have been subjected to h**igh-powered microwaves that either damaged or interfered with the nervous system.** It was said to have built pressure inside the brain that generated the feeling of a sound being heard.

- Greater exposure to high-powered microwaves is said not only to interfere with the body's sense of balance but also to impact memory and cause permanent brain damage. Low levels of microwaves are also emitted from mobile phones but they are not targeted.

Source: Indian Express

SHALLOW FAKES

Context: Shallow fakes, also known as cheap fakes, are a cause for concern, especially during elections.

Background:

- With rapid dissemination on social media, shallow fakes can go viral quickly. False or misleading content can become ingrained in public discourse.

About SHALLOW FAKES

- Shallow fakes are **manipulated images, videos, and voice clips created without AI technology.**

- Unlike deepfakes, which rely on sophisticated AI algorithms, shallow fakes use traditional editing tools to deceive viewers.

- They are increasingly used in **political contexts, particularly during elections, to spread misinformation.**

Characteristics:

- Quality: The term "shallow" implies that these **fakes are lower in quality compared to deepfakes**.

- Methods: Shallow fakes **involve conventional photo editing or altering video speed to change speech patterns.**

- Misleading Context: They often mis-caption or mis-contextualize existing images or videos, falsely claiming they are from a different time or place.

Source: Indian Express

Morning Batch

IAS BABA

baba's gurukul

The Guru-shishya Parampara Continues....

Comprehensive Classes of GS + CSAT + CA + ESSAY

Comprehensive Material (VAN) + Prelims Handouts

Daily Answer Writing

(For Freshers)

Personalised Mentorship & Feedback

Super 100 (Mentored by Mohan Sir & Toppers)

Prelims + Mains Test series

GURUKUL FOUNDATION 2025

(Prelims + Mains + Interview)

STARTS 6TH JUNE

ADMISSIONS OPEN

BENGALURU

ONLINE

🌐 www.iasbaba.com ✉ support@iasbaba.com 📞 91691 91888

PAPER 1

DECLINING FERTILITY

GS I –Population and associated issues
Context: Recently, a Lancet paper showed global population trends are changing, with declining birth rates instead of overpopulation.

Major findings on global population trends in the Lancet:

- The Lancet paper projects a significant decrease in the global population. Most countries, including India, are expected to see lower birth rates.
- By **2100, China's population might drop by up to 50%.**
- The decline in birth rates suggests a future with more elderly people and fewer young ones.
- The change could affect job markets, healthcare, and social systems, as there will be more old people needing care but fewer young people to support them.

Factors behind declining fertility:

- **Higher education levels and increased empowerment among women lead to smaller family sizes.**
- **Young people are reluctant to bring children** into a world threatened by environmental issues like climate change.
- In India**, 90% of the youth are in low-paying, informal jobs**, contributing to uncertainty about the future.
- India's **extreme wealth inequality, with the richest 1% owning 40% of the wealth,** creates societal instability. India's low ranking in the World Happiness Report and concerns about its democratic status further impact decisions about starting a family.

DROUGHT IN EAST-FLOWING RIVERS

GS I –Geophysical phenomena
Context: According to an analysis of data released by the **Central Water Commission (CWC), more than ten east-flowing rivers between Mahanadi and Pennar have no water at the moment.**

Crisis faced by the East-Flowing Rivers in India:

- **At least 13 east-flowing rivers between Mahanadi and Pennar** have no water at the moment, including Rushikulya, Bahuda, Vamsadhara, Nagavali, Sarada, Varaha, Tandava, Eluru, Gundlakamma, Tammileru, Musi, Paleru, and Munneru.The storage in the basin has been declining continuously this year, reaching zero on 21st March, compared to 32.28% of the capacity at the same time last year.
- The **Cauvery**, Pennar, and east-flowing rivers between Pennar and Kanniyakumari are also facing deficient or highly deficient water storage.
- The **Ganga basin,** the largest basin in the country, has recorded water storage at less than half of its total capacity, lower than the corresponding period last year.
- **Narmada, Tapi, Godavari, Mahanadi, and Sabarmati River** basins have also recorded storage levels relative to their capacities.
- India's 150 **major reservoirs** have only **36% of their total capacity** in live storage, with at least **six reservoirs recording no water storage.**Overall, at least **35.2%** of the **country's area** is under abnormal to exceptional degrees of **drought**, with 7.8% under extreme drought conditions and 3.8% under exceptional drought.

Causes/Reasons for the Drying of East-Flowing Rivers:

- Deforestation along the river banks and in the **catchment areas** has reduced the soil's ability to retain water, leading to **reduced groundwater recharge** and lower river flows.
- The construction of dams and **water diversion** for irrigation purposes has also reduced the downstream flow of rivers, impacting the river's natural flow patterns and ecosystems.
- **Water pollution** from industrial, agricultural, and domestic waste, as well as **invasive species** like water hyacinths, degrades river water quality, harming aquatic life and overall river health.
- **Unregulated** sand mining along the river beds has disrupted the river's flow and **caused erosion**, leading to the drying up of river stretches.
- Urban expansion and **encroachment along river banks** have altered the natural flow of rivers and reduced the availability of water for the river.

Central Water Commission (CWC):

- It is the **apex technical organisation** for the **development of water resources** and is an attached organisation of the **Ministry of Water Resources**.
- It is responsible for initiating, coordinating, and furthering, **in consultation with the State Governments, the schemes for control, conservation, development, and utilization of water resources** throughout the country for the purpose of irrigation, flood management, power generation, navigation, etc.

FAIR SHARE FOR HEALTH AND CARE REPORT

GS I – Issues related to Women

Context: The World Health Organization (WHO) released a new report titled- Fair Share for Health and Care Report,
addressing the gender gap in global healthcare.

Key Highlights of the Report:

- Women comprise 67% of the paid global health and care workforce. Additionally, they **perform an estimated 76% of all unpaid care activities.** This highlights significant gender **disparities in both paid and unpaid care work.**
- Women in low- or middle-income countries could be USD 9 trillion **better off if their pay and access to paid work were equal** to that of men.
- Women are **overrepresented in lower-status roles**, comprising the majority of nurses and midwives. They are, however, underrepresented in leadership roles. Medical specialties are still dominated by men. Women made up 25% to 60% of doctors but between **30% and 100% of nursing staff across 35 countries.**
- Chronic underinvestment in health and care work has led to a vicious cycle of unpaid care work, **reducing women's participation** in paid labour markets, hindering economic empowerment, and impeding gender equality.
- **Pay gaps** limit women's investment in their family and community, which is where they are likely to reinvest. Globally, on average, **90% of women's earnings are directed towards their families' well-being**, compared to only 30-40% of men's.
- According to some estimates, a quarter of workplace violence across all sectors of the globe occurs in healthcare. At least **half of all employees in the healthcare** sector have reported **experiencing violence at some point in the workplace.**
- In India, **women spent around 73% of their total daily working time** (that is, the combined average time spent on unpaid and paid work recorded through **national daily time-use surveys**) **on unpaid work,** compared to **men who spent around only 11%** of their daily working time on unpaid work.
- Decades of underinvestment in health and care work contribute to a growing global crisis of care. Stagnation in progress towards **Universal Health Coverage (UHC)** leaves billions without full access to essential health services, further burdening women with unpaid care work.

Key Recommendations made by the Report:

- Improve working conditions for all forms of health and care work, especially for highly feminised occupations.
- Enhance conditions of work and wages in the health and care workforce and ensure equal pay for work of equal value.

GENDER INEQUALITY INDEX (GII) 2022

GS I –Issues related to women

Context: The **Gender Inequality Index (GII), 2022** has been released by **UNDP** in their **Human Development Report 2023-24.** In GII, India stands at rank **108th** out of 193 countries, with a score of 0.437.

Gender Inequality Index:

- **It** is a composite metric of gender inequality using three dimensions: **reproductive health, empowerment, and the labour market.**
- GII values range from **0 (equality) to 1 (extreme inequality)**.A low GII value indicates low inequality between women and men, and vice-versa.

Indian government initiatives to promote Gender Equality:

- The **National Creche Scheme** offers safe environments for children, enabling women to pursue employment.
- **Pradhan Mantri MatruVandanaYojna** provides maternity benefits to pregnant and lactating mothers.
- **Pradhan Mantri Awas Yojana** ensures housing under women's names.
- **Beti Bachao Beti Padhao (BBBP)** ensures the protection, survival, and education of the girl child.
- **The gender Budget** has been made a part of the Union Budget of India since 2005 and entails fund allocation towards programmes/schemes dedicated to women.
- **One Stop Centres (OSCs)** offer integrated services for women victims of violence, including medical aid, legal assistance, and counselling.
- The **Constitution (106th Amendment) Act, 2023**, reserves **one-third of all seats for women in Lok Sabha, State legislative assemblies, and the Legislative Assembly** of the National Capital Territory of Delhi, including those reserved for SCs and STs.
- The **Vigyan Jyoti programme** aims to encourage girls to pursue higher education and careers in **STEM (Science, Technology, Engineering, and Mathematics),** especially in the areas where women's participation is low to balance the gender ratio across the streams.

India's progress in the Gender Inequality Index (GII) 2022:
- India stood at rank **122 out of 191 countries** with a score of 0.490 in the Gender Inequality Index 2021.The current data shows a significant jump of 14 ranks on GII 2022 vis-a-vis GII 2021.
- Over the last 10 years, India's rank in GII has become **consistently better,** indicating progressive improvement in achieving gender equality in the country.

INDIAN LANDSLIDE SUSCEPTIBILITY MAP (ILSM)

GS I –Important geophysical phenomena

Context: IIT Delhi created the first hi-resolution Indian Landslide Susceptibility Map (ILSM).

Indian Landslide Susceptibility Map (ILSM):
- A landslide susceptibility map divides the terrain into zones based on the likelihood of landslide occurrence.
- Innovative Framework for High-Resolution Landslide Mapping embracing big data and use of multiple machine learning models with different underlying principles.

- The map model incorporates 16 landslide conditioning factors such as height, slope, soil composition, road distance, river proximity, vegetation cover, precipitation, etc.

Landslide susceptibility map of India
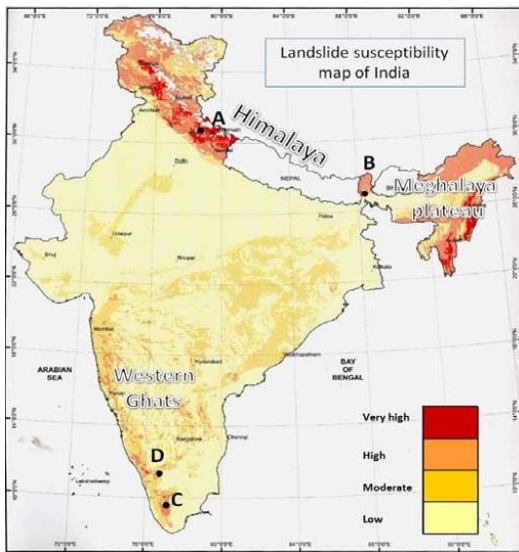
Key findings of ILSM:
• Map classifies 13.17% of India's geographical area as susceptible to landslides. 4.75% of the area is categorized as "very highly susceptible."
• It provides regional variation in susceptibility. Sikkim has the highest percentage of land area (57.6 %) susceptible to landslides. Arunachal Pradesh has the highest absolute area susceptible to landslides. **Kerala, among the non-Himalayan regions, exhibits the highest area susceptible to landslides.**
• **It identifies new landslide-prone zones**. Eastern Ghats show landslide-prone zones identified by the map. These zones were not reported by the previous models or government records.

Significance of ILSM:
• It serves as a foundation for the formulation and implementation of policies related to disaster risk reduction, providing a data-driven approach for governments and agencies.

- **It provides crucial information** for identifying areas with high susceptibility to landslides, enabling early warning systems and preparedness measures.

MULTILINGUALISM IN EDUCATION

GS I – Diversity of India
Context: Multilingualism can be magical if it's error-free.

Multilingualism:

- It is the **ability to speak, understand, read, and write** more than one language.
- It can be individual or societal, depending on whether a person or a community uses multiple languages.
- It can also **be classified into different types, such as additive or subtractive, balanced or dominant**, sequential or simultaneous, depending on how languages are **acquired, used, and valued**.
- India is one of the most linguistically diverse countries in the world, with **over 19,500 languages spoken throughout the nation.**
- According to the 2011 Census of India, **more than 25% of the population speaks two languages**, while about **7% speak three languages.**

Importance/Significance of Multilingualism in Education:

- Research shows that learning **more than one language can boost brain functions, such as memory, attention, problem-solving, and creativity.** It can also improve metalinguistic awareness, which is the ability to reflect on and manipulate language structures and rules.
- Learning multiple languages can expose students to **different cultures, perspectives, and values.** It can also help them **develop intercultural competence,** which is the ability to communicate effectively and appropriately with people from diverse backgrounds. With over **22 officially recognised languages and hundreds of dialects,** each with its own unique cultural and historical significance, language is a crucial aspect of our identity.
- Providing education in multiple languages can **ensure that every child has equal access and opportunity to learn, regardless of their linguistic background.** It can also foster a sense of belonging and identity among minority language speakers, and reduce discrimination and marginalization.

Ways to implement Multilingual Education:

- Multilingual education should be based on the linguistic realities and needs of the learners and the communities. It should also respect the constitutional provisions and the three-language formula of the **National Education Policy** (NEP 2020).
- Multilingual education **should adopt a learner-centered and interactive pedagogy** that fosters language awareness and proficiency.
- Multilingual education **should use fair and valid assessment tools and criteria** that measure the learning outcomes and progress of learners in multiple languages. It should also provide **constructive feedback and support to the learners** to improve their language skills.

Benefits of Multilingual Education for India:
- Multilingual education can equip learners with the **necessary language skills and competencies to participate in various domains** of life, such as education, employment, research, innovation, etc. It can also increase their employability and mobility in the globalized world.
- Multilingual education can help **preserve and revitalize the linguistic diversity and heritage of India.** It can also promote **the linguistic rights and dignity of the speakers** of different languages, especially those who are endangered or marginalized.
- Starting education in **one's mother tongue provides a solid foundation for learning additional languages,** including the national language and English, promoting multilingualism.
- When students can understand what they are being taught, they are **more likely to stay in school and complete their education.**

BHARATIYA NAGARIK SURAKSHA SANHITA OF 2023

Key highlights/provisions of Bharatiya Nagarik Suraksha Sanhita of 2023:

- **First-time offenders will be released on bail** if they have completed detention **for one-third of the maximum imprisonment for an offence.**
- **If the accused has spent half of the maximum period of imprisonment** during investigation or trial, he/she must be released on a personal bond. This does not apply to offences that are punishable by death and life imprisonment.
- **Any police officer can request for medical examination** of the accused in certain cases, such as rape.
- **It mandates forensic investigation for offences punishable with at least seven years of imprisonment.** If a state does not have a forensics facility, it shall utilize such a facility in another state.
- **It allows for the collection of specimen signatures, handwriting, finger impressions,** and voice samples from any person, whether arrested or not.
- It provides for the **conduct of trial and pronouncement of judgment in the absence of a proclaimed offender.**
- Proclaimed offender refers to a person who is accused of an offence punishable with **imprisonment of at least 10 years or death and fails to appear at a specified time** and place as specified by a court.
- It adds that **death sentences** can only be converted to life imprisonment and life imprisonment can be pardoned only within seven years of punishment.

Significance/Potential Impact of the Act:

- Prescribed timelines for **different judicial procedures and framing of charge sheets** will help in the timely delivery of justice.
- It provides for the forensic investigation of crimes and the integration of **Information and Communication Technology (ICT) tools** into the investigation and judicial process.
- The provision allows registration of FIR in any police station irrespective of where the offence was committed.
- **Mandatory video recording of search** and seizure seeks to address fairness in police investigations.
- The period during which an arrested person can be sent to **police custody has been expanded.**

CINEMATOGRAPH (CERTIFICATION) RULES OF 2024

GS II –Government policies and interventions

Context: The Ministry of Information and Broadcasting has introduced the Cinematograph (Certification) Rules, 2024, replacing the outdated 1983 rules, in accordance with the Cinematograph (Amendment) Act, 2023.

Key features of the Cinematograph (Certification) Rules of 2024:

- The rules have undergone a comprehensive revision to align with **online certification processes, ensuring enhanced transparency, efficiency, and ease of doing business for the film industry.**
- Time-lines for film certification processing have been reduced, with the adoption of complete digital processes to eliminate all transactional delays.
- **The existing UA (Universal Adult) category** has been further subdivided into three age-based categories: **UA 7+, UA 13+, and UA 16+.** These age-based markers serve as **recommendations for parents or guardians** to determine whether the film is suitable for their children, promoting age-appropriate content consumption.
- The rules stipulate **greater representation of women in the Central Board of Film Certification (CBFC) Board and Advisory Panels, with one-third of the members** in the Board and preferably half being women.

- The restriction on the validity of certificates for only 10 years has been removed, ensuring the perpetual validity of certificates issued by the **Central Board of Film Certification (CBFC).**
- **Edited films intended for television broadcast** are required to undergo recertification, allowing only films with Unrestricted Public Exhibition category certification to be shown on television.

Significance:

- The overhaul of the rules acknowledges the **advancements in film technology** and audience demographics over the past four decades.
- **Complementing the amendments to the Cinematograph Act in 2023**, the new rules simplify the certification process, making it contemporary and globally competitive.

Central Board of Film Certification(CBFC):

- It is a **statutory body** operating under the **Ministry of Information and Broadcasting**, entrusted with regulating the public exhibition of films as per the **Cinematograph Act 1952.**
- Films can only be publicly exhibited in India once they have **obtained certification from the CBFC**, ensuring compliance with legal requirements and standards.
- It comprises non-official members and a chairman, all appointed by the Central Government, with its **headquarters located in Mumbai.**

CLIMATE CHANGE AND HUMAN RIGHTS

GS II – ISSUES RELATED TO DEVELOPMENT

Context: The Supreme Court of India acknowledged the right to protection from climate change impacts as part of the **fundamental rights to life (Article21) and equality (Article 19) enshrined in the Indian Constitution.**

The intersection of climate change and human rights:

- **Climate change can directly affect people's right to life** by causing extreme weather events like **hurricanes or floods,** which can lead to loss of life and property.
- **Climate change can impact water sources, leading to water scarcity or contamination.** This affects people's right to clean water and sanitation. In regions where **droughts are becoming more frequent due to climate change, communities** may struggle to access safe drinking water, leading to health issues.
- Climate change can exacerbate health problems, especially for vulnerable populations. For instance, **increased heat waves can lead to heat-related illnesses** and deaths, affecting the right to health.
- Climate change-induced events such as sea-level rise, extreme weather events, or desertification can force people to **migrate or be displaced from their homes**. This intersects with human rights, particularly the **right to residence and the right to seek asylum**.
- Climate change can disproportionately affect indigenous communities that rely heavily on natural resources for their livelihoods and cultural practices.

The Supreme Court's interpretation of constitutional provisions concerning climate change:

- **Article 48A** which mandates environmental protection and **Article 51A(g)** which promotes wildlife conservation, implicitly **guarantee a right to be safeguarded from climate change.**
- **Article 21** recognises the right to life and personal liberty while **Article 14** indicates that all persons shall have equality before the law and the equal protection of laws. These articles are important sources of the **right to a clean environment and the right against the adverse effects of climate change.**
- In **MC Mehta vs Kamal Nath Case, 2000**, the Supreme Court stated that the **right to a clean environment is an extension of the right to life.**

Implications of the recent ruling:

- It strengthens the **legal basis for environmental protection efforts** in India and **provides a framework for legal challenges against inaction on climate change.**
- It aligns with the growing international recognition of the human rights dimensions of climate change, as outlined by the **UN Environment Programme** and the **UN Special Rapporteur on Human Rights and the Environment.**

GREEN ELECTIONS

GS II – GS II –Important aspects of governance.
Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Context: The **Election Commission of India (ECI)** voiced its concern over the environmental risks associated with the use of non-biodegradable materials in elections.

Green Elections:
- They are practices that **aim to reduce the environmental impact of electoral processes.** They involve measures such as using recycled materials, promoting electronic voting, and encouraging candidates to adopt sustainable campaign practices.

Objectives/Aims of Green Elections:
- **Candidates and parties can adopt sustainable alternatives** such as recycled paper, biodegradable banners, and reusable materials.
- **Opting for energy-efficient lighting, sound systems,** and transportation during rallies can help reduce the carbon footprint.
- **Leveraging digital platforms for campaigning** (websites, social media, and email) reduces paper usage and energy consumption.

Need for a shift towards Green Elections:
- **Traditional election processes** have significant environmental consequences due to various factors like the emissions from campaign flights during elections contribute significantly to the overall carbon footprint.
- **Reliance on paper-based materials for ballots,** campaign literature, and administrative documents leads to deforestation and energy-intensive production processes.
- **PVC flex banners, hoardings, and disposable** items used during campaigns add to waste generation and environmental impact.

Issues/Challenges in the Adoption of Green Elections:
- **Ensuring that all voters have fair access to new technologies is crucial.** However, this requires substantial efforts in terms of training election officials and educating voters about the new systems. Some specific challenges include **training and familiarization of** election officials to be proficient in operating and **troubleshooting the new technology, ensuring that all voters,** including those in remote or underserved areas, can access and use the technology is a challenge.
- **Implementing eco-friendly materials and advanced technology often comes** with significant upfront costs. Governments, especially those with limited budgets, may hesitate due to financial constraints. Allocating funds for technology upgrades while balancing other essential services is a delicate task.
- **Traditionally, voting has been associated with physical presence at polling booths.** Overcoming cultural inertia and changing voter behaviour is essential for successful modernization. Many voters view physically going to the polls as a sacred civic duty.
- **Introducing new approaches, such as online voting or blockchain-based systems,** raises concerns about vote security. Any compromise in cybersecurity could undermine public trust and the integrity of elections.

Successful examples of eco-friendly electoral initiatives:

- During the **2019** general election, the **Kerala State Election Commission** took a proactive step by urging political parties to avoid **single-use plastic materials** during their campaigns. Subsequently, the **Kerala High Court** imposed a ban on **flex and non-biodegradable materials** in electioneering. As an alternative, wall graffiti and paper posters emerged, promoting a more sustainable approach. Additionally, government bodies collaborated with the district administration in Thiruvananthapuram to ensure a green election, emphasizing eco-friendly practices. Training sessions were also conducted in villages for election workers to raise awareness and promote environmentally conscious behaviour.
- In 2022, the **Goa State Biodiversity Board** took a significant step by introducing eco-friendly election booths for the Assembly elections.These booths were constructed using **biodegradable materials** meticulously crafted by local traditional artisans from Sattari and Ponda.Not only are these materials environmentally friendly, but they also support local artisans.

INDIA'S VISION FOR THE GLOBAL SOUTH

GS II –Regional and global groupings and agreements involving India and/or affecting India's interests.

Context: India's increased emphasis on Africais significant as it reflects India's growing stature as a major global power, providing an opportunity to champion the interests of the Global South.

India's Vision for the Global South:

- India sees itself as a representative for developing countries, ensuring their issues are heard at forums like **G20.**This includes initiatives like the **"Voice of Global South Summit"** aimed at creating a platform for developing countries to discuss common challenges.
- India's vision for the Global South includes collaborative efforts to address **climate change t**hrough initiatives like the **International Solar Alliance (ISA)**, India aims to promote renewable energy adoption in countries across **Asia, Africa, and Latin America,** contributing to sustainable development and climate resilience.
- India advocates for reforms in global institutions to better reflect the interests of developing countries. This could involve changes in areas like international taxation, climate finance, or giving greater decision-making power to developing nations within organisations like the **United Nations Security Council.**
- The **India-UN Development Partnership Fund,** launched in 2017 aids Southern-led **sustainable development** projects, prioritising **least developed countries and small island developing states.**

Challenges for India as a leader in the Global South:

- Critics argue India should prioritise its domestic development issues like **unequal wealth distribution, unemployment, and inadequate infrastructure,** before leading others. India's vast rural population lacks access to quality healthcare and education, raising questions about its capacity to address similar issues in other developing nations.
- The Global South is not a **homogenous group.** Different countries have varying needs and priorities. Balancing these diverse demands can be difficult. African nations might prioritise debt relief, while Southeast Asian nations might focus on technology transfer. India needs to find ways to address these distinct needs while promoting a unified front.
- India is the world's **third-largest emitter of CO2**, despite low per capita CO2 emissions. This weakens its position when advocating for stricter climate action within the Global South.

Global South:

- It refers to a group of countries generally characterised as **developing, less developed, or underdeveloped.**
- It encompasses countries **with lower GDPs, higher poverty rates, and less developed infrastructure** than the "Global North."
- These nations are typically located in Africa, Latin America, the Caribbean, and Asia **(excluding high-income countries like Japan, South Korea and Australia).**

INTERNET SHUTDOWN IN INDIA

GS II –Government policies and interventions

Context: India has topped the global list of countries imposing internet bans, with about 60% of all blackouts recorded in the world, between 2016 and 2022 having been in India.

Provisions related to Internet Shutdown:

- **Section 5(2) of the Indian Telegraph Act, 1885, read with Temporary Suspension of Telecom Services (Public Emergency and Public Safety) Rules, 2017** allows the union or state home secretary to order the suspension of any telegraph service (including internet) in case of public emergency or public safety. Such an order must be reviewed by a committee within five days and cannot last for more than 15 days. In an urgent situation, an officer of the joint secretary level or **above, authorized by the union or state home secretary, can issue the order.**
- **Section 144 of the Code of Criminal Procedure** empowers a district magistrate, a sub-divisional magistrate or any other executive magistrate specially empowered by the state government to issue orders to prevent or stop any nuisance or disturbance of public tranquility. Such orders can include the suspension of internet services in a particular area for a specified period.

Significance/Arguments supporting Internet Shutdown:

- Internet shutdowns can help to prevent the spread of **hate speech** and fake news that could incite violence and riots. For example, the government announced the **internet shutdown in Delhi NCR following the farmers' protest on Republic Day** to combat misinformation and maintain law and order.
- Internet shutdowns can help curb the organization and mobilization of protests that could disrupt public order and security. For example, the government imposed **internet shutdowns in Kashmir** and other parts of the country after the abrogation of **Article 370** to prevent any anti-national activities and separatist movements.
- Internet shutdowns can help control the distribution and consumption of content that could be harmful or offensive to certain groups or individuals. For example, the **government blocks internet access in some regions** to prevent the circulation of objectionable images or videos.

Issues/Concerns related to Internet Shutdown:

- Internet shutdowns violate Fundamental Rights under **Article 19(1)(a) and Article 19(1)(g).** The freedom of speech and expression and freedom to practice any profession over the medium of the internet enjoy constitutional protection under Article 19(1)(a) and Article 19(1)(g) - the Supreme Court in **Anuradha Bhasin vs Union of India case (2020).**
- Internet Shutdown violates the **Right to Information** which has been declared as a **Fundamental Right under Article 19** by the Supreme Court in the **Raj Narain vs State of UP (1975) case.**
- Internet Shutdowns violate the **Right to Internet** which was declared a Fundamental Right under **Article 21 by the Kerala High Court in the Faheema Shirin v. State of Kerala case.**
- Beyond the immediate social and political implications, **internet shutdowns have significant economic repercussions**. Disruptions to online commerce, communication, and financial transactions disrupt business operations, hinder economic growth, and deter investment, ultimately undermining long-term development objectives. According to Top10VPN, India lost Rs 2,091 crore ($255.2 million) in the first half of 2023 because of internet shutdowns.

Trends of Internet Shutdown in India:
- The Indian government imposed a **total of 780 shutdowns between 1st January 2014, and 31st December 2023**, according to data collected by the Software Freedom Law Centre (SFLC).
- Internet disruptions in India accounted for **more than 70% of the total loss to the global economy in 2020.**

- Between 2015 and 2022, more than 55,000 websites were blocked, according to SFLC data. The biggest share of content censored was done under **section 69A of the IT Act**, by the Ministry of Electronics and Information Technology and the Ministry of Information and Broadcasting.

IRAN- ISRAEL CONFLICT

GS II –Bilateral relations affecting India's interests

Context: Iran launched a significant attack on Israel, deploying over 300 projectiles, including approximately 170 drones, cruise missiles, and over 120 ballistic missiles.

What led Iran to attack Israel?

- In 2018, Israel hails US withdrawal from **Iran's nuclear deal** with world powers after years of lobbying against the agreement, calling Trump's decision "a historic move".
- In 2020, Israel welcomed the **assassination of General Qassem Soleimani,** commander of the overseas arm of Iran's Revolutionary Guards, in an American drone strike in Baghdad. Iran strikes back with missile attacks on Iraqi bases housing American troops.
- In October 2023, **Hamas (the Iran-backed terrorist group) launched a missile attack targeting Israel.** In response, Israel conducted airstrikes on Gaza.
- In November 2023, **Israel started conducting raids and attacking medical facilities as Hamas was reportedly operating from these hospital buildings and carrying out their warfare.**
- In November 2023, The Iran-backed Houthi group, based in Yemen, landed their helicopter on the Galaxy Leader cargo vessel as it was passing via the Red Sea. This marked the start of the '**Red Sea Crisis,**' which eventually led to supply chain issues.
- In December 2023, Israel's ground offenses in the Gaza Strip intensified at a rapid pace. This led to an increase in the death toll and the number of refugees. India urged for an 'early and durable resolution' between the warring nations.
- A suspected Israeli air strike on the Iranian embassy compound in Damascus kills seven officers of the **Islamic Revolutionary Guard,** including two senior commanders. Israel neither confirmed nor denied responsibility.
- In April 2024, Iran launched a missile attack on Israel. The attack was, allegedly, in response to a suspected Israeli strike on Iran's consulate in Syria. This marked the first instance of Iran directly targeting Israel from its domestic territory.
- The Israel Defence Forces (IDF) claimed that the **Israeli air defence system** intercepted 99% of the incoming projectiles from Iran. The United States, the United Kingdom, France, and other Middle Eastern allies also helped defend Israel.

Impact of the Iran-Israel War on the world:

- Iran is the third-largest producer of crude oil within **OPEC (Organization of the Petroleum Exporting Countries).** If the tensions between Iran and Israel escalate further, the supply of crude oil prices will be severely disrupted. This will hit Indian share market sentiment as **India is the third-largest consumer and importer of crude oil, importing over 80% of its crude oil needs.**
- If geopolitical tensions increase from here on, commodity prices will move up due to supply disruptions. Globally, inflation will remain high due to geopolitical tension as it will affect crude oil prices and other commodity prices such as copper, zinc, aluminium, nickel, etc. **As a result of these concerns, investors are expected to become cautious and may move their money out of riskier assets like Indian stocks and into safer options like gold (bullion).**
- Several countries in the region, including Iran, Jordan, Iraq, Lebanon, and Israel, temporarily closed their airspaces, opening it later, albeit with restrictions.
- India's long-standing strategic relationships with both Iran and Israel present challenges on both policy and operational fronts. India values its strategic partnership with Israel, which includes defence cooperation, technology exchange, and intelligence sharing. However, **India also maintains historical and economic ties with Iran, including energy imports and infrastructure projects. India seeks to maintain**

stability in the Middle East to safeguard its interests, including energy security and the welfare of its diaspora.

Way Forward:

- An international initiative must mediate a sustainable ceasefire between Israel and Iran. Encouraging both countries to engage in direct talks facilitated by international mediators could help build trust and find common ground.Iran and Israel could engage in direct talks facilitated by a neutral third party, such as the **European Union** or the **United Nations.**
- Iran could adhere to the terms of the **Joint Comprehensive Plan of Action (JCPOA)** and allow international inspections of its nuclear facilities to ensure compliance with the agreement.In return, Israel could recognise Iran's right to peaceful nuclear energy and commit to refraining from military strikes against Iranian nuclear facilities.
- Promoting cooperation between Iran and Israel within the framework of regional organizations, such as the Arab League or the **Gulf Cooperation Council,** could help address shared security concerns and foster stability in the Middle East.
- Iran and Israel could take steps towards normalizing diplomatic relations, such as exchanging ambassadors, reopening embassies, and facilitating people-to-people exchanges, similar to the **peace agreements between Israel and some Arab states like the United Arab Emirates and Bahrain.**

MEDICAL TERMINATION OF PREGNANCY (AMENDMENT) ACT OF 2021

GS II –Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Context: The Supreme Court declined a married woman's plea to abort (medically terminate) her 26-week pregnancy.

Key provisions of the MTP Amendment Act of 2021:

- Under the Act, a **pregnancy may be terminated up to 20 weeks** by a married woman in the case of failure of a contraceptive method or device. It **allows unmarried women** to also terminate a pregnancy for this reason.
- Opinion of **one Registered Medical Practitioner (RMP)** for termination of pregnancy up to **20 weeks of gestation.**
- Opinion of **two RMPs** for termination of pregnancy of **20-24 weeks of gestation.**
- The opinion of the **State-level medical board** is essential for a pregnancy to be terminated **after 24 weeks** in case of substantial foetal abnormalities.
- **Increases the upper gestation limit from 20 to 24 weeks** for special categories of women, including **survivors of rape, victims of incest, and other vulnerable women** (differently abled women, minors, among others).

Significance of the amended MTP Act 2021:

- **The amended act has enhanced the upper gestation limit from 20 to 24 weeks** for special categories of vulnerable pregnant women including rape survivors. This will help prevent the socio-economic and psychological impact of unwanted pregnancies.
- The amended act has eased the process of termination of pregnancy. Now for the **termination of pregnancy up to 20 weeks, the opinion of only one registered Medical Practitioner is required.**
- The act has removed the limit of 24 weeks for termination of pregnancy in case of substantial fetal abnormalities. Now **substantial foetal abnormalities abortion can be allowed by the newly established State level Medical Board even after 24 weeks.** Thus, it may ease the burden of writ petition on courts, for seeking abortion beyond the permitted period.
- The act allows for termination of pregnancy due to contraceptive-failure conditions for unmarried women. Hence, it **de-stigmatizes pregnancies outside marriage.**

Issues/Challenges associated with the MTP Act 2021:

- The MTP Act does not provide for 'at-will abortion'. The Supreme Court in the landmark case of X vs Principal Secretary, Health and Family Welfare Department, Government of NCT, has acknowledged that the MTP Act isprovider-centric legislation, where the opinion of the Registered Medical Practitioner (RMP) becomes "decisive and final".
- According to the act, rape victims and other vulnerable pregnant women (mental illness, minors, etc.) cannot approach the Medical Board for the termination of pregnancies beyond 24 weeks. The medical board can be approached in case of '**substantial foetal abnormalities'** only. Thus, writ petitions become the only option for these women.
- Special categories of women whose gestation limit has been increased from 20 to 24 weeks are not fully representative. It does not include women suffering from financial crisis or women suffering from lactational amenorrhea or menopause.
- According to the act, only Registered medical practitioners having experience or training in gynaecology or obstetrics can perform the abortion. However, according to **NH&FS (2015-16) data, only 53% of abortions are performed by a registered medical doctor, the rest are conducted by a nurse, midwives, or family members. Also, there is a 75% shortage of such doctors in community health centres in rural areas**. This results in more unsafe abortions.

Way Forward:

- WHO has recommended that States should fully decriminalise abortion, and remove grounds-based regulation and gestational limits to abortion. This will ensure non-discriminatory and equal abortion care to all.
- The Supreme Court in Justice K.S. Puttaswamy (Retd.) vs. the Union of India and Others (2017), recognized the right of women to make reproductive choices, as a fundamental right under Article 21 of the Indian Constitution. Hence the conditionalities in the act must be removed to ensure women can exercise their reproductive choices right.
- The ambit of the act must be increased by including transgenders and other vulnerable women like those suffering from financial constraints, lactational amenorrhea, or menopause.

MODEL CODE OF CONDUCT (MCC)

GS II –Salient Features of the Representation of People's Act

Context: The Model Code of Conduct (MCC) has come into force with the announcement of voting dates for the Lok Sabha elections 2024 by the Election Commission of India (ECI), marking a significant aspect of electoral governance.

Model Code of Conduct (MCC):

- It is a **consensus document**. The political parties have themselves agreed to keep their conduct during elections in check and to work within the Code.
- It helps the EC in keeping with the mandate it has been given under **Article 324 of the Constitution,** which gives it the **power to supervise** and **conduct free and fair elections** to the Parliament and State Legislatures.
- It is operational from the date on **which the election schedule is announced until the date of the result announcement.**
- The government **cannot announce any financial grants**, promise construction of roads or other facilities, and make any ad hoc appointments in government or public undertaking during the time the Code is in force.

Key provisions of Model Code of Conduct (MCC):

- No party or candidate shall include in any activity that may aggravate existing differences or **cause tension between different castes and communities, religious or linguistic.** Similarly, **Section 123(3) of the**

Representation of the People Act, 1951, disallows the usage of religion, race, caste, community, or language to promote enmity or hatred among the people and use of it as a political tool.

- **Criticisms directed towards other political parties** should be restricted to an evaluation of their policies, historical performance, and initiatives, **refraining from personal attacks.**
- Parties must **inform the local police authorities of the venue and time** of any meeting to enable the police to make adequate security arrangements.
- If **two or more candidates plan processions** along the **same route,** the political parties must establish contact in advance to ensure that the **processions do not clash.**
- All authorised party workers at **polling booths should be given suitable badges or identity cards.** Identity slips supplied by them to voters **shall be on plain (white)** paper and **shall not contain any symbol, name of the candidate, or the name of the party.** The **EC will appoint observers** to whom any candidates may report problems regarding the conduct of the election.
- The MCC incorporated certain restrictions in 1979, regulating the conduct of the party in power. **Ministers must not combine official visits with election work or use official machinery for the same.**

Challenges/Issues associated with MCC:

- Enforcement of the MCC can be inconsistent or inadequate, leading to violations that may go unpunished **due to a lack of statutory backing.** The **ECI opposes the legalisation of the MCC**, citing the need for swift **completion of elections within approximately 45 days,** making legal enforcement impractical due to lengthy judicial processes.
- Critics argue that the MCC's scope should be expanded to cover a wider range of issues, including **electoral funding, social media usage, and hate speech.**
- Some argue that the MCC's restrictions on government announcements and activities during election periods may hinder the functioning of governance.

MUNICIPAL ELECTIONS

GS II –Constitutional bodies
Context: The Supreme Court judgment on the Chandigarh mayoral election resurfaces the issues associated with the electoral processes of local urban bodies.

Status of Municipal Elections in India:

- **According to the Annual Survey of India's City-Systems 2023** by **Janaagraha** (a non-profit institution), over 1,400 municipalities in India did not have elected councils in place as of September 2021 which indicates a significant and widespread issue across the country.
- The **Comptroller and Auditor-General of India (CAG)'s** audit revealed that, between 2015 and 2021, **over 1,500 municipalities didn't have elected councils. Even major cities like Chennai, Delhi, Mumbai, and Bengaluru** faced **delays** ranging from months to years in holding elections.

Issues/Challenges associated with Local Bodies' Elections:

- Due to the **ambiguous constitutional safeguards**, government officials like SECs currently possess discretionary powers when it comes to scheduling elections.**This flexibility can sometimes lead to inconsistent or delayed election timelines,** which may undermine the democratic process's transparency and fairness.
- There is a concern about the **potential undue influence exerted by state governments to delay elections** for political or strategic reasons.Such interference can compromise the integrity of the electoral process and erode public trust in democratic institutions.
- The continued reliance on manual ballot paper-based processes introduces **vulnerabilities, such as errors in counting, the potential for tampering, and** delays in declaring election results.This **traditional approach** may **not be as efficient or secure** as modern **Electronic Voting Machine (EVM) and Voter Verifiable Paper Audit Trail (VVPAT),** which could enhance the transparency and credibility of electoral outcomes.

Way Forward:

- To deal with the challenges effectively, the State Election Commissions (SECs) need to play a more significant role in overseeing the electoral process using the powers mentioned in **Articles 243K and 243ZA** of the Constitution.
- **Only 11 out of 35 states and union territories** have empowered **SECs to conduct ward delimitation.** Ward delimitation is crucial for ensuring fair and equitable representation in municipal elections. SECs should be granted greater authority, including the power to conduct ward delimitation.
- Addressing the challenges highlighted, from scheduling elections to ensuring fair processes, requires comprehensive policy reforms. The idea of '**One Nation, One Election'** can be explored with a major focus on the efficient and timely election of the local bodies.

Constitutional Provisions for Local Bodies' Elections:

- The superintendence, direction, and control of the preparation of the electoral rolls for, and the conduct of, all elections to the **panchayats and municipalities** shall be vested in the **State Election Commission (SEC).**
- **The 74th Constitutional Amendment** bars the interference by courts in the electoral matters of municipalities.
- **Article 243U** through the 74th Constitution Amendment Act **mandates a five-year tenure** for urban local governments.

Legal Provisions for Local Bodies' Elections: The **Supreme Court,** in **Suresh Mahajan v. State of Madhya Pradesh Case, 2022,** stressed the inviolability of this constitutional mandate.

NATIONAL MULTIDIMENSIONAL POVERTY INDEX (NMPI)

GS II – Issues relating to Poverty and Hunger

Context: NITI Aayog released a discussion paper titled '**Multidimensional Poverty in India since 2005-06'.**

Key findings of the recent discussion paper:

- It has showed decline in MPI as the Headcount Ratio decreased from 29.17% in 2013-14 to 11.28% in 2022-23. 24.82 crore Indians escaped multidimensional poverty in last 9 years.
- **Intensity of Poverty is also declining** which shows that extent of deprivation among the deprived population is falling. The pace of decline in poverty headcount ratio was much faster between 2015-16 to 2019-21 compared to 2005-06 to 2015-16.
- **All 12 indicators of MPI have recorded significant improvement.** Cooking Fuel and Housing have the highest deprivation level of deprivation. Child and Adolescent Mortality, Electricity, and Bank Account have the lowest deprivation levels.
- **Poorer states record faster decline in poverty indicating reduction in disparities.** Uttar Pradesh, Bihar, Madhya Pradesh, Odisha, and Rajasthan saw fastest reduction in the proportion of multidimensional poor.
- India on track to achieve SDG Target 1.2 (reducing multi-dimensional poverty by at least half) much ahead of 2030.

Significance of NMPI:

- It provides for **more nuanced perspective as it delves into deprivations up to the district level unlike** conventional monetary poverty assessments that is based on consumption surveys.
- Facilitates targeted interventions to address acute poverty and uphold the principle of inclusivity.
- Determination of **overlapping deprivations that directly influence individuals'** quality of life and overall well-being.

Concerns/Issues associated with NMPI:

- **Households must be deprived in at least 1/3rd of indicators to be considered multidimensionally poor.** This requirement makes the MPI less sensitive to minor inaccuracies.
- Some economists have argued that **loss of livelihood due to reverse migration and deaths due to disrupted healthcare in 2020-21 are not covered in the Index.**
- Real wages were stagnant for **six years which had serious implications for consumption demands** and this cannot be consistent with a decline in poverty levels.

Multidimensional Poverty:

- It refers to a measure that considers various factors or dimensions beyond income to assess and understand poverty.
- It encompasses the various deprivations experienced by poor people in their daily lives –such as poor health, lack of education, inadequate living standards, poor quality of work, the threat of violence, among others.

Global MPI (GMPI):

- It was first released by the **Oxford Poverty and Human Development Initiative (OPHI) and the UnitedNations Development Programme (UNDP) since 2010.**
- **It covers 100 developing countries and captures the acute deprivations in health, education, and living standards that a person faces simultaneously.**
- **If a person is deprived in a 1/3rd or more of ten (weighted) indicators, the GMPI identifies them as 'MPI poor.**

National MPI (NMPI):

- It retains the 10 original indicators of the global MPI model and has **added two indicators, viz., Maternal Health and Bank Account, in line with India's national priorities.**

PRADHAN MANTRI ADI ADARSH GRAM YOJANA (PMAAGY)

GS II –Welfare Schemes

Context: The Parliamentary Panel on Social Justice and Empowerment has highlighted the slow pace of implementation of the **Pradhan Mantri Adi Adarsh Gram Yojana (PMAAGY).**

Pradhan Mantri Adi Adarsh Gram Yojana (PMAAGY):

- It is a centrally sponsored scheme that aims to achieve integrated development of 36,428villages with more than 500 tribal populations and 50% or more ST persons in them.
- It is a revamped version of the Special Central Assistance to Tribal Sub-Scheme (2017), under which funds were provided to the States with notified STs for the development and welfare of tribal people.
- **It converges with 58 schemes of the Centre and the States that have Schedule Tribe Component to bridge various gaps.**

Objectives:

- Preparation of Village Development Plans and maximizing the benefit of the schemes of the centre and states to the Scheduled Population.
- Improving the infrastructure in vital sectors like health, education, connectivity, and livelihood.

Challenges in the implementation of the Scheme:

- Delay in allocation of **funds as in 2 years of its implementation funds have been released only for less than 40% of the number of villages approved.**

- Low rate of approval of Village development plans as only 24% of the villages identified under the Integrated Plan were approved by the Project Appraisal Committee in 2 years.
- **The Ministry of Tribal Affairs** is yet to come up with a clear implementation guideline to streamline the process.
- The specific data on the population of **Particularly Vulnerable Tribal Groups (PVTGs)** in several states/UTs is not available.

START-UP ECOSYSTEM IN INDIA

GS II – Government policies and interventions
GS III - Changes in industrial policy and their effects on industrial growth
Context: The 182nd report on 'Ecosystem of Startups to Benefit India' was tabled by the Department RelatedParliamentary Standing Committee on Commerce.

Start-up:

- In India, a start-up is defined as an entity that is headquartered in India, which was opened less than 10 years ago, and has an annual turnover of less than ₹100 crore.
- It is typically characterized by its innovative ideas, products, or services.
- Start-ups often rely on a combination of personal savings, crowd funding, angel investors, and venture capital to finance their growth.

Significance/Impact of Start-ups:

- **Approximately 47% of the recognised start-ups are from Tier 2 and 3 cities, which provide employment opportunities to the youth.**
- They promote new ideas and innovations. For instance, Deep Tech Start-ups.
- Fintech start-ups are now reaching out to remote areas, for instance, Paytm, etc.
- Start-ups have attracted multinational corporations to bring in foreign investments.

Issues/Challenges in the Start-up Ecosystem of India:

- Out of the total recognised startups, only 5.18% are in the agriculture sector.
- Only 11% of the patent applications filed by startups have been granted patents.
- The Economic Survey 2022-23 highlighted the flipping trend due to more access to overseas debt, eliminating the risk of angel tax, better IP protection, etc.
- **Under Section 80-IAC of the Income Tax Act, 1961, only 1% of recognised start-ups have received the Certificate of Eligibility. This Section allows recognised start-ups a 100% tax exemption for three consecutive profit-making years.**
- **Absence of adequate and specific testing standards, particularly for startups dealing with hardware products.**
- Funding from angel investors and venture capital firms becomes available to startups onlyafter the proof of concept has been provided.

Recommendations of the Committee:

- Encourage the adoption of advanced technologies such as the Internet of Things (IoT), data analytics, etc., to improve productivity, optimise resource utilisation, and enhance decision-making in agriculture.
- Establishing women entrepreneurs-focused funds to ensure uninterrupted access to capital.
- Amendments to the **Income Tax Act of 1961** so that **Employee Stock Option Plans (ESOPs)** are taxed only at the time of sale of shares and not on notional gains.
- Dynamic testing and certification standards shall be established as per international best practices.

Government Initiatives to Strengthen the Start-up Ecosystem:

- Startup India was launched in 2016 which intends to **catalyze the startup culture and build a strong and inclusive ecosystem for innovation and entrepreneurship.**
- The Government has **notified Start-ups as 'fast track firms'** enabling them to wind up operations within 90 days vis-a-vis 180 days for other companies.
- **Startup India Seed Fund Scheme (SISFS)** aims to provide financial assistance to start-ups for proof of concept, prototype development, product trials, market-entry, and commercialization.
- **Credit Guarantee Scheme for Startups (CGSS)** is aimed at providing credit guarantee up to a specified limit against loans extended by Member Institutions (MIs) to finance eligible borrowers viz. DPIIT recognised start-ups.
- The Government launched **Start-ups Intellectual Property Protection (SIPP)** which facilitates startups to file applications for patents, designs, and trademarks through registered facilitators in appropriate IP offices by paying only the statutory fees.
- **States' Startup Ranking:** The States' Startup Ranking is a yearly capacity-building exercise created and released by the **Department for Promotion of Industry and Internal Trade(DPIIT)** that evaluates all of India's states and UTs on their efforts to build an ecosystem conducive to startup growth.

STREET VENDORS (PROTECTION OF LIVELIHOOD AND REGULATION OF STREET VENDING) ACT, 2014

GS II –Government policies and interventions

Context: The Minister of Housing and Urban Affairs highlighted the slow pace of implementation of the provisions of theStreet Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014.

Key features of the Street Vendors Act of 2014:

- Every street vendor shall have the right to carry on the business of street vending activities as per the terms and conditions mentioned in the certificate of vending.
- **It mentions the duties of street vendors:**
  - Remove his goods and wares every day at the end of the time-sharing period allowed to him.
  - **Maintain cleanliness and public hygiene** in vending zones and adjoining areas.
  - **Maintain civic amenities and public property** in the vending zone in good condition.
  - Payment of maintenance charges for the civic amenities and facilities as determined by local authorities.
- They are to be established in each local authority. These committees are in charge of enumerating, identifying, and allocating vending zones in a city. TVCs are to be heterogeneously constituted with at least 40% of its elected members being street vendors, of which one-third are to be women.
- At least once every five years for the issuance of a **Certificate of Vending (CoV)** to the vendors identified.
- **It is set at 2.5% of the population of the ward** or zone town or city for accommodating the vendors in the respective vending zones.
- They are to be set up by the States under the chairmanship of a retired judicial officer to maintain impartiality towards grievances of street vendors.
- For non-perishable goods, the goods are to be released within two working days, and in the case of perishable goods, the goods shall be released the same day of claim.

Issues/Challenges associated with the functioning of the act:

- Despite a decade since enactment only **17 States have constituted Grievance redressal** Committees for the welfare of the street vendors. The TVCs are yet to be formed in many Urban local bodies and existing TVCs also lack proper representation in many states.
- It has set the limit of street vendors to 2.5% of the total population of the ward/city, which is inadequate for a major **metropolis like Delhi, Mumbai etc.**
- It does not apply to any land, premises, and trains owned and controlled by the Railways, which is a huge business area for the vendors.
- Currently, street vending is regulated under municipal laws enacted by state legislatures and this leads to a lack of uniformity in its implementation. For example, Brihanmumbai Municipal Corporation issued a

Certificate of Vending based on domicile certificate still 2022, despite domicile not being a criterion under the 2014 act.

TECHNOLOGY IN PUBLIC SERVICE DELIVERY

GS II –Government policies and interventions

Context: The Comptroller & Auditor General (CAG) of India has emphasized the need for increased use of IT systems and technology in service delivery to the citizens.

Usage of technology in public service delivery:

- Digital government services(also called e-government)are defined as service delivery within government—as well as between government and the public —using information and communication technologies.
- Traditionally, government services have been delivered in person, by individual departments in different locations, and often using paper forms.
- With digital services, government can deliver information and services to citizens anytime, anywhere, and on any platform or device.

Significance of technology in public service delivery:

- It saves time and money for the citizens as they need not travel to different government offices and stand in queues to get their work done. e-Hastakshar service facilitates instant e-signing of documents online by citizens in a legally acceptable form without having to visit government offices
- It increases the efficiency of government departments as digital records can be shared easily and maintained for later reference. Vehicle data from different state registers are collected and processed in the VAHAN platform of the Ministry of Road Transport and Highways.
- It eliminates the Ghost beneficiaries and leakages to a larger extent as the digital records can be updated dynamically and the leakages can be traced back easily. The linking the Aadhar cards to the respective job cards of **MGNREGA**, lakhs of Ghost beneficiaries were identified and removed
- It increases accountability and reduces corruption, as the origin or initiator of a particular transaction can be traced back to the system from where it began. The detailed information available to the citizens on the platforms enables them to understand rules and regulations better and even raise complaints about erring officers
- The combination of data harnessed from various sources can be mined to design better public policies. The linking of the PAN card and Aadhar card helps the exchequer to collect data on persons earning above a threshold income for reducing black money and increasing tax collection.

Issues/Challenges in using technology for public service delivery:

- The digital divide among the people, where a majority of them are yet to get accustomed to the digital world and its applications.
- Lack of skilled workforce within the government, which makes it difficult for them to adapt technology at a major scale.
- Cyber security threat is a major concern as these services also handle important data of government and the public.
- Lack of sufficient digital infrastructure in government establishments across the country.
- The lack of interoperability in most services makes them work in isolation rather than as a collective network.

THE ECONOMICS OF FORCED LABOUR

GS II –Government policies and interventions

Context: The International Labour Organization (ILO) released a report titled 'Profits and poverty: The economics of forced labour', which has found that forced labour generates illegal profits worth USD 36 billion per year.

Key Highlights of the Report:

- Forced labour generates **illegal profits worth USD 36 billion per year,** which is a 37% increase since 2014. This increase is attributed to **both a growth in the number of people forced** into labour and higher profits generated from the exploitation of victims.
- Total annual illegal profits from forced labour are highest in **Europe and Central Asia (USD 84 billion)**, followed by **Asia and the Pacific (USD 62 billion),** the Americas (USD 52 billion), Africa (USD 20 billion), and the Arab States (USD 18 billion).
- Traffickers and criminals are estimated to generate close to USD 10,000 per victim, up from USD 8,269 a decade ago. Forced **commercial sexual exploitation accounts** for more than **two-thirds (73%) of the total illegal profits**, despite accounting for only 27% of the total number of victims in privately imposed labour.
- After forced commercial sexual exploitation, the sector with the highest annual illegal profits from forced labour is industry (USD 35 billion), followed by services (USD 20.8 billion), agriculture (USD 5.0 billion), and domestic work (USD 2.6 billion). **The industry sector** includes m**ining and quarrying, manufacturing,** construction, and utilities. **The services sector** encompasses activities related to **wholesale and trade,** accommodation and food service activities, art and entertainment, personal services, administrative and support services, education, health and social services, and transport and storage.**The agriculture sector** includes forestry, hunting as well as the cultivation of **crops, livestock production, and fishing.**
- There were 27.6 million people engaged in forced labour on **any given day in 2021**, representing an increase of **2.7 million since 2016.**

Recommendations made by the Report:

- The report emphasises the urgent need for investment in enforcement measures to stem illegal profit flows and hold perpetrators accountable. It highlights the importance of **strengthening legal frameworks, providing training** for enforcement officials, **extending labour inspection** into high-risk sectors, and better coordination between labour and criminal law enforcement.
- While law enforcement measures are crucial, the report underscores that forced labour cannot be ended through enforcement actions alone. It must be part of a comprehensive approach that prioritises addressing root causes and safeguarding victims.
- Promoting fair recruitment processes is deemed crucial as forced labour cases can often be traced back to recruitment abuses. **Ensuring the freedom of workers to associate and bargain collectively** is also essential in combating forced labour.

Forced Labour:

- According to ILO, forced or compulsory labour is "all work or service that is **extracted from any person under the menace of any penalty** and for which said person has not offered himself voluntarily".
- Forced labour is defined, for **purposes of measurement**, as work that is both **Involuntary** and under penalty or menace of a penalty (coercion).
- o **Involuntary** work refers to **any work undertaken without the free and informed consent** of the worker.
- o **Coercion** refers to the means used to **compel someone to work without their free and informed** consent.

TRIBUNALS IN INDIA

GS II –Tribunals

Context: The Supreme Court (SC) ruled that tribunals cannot direct the government to frame policy.

Tribunals in India:

- **Tribunals are quasi-judicial bodies**. Its objective may be to reduce the caseload of the judiciary or to bring in subject expertise for technical matters.
- **In 1976, Articles 323A and 323B were inserted in the Constitution of India** through the42nd Amendment.
- The presence of expert members (technical members) along with judicial members is a key feature of tribunals that distinguishes them from traditional courts.

- **Each tribunal is given specific jurisdiction to hear and decide cases within its designated area of expertise.** Some tribunals have appellate jurisdiction, meaning they hear appeals from decisions made by lower authorities or government bodies.
- **Appeals from tribunals usually lie with the concerned High Court**. However, some laws specify that appeals will be heard by the Supreme Court. Currently, tribunals have been **created both as substitutes for High Courts and as subordinate to High Courts.**

Importance/Significance of Tribunals in India:

- Its specialization **ensures that cases are adjudicated by individuals with a deep understanding of the relevant legal and technical issues.**
- By handling specific types of cases, tribunals contribute to reducing the burden on traditional courts, helping to address the issue of judicial backlog.
- **They are geographically dispersed**, with benches located across the country.
- **They provide efficiency in service matters as Administrative Tribunals, such as the Central Administrative Tribunal (CAT),** expedite the resolution of service-related matters for government employees.

Issues/Challenges/Concerns with Tribunals in India:

- **The lack of human resources is observed to be one of the key reasons** for the accumulation of pending cases in courts. For example, in 2021, the **Armed Forces Tribunal (AFT)** had 18,829 pending cases.
- In 2019, SC stated that a sho**rt tenure of members along with provisions of re-appointment increases the influence and control of the Executive over the judiciary.**
- **Procedures adopted by different tribunals can vary widely**, leading to inconsistency in the application of legal principles and potential confusion for litigants.
- There have been instances of overlapping **jurisdictions between tribunals and regular courts,** leading to confusion and potential conflicts.

Note:

- **Article 323A**: It empowered Parliament to constitute administrative Tribunals (both at the central and state levels) for adjudication of matters related to recruitment and conditions of service of public servants.
- **Article 323B**: It specified certain subjects (such as taxation and land reforms) for which Parliament or state legislatures may constitute tribunals by enacting a law.
- **In 2010, the Supreme Court clarified that subject matters under Article 323B are not exclusive**, and legislatures are empowered to create tribunals on any subject matter under their purview as specified in the Seventh Schedule of the Constitution.

CARD NETWORK IN INDIA

GS III –BANKING SECTOR

Context: The Reserve Bank of India (RBI) has ordered a certain card network to stop unauthorized payments made using business cards.

Card Networks:

- They are **developed to utilize one mode of payment to pay for goods and services at multiple merchants** and avoid carrying cash around.
- The **authorized card networks tie up with banks / non-banks** for the issuance of debit/credit/ prepaid cards.
- **Card networks connect banks, merchants, and customers (card users) so that transactions can be carried out smoothly and securely.**
- A fee is charged to the businesses by companies that process its debit and credit card transactions (known as Merchant Discount Rate (MDR)).

Card Issuer:

- Banks typically dominate the choice of card networks that will be issued to their customers while providing a **Debit or Credit Card and the customers have little choice in the matter**. However, RBI has asked card issuers to provide customers the option to choose from multiple card networks from October 1, 2023.
- The RBI also said that **card issuers should not enter into any arrangement or agreement with card networks that restrain them from taking the service of other card networks.**

Card Network Market in India:

- **The authorized card networks in India include** Visa, Mastercard, RuPay, Diners Club, and American Express.
- Debit card segment is dominated by RuPay which has around 700 million cards and a 65% market share. Of the total 32.8 crore RuPay debit cards, about 28.1 crore came from public sector banks under the government scheme as of February 2023.
- **Visa and Mastercard dominate the credit card market.** They together own 90 % of India's credit card market. The credit card portfolio of RuPay network is yet to see a spike.

Regulation of Card Network Ecosystem in India:

- The Reserve Bank of India (RBI) is responsible for overseeing and regulating payment systems in India, including card networks, under the PSS Act, 2007.
- The PSS Act, 2007 defines a payment system as a system that enables payment to be effectedbetween a payer and a beneficiary, involving clearing, payment or settlement service or all of them.
- Payment system includes the systems enabling credit card operations, debit card operations, smart cardoperations, money transfer operations or similar operations.

RuPay:

- It is India's indigenous payment network **launched by NPCI to facilitate India's entry into the global payments market.**
- To ensure greater acceptability of the **RuPay cards in foreign markets, NPCI has partnered with Discover Financial Services (DFS) USA and Japan Credit Bureau (JCB) Japan.**

National Payments Corporation of India (NPCI):

- It is an **initiative of RBI and Indian Banks' Association (IBA)** under the provisions of the PSS Act, 2007, for creating a robust Payment & Settlement Infrastructure in India.
- It has been incorporated as a **"Not for Profit" Company** under the provisions of Section 25 of Companies Act 1956 (now Section 8 of Companies Act 2013).

COP28 OF THE UNFCCC

GS III –Environmental Conservation

Context: The 28th Conference of the Parties (COP28) of the UNFCCC, was held in Dubai, UAE.

COP28:

- COPs are an annual conference that takes place to discuss ways to address the climate crisis.
- A crucial part of COP meetings is the review of the **Nationally Determined Contributions (NDCs)**, submitted by member countries **under the Paris Agreement (2015).**
- It also marked the 18th session of the Conference of the Parties to the **Kyoto Protocol (CMP 18) and the 5thsession of the Conference of the Parties to the Paris Agreement (CMA 5).**
- It also adopted a final document called the UAE Consensus.

Key outcomes of COP28:

- **Fast-tracking a just, orderly, and equitable energy transition:**
  - Launch of **Global Renewables and Energy Efficiency Pledge**
  - **The Global Cooling Pledge for COP 28** provides countries an opportunity to commit to sustainable cooling with concrete actions.
  - **Oil and Gas De-carbonization Charter**
- **Fixing climate finance:**
  - Mobilization of $83.9 billion to climate finance in the Green Climate Fund, Adaptation Fund, Least Developed Countries Fund, and Special Climate Change Fund.
  - **Operationalization of loss and damage funds to help vulnerable countries** cope with the impact of climate change.
  - Declaration on a Global Climate Finance Framework.
- **Focusing on people, lives, and livelihoods:**
  - The first implementation report of the Sharm el-Sheikh Adaptation Agenda (SAA) was released.
  - COP28 UAE Declaration on Agriculture, Food, & Climate
  - COP28 UAE Declaration on Climate and Health
  - COP28 UAE Declaration on Climate Relief, Recovery & Peace
  - Global Goal on Adaptation is a collective commitment under Article 7.1 of the Paris Agreement aimed at **"enhancing world's adaptive capacity, strengthening resilience and reducing vulnerability to climate change.**
- **Underpinning everything with full inclusivity:**
  - Launch of the **COP 28 Gender-Responsive Just Transitions and Climate Action Partnership.**
  - Appointment of the Youth Climate Champion to serve as the missing bridge between the COP Presidency and youth stakeholders.

Concerns/Issues persisting from COP 28:

- **COP28 focuses only on phasing down coal**, ignoring other fossil fuels like oil and gas.
- COP28 also failed to deliver a credible response to the challenge of the dwindling fiscal space of developing countries due to the debt crisis. Current levels of climate finance are insufficient to meet the adaptation finance gap.
- The promotion of Marine geo engineering technologies like CCUS in COP28 ignores the harm they pose to the marine environment.

DRONES IN NATIONAL SECURITY

GS III –Drone Technology

Context: Adani Defence and Aerospace recently introduced the Drishti 10Starliner Unmanned Aerial Vehicle (UAV) for the Indian Navy.

Role of Drones in National Security:

- Drones can be used in remote surveillance, reconnaissance, and intelligence-gathering operations by security agencies.
- Drones can be used to strike the enemy or its infrastructure in deep, inhospitable locations.
- Drones help in achieving military goals without the risk posed to pilots' lives during security operations. Indian army has planned to replace mules and choppers with drones for supplies at forward posts along the Line of Actual Control (LAC) in Ladakh, Leh,and Northeastern India.
- **Artificial Intelligence-enabled drones** are capable of communicating with each other**, Automatic Target Recognition (ATR)**, and coordinating with ground-based conventional military operations.
- Police drones can be used to monitor large crowds, surveillance of illegal activities, search and rescue operations, etc.

India's Initiatives for the use of Drone Technology in the defence sector:

- India has imported drone technology from various countries like the US and Israel. Heron Mark-II drone is a **Medium Altitude Long Endurance (MALE)** UAV, inducted by the Indian Air Force to carryout surveillance along Northern borders with Pakistan and China. Searcher **Mk II drones developed by Israel Aerospace Industries**, it is a reconnaissance drones used by Indian Army and Navy.
- The **Drone, Detect, Deter and Destroy (D4) System developed by the DRDO** is an indigenous anti-drone system, inducted into the Indian Armed Forces.
- **Border Security Force has deployed hand-held static and vehicle-mounted anti-drone systems** to counter the rising drone threat along the Indo-Pak Border.

Drone Regulations in India:

- National Counter Rogue Drone Guidelines were released in 2019 by the Ministry of Civil Aviation to lay out guidelines assessing drone threats.
- Drone Rules 2021 divides the Indian airspace into three zones Green, Yellow, and Red based on the acceptability of flying drones.
- Red zones are no-go zones where no drones can be operated except for permission given by the central government.

FIXED DOSE COMBINATIONS (FDCS) DRUGS

GS III –Science and Technology- developments and their applications and effects in everyday Life.

Context: The Central Drugs Standard Control Organization (CDSCO) has allowed companies to manufacture and market five fixed-dose combinations (FDCs) that were banned last year.

Fixed Dose Combinations (FDCs) Drugs:

- **As per Rule 122-E of Drugs & Cosmetics Rule 1945, FDCs refer to products containing two or more active ingredients used for a particular indication(s).**
- An FDC is a new drug when it meets two conditions:
  o It combines two or more drugs already approved for individual use in a fixed ratio.
  o It alters the ratio of drugs in an already approved FDC, along with making changes to its claims.
- Mostly FDCs are in combinations of cough, cold, and fever preparations; antimicrobials; vitamins and minerals, etc.
- **In 2015, out of 376 entities, 24 entities were FDCs in the National List of Essential Medicine.**

Significance/Rationale for using of FDCs:

- In some cases, combining specific drugs in a fixed ratio can achieve better therapeutic outcomes than using them individually.
- Taking fewer pills can improve convenience and patient compliance, especially for those with multiple chronic conditions.
- Taking fewer pills can improve convenience and quality of life for patients, especially those with multiple chronic conditions who might otherwise struggle with complex medication regimens.

Concerns/Issues associated with FDCs:

- **FDCs offer a fixed dose of each component**, which may not be suitable for all patients, especially those requiring different dosages due to age, weight, or other factors.
- The easy access to untested and unlicensed FDCs in countries like India creates potentially hazardous situation for public health. For example, a study conducted in Ahmedabad revealed that **FDCs containing banned or controversial ingredients are prescribed widely.**
- Combining medications in FDCs raises the risk of adverse events and **AMR due to potential interactions** and overuse.
- India imposed a ban on certain FDCs, however, there is no ban on the same drugs being exported to African or SAAR countries. Their export is deemed legal if the importing country has no objections.

FOOD WASTE INDEX REPORT 2024

GS III – Food Security

Context: The Food Waste Index Report 2024was released jointly by the United Nations Environment Programme (UNEP) and WRAP (Waste and Resources Action Programme), a UK-based non-profit organisation, stressed the importance of expanding and strengthening data infrastructure to enable the tracking and monitoring of food waste.

Key Highlights of the Report:

- In 2022, the world wasted 1.05 billion tonnes of food, **amounting to one-fifth (19%) of food available to consumers being wasted,** at the retail, food service, and household level. That is in addition to the 13% of the world's food lost in the supply chain, as estimated by **FAO (Food and Agricultural Organization)**, from post-harvest up to and excluding retail.
- Food loss and waste generate 8-10% of **Global Greenhouse Gas (GHG)** emissions – almost **five times the total emissions from the aviation sector.** It occurs while **a third of humanity faces food insecurity.**
- Since the release of the **2021 Food Waste Index Report**, there has been a significant expansion in data coverage, resulting in a notable reduction in disparities in average per capita household food waste. Across high-income, upper-middle-income, and lower-middle-income countries, the observed average levels of household **food waste differ by just 7 kg per capita per year.**
- Middle-income countries display variations between urban and rural populations, with **rural areas generally wasting less.** Possible explanations include greater **diversion of food scraps to pets, animal feed, and home composting in rural areas.**
- Many low- and middle-income countries continue to **lack adequate systems for tracking progress** to meet Sustainable Development Goal 12.3 of halving food waste by 2030, particularly in retail and food services. At present, **only four G-20 countries** (Australia, Japan, the UK, and the US) and the **European Union** have food waste estimates suitable for tracking progress to 2030.

Key Recommendations of the Food Waste Index Report 2024:

- Encourage G20 countries to take a leading role in international cooperation and policy development to achieve **Sustainable Development Goal (SDG) 12.3,** leveraging their influence on global consumer trends to promote awareness and education about food waste domestically and internationally.

- Encourage the embrace of Public-Private Partnerships (PPPs) to reduce food waste and its impacts on climate and water stress, bringing together governments, and regional and industry groups to collaborate and deliver a shared goal through a **Target-Measure-Act approach.**
- Advocate for countries to **use the Food Waste Index to consistently measure** food waste, develop robust national baselines, and track progress towards SDG 12.3. This includes **addressing the lack of comprehensive food waste data** collection, especially in the retail and food service sectors.
- Highlight the necessity for representative national food waste studies in key countries such as **India, China, South Africa, Indonesia, and Mexico** to address the variance in data and effectively tackle food waste at both individual and systemic levels.

FOREST FIRES

GS III –Disaster Management

Context: Forest Fires have been raging in the Coonoor forest range in the Nilgiris in Tamil Nadu.

Forest Fire:

- It is also called **bush or vegetation fire or wildfire**, it can be described as any uncontrolled and non-prescribed combustion or burning of plants in a natural setting such as a forest, grassland, brushland, or tundra, which consumes the natural fuels and spreads based on environmental conditions (e.g., wind, topography).
- A wildfire requires **three essential elements to sustain combustion** fuel, oxygen, and a heat source.

Reasons for the Forest Fires:

- A majority of forest fires are **caused by human activities such as discarded cigarettes,** campfires, burning of debris, and other similar processes. With increasing urbanisation and human presence in forested areas, **the risk of accidental fires also increases.** Usually, **poachers and illegal smugglers set fires** either to divert the attention of forest officials or to eliminate evidence of their crimes.
- The exceptionally **hot and dry weather conditions** experienced in southern India, particularly during the early phase of the summer season, **have created a conducive environment** for the spread of forest fires. High temperatures, low humidity, and **calm winds increase the likelihood of fires igniting** and spreading rapidly.
- Southern India has experienced **above-normal temperatures,** clear sky conditions, and a lack of rainfall, leading to increased aridity. This dries out vegetation, making it more susceptible to ignition and facilitating the rapid spread of fires.
- The above-normal temperatures experienced in the months leading up to the summer season have **resulted in an early availability of dry biomass in forests.** This dry vegetation, **including the leaves of chir forests**, is particularly prone to igniting and spreading fires. The high **flammability of chir forest leaves** raises the chances of forest fires and **adds to their intensity and rapid spread.**

Ways to Mitigate Forest Fires:

- Educating the public about the **causes and consequences of forest fires,** as well as promoting responsible behaviour in forests, can help reduce the incidence of human-caused fires.
- Campaigns on fire safety, proper disposal of **cigarettes, and the dangers of leaving campfires unattended can raise awareness** and encourage responsible behaviour.
- Enforcing laws and regulations **related to forest fire prevention**, such as restrictions on burning debris and campfire bans during dry periods, can help reduce the risk of accidental fires. Penalties for violating fire safety regulations should be strictly enforced to deter irresponsible behaviour.
- Creating **firebreaks and conducting controlled burns** to remove excess vegetation can help reduce the spread of fires by creating barriers and reducing fuel loads. Proper fuel management practices, **such as thinning dense vegetation** and clearing deadwood, can also make forests more resilient to fires.

Government Initiatives to Mitigate Forest Fires:

- **National Action Plan for Forest Fires (NAPFF)**, was started in 2018 to reduce forest fires by informing, enabling, and empowering forest fringe communities and incentivizing them to collaborate with state forest departments.
- **The Forest Fire Prevention and Management Scheme (FPM)** is the only government-sponsored programme dedicated to assisting states in dealing with forest fires.

Forest Fire Season in India:

- November to June is **considered to be forest fire season** in India, with hundreds of thousands of **small and large fires burning every year,** especially from February onward as summer approaches. April-May are usually the worst fire months across the country.
- The biennial **India State of Forest Report (ISFR)** published by the **Forest Survey of India (FSI)** in its 2021 report, shows that the total Fire-prone Forest area is **35.47% of the forest cover.**
- Severe fires break out in **dry deciduous forests,** while evergreen, semi-evergreen, and montane temperate forests are comparatively less prone to fires.
- The forests of Northeast India, Odisha, Maharashtra, Jharkhand, Chhattisgarh, and Uttarakhand are the **most vulnerable to fires during** the November to June period.

Present Scenario (2024):

The highest number of forest fires have been reported from **Mizoram (3,738), Manipur (1,702), Assam (1,652), Meghalaya (1,252),** and Maharashtra (1,215), as per FSI data.

GROWING DEBT OF DEVELOPING COUNTRIES

GS III –Inclusive growth

Context: Sri Lanka faces an unsustainable debt and a severe balance of payments crisis which highlighted the issues of growingdebt of developing countries.

Growing debt of developing countries:

- Developing countries often incur debt to fund large-scale infrastructure projects, such as roads, bridges, and power plants, to stimulate economic growth.
- **In a recent, United Nations report "A world of debt:** A growing burden to global prosperity" finds global public debt reached an all-time high of $92 trillion in 2022 from $17 trillion since 2000.

Reasons for the growing debt of developing countries:

- When developing countries borrow money, they have to pay much higher interest rates than developed countries.
- Currently, half of developing countries devote more than 1.5% of their GDP and 6.9%of their government revenues to interest payments, a sharp increase over the last decade.
- Developing nations have markedly raised market-driven borrowings from private creditors like bondholders and banks, opting for commercial terms. This shift contrasts with traditional reliance on multilateral institutions for official credit.
- **Poor debt management and low government revenues mainly due to inefficient tax policies and weaknesses in the rule of law are among the internal causes.**

Issues/Concerns raised due to high debt burden:

- The burden of debt pushes them to borrow from more expensive sources, increasing their vulnerabilities and making it even harder to resolve debt crises. Sri Lanka's public debt is unsustainable, and as a result, the country lost international financial market access in 2022.

- Currently, over 70% of public climate finance takes the form of debt thus countries in debt crisis tend to spend less on climate finance.
- Masses blamed their government for the economic mess which resulted in political instability.

Global Debt:

- **It refers to the borrowings of governments** as well as private businesses and individuals.
- Governments **borrow to meet various expenditures** that they are unable to meet through tax and other revenues.
- Governments may also borrow to **pay interest on the money** that they have already borrowed to fund past expenditures.
- The private sector borrows predominantly to make investments.

G-SECURITIES (G-SECS)

GS III –Mobilization of Resources

Context: The Reserve Bank of India (RBI) has permitted the lending and borrowing of G-Securities (G-Secs) by issuing directions called RBI(Government Securities Lending) Directions, 2023.

G-Securities (G-Secs):

- **It is a tradeable instrument issued by central or state governments.** It acknowledges the government's debt obligation.
- Such securities are short-term terms usually **called Treasury bills (T-Bills)** with maturities of less than one year (91 days, 182 days, or 364days) or long-term called Government bonds or dated securities with maturity of one year or more (between 5 years and 40 years).
- In India, central government issues both T bills and bonds or dated securities while State Governments issue only bonds or dated securities, which are **called State Development Loans (SDLs).**
- **G-Secs carry practically no risk of default** and, hence, are called risk-free gilt-edged instruments.
- **Other G-Sec includes Cash Management Bills (CMBs),** introduced in 2010, a new short-term instrument to meet temporary cash flow mismatches of the government. CMBs have the generic character of T-bills but are issued for maturities of **less than 91 days.**
- G-Secs are issued through auctions conducted by RBI. Auctions are conducted on the electronic platform called the **E-Kuber, the Core Banking Solution (CBS) platform of RBI.**

Concerns associated with G-Securities (G-Secs):

- A diversified investor base for fixed-income securities is important for ensuring high liquidity and stable demand in the market. However, currently, a **large portion of G-Secs** are held by captive investors such as banks, and insurance companies.
- **RBI's Negotiated Dealing System Order Matching (NDS-OM) platform** was not able to boost retail participation as it resulted in an artificial segmentation of investors in different securities.
- Inflows of foreign funds via government bonds can lead to rupee appreciation.
- **The G-sec market lacks liquidity due to the non-availability of buyers for the security** in the secondary market. It can lead to distressed sales (selling at a lower price than its holding cost) causing loss to sellers.

Major risks associated with holding G-Secs:

- **Market risk arises out of adverse movement of prices of the securities due to changes in interest rates.** This could lead to loss if securities are sold at adverse prices.
- **Cash flows on a G-Sec include a coupon every half year** and repayment of principal at maturity, which needs to be reinvested. However, it poses a risk for investors as they may not be able to reinvest due to a decrease in prevailing interest rates.
- **Dated securities have a long-term maturity of 5-40 years**, and thus are exposed to interest rate risk, reducing their relevance over longer tenure.

Initiatives taken for Government -Securities (G-Secs):

- **Under the G-sec Acquisition Programme (G-SAP),** RBI conducts open market operations to purchase G-Secs from the market. It helps the central bank in controlling excessive volatility faced by market participants in G-Secs market.
- Under the **RBI Retail Direct Scheme, retail investors will have the facility to open and maintain 'Retail Direct Gilt Account'(RDG Account)** with RBI to access its G-Sec platform.
- **Draft RBI (Bond Forwards) Directions, 2023** aims to introduce bond forwards in G-Secs, a move that will enable market participants, particularly long-term investors, to manage cash flows and interest rate risk.
- Scheme for **Non-competitive Bidding Facility in Auctions of G-Secs introduced by RBI** to encourage retail participation in primary market for G-Secs and SDLs.

HINDU KUSH HIMALAYAN (HKH) REGION

GS III –Environmental Pollution and Degradation
Context: Asian Development Bank (ADB) launches the Building Adaptation and Resilience in the Hindu Kush Himalayas Initiative.

Hindu Kush Himalayan (HKH) Region:

- It spans an area of approximately. **4.3 million square km in Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan**.
- It is home to the world's highest peaks such as Mount Everest and Kanchenjunga.
- HKH is known as the Third Pole or the Water Tower of Asia because it holds the largest ice reserves outside of the polar regions.
- **HKH with young and rising mountains** is highly vulnerable to multiple hazards such as earthquakes and landslides.

Climatic risks faced by the region:

- Increased intensity and frequency of climate change hazards like- glacial lake outbursts, flash floods, etc. pose a significant risk to mountain habitats.
- Declining snow cover and accelerated melting of glaciers resulting in drying rivers, impact on hydropower energy, and degradation of water quality. According to ADB, if global warming reaches 3 degrees, upto 75% of glaciers will melt in parts of the Himalayas by2100.
- Adverse impact on mountain-dwelling species, some of which are expected to decline in numbers.

Global initiatives for protecting the Himalayan Ecosystem:

- **The International Centre for Integrated Mountain Development (ICIMOD)** is an intergovernmental knowledge and learning centre working for the people of the Hindu Kush Himalaya (HKH), located in Kathmandu (Nepal).
- **Himalayan Adaptation Network by IUCN is a web-based network initiative in Sikkim** to build climate-resilient strategies for reducing community and ecosystem vulnerability in the **Indian Himalayan region (IHR) through the landscape approach.**
- Living Himalayas Initiative by the **World Wide Fund for Nature (WWF)** to protect the biodiversity in the Eastern Himalayas.

India's initiatives for protecting the Himalayan Ecosystem:

- **National Mission for Sustaining the Himalayan Eco-system (NMSHE)** was launched under **the National Action Plan on Climate Change (NAPCC)** to continuously assess the health status of the Himalayan Ecosystem.

- **SECURE (Securing livelihoods, conservation, sustainable use and restoration of high-range Himalayan ecosystems) Himalaya by MoEFCC (India)** and the United Nations Development Programme (UNDP) as a part of the Global Wildlife Program (GWP), funded by the Global Environment Facility (GEF).

Building Adaptation and Resilience in the Hindu Kush Himalayas Initiative:

- It aims to address the adversities of climate change in the Hindu Kush Himalayan region.
- It supports Bhutan and Nepal in climate adaptation (worst-affected regions).

NATIONAL RESEARCH FOUNDATION

GS III –Science and Technology

Context: The Anusandhan National Research Foundation Act of 2023 provides for the establishment of the Anusandhan National Research Foundation (NRF).

National Research Foundation (NRF):

- It is an apex body to provide high-level strategic direction of scientific research in the country in accordance with the recommendations of the National Education Policy (NEP) and will be established at a **cost of 50,000 crore** over the period **2023-28.**
- **It aims to** increase private sector contributions to research in India and to ensure that a larger portion of government funds go to state universities and colleges.
- The **Department of Science and Technology (DST)** will be NRF's administrative department.

Functions of the National Research Foundation:

- Preparing the roadmap for short-, medium-, and long-term research and development.
- Facilitating and funding the expansion of Research and Development and related infrastructure in universities, colleges, and research institutions.
- **Funding competitive peer-reviewed** grant proposals to eligible individuals.
- Assisting in the transformation of research into capital-intensive technology.
- Enhancing India's role and engagement in significant national and **global areas.**
- **Encouraging private and public sector** entities to invest in the foundation.
- Carry out **annual surveys** of scientific research, outcomes, and spending.

Need for National Research Foundation:

- India's Gross Expenditure on Research and Development (GERD) stagnated at about **0.7 percent of GDP**, which is less as compared to the 2% of the global benchmark.A significant infusion of funding, steered by a clear implementation strategy, is required for India to become a science leader.
- 52% of GERD in India is by the government which is substantially higher than in the **US** (10%), **Germany** (13%), and **China** (15%). To bridge this gap, the **ANRF-2023** Act plans to seek significant private-sector contributions.
- NRF can be a viable tool to address challenges to India's research and development capacity.**For example,** a share of the funds should be targeted toward building scientific research capacity in universities and semi-urban areas.
- Lower spending on R&D and less innovative opportunities may force young talents to move to better terrains. India must strive to optimally use its pool of talent.

Significance of the National Research Foundation:

- NRF will prioritize funding for projects in outlying, rural, and semi-urban areas, which are underserved and rarely receive funding for science projects.
- The NRF would support research in areas other than natural sciences and engineering, such as social sciences, arts, and humanities.

- For the implementation of missions such as the **supercomputer mission** or the quantum mission.
- The NRF will establish collaborations between business, academia, government agencies, and research institutions, and will dig into the financial resources of the private sector to ensure a **financially viable research ecosystem**.

PHOSPHORUS PROBLEM

GS III –Mobilization of Resources

Context: The global phosphorus problem is gaining attention with limited phosphorus reserves, contamination issues, and disruptions in the fertilizer market, finding sustainable solutions has become a critical priority.

Phosphorus:

- **It is a chemical element with the symbol "P" and atomic number 15.** It is an essential element for life and has various important properties and applications.
- Phosphorus readily forms compounds with other elements, especially oxygen, forming various phosphates. It is highly reactive and can spontaneously combust in the air, producing white smoke.
- **Phosphorus compounds are crucial in biology, as they are a fundamental component of DNA, RNA, and ATP (adenosine triphosphate).**
- Phosphorus is commonly found in the Earth's crust in the form of various phosphate minerals, such as apatite.
- Phosphorus compounds are used in the production of fertilizers, as they are necessary for plant growth. It is also used in detergents, where phosphate compounds help break down and remove stains.
- **Phosphorus is utilized in the production of steel and other metallurgical processes**.

Issues/Challenges associated with Phosphorus:

- Phosphorus is scarce and primarily found in specific geological formations. This is a major geopolitical concern. Morocco and the Western Sahara region possess the world's largest phosphorus reserves, but these reserves contain cadmium, a harmful heavy metal that can accumulate in the kidneys of animals and humans when consumed.
- Out of all the countries, only six have significant reserves of cadmium-free phosphorus. „ Among them, China imposed export restrictions in 2020, and several EU nations stopped purchasing from Russia.
- Extracting and processing phosphate rock is energy-intensive, contributing to greenhouse gas emissions and environmental degradation.

Phosphorus in India:

- India is deficient in Apatite (a group of phosphate minerals) and Rock Phosphate availability.
- According to the Indian Minerals Yearbook 2018, in the case of apatite, the country is fully dependent upon imports, while the Rock Phosphate production is only from two states namely, Rajasthan and Madhya Pradesh.
- **India is the world's largest importer of phosphorus, primarily sourcing it from West African deposits contaminated with cadmium.**

Way Forward:

- There is a need to develop advanced technologies for efficient phosphorus recovery from sewage and various waste streams. This could include using innovative filtration, precipitation, and ion exchange processes to extract and recycle phosphorus for use in fertilizers or other applications.
- Implement precision agriculture techniques that utilize sensor networks, AI, and data analytics to optimize phosphorus use on farms. This ensures that crops receive the exact amount of phosphorus they need, reducing excess runoff into water bodies.

- **There is a need to develop an international framework for phosphorus management, similar to global climate agreements.** This would promote collaboration and coordinated efforts to address phosphorus concerns on a global scale.

RHODAMINE B

GS III –Health impacts

Context: Himachal Pradesh has instituted a one-year ban on the production, sale, and storage of Cotton Candy or Candy floss after the presence of Rhodamine B, a potentially hazardous colouring agent.

Rhodamine B:

- **It** is a colouring agent commonly used in the textile, paper, and leather industries. The colourant is **low-cost and is sometimes used to give vibrant hues** to popular streets food items such as gobimanchurian and cotton candy.
- The dye is not fit for consumption and may lead to acute toxicity. Exposure to the chemical may also damage the **eye and cause irritation in the respiratory tract.**
- While the **World Health Organisation**, which maintains a list of cancer-causing agents, says it cannot be classified as carcinogenic to humans, there are **some studies on rats that have shown carcinogenic effects.**
- It is not commonly added to food products but is usually reported from small roadside vendors in small cities.This is because of a **lack of understanding about dyes** that are permissible in food items. Small vendors are **not aware that this dye can be harmful as its effects might not always be felt immediately.**
- It is usually "illegally" **added to preparations such as gobimanchurian,** potato wedges, butter chicken, pomegranate juice, ice creams produced on a small scale, or cotton candies.
- **Food Safety and Standards Authority of India (FSSAI)** has specifically banned **Rhodamine B** from being used in food products.Any use of this chemical in the preparation, processing, and distribution of food is punishable **under the Food Safety & Standards Act, 2006.**

Food colours allowed by the Food Safety Act of 2006:

It includes the following natural food colours:
  - **Carotene and Carotenoids (yellow, orange)**are natural pigments found in many fruits and vegetables, such as carrots, pumpkins, and tomatoes. They are responsible for the yellow, orange, and red colours in these foods.
  - **Chlorophyll (green)**is the pigment responsible for the green colour in plants. It is commonly used as a natural food colouring agent.
  - **Riboflavin (yellow)**also known as vitamin B2, is a yellow-coloured compound found in various foods. It is sometimes used as a food colouring agent.
  - **Caramel** is a natural food colouring agent derived from the heating of sugar. It can range in colour from pale yellow to deep brown, depending on the degree of caramelization.
  - **Annatto (orange-red)**is a natural food colouring derived from the seeds of the achiote tree. It imparts a vibrant orange-red colour to foods and is commonly used in cheese, butter, and other dairy products.
  - **Saffron**is a spice derived from the **flower of the Crocus sativus plant**. It is known for its intense yellow colour and is one of the most expensive spices in the world.
  - **Curcumin (yellowfrom turmeric)** is the main active compound found in turmeric. It is responsible for the yellow colour of this spice and is used as a natural food colouring agent.

It includes the following synthetic colours:
  - **Ponceau 4R is a** synthetic red colour commonly used in various food and beverage products.
  - **Carmoisine is a** synthetic red colour often used in food colouring.
  - **Erythrosine is a** synthetic red colour commonly used in food colouring, especially in sweets and candies.
  - **Tartrazine and Sunset Yellow FCFare s**ynthetic yellow colours widely used in various food products.
  - **Indigo Carmine and Brilliant Blue FCF is a s**ynthetic blue colours used in food colouring.

- o **Fast Green FCF is a** synthetic green colour used in food products.

- Even permissible food colourings, however, are not allowed in all food items. Some food items that can **use these colours include ice creams, biscuits, cakes,** confectioneries, fruit syrups and crushes, custard powder, jelly crystals, and carbonated or noncarbonated beverages.

Food Safety and Standards Authority of India (FSSAI):

- It is an autonomous statutory body established under the Food Safety and Standards Act, of 2006. It **aims to establish a single reference point for all matters relating to food safety** and standards, by moving from multi-level, multi-departmental control to a single line of command.
- It is responsible for protecting and promoting public health by regulating and supervising food safety and quality in India, operating under the Ministry of Health & Family Welfare.
- It has a headquarters in New Delhi and regional offices in eight zones across the country.
- The Chairperson and Chief Executive Officer of FSSAI, appointed by central government.

SICKLE-CELL DISORDER (SCD)

GS III –Health

Context: The U.S. Food and Drug Administration (FDA) approved a pair of gene therapies for sickle cell disease, including the first treatment based on the breakthrough CRISPR gene editing technology.

Sickle-Cell Disorder (SCD):

- It isan **inherited haemoglobin disorder** characterised by a **genetic mutation** that **causes red blood cells (RBCs) to assume a sickle or crescent shape** rather than their normal round shape.
- This **abnormality** in RBCs **results in increased rigidity, impairing their ability to circulate effectively** throughout the body. Consequently, individuals with SCD often experience complications such as **anaemia, organ damage, recurrent and severe pain episodes, and a shortened lifespan.**

Symptoms:

- **Chronic anaemia** which leads to fatigue, weakness, and paleness.
- Painful episodes cause sudden and intense pain in the bones, chest, back, arms, and legs.
- **Delayed growth and puberty.**

Treatment:

- **Blood Transfusions**can help relieve anaemia and reduce the risk of pain crises.
- **Hydroxyurea** can help **reduce the frequency of painful episodes** and prevent some of the disease's long-term complications.
- **Gene Therapy** can also be treated by bone marrow or **stem cell** transplantation by methods like **Clustered regularly interspaced short palindromic repeats (CRISPR).**

Challenges related to the treatment and accessibility of SCD:

- There is a **lack of understanding about SCD** among the public and healthcare providers, leading to delayed diagnosis and inadequate treatment.
- Many rural and tribal areas lack specialised healthcare facilities and trained medical personnel for managing SCD.
- The long-term management of SCD can be financially burdensome for many families due to the cost of medications, regular check-ups, and potential hospitalizations.
- Inconsistent availability of essential medications for SCD treatment, such as **hydroxyurea and pain relievers,** is a concern in certain regions.
- The **absence of systematic newborn screening** and early detection initiatives results in missed opportunities for early intervention and genetic counselling.

- Rural, **remote, and tribal communities** face challenges in accessing quality healthcare due to geographical isolation, lack of transportation, and socioeconomic factors.**Stigma and discrimination** further hinder access to healthcare services.

Government initiatives regarding SCD:

- **National Sickle Cell Anaemia Elimination Mission a**imed at enhancing the care for all **Sickle Cell Disease (SCD)** patients and reducing the disease's prevalence through an integrated approach **encompassing screening and awareness campaigns.**It targets the **complete elimination of sickle cell disease as a public health concern by 2047.**
- **National Health Mission (NHM) 2013** is a flagship programme that encompasses provisions for disease prevention and management, with a **specific focus on hereditary anomalies such as sickle cell anaemia. It** focuses on **raising awareness, facilitating early detection, and ensuring timely treatment** of sickle cell anaemia. It facilitates drugs like hydroxyurea to treat SCD in its **"essential medicines List".**
- **The National Guidelines for Stem Cell Research 2017restricts the commercialisation of stem cell therapies** to clinical trials, except for Bone marrow transplantation (BMT) for SCD. Gene editing on stem cells is permitted only for in-vitro studies.
- **National Guidelines for Gene Therapy Product Development and Clinical Trials 2019**provides guidelines for the development and clinical trials of gene therapies for inherited genetic disorders. India has also approved a **five-year project** to develop CRISPR techniques for sickle cell anaemia treatment.
- **State Haemoglobinopathy Mission of Madhya Pradesh** aims to address the challenges in screening and management of the disease.

STATE FINANCES: A STUDY OF BUDGET OF 2023-24

GS III –Mobilization of resources
Context: The Reserve Bank of India published an annual report titled "StateFinances: A Study of Budget of 2023-24". The theme of the Report is'Revenue Dynamics and Fiscal Capacity of Indian States'.

Key findings of the Report:

- **States consolidated gross fiscal deficit to gross domestic product (GFD-GDP) ratio** declined from 4.1 percent in2020-21 to 2.8 percent in 2021-22, led by a moderation in revenue expenditure, coupled with an increase in revenue collection.
- **Capital outlay is budgeted to increase by 42.6 % in 2023-24 to 2.9 percent of GDP.** Capital outlay involves expenditure towards the creation of assets and has a multiplier effect on economic output.
- The debt-GDP ratio of states declined from 31 % at end-March 2021, to 27.5 % by end-March 2023, supported by fiscal consolidation. However, outstanding liabilities may remain higher than 30 percent of gross state domestic product (GSDP) for many States. The support received from the Centre in the form of **50-year interest-free capex loans has helped in reducing the States' interest burden.**
- States' dependence on net market borrowings, which had risen significantly in the past, declined to 76 %in the budgeted GFD for 2023-24.States' dependency on net market borrowing has declined as their loans from the Centre have increased.
- **The implementation of goods and services tax (GST**) has led to increased tax buoyancy for theStates.GST implementation has led to greater formalization of the economy which is important from the perspective of expanding the tax base.
- **Committed expenditure including interest payments**, administrative services, and pension, is expected to remain at 4.5 % of GDP.

Concerns with State Finances:

- **Non-tax revenues remained around 1 percent of GDP in the last 10 years compared to a ratio of 10 % or more in countries like Singapore, Egypt, and Iran.**
- The allocations for education, sports, art and culture, relief on account of natural calamities, urban development, agriculture and allied activities, and rural development were reduced.

- **Return to the Old Pension Scheme (OPS)** would exert a huge burden on State finances and restrict their capacity to undertake growth-enhancing capital expenditures. If all the State governments revert to OPS from the **National Pension System (NPS**), the cumulative fiscal burden **could be as high as 4.5 times that of NPS.**

Important non-tax revenue sources:

- Lease/sale of natural resources, like minerals.
- User charges oneconomic/social services providedby the government such as irrigation, electricity,health, education, forestry, and wildlife.
- Lotteries.
- Interest receipts from loans extended to entities likepublic sector undertakings (PSUs) and local bodies.

SURETY BONDS

GS III –Economy
Context:Some of the leading general insurers like New India Assurance, SBI General Insurance, etc. haveannounced their plans to issue Surety Bonds, but nobody has been able to do so due to a lack of supporting elements.

What is Surety Bond?

- A surety bond can be defined in its simplest form as a written agreement to guarantee compliance, payment, or performance of an act.
- It is a unique type of insurance because it involves a three-party agreement. The three parties in a surety agreement are:
  o **Principal** – The party that purchases the bond and undertakes an obligation to perform an act as promised.
  o **Surety** – The insurance company or surety company that guarantees the obligation will be performed. If the principal fails to perform the act as promised, the surety is contractually liable for losses sustained.
  o **Obligee** - The party who requires, and often receives the benefit of the surety bond. For most surety bonds, the obligee is a local, state, or federal government organization.
- A surety bond is provided by the insurance company on behalf of the contractor to the entity that is awarding the project.
- It will help contractors to have financial closure of their projects without depending upon only bank guarantees.

Aim of Surety Bonds:

- Surety bonds are mainly aimed at infrastructure development, mainly to reduce indirect costs for suppliers and work contractors thereby diversifying their options and acting as a substitute for bank guarantee.

Significance/Benefits of Surety Bonds:

- Surety bonds protect the beneficiary against acts or events that impair the underlying obligations of the principal.
- They guarantee the performance of a variety of obligations, from construction or service contracts to licensing and commercial undertakings.

Issues with the Surety Bonds:

- Surety bonds, a new concept, are risky and insurance companies in India are yet to achieve expertise in risk assessment in such business.

- **Also, there's no clarity on pricing, the recourse available against defaulting contractors, and reinsurance options. These are critical and may impede the creation of surety-related expertise and capacities and eventually deter insurers from writing this class of businesses.**
- The issuer of Surety Bonds in India should be in a position to legally enforce tripartite contracts that guarantee compliance, payment, and/or performance. Indian Contract Act and Insolvency and Bankruptcy Code does not recognize the rights of Insurers at par with financial creditors yet and thus insurance companies do not have recourse to recovery like banks in case of any default.

Practice Questions

Q1.) With reference to the Climate Technology Centre and Network (CTCN), consider the following statements:
1. The CTCN serves as the implementation arm of the Technology Mechanism under the UNFCCC.
2. The primary goal is to facilitate the transfer of environmentally sound technologies to developing countries.

Which of the statements given above is/are correct?
   a. 1 only
   b. 2 only
   c. Both 1 and 2
   d. Neither 1 nor 2

Q2.) The Information Technology Agreement (ITA), recently seen in news is related to
   a. IMF
   b. WTO
   c. ASEAN
   d. EU

Q3.) With reference to the National Disaster Response Fund (NDRF), consider the following statements:
1. It is a fund managed by the Central Government to meet expenses related to emergency response, relief, and rehabilitation during threatening disaster situations or actual disasters.
2. Decisions on NDRF expenses are made by the National Executive Committee of the National Disaster Management Authority.
3. The NDRF accounts are audited annually by the Comptroller and Auditor General.

How many of the above statements are correct?
   a. Only one
   b. Only two
   c. All three
   d. None

Q4.) With reference to the National Centre for Good Governance (NCGG), consider the following statements:
1. NCGG is an autonomous institute under the aegis of the Department of Administrative Reforms and Public Grievances.
2. The NCGG focuses on public policy, governance, and reforms.
3. It collaborates with the Ministry of External Affairs to provide training to civil servants from various nations.

How many of the above given statements are correct?
   a. Only one
   b. Only two
   c. All three
   d. None

Q5.) With reference to the green taxonomy, consider the following statements:
1. Green taxonomy serves as a framework for defining environmentally sustainable investments.
2. It classifies economic activities and assets based on their environmental impact.
3. Taxonomies play a crucial role in preventing greenwashing.

How many of the statements given above are correct?
   a. Only one
   b. Only two
   c. All three
   d. None

Q6.) With reference to the Critical Minerals Summit 2024, consider the following statements:
1. The summit aims to foster collaboration, knowledge sharing, and innovation in the field of critical mineral processing.
2. It is organized by the Ministry of Mines.

Which of the statements given above is/are correct?
   a. 1 only

b. 2 only
c. **Both 1 and 2**
d. Neither 1 nor 2

Q7.)With reference to the National Service Scheme (NSS), consider the following statements:
1. The National Service Scheme (NSS) is a Central Sector Scheme under the Ministry of Youth Affairs & Sports.
2. NSS was launched during the birth centenary year of Jawaharlal Nehru.
3. It aims to provide an opportunity for student youth across different educational levels to participate in various government-led community service activities and programs.

How many of the statements given above are correct?
a. Only one
b. **Only two**
c. All three
d. None

Q8.) With reference to the Rashtriya Arogya Nidhi (RAN) scheme, consider the following statements:
1. The Rashtriya Arogya Nidhi (RAN) is designed to provide financial assistance to poor patients living below the poverty line.
2. The assistance is provided as a one-time grant to eligible patients.
3. The scheme covers treatments for heart, kidney, liver diseases, cancer, and specified rare diseases.

How many of the statements given above are correct?
a. Only one
b. Only two
c. **All three**
d. None of the above

Q9.)With reference to the Chipko Movement, consider the following statements:
1. The Chipko Movement was a non-violent environmental movement.

2. The movement aimed to protect the Himalayan range trees from the axes of builders and commercial interests.
3. Sunderlal Bahuguna played a pivotal role in the Chipko Movement.

How many of the statements given above are not correct?
a. Only one
b. Only two
c. Only three
d. **None**

Q10.) English Channel separates England from
a. Spain
b. **France**
c. Germany
d. Poland

Q11.) With reference to the Green Financing, consider the following statements:
1. Green financing aims to align financial activities with environmental goals.
2. It encompasses a variety of debt mechanisms and investments aimed at promoting the development of green projects.
3. Green bonds are a common green finance instrument.

Which of the statements given above are correct?
a. Only one
b. Only two
c. **All three**
d. None

Q12.) With reference to Exercise Poorvi Lehar (XPOL), consider the following statements:
1. It is a maritime exercise conducted by the Indian Navy along the East Coast.
2. The exercise focuses on enhancing the Indian Navy's readiness to address security threats in the maritime domain.

How many of the statements given above are correct?
a. 1 only
b. 2 only
c. **Both 1 and 2**
d. Neither 1 nor 2

Q13.) Mount Erebus, an active volcano is located in
   a.   Indonesia
   b.   Italy
   c.   Australia
   d.   **Antarctica**

Q14.) Consider the following countries:
   1.   Iraq
   1.   Israel
   2.   Jordan
   3.   Pakistan
   4.   Turkey
   5.   Armenia
How many of the above-mentioned countries share a land border with Iran?
   a.   Only two
   a.   Only three
   b.   **Only four**
   c.   Only five

Q15.) With reference to the Mount Ruang, consider the following statements:
   1.   It is a stratovolcano situated in Italy.
   2.   It is a part of the Pacific Ring of Fire.
Which of the statements given above is/are correct?
   a.   1 only
   b.   **2 only**
   c.   Both 1 and 2
   d.   Neither 1 nor

Q16.) Nagorno-Karabakh region, recently seen in news is related to
   a.   Israel – Hamas war
   b.   Russia – Ukraine war
   c.   **Azerbaijan- Armenia conflict**
   d.   China – Philippines territorial dispute

Q17.)With reference to the National Security Guard (NSG), consider the following statements:
   1.   The National Security Guard (NSG) is a specialized counter-terrorism unit in India.
   2.   It operates under the Ministry of Defence.
   3.   The NSG comprises officers and personnel from the Central Armed Police Forces, Indian Army, and State Police Forces.
How many of the statement given above are not correct?

   a.   **Only one**
   b.   Only two
   c.   All three
   d.   None

Q18.)With reference to the Artemis Accords, consider the following statements:
   1.   Artemis Accords are a set of principles for space exploration cooperation among nations.
   2.   The Artemis Accords were established by the ISRO.
   3.   The Accords build upon the Outer Space Treaty of 1967.
How many of the statements given above are not correct?
   a.   **Only one**
   b.   Only two
   c.   All three
   d.   None

Q19.) Consider the following rivers:
   1.   Lakshmantirtha
   2.   Kabbani
   3.   Bhavani
   4.   Amaravati
How many of the above-mentioned rivers are the tributaries of the river Cauvery?
   a.   Only one
   b.   Only two
   c.   Only three
   d.   **All four**

Q20.)With reference to the Pradhan Mantri Ujjwala Yojana (PMUY), consider the following statements:
   1.   It is a flagship scheme introduced by the Ministry of Petroleum and Natural Gas.
   2.   Its primary objective is to provide clean cooking fuelto rural and deprived households.
   3.   It aims to empower women and safeguard their health.
How many of the above statements are correct?
   a.   Only one
   b.   Only two
   c.   **All three**
   d.   None

Q21.)With reference to Global Forest Watch (GFW), consider the following statements:

1. Global Forest Watch (GFW) is an online platform that equips people worldwide with data, technology, and tools to protect forests.
2. It is an initiative of the United Nations Environment Programme (UNEP).

Which of the statements given above is/are correct?

a. **1 only**
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2

Q22.) With reference to the Men5CV Vaccine, consider the following statements:

1. Men5CV vaccine provides protection against five strains of the meningococcus bacteria.
2. Nigeria is the first country globally to introduce Men5CV.
3. The Men5CV vaccine aligns with the global goal to eliminate meningitis by 2030.

How many of the statements given above are correct?

a. Only one
b. Only two
c. **All three**
d. None

Q23.) Consider the following statements:

Statement-I:

The Green Credit Programme (GCP), is a market-based mechanism introduced by the Ministry of Environment, Forest and Climate Change.

Statement-II:

The GCP aims to incentivize voluntary environmental actions by individuals, communities, private sector industries, and companies.

Which one of the following is correct in respect of the above statements?

a. **Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I**
b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
c. Statement-I is correct but Statement-II is incorrect

d. Statement-I is incorrect but Statement-II is correct

Q24.) With reference to the Tiger Triumph-24 exercise, consider the following statements:

1. It is a bilateral exercise conducted between India and the United States.
2. The exercise aimed to develop interoperability for conducting Humanitarian Assistance and Disaster Relief operations and refine Standard Operating Procedures (SOPs) for rapid and smooth coordination between the forces of both countries.

Which of the statements given above is/are not correct?

a. 1 only
b. 2 only
c. Both 1 and 2
d. **Neither 1 nor 2**

Q25.) With reference to the Indian economy, consider the following:

1. Depreciation of Indian rupee
2. Increase in global commodity prices
3. Changes in trade policies

How many of the above causes the imported inflation in India?

a. Only one
b. Only two
c. **All three**
d. None

Q26.) Which among the following lake recently had a devastating impact due to the El Niño drought?

a. Chilika
b. Pangong Tso
c. Caspian
d. **Kariba**

Q27.) Withania somnifera, recently seen in news is

a. **a herb**
b. an invasive plant
c. a vaccine
d. a turtle

Q28.) With reference to Shrinkflation, consider the following statements:

1. Shrinkflation involves reducing the quantity or volume of a product while keeping the retail price unchanged.
2. Companies use shrinkflation to improve profit margins without overtly raising prices.

Which of the statements given above is /are not correct?
   a. 1 only
   b. 2 only
   c. Both 1 and 2
   d. Neither 1 nor 2

Q29.) Consider the following statements:
1. Arrow 3 is an exo-atmospheric hypersonic anti-ballistic missile developed by India.
2. Exo-atmospheric interceptors are deployed to destroy incoming ballistic missiles before they re-enter the atmosphere and reach their intended targets.

Which of the statements given above is/are correct?
   a. 1 only
   b. 2 only
   c. Both 1 and 2
   d. Neither 1 nor 2

Q30.) Operation Meghdoot was the codename for the Indian Army's operation to take full control of the
   a. Aksai Chin
   b. Gilgit
   c. Siachen Glacier
   d. Pangong Tso

Q31.) With reference to the Unified Payments Interface (UPI), consider the following statements:
1. It allows instant transfer of funds between two bank accounts through a mobile platform.
2. It was developed by the National Payments Corporation of India (NPCI).
3. It is regulated by the Securities and Exchange Board of India (SEBI).

How many of the statements given above are correct?
   a. Only one
   b. Only two

   c. All three
   d. None

Q32.) Consider the following pairs:

Satellite Navigation System	Country
1. GPS	- India
2. GLONASS	- Russia
3. BeiDou	- China

How many of the pairs given above are correctly matched?
   a. Only one
   b. Only two
   c. Only three
   d. None

Q33.) With reference to the National Investment and Infrastructure Fund (NIIF), consider the following statements:
1. NIIF aims to enhance infrastructure financing by investing in greenfield, brownfield and stalled projects.
2. It operates as an Alternative Investment Fund under SEBI regulations.

Which of the statements given above are correct?
   a. 1 only
   b. 2 only
   c. Both 1 and 2
   d. Neither 1 nor 2

Q34.) With reference to TSAT-1A satellite, consider the following statements:
1. TSAT-1A is the first military spy satellite initiative in India's private sector.
2. It is an Earth observation satellite.
3. It is Built by Tata Advanced Systems Limited.
4. SpaceX's Falcon 9 rocket lauched it from Kennedy Space Center, Florida.

How many of the statements given above are correct?
   a. Only one
   b. Only two
   c. Only three
   d. All four

Q35.) Consider the following countries:
1. Iran
2. Iraq

3. Kuwait
4. Oman
5. Qatar
6. Saudi Arabia

How many of the above-mentioned countries are the members of the Gulf Cooperation Council (GCC)?

a. Only two
b. Only three
c. Only four
d. Only five

Q36.)With reference to the credit-deposit ratio, consider the following statements:

1. The credit-deposit ratio is a financial metric that measures the proportion of a bank's deposit base that is used for lending.
2. A higher ratio indicates that a larger portion of the bank's deposits is being lent out as credit.

Which of the statements given above is/ are correct?

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2

Q37.)With reference to the 'Project Akashteer', consider the following statements:

1. The 'Project Akashteer' is a significant initiative aimed at enhancing the air defence capabilities of the Indian Army.
2. It is developed by Bharat Electronics Limited (BEL) as part of the 'Atmanirbhar Bharat' initiative.
3. This project is designed to automate air defence control and reporting processes by digitizing them.

How many of the statements given above are correct?

a. Only one
a. Only two
b. All three
c. None

Q38.) Consider the following:

1. Growing working-age population
2. Increasing education levels
3. Increasing gender equality

How many of the above are the features of India's demographic dividend?

a. Only one
b. Only two
c. All three
d. None

Q39.)With reference to Rakhigarhi, consider the following statements:

1. Rakhigarhi is recognized as one of the largest Harappan sites in the Indian subcontinent.
2. It is located in Rajasthan.
3. The site showcases continuity from the Harappan age to the present times.

How many of the statements given above are correct?

a. Only one
b. Only two
c. All three
d. None

Q40.)With reference to the Anti-Dumping Duty, consider the following statements:

1. Anti-Dumping Duty is a customs duty applied to imports to protect domestic industries from dumped goods.
2. The World Trade Organization permits the use of anti-dumping measures as an instrument of fair competition.
3. The Directorate General of Trade Remedies serves as the apex national authority responsible for administering various trade remedial measures including anti-dumping investigations.

How many of the above given statements are not correct?

a. Only one
b. Only two
c. All three
d. None

Q41.)Consider the following statements:

1. Shallow fakes are manipulated images, videos, and voice clips created without AI technology.
2. Deepfakes uses sophisticated AI and machine learning algorithms to create highly realistic and often indistinguishable counterfeit content.

Which of the statements given above is/ are correct?
   a. 1 only
   b. 2 only
   c. Both 1 and 2
   d. Neither 1 nor 2

Q42.) With reference to the leap seconds, consider the following statements:
   1. The International Earth Rotation and Reference Systems Service (IERS) monitors Earth's rotation and decides when to add or subtract leap seconds.
   2. A negative leap second is a second subtracted from clocks to keep them in sync with the Earth's rotation.

Which of the statements given above is/are correct?
   a. 1 only

   a. 2 only
   b. Both 1 and 2
   c. Neither 1 nor 2

Q43.)With reference to Tornadoes, consider the following statements:
   1. Tornadoes are funnel-shaped storms with very low pressure at the center.
   2. Tornadoes generally occur in middle latitudes.
   3. Tornadoes do not occur in India.

How many of the statements given above are correct?
   a. Only one
   b. Only two
   c. All three
   d. None

IASBABA

One Stop Destination for UPSC Preparation

211 RANKS

Congratulates!

211 RANKS — In UPSC CSE 2023

21 RANKS — In Top 100 in UPSC CSE 2023

2100+ RANKS — From Across all Programs & Website

700 RANKS — From Our Paid Courses in The Last 8 Years!

20 RANKS — Toppers From Karnataka

Baba's Toppers in Top-100

ADITYA SRIVASTAVA — AIR 1

SIDHARTH RAMKUMAR — AIR 4

MEDHA ANAND — AIR 13

KUNAL RASTOGI — AIR 15

AYAN JAIN — AIR 16

SHIVAM KUMAR — AIR 19

PRAJNANANDAN GIRI — AIR 24

NANDALA — AIR 27

VISHNU SASIKUMAR — AIR 31

AYUSHI PRADHAN — AIR 36

AKANCHHA SINGH — AIR 44

RAMYA R — AIR 45

CHANDANA JAHNAVI — AIR 50

JAYASREE PRADHAN — AIR 52

SURABHI SRIVASTAVA — AIR 56

BENJO P JOSE — AIR 59

ABHIMANYU MALIK — AIR 60

PRIYA RANI — AIR 69

ESHANI ANAND — AIR 79

SAKSHI JAMUAR — AIR 89

VIJETA B HOSAMANI — AIR 100