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Deep-Sea Mining

PRELIMS



POLITY & GOVERNANCE

**Privilege Motion**

Context: A breach of privilege motion moved against senior BJP MLA and Deputy Leader of the Opposition led to an uproar in the Rajasthan Assembly recently, with Speaker announcing that a decision on the motion will be taken shortly.

Privileges of State Legislatures:

- **Article 194** of the Indian Constitution have mention about **privileges of state legislature**. (**Art 105** deals with the privileges of members of the parliament).

Privileges Associated With State Legislatures In India:**Collective Privileges:**

- The ability to publish reports, debates, and proceedings, as well as the ability to prevent others from doing so.
- The press can publish truthful reports of the proceedings without the House's authorization under the freedom of the press. However, in the case of a House meeting held in secret, this right of the press does not apply.
- Keep strangers out of the gathering and organise covert sessions to address vital issues.
- Make rules to govern its own procedure and commercial activity, as well as to adjudicate on such issues.
- Right to immediate notification of a member's arrest, custody, conviction, imprisonment, and release.
- Initiate inquiries and compel a person's attendance.
- The courts are not allowed to investigate a House's or its committees' proceedings.
- Without the consent of the Presiding officer, no one (whether a member or an outsider) can be arrested, and no legal process (civil or criminal) can be served within the House's boundaries.

Individual Privileges: The privileges belonging to the members individually are –

- During the session of legislature, from 40 days before the beginning to 40 days after the finish, no member may be arrested. This privilege is only granted in civil matters; it is not granted in criminal or preventive detention situations.
- Members have the right to free expression. No member of legislature or its committees is accountable in any court for anything said or voted in legislature or its committees.

- Members of legislature are exempt from jury duty when house is in session. They have the right to decline to give evidence and testify in court.

What Constitutes A Breach Of This Privilege?

- While the Constitution grants MPs and legislator's specific rights and powers in order to preserve the Houses' dignity and authority, **these powers and privileges are not codified.**
- As a result, there are no clear, well-publicized guidelines for determining what constitutes a breach of privilege and the appropriate punishment.
- Any act that obstructs or impedes either House of the state legislature in carrying out its functions, or that obstructs or impedes any Member or Officer of such House in carrying out his duties, or that has the potential, directly or indirectly, to produce such results, is considered a breach of privilege.
- It is a breach of privilege and contempt to print or publish libel reflecting on the character or proceedings of the House or its Committees or on any member of the House for or relating to his character or conduct as a legislator.

Procedure Followed In Cases Of An Alleged Breach:

- A Privileges Committee, chaired by the Speaker of the Legislative Assembly or the Chairman of the Legislative Council, is made up of 15 Assembly members and 11 Council members.
- The members of the quasi-judicial committee are chosen based on the strength of the parties in the Houses.

The motions are initially decided by the Speaker or Chairman.

- If the privilege and contempt are proven prima facie, the Speaker or Chairman will refer the matter to the Privileges Committee in accordance with the proper procedure.
- The Committee will seek an explanation from all the concerned, will conduct an inquiry and will make a recommendation based on the findings to the state legislature for its consideration.

Consequences Of Breaching The Privileges:

- The Committee can suggest a punishment if the offender is found guilty of violation of privilege and contempt.
- The punishment can include notifying the perpetrator of the state legislature's dissatisfaction, bringing the culprit before the House and issuing a warning, or even imprisoning the offender.

	<ul style="list-style-type: none"> • In the case of the media, the state legislature's press facilities may be revoked, and a public apology may be required.
Caveat	<ul style="list-style-type: none"> • A caveat refers to a “formal notice requesting the court to refrain from taking some specified action without giving prior notice to the person lodging the caveat.” • The person lodging the caveat is called a “caveator”. • The term “caveat” is not expressly defined anywhere except in the Calcutta High Court’s 1978 ruling in the “Nirmal Chandra Dutta vs Girindra Narayan Roy” case. • It is a precautionary measure taken against the grant of probate or letters of administration, as the case may be, by the person lodging the caveat. • Section 148A of the Civil Procedure Code (CPC) , elaborating upon a caveat was inserted by the Amendment Act of 1976, after the Law Commission’s recommendation. • Any person can lodge a caveat in a Court. • The caveator or the person lodging is also required to serve a notice of the caveat by “registered post” to the person on whose plea they are lodging the application
Right to be forgotten	<p>Context: Recently, a doctor brought up the ‘Right to be Forgotten’ in the Delhi High Court after a wrongful arrest in response to a fabricated FIR against him.</p> <p>About the Right to be forgotten:</p> <ul style="list-style-type: none"> • The Right to be Forgotten” is a right to have private information removed from the internet search engine, database, websites, or other public platforms. • Origin: The Right to be Forgotten originates from the 2014 European Court of Justice after which it was included in the EU’s General Data Protection Regulation (GDPR) in addition to the right to erasure. • The right is not recognized by a law or a statute in India explicitly. • The courts have repeatedly held it to be endemic to the Right to Privacy under Article 21. • The Supreme Court in K.S.Puttaswamy vs Union of India referred to the European Union Regulation of 2016 which recognized the right to be forgotten as an individual’s right to remove personal information from the system. • However, the court also recognized that such a right can be restricted by the right to freedom of expression and information or for compliance with legal obligations.
Section 153A of the Indian Penal Code (IPC)	<p>Context: Recently, a Congress leader was booked under IPC sections including 153A, 505, and 295A.</p> <p>About Section 153A of the Indian Penal Code (IPC):</p>

	<ul style="list-style-type: none"> • Origin: In the pre-Independence Rangila Rasool case, the Punjab High Court had acquitted the Hindu publisher of a tract that had made disparaging remarks about the private life of the Prophet, and had been charged under Section 153A. • Section 153A of the Indian Penal Code (IPC) penalizes “promoting enmity between different groups on grounds of religion, race, place of birth, residence, language, etc., and doing acts prejudicial to maintenance of harmony”. • This is punishable with imprisonment up to three years, with a fine, or with both. • The provision was enacted in 1898 and was not in the original penal code. • Section 505, penalizes “statements conducing to public mischief” . • The data from the National Crime Records Bureau (NCRB) show that the rate of conviction for Section 153A is very low. • In 2020, the cases registered were six times higher than the cases in 2014. • However, the conviction rate in 2020 was 20.2%, suggesting that the process often becomes the punishment.
<p>Parhaiyas</p>	<p>Context: The role of welfare schemes and policies for the Parhaiyas of Jharkhand.</p> <p>About the Parhaiyas</p> <ul style="list-style-type: none"> • Parhaiyas is one of the nine Particularly Vulnerable Tribal Groups (PVTGs) of Jharkhand state. • Mainly concentrated in Latehar and Palamau districts of Jharkhand state • Parhaiyas are still lagging behind on most of the important indicators of development such as health, education, and income. • Parahiya literally means “the burners of the forest” or “hill dweller.” • People rely on the forest for their sustenance. <ul style="list-style-type: none"> ◦ Collecting various types of forest produce such as roots, fruits and leaves and sell them at the local markets. • Hunting is also one of the major sources of income. <p>About PVTGs</p> <ul style="list-style-type: none"> • Sub-classification of Scheduled Tribe, who are most vulnerable in certain parameter then the other Scheduled Tribe community. • During the fourth Five Year Plan a sub-category was created within Scheduled Tribes • Created based on the Dhebar Commission report. • The features of such a group include <ul style="list-style-type: none"> ◦ a pre-agricultural system of existence, ◦ that is practice of hunting and gathering, ◦ zero or negative population growth, ◦ extremely low level of literacy in comparison with other tribal groups. • Groups that satisfied any one of the criterion were considered as PTG. • There are total of 75 PVTGs in India.
<p>Neutral citation system</p>	<p>Context: Recently, the Chief Justice of India (CJI) D Y Chandrachud announced that the Supreme Court will adopt a “neutral citation system” for its judgments.</p> <p>About the Neutral citation system :</p>

- A case citation is an **identification tag** for a judgment that would contain a reference number, the year of the judgment, the name of the court that delivered that judgment, and a shorthand for the journal publishing the judgment.
- **A neutral citation** means that the court would assign **its own citation** — distinct from those given by traditional Law Reporters.
 - For example: in the All-India Reporter (AIR), the citation is AIR 1973 SC 1461

Significance of a Neutral citation :

- With artificial intelligence (AI) enabling the translation of judgments and transcribing of court proceedings, a **uniform citation is necessary**.
- To **ease the adjudicatory process**.
- To **avoid confusion** arising out of one case being cited by different people in a number of different ways.
- Several High Courts including **Delhi High Court** have started a neutral citation format.

MISHTI scheme

In News: In the Union Budget 2023-24 presented on Wednesday (February 1), Finance Minister Nirmala Sitharaman announced a new MISHTI scheme.

MISHTI scheme

- Building on India's success in afforestation, '**Mangrove Initiative for Shoreline Habitats & Tangible Incomes**', MISHTI, will be taken up for **mangrove plantation along the coastline and on salt pan lands**, wherever feasible, through convergence between MGNREGS, CAMPA Fund and other sources.

Why mangroves?

- **Mangrove forests** — consisting of trees and shrub that live in intertidal water in coastal areas — host **diverse marine life**.
- They also support a **rich food web**, with molluscs and algae-filled substrate acting as a breeding ground for small fish, mud crabs and shrimps, thus providing a **livelihood** to local artisanal fishers.
- They act as effective **carbon stores**, holding up to **four times the amount of carbon as other forested ecosystems**
- Mangrove forests capture vast amounts of carbon dioxide from the atmosphere and their preservation can both aid in removal of carbon from the atmosphere and prevent the release of the same upon their destruction.

Mangrove Alliance for Climate (MAC)

- Launched at the 27th session of Conference of Parties (**COP27**) **UN climate summit, with India as a partner**.
- **An initiative led by the United Arab Emirates (UAE) and Indonesia, the Mangrove Alliance for Climate (MAC) includes India, Sri Lanka, Australia, Japan, and Spain**.
- It seeks to educate and spread awareness worldwide on the role of mangroves in curbing global warming and its potential as a solution for climate change.

e-Gram SWARAJ

Context: Union rural development and Panchayati raj minister Giriraj Singh recently launched Mission Antyodaya Survey 2022-23, which will shed light on how government schemes have benefited rural India and what is the current economic situation of the country's villages.

- The survey will be conducted among gram panchayats across the country, all of which have their profiles on E-Gram Swaraj portal.

About E-Gram SWARAJ:

- It is one single interface on which the details will be listed panchayat wise.
- The platform will provide records of work from planning to the implementation in every village panchayat under **Gram Panchayati Development Plan (GPDP)**.
- All the details related to **Panchayat Sachiv and Panch** can be viewed on **Gram Swaraj Portal**.
- The works of the **Ministry of Panchayati Raj** will be accessible through **Gram Swaraj Portal**.
- The Gram Swaraj Portal and application will provide a boost in **transparency by decentralized planning of development projects**, with progress reports updates and increased accountability.
- Anybody can create an account on the **Gram Swaraj Portal and know about the developmental works of villages**.

Section 69 of the IT Act

Context: The Ministry of Electronics and Information Technology (MeitY) recently issued orders to block some apps on an “urgent” and “emergency” basis under **Section 69(A) of the Information Technology Act, 2000**.

About Information Technology Act, 2000:

- The Information Technology (IT) Act, 2000, **governs all activities related to the use of computer resources**.
- It covers **all ‘intermediaries’** who play a role in the use of computer resources and electronic records.

About Section 69 of the IT Act:

- It confers on **the Central and State governments** the power to issue directions to intercept, monitor or decrypt any information generated, transmitted, received or stored in **any computer resource**.
- It allows the government to **issue content-blocking orders** to online intermediaries such as Internet Service Providers (ISPs), telecom service providers, web hosting services, etc.

The grounds on which these powers may be exercised are:

- In the interest of the **sovereignty or integrity of India**, defence of India, the security of the state.
- Friendly relations with **foreign states**.
- Public order, or for **preventing incitement to the commission** of any cognizable offence relating to these.
- For **investigating any offence**.

Process of Blocking Applications and Internet Websites:

	<ul style="list-style-type: none"> • Section 69A, for similar reasons and grounds (as stated above), enables the Centre to ask any agency of the government, or any intermediary, to block access to the public of any information generated, transmitted, received or stored or hosted on any computer resource. • Any such request for blocking access must be based on reasons given in writing.
<p>Office of Profit</p>	<p>Context: Allegation against Jharkhand Chief Minister for allegedly allocating a mining lease to himself when he was the mining and forest minister of Jharkhand, which violates Office of Profit norms</p> <p>About Office of Profit:</p> <ul style="list-style-type: none"> • Definition: The office of profit has been interpreted as a position that brings to the office-holder some financial gain, remuneration or benefit. The amount of such profit is immaterial. However, The constitution does not explicitly define the phrase. • Objective: The intent is to avoid the conflict of interests between the duties and interests of an elected member. <p>What constitutes an ‘Office of Profit’?</p> <ul style="list-style-type: none"> • The conditions has been evolved over decades with subsequent judicial pronouncements. Supreme Court has listed certain factors while considering ‘office of profit’: <ul style="list-style-type: none"> ○ whether the government is the appointing authority ○ whether the government has the power to terminate the appointment ○ whether the government determines the remuneration ○ what is the source of remuneration ○ the power that comes with the position. <p>Constitutional provisions regarding ‘Office of Profit’</p> <ul style="list-style-type: none"> • Article 102 (1): A person shall be disqualified for being chosen as a member of either House of Parliament if he holds any office of profit under the Government of India or the Government of any State, other than an office declared by Parliament by law not to disqualify its holder. • Article 191 (1): A person shall be disqualified for being chosen as, and for being, a member of the Legislative Assembly or Legislative Council of a State if he holds any office of profit under the Government of India or the Government of any State specified in the First Schedule, other than an office declared by the Legislature of the State by law not to disqualify its holder. • Provisions of Articles 102(1)(e) and 191(1)(e) also protect a legislator occupying a government position if the office in question has been made immune to disqualification by law. <p>Statutory provisions related to ‘Office of Profit’</p> <ul style="list-style-type: none"> • Parliament has also enacted the Parliament (Prevention of Disqualification) Act, 1959, which has been amended several times to expand the exempted list. • RPA Act, 1951: Clause 9A of the Act says that a person shall be disqualified if there is a contract involving him in the course of his trade or business with the

	<p>appropriate Government for the supply of goods to or for the execution of any works undertaken by that Government.</p>
Judicial Majoritarianism	<p>Context: As the recent majority judgment of the Supreme Court on demonetisation comes under criticism, the minority judgment by J. Nagarathna is being hailed for its challenge to the RBI's institutional acquiescence to the Central government.</p> <p>About Judicial Majoritarianism:</p> <ul style="list-style-type: none"> • As opposed to standard matters heard by Division Benches consisting of two judges, numerical majorities are of particular importance to cases which involve a substantial interpretation of constitutional provisions. • In such cases, Constitutional Benches, consisting of five or more judges, are set up in consonance with Article 145(3) of the Constitution. <ul style="list-style-type: none"> ◦ Such Benches usually consist of 5, 6, 9, 11 or even 13 judges. • This is done to facilitate decision-making by ensuring numerical majorities in judicial outcomes. • Article 145(5) of the Constitution: It states that no judgment in such cases can be delivered except with the concurrence of a majority of the judges but that judges are free to deliver dissenting judgments or opinions.
NAMASTE Scheme	<p>Context: Union Budget 2023-2024 has allocated nearly Rs 100 crore for the National Action for Mechanised Sanitation Ecosystem (NAMASTE).</p> <p>About NAMASTE Scheme:</p> <ul style="list-style-type: none"> • It was launched in 2022 as a Central Sector Scheme. • The scheme is being undertaken jointly by the Ministry of Housing and Urban Affairs and the Ministry of Social Justice & Empowerment (MoSJE) and aims to eradicate unsafe sewer and septic tank cleaning practices. <p>Objectives of the scheme:</p> <ul style="list-style-type: none"> • Zero fatalities in sanitation work in India. • All sanitation work is performed by skilled workers. • No sanitation workers come in direct contact with human faecal matter. • Sanitation workers are collectivised into Self Help Groups (SHGs) and are empowered to run sanitation enterprises. • Strengthened supervisory and monitoring systems at National, State and Urban Local Body (ULB) levels to ensure enforcement and monitoring of safe sanitation work. <p>What are the Key Features of the Scheme to be Implemented in all ULBs?</p> <ul style="list-style-type: none"> • Identification: NAMASTE envisages identifying the Sewer/Septic Tank Workers (SSWs). • Occupational Training and distribution of PPE Kits to SSWs. • Assistance for Safety Devices to Sanitation Response Units (SRUs). • Extending Health Insurance Scheme Benefits to identified SSWs and their families under the Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana (AB-PMJAY).

	<ul style="list-style-type: none"> • Livelihood Assistance: The Action Plan will promote mechanization and enterprise development by providing funding support and subsidy (capital +interest) to the sanitation workers, to procure sanitation related equipment's. <p>IEC (Information Education and Communication) Campaign:</p> <ul style="list-style-type: none"> • Massive campaigns would be undertaken jointly by the ULBs & NSKFDC (National Safai Karamcharis Finance & Development Corporation) to spread awareness about the interventions of NAMASTE.
<p>Article 105 of the Indian Constitution</p>	<p>Context: Recently, the Congress President cited Article 105 of the Constitution that deals with the privileges and powers of parliamentarians, to protest against the expunction of parts of his speech.</p> <p>About Article 105 of the Constitution:</p> <ul style="list-style-type: none"> • Article 105 pertains to the powers, privileges, etc, of Parliament, its members and committees. • Article 194, protects the privileges and powers of the houses of legislature, their members and committees in the states. • Simply put, Members of Parliament are exempted from any legal action for any statement made or act done in the course of their duties. <ul style="list-style-type: none"> ○ For example, a defamation suit cannot be filed for a statement made in the House. • This immunity extends to certain non-members as well, such as the Attorney General for India or a Minister who may not be a member but speaks in the House. • In cases where a Member oversteps or exceeds the contours of admissible free speech, the Speaker or the House itself will deal with it, as opposed to the court. • The speech of MPs is subject to the discipline of the Rules of Parliament, "good sense" of its Members, and the control of proceedings by the Speaker. • These checks ensure that MPs cannot use "defamatory or indecent or undignified or unparliamentary words" inside the House.
<p>Doctrine of necessity</p>	<p>Context: Recently, the Competition Commission of India (CCI) Invoked the "doctrine of necessity" to clear six deals involving mergers & acquisitions (M&A) and investment proposals.</p> <p>About Doctrine of necessity:</p> <ul style="list-style-type: none"> • It allows the legal authorities to carry out certain activities which are not permitted in the normal course. • This term is used to describe a principle of constitutional law, where in an emergency or an exigent circumstance, a state may legally act which in other circumstances is deemed to be illegal. • The term was first used in 1954 in a controversial judgment in Pakistan. • The Doctrine of Necessity was changed to the Doctrine of Absolute Necessity in the case of "Election Commission of India v. Dr. Subramaniam Swamy" • Outcome: This doctrine shall be used only in case of absolute necessity.

	<ul style="list-style-type: none"> • It acts as a defense against violating the law making the decision valid and not biased. • Doctrine of necessity acts as an exception to 'Nemo judex in causa sua', where an authority is disqualified on the grounds of a biased decision.
Joint Parliamentary Committee	<p>Context: The Opposition joined hands to demand a probe either by a Joint Parliamentary Committee (JPC), headed by the Supreme Court or monitored by the Chief Justice of India, into the allegations of fraud and stock manipulation against the Adani Group.</p> <p>About Joint Parliamentary Committee:</p> <ul style="list-style-type: none"> • A Joint Parliamentary Committee (JPC) is set up by the Parliament for a special purpose, like for the detailed scrutiny of a subject or Bill. • It has members from both the Houses and from both the ruling parties and the opposition. • Members of the JPC are decided by the Parliament. • There is no fixed number of members in the committee. • It is dissolved after its term ends or its task has been completed. • The recommendations made by the committee are in recommendatory in nature not binding on the government. <p>Powers of the committee:</p> <ul style="list-style-type: none"> • A JPC can obtain evidence of experts, public bodies, associations, individuals or interested parties suo motu or on requests made by them. • If a witness fails to appear before a JPC in response to summons, his conduct constitutes a contempt of the House. • Ministers are not generally called by the committees to give evidence. <ul style="list-style-type: none"> ◦ However, with the permission of the Speaker, the JPC can seek information on certain points from ministers and call the ministers. • The JPC can take oral and written evidence or call for documents in connection with a matter under its consideration. <p>The Joint Parliamentary Committees are formed till date include the following cases:</p> <ul style="list-style-type: none"> • Bofors scandal (1987) • Harshad Mehta Stock market scam (1992) • Ketan Parekh share market scam (2001) • Soft drink pesticide issue (2003) • 2G spectrum case (2011) • VVIP Chopper scam (2013) • Land Acquisition (2015) • NRC (2016) • Personal Data Protection Bill (2019)
No bar on contesting two seats in one poll	<p>In News: The Supreme Court has refused to set aside a provision in the election law that allows candidates to contest polls from two constituencies simultaneously.</p> <p>Why: SC feels that it is a policy matter and an issue concerning political democracy. Hence, it is for the Parliament to take a call.</p>

	<p>Background: The petition filed by advocate Ashwini Upadhyay, represented by senior advocate Gopal Sankaranarayanan, had sought the court to declare Section 33(7) of the Representation of People Act invalid and ultra vires.</p> <ul style="list-style-type: none"> • Like one-person-one-vote, one-candidate-one-constituency is the dictum of democracy. • Section 33(7) of the Act allows a person to contest a general election or a group of by-elections or biennial elections from two constituencies. • But the court chose to leave the issue to the wisdom of the Parliament.
Legal Aid Defense Counsel System (LADCS)	<p>Context: Recently the Chief Justice of Telangana High Court said that newly introduced system of Legal Aid Defense Counsel System (LADCS) should help under-trial prisoners belong to marginalised and weaker sections of the society.</p> <p>About the Legal Aid Defence Counsel System:</p> <ul style="list-style-type: none"> • It will provide free legal assistance to the accused in custody and the defendants in criminal cases in line with the public defence system. • It would come to the rescue of the needy, for and distressed persons in the State. • A team of select lawyers will fight cases for the defendants for free, on the lines of the office of public prosecutors. • The LADCS lawyers will receive monthly salary and would not handle other cases. • The legal aid is being offered at pre-arrest, remand, trial and appellate stages in criminal matters to the accused or convicts coming under section 12 of the Legal Services Act-1987. <p>About National Legal Services Authority:</p> <ul style="list-style-type: none"> • Constituted under the Legal Services Authorities Act, 1987. • While the Chief Justice of India is the Patron-in-Chief, the second senior most judge of the Supreme Court of India is the executive chairperson of the Authority. • In every State, State Legal Services Authority has been constituted to give effect to the policies and directions of the NALSA and to give free legal services to the people and conduct Lok Adalats in the State. • The State Legal Services Authority is headed by Hon'ble the Chief Justice of the respective High Court. <p>Constitutional Provisions:</p> <ul style="list-style-type: none"> • Article 39A of the Constitution of India provides that State shall secure that the operation of the legal system promotes justice on a basis of equal opportunity, and shall in particular, provide free legal aid, by suitable legislation or schemes or in any other way, to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disability. • Articles 14 and 22(1) also make it obligatory for the State to ensure equality before law and a legal system which promotes justice on a basis of equal opportunity to all. <p>Objectives of Legal Services Authorities:</p>

	<ul style="list-style-type: none"> • Provide free legal aid and advice. • Spread legal awareness. • Organize Lok Adalats. • Promote settlements of disputes through Alternative Dispute Resolution (ADR) Mechanisms. Various kinds of ADR mechanisms are Arbitration, Conciliation, Judicial settlement including settlement through Lok Adalat, or Mediation. • Provide compensation to victims of crime.
Allocation of Election Symbols by Election Commission of India (ECI)	<p>Context: ECI has recognised Eknath Shinde group as official “Shiv Sena”, allowing them to use the official “Bow & Arrow” symbol and “Shiv Sena” name.</p> <p>Sadiq Ali case</p> <ul style="list-style-type: none"> • The ECI has applied the tests mentioned in the 1971 Supreme Court judgment in Sadiq Ali v. Election Commission of India. • In the Sadiq Ali case, it was held that in matters of disputes among groups of a political party, the test of majority support among the members of the ‘organizational and legislature wings’ of the party was the critical test to decide the dispute. • It includes the Test of aims and objects of the Party Constitution, Test of Party Constitution and Test of Majority. <p>The 1968 Order</p> <ul style="list-style-type: none"> • On the question of a split in a political party outside the legislature, Para 15 of the Symbols Order, 1968, states that the decision of the Commission shall be binding on all such rival sections or groups. • This applies to disputes in recognised national and state parties (like the Shiv Sena). • For splits in registered but unrecognized parties, the ECI usually advises the warring factions to resolve their differences internally or to approach the court. • The first case to be decided under the 1968 Order was the first split in the Indian National Congress in 1969. <p>Election Symbols:</p> <ul style="list-style-type: none"> • Political parties are allotted the symbols by the Election Commission of India under the Election Symbols (Reservation & Allotment) Order, 1968. • A reserved symbol is one that is allocated to a registered political party while a free symbol is available to be allocated to non-recognized parties and independent candidates. • Paragraph 4 of the order deals with the allotment of symbols. • Paragraph 5 classifies the symbol into reserved and free symbols. • Paragraph 8 of the Election Symbols Order deals with the choice and allotment of symbols to candidates of national and state parties. <p>Registration of Political Parties:</p> <ul style="list-style-type: none"> • According to the Election Commission, any party seeking registration has to apply to the Commission within a period of 30 days following the date of its formation as per guidelines prescribed by the Commission

	<ul style="list-style-type: none"> • It is in exercise of the powers conferred by Article 324 of the Constitution of India and Section 29A of the Representation of the People Act, 1951. • The registration of all political parties is governed by the provisions of Section 29A of the Representation of the People Act, 1951.
International Mother Language Day	<p>Context: The world celebrates International Mother Language Day on February 21, 2023.</p> <p>About International Mother Language Day:</p> <ul style="list-style-type: none"> • The United Nations Educational, Scientific and Cultural Organization (UNESCO) celebrates 21st February as International Mother Language Day. • It is celebrated to promote mother tongue-based multilingual education. • The theme of the 2023 International Mother Language Day, is “Multilingual education – a necessity to transform education”. • It was Bangladesh’s initiative to introduce the idea of International Mother Language Day to UNESCO. • The United Nations agency initiated the International Decade of Indigenous Languages (2022-2032) . <p>About Languages in India:</p> <ul style="list-style-type: none"> • Indian Languages are classified into several groups, including the Indo-Aryan group, the Dravidian group, the Sino-Tibetan group, Austric, and others. • Article 343 (1) of the Indian Constitution mentions that “the official language of the Union shall be Hindi in Devanagari script.” • Part XVII of the Indian constitution deals with the official languages of India from Article 342 to 351. • There are 22 languages listed under the 8th Schedule of the Indian Constitution namely Assamese, Bengali, Bodo, Dogri, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Odia, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Santhali, and Maithili.



ECONOMY



Consumer price index – Industrial workers

In News: The All-India CPI-IW for December, 2022 decreased by 0.2 points and stood at 132.3 (one thirty two point three) points. On 1-month percentage change, it decreased by 0.15 per cent with respect to previous month compared to decrease of 0.24 per cent recorded between corresponding months a year ago.

CPI-IW

- The **Labour Bureau**, an attached office of the Ministry of Labour & Employment, has been compiling Consumer Price Index for Industrial Workers **every month** on the basis of **retail prices** collected from 317 markets spread over 88 industrially important centres in the country.
- The index is compiled for **88 centres** and All-India and is released on the last working day of succeeding month.
- Base year – **2016**
- The maximum downward pressure in current index came from Food & Beverages group contributing 0.52 percentage points to the total change.
- Year-on-year inflation for the month stood at 5.50 per cent compared to 5.41 per cent for the previous month and 5.56 per cent during the corresponding month a year before.
- Similarly, Food inflation stood at 4.10 per cent against 4.30 per cent of the previous month and 5.93 per cent during the corresponding month a year ago.

Follow on Public Offering

Context: Adani Enterprises recently said it has decided not to go ahead with its ₹20,000-crore follow-on public offer (FPO) and will return the proceeds to investors.

About Follow on Public Offering:

- FPO is a follow up to the initial public offering.
- It is also known as a **follow-on public offer** which is the issuance of shares after the company has been listed on the stock exchange.
 - In other words, an **FPO is an additional issuance of shares** while an IPO is simply the first issuance.
- Companies usually announce **FPOs to raise equity or reduce debt.**

Types Of FPO

- **Diluted FPO:**
 - There is dilution in the **ownership of existing shareholders.**
 - Here, the company decides to issue **new shares to the public which increases the total number of shares outstanding.**
 - When there is an increase in the number of shares, **the ownership percentage of existing shares decreases** since newly issued shares will also represent a certain proportion of ownership in the company.
- **Non-Diluted FPO:**

	<ul style="list-style-type: none"> ○ There is no dilution in ownership of existing shareholders because no new shares are issued. ○ The shares which are offered to the public are shares that are held by non-public shareholders. ○ Usually, these shareholders are Promoters, Directors of the company, or Pre-IPO investors.
<p>Reverse-flipping</p>	<p>Context: Economic Survey 2022-23 has suggested measures like simplifying ESOP taxation, and easier corporate laws like in the US and Singapore to accelerate reverse-flipping among startups, namely moving domicile back to India.</p> <p>About Flipping and Reverse-flipping:</p> <ul style="list-style-type: none"> • Flipping is the process of transferring entire ownership of an Indian company to an overseas entity. <ul style="list-style-type: none"> ○ It is generally accompanied by a transfer of all intellectual property and data owned by an Indian company. • Reverse Flipping is the process of shifting the domicile of those companies back to India who flipped earlier. <ul style="list-style-type: none"> ○ Companies reverse flip because of easy access to capital from private equity and venture capital, changes in rules regarding round-tripping, and the growing maturity of India’s capital market. <p>Reasons for Flipping:</p> <ul style="list-style-type: none"> • Flipping happens at the early stage of the startups, driven by commercial, taxation and personal preferences of founders and investors. <ul style="list-style-type: none"> ○ Some companies decide to ‘flip’ because the major market of their product is offshore. ○ Sometimes, investor preferences like access to incubators drive the companies to ‘flip’ as they insist on a particular domicile. • For easy access to capital from private equity and venture capital, changes in rules regarding round-tripping, and the growing maturity of India’s capital market.
<p>Angel Tax</p>	<p>Context: Recently, the Finance Bill, 2023, has proposed to amend Section 56(2) VII B of the Income Tax Act, related to Angel tax.</p> <p>About Angel Tax:</p> <ul style="list-style-type: none"> • A term used to refer to the income tax payable on the capital raised by unlisted companies. • It is levied on the capital raised via the issue of shares from an Indian investor. • This tax predominantly affects start-ups and the angel investments they attract. • It derives its genesis from section 56(2) (viib) of the Income Tax Act, 1961. <p>Section 56(2) (viib) in the IT act:</p> <ul style="list-style-type: none"> • Introduced by the finance act, 2012 • It taxes any investment, received by any unlisted Indian company, valued above the fair market value by treating it as income. • The investment in excess of fair value is characterized as ‘Income from other sources.

- If the fair market value of a start-up share is Rs 50 apiece, and in a subsequent funding round they offer it to an investor for Rs 60, then the **difference of Rs 10 would be taxed as income.**

Proposed changes

- **For Angel Tax exemptions:**
 - The government has exempted investments made by the domestic investors in companies approved by an **inter-ministerial panel from Angel Tax.**
- **Criteria for exemption:**
 - The **paid-up capital and share premium** of the **startup should not exceed Rs. 10 crores after issuing shares.**
 - The startup should procure the **fair market value certified by a merchant banker.**
 - The investor should have a **minimum net worth of Rs. 2 crores** and the average income in the last **3 financial years should not be less than Rs. 50 lakhs.**
- **For foreign Investors:**
 - New changes include foreign investors, meaning that **when a start-up raises funding from a foreign investor**, that too will now be counted as income and be taxable.
 - Foreign investors are a key source of funding for the start-ups and have **played a big role in increasing the valuation.**

InfoCrop

Context: Scientists at the Indian Agricultural Research Institute (IARI) has forecasted the impact of the hot weather on crop yield in Punjab and Haryana where InfoCrop is one such forecast tool.

About InfoCrop:

- It is India's **only dynamic crop simulation model.**
- It is developed and released by **IARI in 2015.**
- It aims to study the long-term impact of climate change and crop management practices on yield.
- It is a **process based dynamic (real time)** simulation model to **calculate the growth of yield of 11 crops.**
- **11 crops:** paddy, wheat, maize, sorghum, pearl millet, pigeon pea, chickpea, soybean, groundnut, potato and cotton.
- It also has the life cycle data for almost **all the local varieties of those 11 crops.**
- It provides data on the effects of **weather, soil and crop management (sowing, seed rate, organic matter nitrogen and irrigation) and pests.**
- It provides **daily and summary outputs** on growth and yield parameters, nitrogen uptake and balance, greenhouse gas emissions, soil water.
- It performs better for **tropical regions.**
- In 2004, InfoCrop version 1 was launched whereas version 2.1 was launched in 2015.

	<p>Other forecasting models:</p> <ul style="list-style-type: none"> • The Mahalanobis National Crop Forecast Centre provides pre-harvest forecasts for eight major crops at the national, state and district levels. • It works under the Union Ministry of Agriculture and Farmers Welfare. <p>Other key facts:</p> <ul style="list-style-type: none"> • Currently, India does not have a system to forecast crop loss due to heatwaves or other extreme weather conditions.
<p>India Municipal Bond Index</p>	<p>Context: India’s first-ever municipal bond index has been unveiled by the National Stock Exchange (NSE) recently.</p> <p>About India Municipal Bond Index:</p> <ul style="list-style-type: none"> • It is India’s first municipal bond index. • It was released by NSE Indices Ltd., an arm of the National Stock Exchange at SEBI in Bengaluru. • It will track the performance of all municipal bonds issued by Indian municipal corporations. • It is aimed at tracking the performance of all municipal bonds issued in the country across maturities and investment-grade credit ratings. • The Index comprises 28 municipal bonds from 10 different issuers, all of which were in the AA credit rating category. • In the Union Budget session 2023, the government mentioned that it will be granting incentives to urban civic bodies for the improvement of their finances and creditworthiness. <p>Municipal Bonds:</p> <ul style="list-style-type: none"> • It is a security issued by local governments in India or their associated bodies. • They were first issued in India in 1997. • It is issued to raise money to finance projects such as bridges, schools, hospitals, and the provision of household amenities that aim to achieve socio-economic development. • The Atal Mission for Rejuvenation and Urbanization Transformation (AMRUT) and the Smart Cities Mission are two projects which have been funded by municipal bonds.
<p>Special Rupee Vostro Accounts</p>	<p>Context: Recently, government of India informed that Russian banks have opened Special Rupee Vostro Accounts (SRVA) with partner banks in India.</p> <p>About Special Rupee Vostro Accounts (SRVA):</p> <ul style="list-style-type: none"> • The SRVA is an additional arrangement to the existing system that uses freely convertible currencies. • It works as a complimentary system to facilitate transactions that cannot be executed through the existing banking setup. <p>About Vostro Accounts:</p> <ul style="list-style-type: none"> • A Vostro account is an account that domestic banks hold for foreign banks in the former’s domestic currency. • In this, a foreign bank acts as an agent providing financial services on behalf of a domestic bank.

- It enables domestic banks to **provide international banking services** to their clients who have global banking needs.
- Domestic banks use Vostro accounts to **facilitate transfers, conduct business transactions, accept deposits, and gather documents on behalf of the foreign bank.**

Significance:

- The system could reduce the “**net demand for foreign exchange**, the U.S. dollar in particular, for the settlement of trade flows”
- It will reduce the **dependence on foreign currencies.**
- It can make the country **less vulnerable to external shocks.**
- **Ensure timely payments.**
- This helps domestic banks to **gain wider access to foreign financial markets** and serve international clients without having to be physically present abroad.
- Vostro accounts are **not restricted to banks**, they can be used by other entities such as insurance companies and business entities to keep funds with another entity.
- When Vostro accounts are used by corresponding banks, the domestic bank can execute transfers, deposits, and withdrawals on behalf of the corresponding bank.

Eligibility criteria of banks:

- Banks from partner countries are required to approach an authorised domestic dealer bank for opening the SRVA.
- The domestic bank would then seek approval from the apex banking regulator providing details of the arrangement.
- Domestic banks should ensure that the correspondent bank is not from a country mentioned in the updated **Financial Action Task Force (FATF) Public Statement on High Risk & Non-Co-operative jurisdictions.**
- Authorised banks can **open multiple SRV accounts** for different banks from the same country.
- Balances in the account can be repatriated in freely convertible currency and/or currency of the beneficiary partner country depending on the underlying transaction, that is, for which the account was credited.

There are 3 types of accounts : Vostro, Nostro and Loro Accounts



- **Vostro accounts** -are maintained in the domestic currency.
- **Nostro accounts**- are maintained in foreign currency.
- **A Loro account** -is a current account that is maintained by one domestic bank for another domestic bank in the form of a third-party account, unlike nostro and vostro which is bilateral correspondence.

	<p>The Foreign Exchange Management Act, 1999 (FEMA):</p> <ul style="list-style-type: none"> • It is a civil law dealing with foreign exchange market in India. • Under it the Central Government can regulate the flow of payments to and from a person situated outside the country. • Financial transactions concerning foreign securities or exchange cannot be carried out without the approval of FEMA. • The Act empowers RBI to place restrictions on transactions from capital Account even if it is carried out via an authorized individual.
<p>Investor Education and Protection Fund Authority (IEPFA)</p>	<p>Context: The IEPFA is seeking applications from young students and scholars for its short-term internship programme which began recently.</p> <p>About IEPFA:</p> <ul style="list-style-type: none"> • IEPF is a statutory body under the Ministry of Corporate Affairs, established under the Companies Act 2013. • It administers the Investor Education and Protection Fund. • IEPF Authority has undertaken a proactive approach to achieve its mandate of promoting investor education, awareness and protection. • Its objective is to promote Investor Education, Awareness, and Protection. • The Amounts credited to IEPF are maintained under the Consolidated Fund of India (Article 266 of the Constitution). <p>Composition:</p> <ul style="list-style-type: none"> • Secretary Ministry of Corporate Affairs is the Chairperson of the Authority. • The Joint Secretary Ministry of Corporate Affairs is the Chief Executive Officer of the Authority. • The Authority is entrusted with the responsibility of administration of the Investor Education Protection Fund (IEPF), make refunds of shares, unclaimed dividends, matured deposits/debentures etc. to investors and to promote awareness among investors. • The Authority has taken a 360 degree approach to sensitize stakeholders to include household investors, housewives, professionals, etc. across the country in rural and urban areas through direct investor awareness programmes, media campaign and engaging with other stakeholders with the common goal. • In the urban and semi-urban areas the Authority organizes investor awareness programmes in association with the Institute of chartered Accountants of India, Institute of Cost Accountants of India and Institute of Company Secretaries of India. • In the rural areas the programmes are organised in collaboration with CSC e-governance Services Private Limited through the Common Service Centre (CSC's) located in villages. • Multilingual Information, Education and Communication booklets and films have been developed for creating awareness. • A Joint Awareness campaign has been launched in association with Reserve Bank of India, Securities and Exchange Board of India & Department of Consumer Affairs.

The IEPF is to be utilized for :

- The refund of unclaimed dividends , matured deposits, debentures , application money due for refund and interest thereon.
- Promotion of investor’s education, awareness and protection.
- Distribution of any disgorged amount among eligible and identifiable applicants for shares or debentures , shareholders, debenture-holders or depositors who have suffered loss due to wrong actions by any one person , in accordance with the ordered made by the court which had ordered disgorgement.

Payment Aggregators

Context: The payments arm of big technology companies Amazon and Google have been given in-principle approval by the RBI to operate as online payment aggregators.

About Payment Aggregators:

- A payment aggregator or merchant aggregator is a **third-party service provider** that allows merchants to accept payment from customers by integrating it into their websites or apps.
- A payment aggregator bridges the **gap between merchants and acquirers**.
- A merchant need **not have a merchant account** directly with the bank.
- At its core, payment aggregators bear the heavy load of integration with various payment providers to provide an all-inclusive solution for payment acceptance.

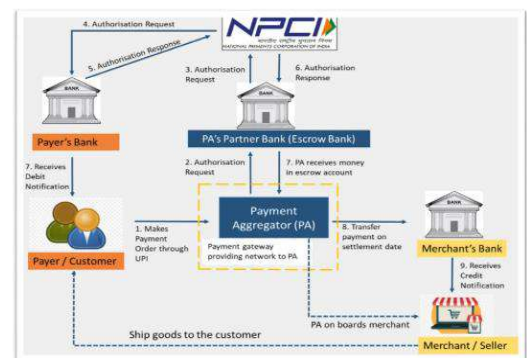


Fig 1: End to end non-bank payment aggregator transactional flow
The laser dotted lines in the fig, do not form part of payment system, but forms an important part of legal basis in merchant on-boarding process and shipment of goods to the customers in a FA business model.
Source: Author

Types of payment aggregators in India

- **Third-party payment aggregators:**
 - Third-party PAs offer innovative **payment solutions to businesses**.
 - Their user-friendly features include a **comprehensive dashboard, easy merchant onboarding, and quick customer support**.
- **Bank payment aggregators:**
 - They **lack many of the popular payment** options along with detailed reporting features.
 - Bank payment aggregators are **not suitable for small businesses** and startups because of the high cost and difficult to integrate.

Additional surveillance mechanism (ASM)

In News: The **National Stock Exchange (NSE)** placed Adani Enterprises, Adani Ports, and Ambuja Cements under the **additional surveillance mechanism (ASM)** in the wake of accusations of **stock manipulation and fraud** levelled against the group by New York-based short seller Hindenburg Research.

Additional surveillance mechanism (ASM):

- The ASM was introduced in **2018** with the intention to **protect investors from market volatility** and unusual changes in share price.

- It is placed on securities with surveillance concerns based on **objective parameters viz. Price / Volume variation, Volatility etc.** in addition to other surveillance measures.
- The shortlisting of securities for placing in ASM is based on **criteria** that are **jointly decided** by the Securities and Exchange Board of India (**SEBI**) and **exchanges**, covering the parameters of “high low variation, client concentration, PE, close to close price variation, market capitalisation, volume variation, delivery percentage, and number of unique PANs”.
- An ASM shortlisting **signals to investors** that the stocks have seen **unusual activity**.
- The shortlisting of securities under ASM is **purely on account of market surveillance** and it should **not be construed as an adverse action** against the concerned company / entity.

National Stock Exchange (NSE)

- NSE was incorporated in **1992**.
- It was recognised as a stock exchange by **SEBI** in **1993** and commenced operations in 1994
- NSE was the **first exchange in India to implement electronic or screen-based trading**
- NSE is counted as one of the world’s largest exchanges and a catalyst for driving India’s economic growth.
- The products on the Exchange are organized into **3 asset classes** for trading: Capital market for the listing and trading of equities, fixed income securities and the derivatives market.

One District One Product(ODOP)

About: One District One Product Scheme is an initiative that is seen as a transformational step forward towards realizing the true potential of a district, fuel economic growth, and generate employment and rural entrepreneurship, taking us to the goal of AtmaNirbhar Bharat.

- This scheme is basically a Japanese business development concept, which gained prominence in 1979.
- It is aimed at promoting a competitive and staple product from a specific area to push sales and improve the standard of living of the local population.
- Over time, it has been replicated in other Asian countries as well.
- In India, **Uttar Pradesh government** was the **first state of India** to launch the concept of One District One Product in **2018**.

GIS One District One Product (ODOP) Digital Map of India:

- By The Ministry of Food Processing
- The digital ODOP map provides detailed information about ODOP products to all states and facilitates the stakeholders.
- The digital map also has indicators for tribal, SC, ST, and aspirational districts.
- It will enable stakeholders to make concerted efforts for its value chain development.

Shipping Industry in India

Context: Recently, Union Minister for Ports, Shipping and Waterways stressed upon reducing pollution intensity and evolve strategies to introduce renewable energy and green hydrogen in the shipping sector.

About Shipping Industry in India :

- According to the Ministry of Shipping, around **95% of India's trading by volume** and **70% by value** is done through maritime transport.
- India has **12 major and 205 notified minor and intermediate ports**.
- **Mumbai Port is India's largest port by size.**
- **Tamil Nadu has the highest number of major ports in India.**
- Krishnapatnam Port, is the **deepest** port in India .
- India is the sixteenth-largest maritime country in the world with a coastline of **about 7,517 kms.**



- The Indian Government plays an important role in supporting the ports sector.
- It has allowed **Foreign Direct Investment (FDI) of up to 100% under the automatic route** for port and harbour construction and maintenance project
- India's merchandise exports in FY22 were at US\$ 417.8 billion, **up 40% from the previous year.**

- Indian ports received cumulative FDI inflow worth US\$ 1.63 billion between April 2000-June 2021.

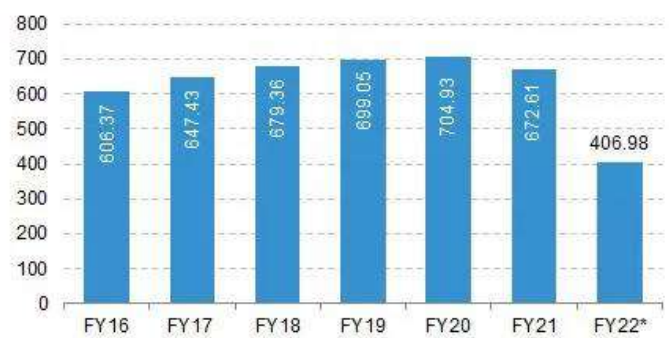
- **Jawaharlal Nehru Port Trust (JNPT) Special Economic Zone (SEZ)** became the first of its kind operational port-based multi-product SEZ in India.

- APSEZ (Adani Ports and Special Economic Zone) plans to become the world's largest private port company by 2030 and carbon neutral by 2025.

- **India was ranked 44th in the Logistics Performance Index**, a measure through which the World Bank ranks countries based on their **logistics performance.**

- Logistics Performance Index (LPI) :
 - It is released by **World Bank**
 - India ranked **44th** on the LPI in 2018

Cargo traffic at major ports FY22 (million tonnes)



The Financial Action Task Force (FATF)

Context: The FATF suspended Russia's membership over the Ukraine war recently.

About The Financial Action Task Force (FATF):

- The FATF was established in **1989** and is based in **Paris**.
- It is the **global money laundering and terrorist financing watchdog**.
- The inter-governmental body sets **international standards** that aim to prevent these illegal activities and the harm they cause to society.
- Members: **39**
- **India is one of the members**.
- The FATF President is a senior official appointed by the FATF Plenary from among its members.
- The terms of the FATF Presidency- two-years
- Current President: **Mr. T.Raja Kumar (Singapore)**
- The **FATF Plenary is the decision-making body of the FATF and** meets three times per year.

FATF has two lists:



- Grey List: Countries that are considered safe havens for supporting terror funding and money laundering are put on this list.
- This inclusion serves as a warning to the country that it may enter the blacklist.
- Black List: Countries known as Non-Cooperative Countries or Territories (NCCTs) are put on the blacklist.
- These countries support terror funding and money laundering activities.



INTERNATIONAL RELATIONS



<p>Paris Club</p>	<p>In News: The Paris Club, an informal group of creditor nations, will provide financial assurances to the International Monetary Fund on Sri Lanka’s debt.</p> <p>The Paris Club</p> <ul style="list-style-type: none"> • It is a group of mostly western creditor countries that grew from a 1956 meeting in which Argentina agreed to meet its public creditors in Paris. • Objective is to find sustainable debt-relief solutions for countries that are unable to repay their bilateral loans. • It describes itself as a forum where official creditors meet to solve payment difficulties faced by debtor countries. All 22 are members of the group called Organisation for Economic Co-operation and Development (OECD). • The members are: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Japan, Netherlands, Norway, Russia, South Korea, Spain, Sweden, Switzerland, the United Kingdom and the United States.
<p>Green Deal Industrial Plan</p>	<p>Context: Recently , the European Union revealed the “Green Deal Industrial Plan” that aims to cut red tape and provide massive subsidies in a bid to support and expand its green industry.</p> <p>Regulatory Framework:</p> <ul style="list-style-type: none"> • By regulatory framework, the Green Deal Industrial Plan seeks to formulate a strategy for the “Net-Zero Industry Act.” • This will not only simplify rules for traders to trade and operate freely but will expedite the process of trade permits and insurance for green projects, such as renewable energy generation arrays, carbon capture and renewable hydrogen production facilities. <p>Faster funds arrangement:</p> <ul style="list-style-type: none"> • The rules will be relaxed to facilitate easier investment and raising of funds for the EU’s 27 governments to operate and work on clean energy projects. • The proposal has been formulated to help European (Non-rich) by offering subsidies and allowing the usage of existing EU funds. <p>Enhancement of skills:</p> <ul style="list-style-type: none"> • The ‘Green Deal Industrial Plan’ aims to create a “Net-Zero Industry Academies” that will provide up-skilling and re-skilling programmes in strategic industries. <p>Trade improvement:</p> <ul style="list-style-type: none"> • The deal plan also emphasizes on the significance of free and open trade and aims to further ‘develop EU’s network of Free Trade Agreements and other forms of cooperation with partners to support the green transition.’ <p>USA’s Inflation Reduction Act (IRA):</p>

	<ul style="list-style-type: none"> It is a landmark United States federal law which aims to curb inflation by reducing the deficit, lowering prescription drug prices, and investing into domestic energy production while promoting clean energy.
<p>Northern Ireland Protocol</p>	<p>Context: The United Kingdom Supreme Court recently ruled that the Northern Ireland Protocol, which is a post-Brexit agreement that created a trade border between Northern Ireland and the rest of the UK, is lawful.</p> <p>About the Protocol:</p> <ul style="list-style-type: none"> Northern Ireland (part of the UK) shared a land border with the Republic of Ireland (an EU member). EU and UK have different product standards, checks are necessary for goods to move from Northern Ireland to Ireland. The Northern Ireland Protocol is a post-BREXIT agreement that created a trade border between Northern Ireland and the rest of the UK. The protocol was an integral part of the 2019 BREXIT agreement signed between the UK and the EU. Under the protocol, Northern Ireland remains in the EU single market, and Trade-and-customs inspections of goods coming from Great Britain take place at Northern Ireland ports along the Irish Sea.  <p>Plan of UK:</p> <ul style="list-style-type: none"> The UK government has proposed the creation of a 'green lane' and a 'red lane' for checking. The 'green lane' would have fewer checks and customs controls only for goods going to Northern Ireland. The 'red lane' would have a more stringent checks and for goods going on to the Republic of Ireland and the rest of the EU. In January 2023, both EU and UK signing a deal on sharing data regarding trade between them. The Good Friday Agreement, also known as the Belfast Agreement, was a political deal designed to bring an end to the 30 years 'Troubles' in the Northern Ireland. 
<p>Exercise Dharma Guardian</p>	<p>Context: The joint military exercise, "EX DHARMA GUARDIAN", between India and Japan recently held in Japan.</p> <p>About Exercise Dharma Guardian:</p> <ul style="list-style-type: none"> It is an annual training event which is being conducted in India since 2018.

- The exercise covers platoon level **joint training on operations in jungle and semi urban/urban terrain.**
- The joint exercise schedule includes house **interventions drills, raid on terrorist hideouts in semi urban terrain, combat first aid, unarmed combat & close quarter combat firing** where both sides will jointly train, plan and execute a series of well-developed tactical drills for neutralisation of likely threats.
- Special emphasis is being laid on enhancing tactical skills **to fight global terrorism and on enhancing inter-operability between the forces** and to promote Army to Army relations.
- Troops of the **Garhwal Rifles Regiment of the Indian Army and an Infantry Regiment from the Middle Army of the Japan Ground Self Defence Force** are participating in the exercise this year to share experiences gained during various operations in order to enhance inter-operability in planning and execution.

Other Military Exercises between India and Japan:

- **Malabar:** India and Japan with the United States and Australia participate in the naval wargaming exercise named Malabar.
- **JIMEX (naval)**
- **SHINYUU Maitri (Air Force)**

BBNJ Treaty

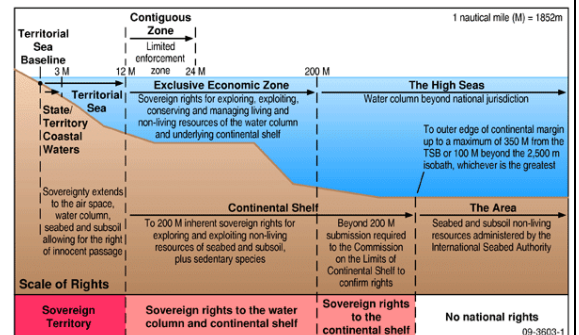
Context: A new round of negotiations on the much-awaited United Nations High Seas Treaty for conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ) began in New York recently.

About BBNJ Treaty :

- The “**BBNJ Treaty**”, also known as the “**Treaty of the High Seas**”.
- It is an international agreement on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction.
- It encompasses the high seas, **beyond** the exclusive economic zones or national waters of countries.
- This new instrument is being developed within the framework of the **UNCLOS**.

About UNCLOS(United Nations Convention for the Law of the Sea):

- UNCLOS is an international agreement that establishes the legal framework **for marine and maritime activities.**
- The Convention which concluded in the year 1982 replaced the quad-treaty of 1958.
- **It came into effect in the year 1994.**
- It divides marine areas into **5 zones :**
 - Internal-waters
 - Territorial seas
 - Contiguous Zone
 - Exclusive Economic Zone (EEZ)
 - Continental shelf or High seas
- **India has been a party to the convention since 1995.**



**Millet
International
Initiative for
Research and
Awareness
(MIIRA)**

Context: On the sidelines of G20 presidency, India is planning to propose the launch of a global initiative to encourage the consumption and production of millets.

About Millet International Initiative for Research and Awareness (MIIRA):

- It aims to connect the millet research organisations across the world while also supporting research on millet crops.
- Secretariat: **Delhi, India**
- It is in line with the [UN declaring 2023 as the International Year of Millets](#) and the Centre's plan to make India a global hub for millets.
- **5 G20 meetings on agriculture:**
 - 3 of Agriculture Deputies,
 - 1 of chief scientists, and
 - 1 where the Agriculture Ministers of all G-20 countries will gather.
- It will be launched keeping in mind the **nutritional value and the climate resilient nature of millets.**
- It will set up a web platform to connect researchers and holding international research conferences.
- India will contribute the **"seed money"** while each G20 member will later have to contribute to its **budget in the form of a membership fee.**



HISTORY AND ART & CULTURE



Sacred Shaligram Stones

Context: Two sacred Shaligram stones, weighing 31 tonnes and 15 tonnes, arrived in Ayodhya in Uttar Pradesh. The stones are expected to be used for constructing the idols of Lord Ram and Janaki at the Ram Temple.

About Shaligram Stones:

- Shaligram stones are fossils of ammonite, which is a type of mollusc that lived between **400 million and 65 million years ago**.



- Shaligram stones date specifically from the **Early Oxfordian to the Late Tithonian Age** near the end of the **Jurassic Period** some **165-140 million years ago**.

- It is mostly found in riverbeds or banks of the **Kali Gandaki, a tributary of the Gandaki River in Nepal**.

- This stone is revered by Hindus who believe it to be a representation of Lord Vishnu.
- The stone is considered to have **divine powers and is seen as a symbol of good luck and prosperity**.
- **Significance:**
 - **Lord Ram** is believed to be the **reincarnation of Lord Vishnu**, and the use of the Shaligram stone symbolises the connection between the two gods.

Stone Age Paintings in Gurugram


Context: Stone carvings that archaeologists say date back to the Palaeolithic period or the Stone Age. have been discovered in Gurugram.

About Rakhigarhi and discoveries:

- The discovery of stone carvings has been made in the Badshahpur area of Tethar village of Sohna.
- The petroglyphs discovered in the area include hand and footprints of animals and humans engraved on quartzite rocks and graffiti.
- Most of the carvings are of animal paws and human footprints, while some are just basic symbols, which had presumably been kept for some special purpose.

Rakhigarhi:

- **Rakhigarhi in Haryana** is the largest Harappan site in the Indian subcontinent.

	<ul style="list-style-type: none"> • At Rakhigarhi, the excavations are being done to trace its beginnings and to study its gradual evolution from 6000 BCE (Pre-Harappan phase) to 2500 BCE. • Rakhigarhi is an ideal candidate to believe that the beginning of the Harappan civilization took place in the Ghaggar basin in Haryana and it gradually grew from here.
<p>Kingdom of Vijayanagara</p>	<p>Context: Salman Rushdie’s latest work, “Victory City” is a fictionalized telling of the story of Vijayanagara, one of the richest and most powerful kingdoms in medieval India.</p> <p>About Vijayanagara Empire:</p> <ul style="list-style-type: none"> • The Vijayanagara Empire, also called Karnata Kingdom, was based in the Deccan Plateau region in South India. • It was established in 1336 by the brothers Harihara I and Bukka Raya I of the Sangama dynasty, members of a pastoralist cowherd community that claimed Yadava lineage. • At its peak, it subjugated almost all of South India’s ruling families and pushed the sultans of the Deccan beyond the Tungabhadra-Krishna River doab region, in addition to annexing modern day Odisha (ancient Kalinga) from the Gajapati Kingdom thus becoming a notable power. • It lasted until 1646, although its power declined after a major military defeat in the Battle of Talikota in 1565 by the combined armies of the Deccan sultanates. • The empire is named after its capital city of Vijayanagara, whose ruins surround present day Hampi, now a World Heritage Site in Karnataka, India.  <p style="text-align: right;">India 1400 AD Map not to scale</p>
<p>Treaty of Alinagar</p>	<p>Context: The Treaty of Alinagar, signed in 1757, was a reluctant agreement signed by Bengal’s Nawab Siraj ud Daula with the English East India Company.</p> <p>About Treaty of Alinagar: The treaty of Alinagar (changed name of Calcutta) was signed between Robert Clive of the British East India Company and the Nawab of Bengal, Mirza Muhammad Siraj Ud Daula.</p> <p>Terms of the treaty:</p> <ul style="list-style-type: none"> • The Nawab would recognize all the provisions of Mughal Emperor Farrukhsiyar’s farman of 1717. • All British goods that passed through Bengal would be exempt from duties. • The British would not be hindered from fortifying Calcutta, as well as mint coins in Calcutta.

- The signing of the treaty was one of the events leading up to the **famous Battle of Plassey**.
- The Nawab was **defeated and killed by Clive and his allies**.

Significance of the treaty:

- The Treaty strengthened the **position of the British in Bengal**.
- It laid **foundations for the Battle of Plassey**.
- It set the stage for **British colonial expansion in India**, turning what was an economic enterprise into an imperial one.

Dayanand Saraswati**Context:** The Prime Minister of India inaugurated **200th birth anniversary celebrations of Maharishi Daanand Saraswati**.**About Maharishi Dayanand Saraswati (1824-1883):**

- He was an Indian philosopher, social leader and **founder of the Arya Samaj**, a reform movement of the **Vedic dharma**.
- He was the first to give the **call for Swaraj as "India for Indians" in 1876**, a call later taken up by Lokmanya Tilak.
- Denouncing the **idolatry and ritualistic worship**, he worked towards reviving Vedic ideologies.
- **Teachings and Contributions:**
 - He believed in the **infallible authority of the Vedas** and advocated the **doctrine of Karma and Reincarnation**.
 - Among Dayananda's contributions were his promoting of **equal rights for women, such as the right to education and reading of Indian scriptures**.
 - He translated the Vedas and **wrote three books**
 - **Satyartha Prakash in Hindi,**
 - **Veda Bhasya Bhumika, an introduction to his Vedic commentary, and**
 - **Veda Bhashya, a Vedic commentary in Sanskrit on the Yajurveda and the major part of the Rig-Veda.**
 - He also established **Vedic schools for the education of girls and boys of all castes**.

**Lavani****Context:** The article is based on the controversy surrounding dance form, "**Lavani**", which has come under criticism for being '**vulgar**' and '**obscene**'.**About Lavani:**



- **Maharashtra** folk dance
- The word Lavani comes from '**lavanya**' or **beauty**.
- Traditional folk art form in which women dancers wearing **nine-yard-long sarees** in bright colours, make-up, and **ghunghroos** perform on dholak beats on a stage before a **live audience**.
- Lavani has a history going back several

centuries

- It attained particular popularity in the **Peshwa era in the 18th century**.
- Traditionally, performances were held in front of kings or lords, and for the entertainment of tired soldiers resting during breaks in fighting.
- There are several types of Lavani:
 - Most popular is the **Shringarik (erotic) kind**.

Musical instruments

Context: Recently, Prime Minister spoke of several musical instruments and folk artists in his Mann ki Baat address.

About musical instruments :

Sursingar:

- Sursingar is a **stringed instrument** made of **ivory and wood**.
- This traditional instrument is found in **various parts of North India**.
- The strings of the instrument are usually **four in number** and **made of brass or bronze**, and are plucked with a metal pick.
- The Sursingar (along with the Rudra Veena and the Surbahar) usually accompanies **Dhrupad, the genre of Hindustani vocal music** which has a low, deep, and thoughtful pitch.
- **Noted performers:** Baba Allauddin Khan, Birendra Kishore Roy Choudhury, Shaukat Ali Khan, and Radhika Mohan Maitra.

Karakattam:

- Karakattam is an **ancient folk dance of Tamil Nadu** in which performers in **colourful saris** dance with a **pot (karakam)** on their heads to invoke **Mariamman, the goddess of the rain**.
- This dance is categorized into **two types: Aatta Karakam** symbolizes joy and happiness and is mainly **performed as entertainment**.
- **Sakthi Karakam** is performed **only in temples as a spiritual offering**.
- It involves **three tiers of flower arrangements** of different colours sitting on top of a container filled to the brim with **either water, rice, or soil**.

- Other features: blowing fire, inserting needles into eyes, and keeping balance while holding a bottle parallel to the ground on the performer's back.
- **Noted performers: V Durga Devi of Salem.**

Mandolin:

- It is a **stringed instrument**, usually **with eight strings** that are plucked with a pick.
- It is a **moderately sized instrument**, smaller than the **Veena, Sitar, or guitar**, and was **developed in Europe in the 18th century** as an evolution of the **older Mandora (Mandola)**.
- The instrument's modern form and proportions were strongly influenced by its maker **Pasquale Vinaccia of Naples (1806-82)**.
- The Mandolin has long been part of the Indian film music tradition, having been used by several great composers.
- **Noted Performers:** late **Uppalapu Srinivas**, often known as '**Mandolin**' Srinivas, **Sajjad Hussain, Kishore Desai, Snehashish Mozumder, Pradipto Sengupta, and N S Prasad.**

Mohiniyattam

Context: Noted dancer Kanak Rele, who gave academic status to Mohiniyattam, passed away recently.



About Mohiniyattam:

- It originated in the state of Kerala.
- The dance is performed by women in honor of the **Hindu god Vishnu**.
- **Mohiniyattam** is characterized by **graceful, swaying body movements** with no abrupt jerks or sudden leaps. It belongs to the **Lasya style which is feminine, tender, and graceful**.
- The references to Mohiniyattam can be found in the texts **Vyavaharamala written in 1709 by Mazhamagalam Narayanan Namputiri** and in **Ghoshayatra**, written later by poet Kunjan Nambiar.
- Mohiniyattam is **exclusively danced by women**.

Ustad Bismillah Khan Yuva Puraskar

Context: Recently the Union Minister for Culture, Tourism and DoNER, presented the Ustad Bismillah Khan Yuva Puraskar (UBKYP) 2019, 2020 and 2021 to 102 artists in New Delhi.

- The award is presented by Sangeet Natak Akademi to artists in the field of dance, music, and drama.

- It is presented annually to artists below the age of 40.

About Ustad Bismillah Khan:

- He was a **famous Shehnai musician.**
- He was one of the few musicians in the country to **receive Bharat Ratna.**



- It was Ustad 'Bismillah" Khan who also played at the **first Republic Day celebration in 1950.**
- Bismillah Khan was the first Indian to be invited to perform at the **prestigious Lincoln Centre Hall in the United States of America.**

About Sangeet Natak Akademi:

- Sangeet Natak Akademi is India's national academy of music, dance and drama.
- It was created by a resolution of the **Ministry of Education, with Dr P.V. Rajamannar as its first Chairman.**
- It is an **Autonomous Body of the Ministry of Culture** and is **fully funded by the Government for the implementation of its schemes and programmes.**



GEOGRAPHY



Thalattosuchian

In News: Scientists have uncovered a new thalattosuchian—an ancient “cousin” of modern-day crocodiles—which could be the oldest of its kind ever discovered.

Thalattosuchian

- It is an ancient “cousin” of **modern-day crocodiles**—which could be the oldest of its kind ever discovered.



- The fossils uncovered on the **Jurassic Coast in the United Kingdom** include part of the head, backbone, and limbs of *Turnersuchus hingleyae*.

- Due to their **relatively long, slender snouts**, it is likely that they would have looked similar to the

currently living **gharial** crocodiles.

- Gharial crocodiles are usually found in the major river systems of Northern India.
- Though thalattosuchians’ skulls looked similar to gharial crocodiles, they were constructed differently.
- The region of the **skull** housing jaw muscles was particularly **large** in the species, suggesting that they had enlarged jaw muscles that made **fast bites** possible.
- This would have been useful considering that most of their prey were probably fast-moving fish and cephalopods like squids and octopuses.
- The newly-discovered fossils of *Turnersuchus hingleyae* represent the only complete Thalattosuchian of its age and date back to the early Jurassic, Pliensbachian period, which was about 185 million years ago
- Thalattosuchians and other crocodile-like animals could have originated around 15 million years farther than *Turnersuchus*.
- No expedition has found Thalattosuchians in Triassic rocks yet, which means that there is a ghost lineage. This means there is a group that existed, but they do not yet have fossil evidence.
- Until the discovery of the latest fossil, this ghost lineage extended from the end of the Triassic period till the Toarcian period. But now, it has been reduced by a few million years.

Solomon Islands

Context: The United States opened an embassy in the Solomon Islands recently in its latest move to counter China’s push into the Pacific.

About Solomon Islands:

- Solomon Islands is an island country consisting of **six major islands and over 900 smaller islands in Oceania.**

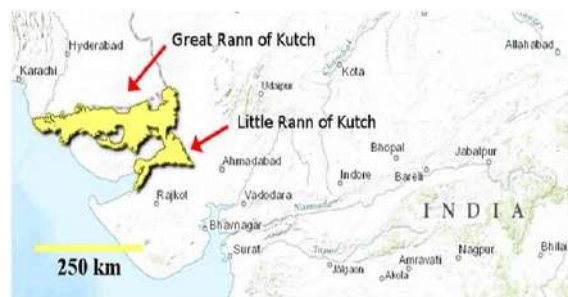


- **Capital city Honiara**, is located on the largest island,
- According to the **World Risk Report 2021**, the island state ranks second among the countries with the **highest disaster risk worldwide.**
- More than 90% of the islanders are **ethnic Melanesians**, but there has been intense and bitter rivalry

between the **Isatabus on Guadalcanal**, the largest island, and **migrant Malaitans** from the neighbouring island.

Rann of Kutch

Context: The first G20 Tourism Working Group Meeting recently held in Kutch region of Gujarat.



About Rann of Kutch:

- It is a **large area of salt marshes** that span the **border between India and Pakistan.**
- It is located mostly in the **Kutch district of Gujarat**, with a minor portion extending into the **Sindh province of Pakistan.**
- It is divided into the **Great Rann and Little Rann.**
- The Great Rann of Kutch is the larger portion of the Rann.
- It extends east and west, with the **Thar Desert to the north and the low hills of Kutch to the south.**
- The **Indus River Delta** lies to the west in southern Pakistan.
- The Little Rann of Kutch lies southeast of the Great Rann, and extends southwards to the Gulf of Kutch.
- The climate of the ecoregion is
 - Temperatures average 44 °C during the hot summer months, and can reach highs of 50 °C.
 - During the winter the temperature can drop to or below freezing.
- The Rann of Kutch is the **only large flooded grasslands zone** in the Indomalayan realm.
 - **The Indomalayan realm is one of the eight biogeographic realms.**

- It extends across most of South and Southeast Asia and into the southern parts of East Asia.
- The Little Rann of Kutch is home to the Indian wild ass (khur).
- The area has desert on one side and the sea on the other enables various ecosystems, including mangroves and desert vegetation.
- The history of the Rann of Kutch began with early neolithic settlements.
- It was later inhabited by the Indus Valley civilization as well as the Maurya and Gupta empires of India.

Kutch Desert:

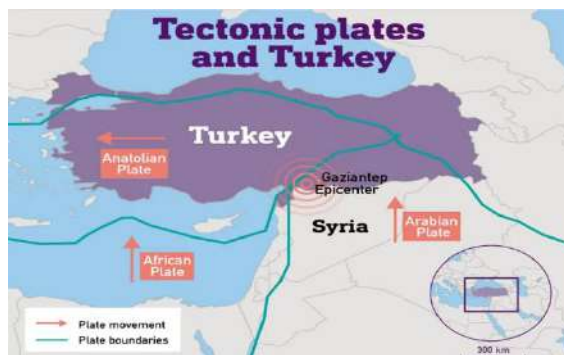
- Kutch Desert covers a vast area to the north of India and northwest by Sindh (Pakistan), west and southwest by the Arabian Sea, and to the northeast by Rajasthan.
- The Rann of Kachchh comprises a unique example of Holocene sedimentation.
- It is connected to the Arabian Sea through Kori Creek in the west and the Gulf of Kachchh in the east, and is very close to sea level.
- The Wild Ass Wildlife Sanctuary, situated in the Indian state of Gujarat, is the largest wildlife sanctuary in the country.
 - It is spread in the entire area of the little Rann of Kutch where small grass-covered areas, known as baits, forms the flora and is an important source to support the fauna of the region.

Anatolian Plate

Context: Recently an earthquake of magnitude 7.8 struck Turkiye, one of the most seismically active regions in the Mediterranean and the world.

About the Anatolian Plate:

- Turkiye (the Turkish/Anatolian plate) sits between three major tectonic plates: African, Arabian and Eurasian.
- The Anatolian Plate is a continental tectonic plate comprising most of



the Anatolia (Asia Minor) peninsula (and the country of Turkey).

- To the east, the East Anatolian Fault, a left lateral transform fault, forms a boundary with the Arabian Plate.
 - To the south and southwest is a convergent boundary with the African Plate.
- The Anatolian plate is divided into three major fault zones: North Anatolian Fault Zone (NAFZ), East Anatolian Fault Zone (EAFZ), South Eastern Anatolian Thrust Zone (SAT)
- Collisions between the Arabian and African plates with Eurasia typically result in earthquakes.

	<p>Modified Mercalli Intensity Scale</p> <ul style="list-style-type: none"> • It is a seismic intensity scale used for measuring the intensity of shaking produced by an earthquake. • It describes the effects of an earthquake on human beings, natural structures and industrial installations in a given region. • The scale is designated in roman numerals.
<p>Lithium</p>	<p>Context: Geological Survey of India for the first time found traces of Lithium resources in the Salal-Haimana area of the Reasi district of Jammu and Kashmir.</p> <p>About Lithium:</p> <ul style="list-style-type: none"> • Lithium is a non-ferrous metal and is one of the key components in EV batteries. • It has the symbol Li and is a chemical element. • It's a silvery-white metal with a delicate texture. • It is the lightest metal and the lightest solid element under normal circumstances. • It must be kept in mineral oil since it is very reactive and combustible. • It is both an alkali and a rare metal. <p>India's lithium reserves:</p> <ul style="list-style-type: none"> • According to the Indian Mines Ministry, the government agencies made the small discovery of lithium resources at a site in Mandya, Karnataka. • It is the country's first lithium reserve. <p>Lithium Production in the world:</p> <ul style="list-style-type: none"> • Australia, Chile, China and Argentina are the world's top four lithium-producing countries. • Australia is by far the world's top producer of lithium, with an output of 42,000 tonnes in 2019. • The Lithium Triangle is a region of the Andes rich in lithium reserves around the borders of Argentina, Bolivia and Chile. • The lithium in the triangle is concentrated in various salt pans that exist along the Atacama Desert and neighbouring arid areas. • The area is thought to hold around 54% of the world's lithium reserves. • The Indian Navy has shown interest in the Lithium Triangle as lithium will be required on Li-ION batteries that are planned to be fitted in future submarines.
<p>Yellow River</p>	<p>Context: A recent study has noted that the Chinese practice of building embankments is one of the reasons to blame for the devastating floods occurring in the "Yellow river".</p>

About Yellow River:

- The Yellow River (Huang He) is the second longest river in China (after the Yangtze).



- It's the fifth-longest river in the world.
- Source: The Bayankala Mountains on the Plateau of Tibet in western central China.
- Mouth: southern Bohai Sea
- Claims to fame: world's muddiest

major river, "China's cradle (of civilization)"

- Provinces flowed through: Qinghai, Sichuan, Gansu, Ningxia, Inner Mongolia, Shaanxi, Shanxi, Henan, and Shandong
- Tributaries: Black River, White River, Tao River, Huangshui, Fen River, Luo River, Wei River.
- The name "Yellow River" comes from the huge amounts of "yellow" loess sediment it carries, which are eroded when it flows through the Loess Plateau.
- The Yellow River is not just an iconic river of China, but also the symbol of the Chinese spirit: bearing burdens (its sedimentation), adaptation (its course changes), and perseverance (its continual flow).
- Hukou Waterfall on it is the second-largest waterfall in China.
- Qinghai Lake on it is China's biggest lake.

Geological Survey of India

Context: The draft Geo-heritage Sites and Geo-relics (Preservation and Maintenance) Bill, 2022, while deemed necessary by several researchers, vests powers entirely in the Geological Survey of India (GSI), a 170-year-old organisation says experts.

About Geological Survey of India:

- The Geological Survey of India (GSI) is a **scientific agency**.
- It is one of the **oldest of such organisations** in the world and the **second oldest survey in India after Survey of India (founded in 1767)**.
- GSI, **headquartered at Kolkata**, has **six Regional offices** located at Lucknow, Jaipur, Nagpur, Hyderabad, Shillong and Kolkata.
- Presently, Geological Survey of India is an **attached office to the Ministry of Mines**.

Evolution GSI:

- Until 1852, Geological Survey primarily remained focused **on exploration for coal, mainly for powering steam transport, oil reserves, and ore deposits**.
- Then **Sir Thomas Oldham** broadened the ambit of the scope of functioning of the Geological Survey of India to map the **rock types, geological structures and relative ages of different rock types**.

- In 19th and early 20th century GSI made important contributions to **Seismology by its studies and detailed reports on numerous Indian earthquakes.**
- In 2017 GSI began pilot project, with the first **ever aerial survey of mineral stocks by GSI**, to map the mineral stocks up to a depth of 20 km using specially-equipped aircraft.

Role of GSI:

- Conducting geological surveys and studies of India.
- Prime provider of basic earth science information to government, industry and general public
- Official participant in steel, coal, metals, cement, power industries and international geoscientific forums.

About Geo-heritage Sites and Geo-relics:

- The Geological Survey of India (GSI) declares geo-heritage sites/ national geological monuments for protection and maintenance.
- The draft bill defines Geoheritage sites as sites containing:
 - geo-relics and phenomena,
 - stratigraphic type sections,
 - geological structures and geomorphic landforms including caves, natural rock-sculptures of national and international interest; and
 - includes such portion of land adjoining the site.
- A Geo-relic is defined as **any relic or material of a geological significance or interest like sediments, rocks, minerals, meteorite or fossils.**
- The GSI will have the **power to acquire geo-relics** for its preservation and maintenance.
- The **32 geo-heritage sites spread across 13 states** include:
 - the Volcanogenic bedded Barytes of Mangampeta in Cuddapah district of Andhra Pradesh,
 - the Akal Fossil Wood Park in Jaisalmer, Rajasthan etc.

Key provisions of the proposed bill:

- The Draft Geo-heritage Sites and Geo-relics (Preservation and Maintenance) Bill, 2022 vests powers entirely in the **Geological Survey of India (GSI).**
- **The Bill give it the power to:**
 - declare sites as having 'geo-heritage' value,
 - take possession of relics (fossils, rocks) that rest in private hands,
 - prohibit construction 100 metres around such a site,

o penalise with fines up to ₹5 lakh and possibly imprisonment for

Conservation effort

The Draft Geo-heritage Sites and Geo-relics (Preservation and Maintenance) Bill, 2022 aims to be a law for the protection, preservation and maintenance of geo-heritage sites

Definition: Sites containing geo-relics and phenomena, stratigraphic type sections, geological structures and geomorphic landforms of national and international interest



■ Geological Survey of India has declared 32 geo-heritage sites/national geological monuments for protection and maintenance

■ The Bill prohibits construction, repair or renovation of any building in the area

■ As a signatory to the UNESCO Convention on Protection of the World Cultural and Natural Heritage, India is required to have a law on the same, including geo-heritage

vandalism, defacement, and violations of directives of a site by the Director General of GSI.

Declaration of geoheritage sites:

- It would authorise the Central Government to declare a geoheritage site to be of national importance.

- This would be under the provisions of the [Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 \(RFCTLARR Act\)](#).
- Through a public notification in the Official Gazette, the government would spell out what areas were to be acquired by it.

Compensation:

- Provision is made for compensation to the owner or occupier of land who incurs loss or damage from the land due to the exercise of any power under this Act.
- The market value of any property will be ascertained in accordance with the principles set out in the **RFCTLARR Act**.

Prohibitions:

- The Bill imposes a prohibition on construction, reconstruction, repair or renovation of any building within the geoheritage site area or utilisation of such area in any other manner.
- **Exception:** construction for preservation and maintenance of geoheritage site or any public work essential to the public.

Penalties:

- There is a penalty of imprisonment which may extend to six months or fine which may extend to Rs.5 lakh, or both.
- In the case of a continuing contravention, additional fine of upto Rs.50,000 for every day of continuing contravention may be imposed.

Eastern Rajasthan Canal Project (ERCP)

Context: The Union government has proposed a mega project to merge two projects – Eastern Rajasthan Canal Project (ERCP) and the Parbati-Kalisindh-Chambal River Link.

About Eastern Rajasthan Canal Project (ERCP):

- It is a project aimed at harvesting surplus water available during the rainy season in southern Rajasthan and using it in the water-scarce south-eastern districts of the state.

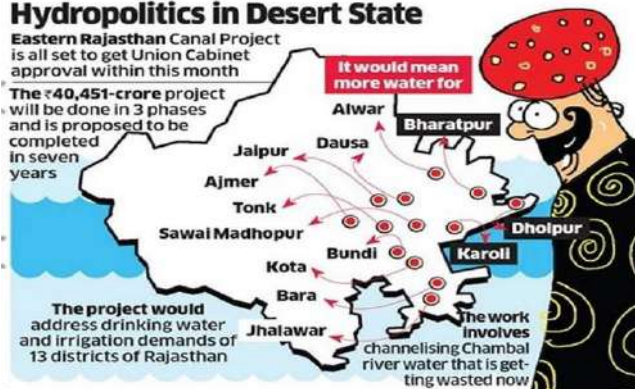
- **Districts covered:** Jhalawar, Baran, Kota, Bundi, Sawai Madhopur, Ajmer, Tonk, Jaipur, Karauli, Alwar, Bharatpur, Dausa, and Dholpur.

Hydropolitics in Desert State

Eastern Rajasthan Canal Project is all set to get Union Cabinet approval within this month

The ₹40,451-crore project will be done in 3 phases and is proposed to be completed in seven years

The project would address drinking water and irrigation demands of 13 districts of Rajasthan



- Rajasthan’s geographical area of 342.52 lakh hectares equals 10.4 per cent of the entire country but holds only **1.16 per cent of India’s surface water and 1.72 per cent of groundwater.**

- Among the state’s water

bodies, **only the Chambal River basin** has surplus water, but this water cannot be tapped directly because the area around the **Kota barrage is designated as a crocodile sanctuary.**

- The project will have components including **diversion structures, intra-basin water transfers, linking channels, and building pumping main feeder channels** to create a network of water channels.
- Although the project was **approved by the Central Water Commission** in 2017 it had been put in limbo by the **Jal Shakti Ministry** of the central government till the “**inter-state issues**” are resolved between **Rajasthan and Madhya Pradesh.**

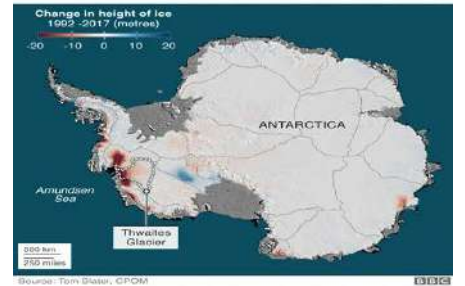
Thwaites Glacier/ Doomsday Glacier

Context: Scientists studying Antarctica’s vast Thwaites Glacier say warm water is seeping into its weak spots, worsening melting caused by rising temperatures.

About Thwaites Glacier/ Doomsday Glacier:

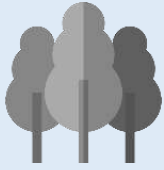
- Thwaites Glacier, nicknamed the Doomsday Glacier, is a broad and vast Antarctic glacier flowing into **Pine Island Bay.**
- **It is part of the Amundsen Sea.**
- It represents **more than half a metre of global sea level rise potential**, and could destabilise neighbouring glaciers that have the potential to cause a further three-meter rise.

Ice sheets in West Antarctica have thinned the most



International Thwaites Collaboration:

- As part of the International Thwaites Glacier collaboration, a team of 13 U.S. and British scientists monitored the glacier using an underwater robot vehicle known as Ice fin.
- It was **established in 2018.**
- Thwaites Glacier is closely monitored for its potential to raise sea levels.
- Along with the Pine Island Glacier, it has been described as part of the “**weak underbelly**” of the West Antarctic Ice Sheet.



ENVIRONMENT

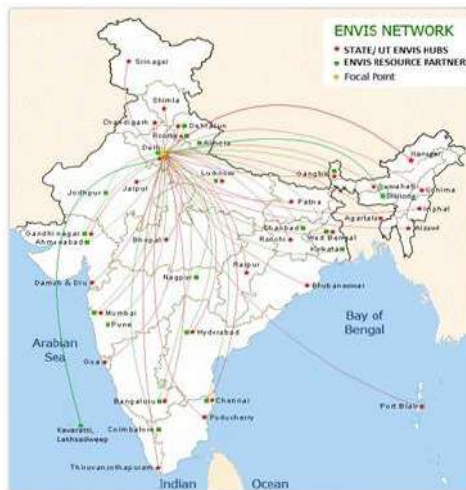


Environmental Information, Awareness, Capacity Building and Livelihood Programme (EIACP)

Context: Recently, the Environmental Information, Awareness, Capacity Building and Livelihood Programme (EIACP) organised a ‘National workshop on LiFE’ in association with National Museum of Natural History, a subordinate office of Ministry of Environment, Forest and Climate Change.

About Environmental Information, Awareness, Capacity Building and Livelihood Programme (EIACP):

- **Environmental Information System (ENVIS)** was renamed as EIACP (Environmental Information, Awareness, Capacity Building and Livelihood Programme).



- ENVIS came into existence as a **plan programme in 1983**.
- It serves as a **single-stop web-enabled repository of comprehensive environmental information** with collection, collation, storage, retrieval and dissemination of the same through a **nationwide network of ENVIS Hubs and ENVIS Resource Partners (RPs)**.

Inclusive Forum on Carbon Mitigation Approaches

Context: Organisation for Economic Co-operation and Development (OECD) launched Inclusive Forum on Carbon Mitigation Approaches.

About Inclusive Forum on Carbon Mitigation Approaches:

- It aims to help improve the **global impact of emissions reduction efforts** around the world through **better data and information sharing, evidence-based mutual learning and inclusive multilateral dialogue**.



Objectives of the Forum:

- To take stock of mitigation policy instruments that countries use to reduce greenhouse gas emissions and estimate the emissions.
- To develop and apply a consistent methodology to assess the effects of mitigation policies and policy packages on emission reductions at the country level.
- First meeting: **Paris, France**

	<ul style="list-style-type: none"> • It will help policymakers to showcase and discern good practices and adopt and adapt mitigation policies. • It will complement other international efforts on climate policy data, including in the context of the United Nations Framework Convention on Climate Change Enhanced Transparency Framework. • 133 countries around the world, representing around 91% of global GDP and covering around 83% of global emissions, have adopted net-zero carbon emissions targets.
<p>Aerosols and their effect on Global Climate</p>	<p>Context: Role of Industrial Aerosols in contributing to Global Cooling. A new study reveals that inactive volcanoes contributed 66 percent of sulphate emissions, known to cool the planet, in the preindustrial era.</p> <p>About Aerosols:</p> <ul style="list-style-type: none"> • Aerosols are defined as a combination of liquid or solid particles suspended in a gaseous or liquid environment. • In the atmosphere, these particles are mainly situated in the low layers of the atmosphere (< 1.5 km) since aerosol sources are located on the terrestrial surface. • However, certain aerosols can still be found in the stratosphere, especially volcanic aerosols ejected into the high altitude layers. • Source of aerosols <ul style="list-style-type: none"> ○ Natural sources – sea salt generated from breaking waves, mineral dust blown from the surface by wind, and volcanoes. ○ Anthropogenic aerosols – sulphate, nitrate, and carbonaceous aerosols, and are mainly from fossil fuel combustion sources. <p>Effects of aerosols:</p> <ul style="list-style-type: none"> • They affect the atmospheric chemical composition. • They can reduce visibility. • They have important impacts on air quality and human health (e.g. aerosols can cause damage to heart and lungs). • They serve as nuclei for cloud droplets or ice crystals in ice clouds.
<p>Extended Producer Responsibility</p>	<p>Context: India’s Extended Producer Responsibility (EPR) framework for used tyres, batteries, and revised rules for e-waste and plastics kindled interest among the G20 countries.</p> <p>About Extended Producer Responsibility:</p>

- Extended producers' Responsibilities is a globally recognized policy used as an effective tool to put the onus on the producers for **efficient end of life waste management of the plastic, electronic and electrical equipment.**
- The concept of EPR responsibility is based on **three foundation principles:**

What is Extended Producer Responsibility (EPR)?



- Pollution prevention approach
- Life cycle thinking,
- Polluter pay principle
- EPR responsibility makes it the **responsibility of the producers not only to take back products for recycling** but also to design better and longer life products to minimize the amount of waste generated.

EPR in India:

EPR responsibility Certificate:

- EPR responsibility Certificate is authorized by **Central Pollution Control Board** which is mandatory for **Producers/Importers of the Electronic products.**
- Under these rules, the producers have a responsibility to delegate this responsibility to the **third party or specialized organizations** which manufacturers can financially aid for proper waste management.

EPR Responsibility Policies under E-Waste Management Rules:

- E-Waste (management and handling) Rules, 2016 adopted **Extended Producers Responsibility for the first time in India.**
- EPR responsibility under E-Waste (management) Rules, 2016 stipulates collection **targets of E-Waste for producers.**
- The producers are responsible for setting up **collection centres for e-waste and financing and organizing a system** for environmentally sound management of e-waste.
- The producers are required to have an arrangement with dismantlers and recyclers through **either the Producers responsibility organization or the E-Waste exchange system.**
- **Marketing or selling any electronic equipment** without EPR responsibility Authorization is considered a violation of the rules.

EPR responsibility Policy under Plastic Waste Management Rules:

- The Plastic Waste Management (Amendment) Rules, 2022 provide guidelines for strengthening the **circular economy of plastic packaging waste** as well as promoting alternatives to plastic.

- Producers of waste are mandated to ensure that **generation of plastic waste is minimized, and plastic waste is not littered and stored** at the source, which is then handed over to local bodies or authorized agencies.

Oder river

Context: A new report by the European Union (EU), has confirmed that the ecological disaster that killed hundreds of tonnes of fish in the Oder river in 2022 was caused by toxic algal bloom .

About River Oder:

- Oder River, is a river in east-central Europe.
- It is one of the most significant rivers in the **catchment basin of the Baltic Sea**, second **only to the Vistula in discharge and length**.
- It is **Poland’s second-longest river**.
- The Oder rises in the **Czech Republic** and flows through western Poland, later forming the border between **Poland and Germany**.

About Algal Blooms:

- An algal bloom is a rapid increase in the population of algae in an aquatic system.



These are also called **‘red tides**

- They may occur in freshwater as well as marine environments.
- Algal Blooms deprive aquatic organisms of Sunlight and oxygen and negatively impact a variety of species that live below the water surface.
- Harmful Algal Blooms(HABs)- colonies of algae that grow out of control and produce toxic or harmful effects on people, fish, shellfish, marine mammals, and birds.
- Algal blooms in freshwater lakes and reservoirs are most commonly caused by blue-green algae (also known as **cyanobacteria**) whose growth is supported by **Eutrophication (nutrient enrichment)**.
- Another type of bloom that occurs nearly every summer along Florida’s Gulf Coast is caused by a species of **dinoflagellate** known as *Karenia brevis*.
- [Algal Bloom Information Service](#): ABIS provides timely information on harmful algal blooms, which are detrimental to coastal fisheries, and water quality and also tend to induce respiratory problems within the coastal population from time to time.

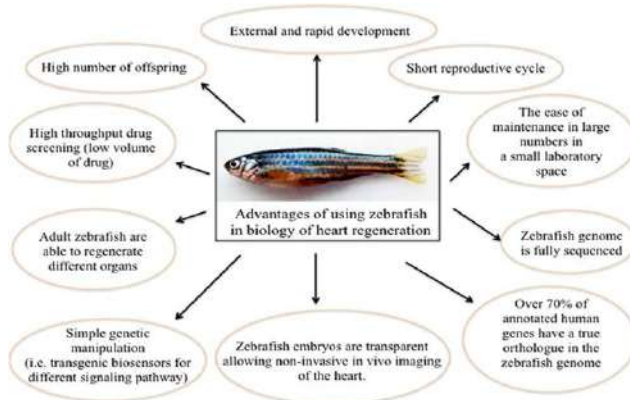
- ISRO's **Oceansat-2 satellite** launched in 2009 can cover larger areas and provide global ocean color.

Zebrafish

Context: Recently, researchers, for the first time, have used the body's own chemistry to develop electrodes in the tissues of zebrafish (a small freshwater fish).

About Zebrafish :

- It is a **tropical freshwater fish** belonging to the **minnow** family (**Cyprinidae**) of the **order Cypriniformes**.



- **Habitat:** Native to rivers and streams of South Asia.
- It is a **freshwater fish** found in tropical and subtropical regions.
- The fish is native to South Asia's **Indo-Gangetic plains**, where they are mostly found in the paddy fields and even in stagnant water and streams.

• **Features:**

- It is a popular aquarium fish.
- It is about 4 cm long and has dark-blue and silvery longitudinal stripes.
- IUCN Red List Status: **Least concerned**.

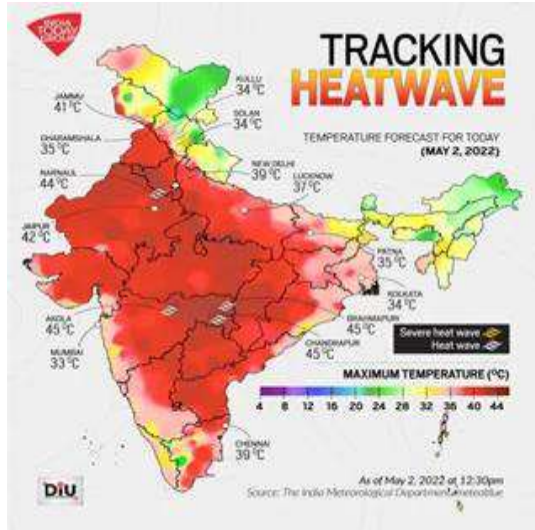
Significance of Zebrafish:

- Zebrafish have the **ability to heal their heart after injury** through a regenerative process.
- If part of their heart is removed, they can grow it back in a matter of weeks.
- Humans cannot regenerate their hearts upon myocardial damage and a person who suffered a **heart attack** cannot functionally heal the damaged heart muscle, resulting in reduced pumping efficiency.
- Till now, there is no treatment available to restore the damaged heart function in humans.
 - Hence scientists have sought to decode the heart regeneration processes using this model animal.
- In May 2021, it was announced by researchers at the **Queen's University in Belfast, UK** that the hibernation form known as induced torpor found in zebrafish will give radio-protective effects, that may be useful for **interplanetary voyages**
- Replicating hibernation may therefore protect astronauts against the harsh conditions of space flight
- Zebrafish have also been found to **regenerate photoreceptor cells** and retinal neurons following injury.

Heat Waves

Context: Recent reports by the India Meteorological Department (IMD) describe the impact of heat waves.

About Heat Waves:



- A Heat Wave is a **period of abnormally high temperatures**, more than the normal maximum temperature that occurs during the summer season in the **North-Western parts of India**.
- Heat Waves typically occur between **March and June**, and in some rare cases even extend till July.
- The extreme temperatures and resultant atmospheric conditions adversely affect people living in these regions as they **cause physiological stress, sometimes**

resulting in death.

Criteria for Heat Waves given by the Indian Meteorological Department (IMD):

- Heat Waves need not be considered till the maximum temperature of a station reaches at least **40°C for Plains and at least 30°C for Hilly regions**
- When the normal maximum temperature of a station is less than or equal to 40°C Heat Wave Departure from normal is 5°C to 6°C Severe Heat Wave **Departure from normal is 7°C or more**
- When the normal maximum temperature of a station is more than 40°C Heat Wave Departure from normal is **4°C to 5°C Severe Heat Wave** Departure from normal is 6°C or more
- When the actual **maximum temperature remains 45°C** or more irrespective of the normal maximum temperature, heat waves should be declared.

Health Impacts of Heat Waves

- **Heat Cramps:** Ederna (swelling) and Syncope (Fainting), generally accompanied by fever below 39°C i.e. 102°F.
- **Heat Exhaustion:** Fatigue, weakness, dizziness, headache, nausea, vomiting, muscle cramps, and sweating.
- **Heat Stroke:** Body temperatures of 40°C i.e. 104°F or more along with **delirium, seizures, or coma**. This is a potentially fatal condition.

Kunming-Montreal Global Biodiversity Framework

Context: The Kunming-Montreal Global Biodiversity Framework adopted recently, respects the rights of indigenous people regarding biodiversity.

About Kunming-Montreal Global Biodiversity Framework:

- The “**Kunming-Montreal Global Biodiversity Framework**” (GBF) was adopted by the 15th Conference of Parties (COP15) to the UN Convention on Biological Diversity.
- It includes four goals and 23 targets to be achieved by **2030**.
- COP 15 took place in **Montreal, Canada**.
- Through Kunming-Montreal Global Biodiversity Framework (GBF), countries agreed to protect **30 percent** of the planet by 2030.
- The countries pledged to achieve **23 targets** to reverse ecosystem degradation under four overarching goals for the survival of the natural world.
- Under the Global Biodiversity Framework (GBF), countries also agreed to **reduce harmful government subsidies** worth 500 billion dollars annually, while vowing to identify subsidies that are harmful to biodiversity by 2025.
- Its other targets include reducing the use of pesticides by half and raising annual international financial flows from developed to developing countries to at least 20 billion dollars by 2025, and to at least 30 billion dollars by 2030.

Impact on India:

- The Global Biodiversity Plan gives India legroom on farm subsidies.
- The GBF gives elbow space to India both in terms of continuing farm subsidies and pesticide use.

About Nagoya Protocol:

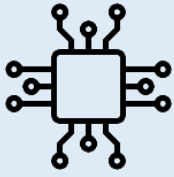
- This protocol was established at the **Convention on Biological Diversity**.
- The Nagoya Protocol is an **international agreement** that aims to **fairly and equitably distribute** the advantages that result from the **use of genetic resources**.
- The procedure was approved in **Nagoya, Japan, in 2010** and came into effect in **2014**.
- The Nagoya Protocol has been ratified by 137 parties as of April 2022, including the European Union and 136 UN member states.
- India signed the **Nagoya Protocol in 2011** and ratified it in October 2012.
- The ratification by India was done at the **11th Conference of Parties (COP)** to the CBD, which was conducted in Hyderabad.
- Members are required under the protocol to implement procedures pertaining to **compliance, benefit sharing, and access to genetic resources**.

Deep Ocean Mission

In News: In the Union Budget 2023-24, Deep Ocean Mission has been allocated Rs 600 crore

Deep Ocean Mission:

- It aims to explore marine biodiversity for the sustainable use of resources.
- It is overseen by the Ministry of Earth Sciences (MoES)
- It includes myriad of activities such as a manned submersible, ship-building, exploration and conservation of deep-sea biodiversity and identification of mineral deposits in the deep ocean
- A manned submersible will be developed to carry three people to a depth of 6,000 metres in the ocean
- In 2016, India was awarded a 15-year contract to explore an area of 75,000 square kilometres for mining polymetallic nodules from the Central Indian Ocean Basin at depths of 5,000-6,000 metres.
- The other components of the mission include developing ocean climate change advisory services and designing offshore Ocean Thermal Energy Conversion (OTEC) powered desalination plants..



SCIENCE & TECHNOLOGY



Spider Pulsar Systems

Context: Recently, Scientists have discovered the first gamma-ray eclipses from a special type of binary star system by using NASA's Fermi Gamma-ray Space Telescope.

About Spider Pulsar Systems:

- Spider pulsars got their name due to the **similarity of customs with some species of spiders.**
- They are formed from **binary star systems** in which one of the components is much more massive than the other.



- It evolves much faster, explodes like a **supernova and turns into a neutron star.**
- It is this super-dense object that begins to pull a matter from the companion that resembles the **habits of spiders of the genus Latrodectus**, in which the **female eats the male after mating.**
- Two varieties of binary systems containing pulsars were named after these arthropods.
 - **Black widows:** Binary pulsar systems, in which the mass of a companion star is less than 5 % of the solar one.
 - **Redback:** Binary pulsar systems, in which the mass of a companion star is from 10 to 50 % of the solar.

About Fermi Gamma-ray Space Telescope (FGST):

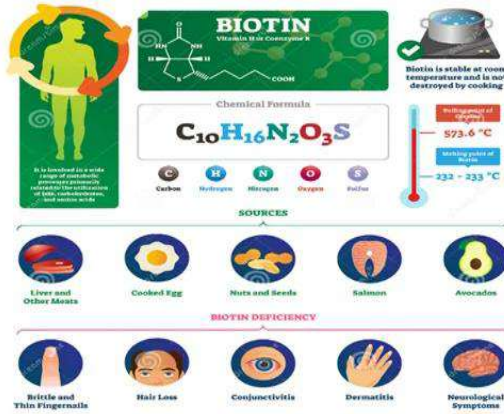
- It is operated by National Aeronautics and Space Administration (NASA)
- FGST was formally known as formerly called the **Gamma-ray Large Area Space Telescope (GLAST).**
- It is a space observatory being used to perform **gamma-ray astronomy observations from low Earth orbit.**
- Its main instrument is the **Large Area Telescope (LAT)**, with which astronomers mostly perform an **all-sky survey studying astrophysical and cosmological** phenomena such as **active galactic nuclei, pulsars, other high-energy sources, and dark matter.**

Biotin

Context: Recently dermatologists in Delhi have cautioned users that there is no scientific evidence to prove usage of biotin for healthy hair and nail growth.

About Biotin (Vitamin B7):

- It is a **water-soluble vitamin** that helps the body **metabolize fats, carbohydrates, and protein.**
- Water-soluble vitamins are not stored in the body, so daily intake is necessary.

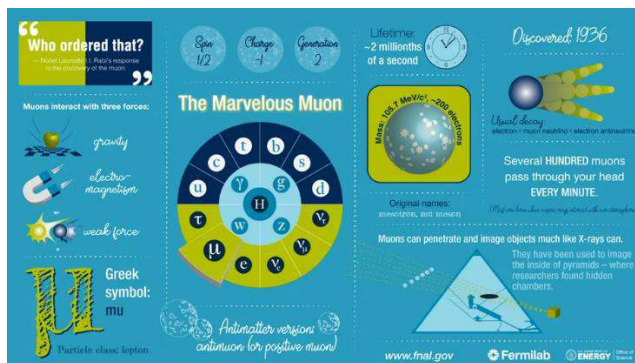


- The human cells **cannot synthesize vitamin B7.**
 - However, bacteria in the body can produce biotin, and the vitamin is present in **numerous foods.**
- Sources of Biotin: **Red meat, eggs, seeds, and nuts.**
- **Deficiency of Biotin can cause:** Hair loss, scaly, red rash around the eyes, nose, mouth, and genitals, Depression, Lethargy, Hallucinations, loss of control of bodily movements, known as ataxia, Weakened immune function, Increased risk of bacterial and fungal infections.

Muons

Context: Recently researchers are examining the fortress wall of Xi'an, an ancient city in China, by using tiny outer space particles called Muons that can penetrate hundreds of meters of stone surfaces.

- These particles have helped them find small density anomalies, which are potential safety hazards, inside the wall.



- Muons are subatomic particles raining from space.
- They are created when the particles in Earth's atmosphere collide with cosmic rays.
- These particles resemble electrons but are 207 times as massive.
 - Therefore, they are

sometimes called **“fat electrons”**.

- Because muons are so heavy, they can travel through hundreds of meters of rock or other matter before getting absorbed or decaying into electrons and neutrinos.
- In comparison, **electrons can penetrate through only a few centimetres.**
- Muons are highly unstable and exist for just 2.2 microseconds.

Bisphenol A

Context: Recent studies have reported that 'Bisphenol A', may shorten the life cycle of a mosquito and lead to a population explosion.

About Bisphenol A:

- Bisphenol A is a synthetically obtained **colourless**, crystalline **organic compound** that occurs in the solid phase belonging to the **diphenylmethane group**.

It is **soluble in organic solvents** but poorly dissolves in water

- It is also used as **eyewear glasses**. It is a chemical is widely used to soften plastics, paints, and other products.
- It is known to **impair reproduction and development** in **aquatic organisms**.
- Its exposure is delayed larval development and pupation time in common **fruit fly** (*Drosophila melanogaster*).

Uses of Bisphenol A :

- BPA polycarbonate plastics are very sturdy in nature and are used to make large variants of **microwave-proof utensils**.
- It is used as a material for **safety glasses, bulletproof windows and helmets**.
- Bisphenol A acts as a component in epoxy resins that are very good coating agents and therefore is used for the protective coating of pipelines and to cover the inner **surface of food cans**.
 - It is used in many **medical devices** such as heart-lung machines, incubators, artificial kidneys, dental fillers, and sealants.
 - It is also used as **eyewear glasses** , due to their optical clarity.

Environmental impacts of Bisphenol A:

- BPA can enter the environment directly through the leaching of chemicals or degradation of materials containing bisphenol A and may render the **land unfertile and barren** making it unsuitable for **agriculture**.
- It affects the growth and reproduction of **marine life**.
- It causes endocrine effects in **fish, amphibians, and reptiles**.

Adverse effects of Bisphenol A on human health:

- When ingested, the chemical **disrupts the endocrine system** by interfering with the hormones and **affecting the brain** and **prostate gland** of **foetuses, infants, and children**.
- It can cause **high blood pressure, diabetes and cardiovascular disease** in adults.
- BPA is a xenoestrogen and **mimics estrogen** present in the body, thus exhibiting hormone-like properties.
- It can indirectly aid in the **spread of vector-borne diseases** in humans and animals.

TAPAS BH-201

Context: The Prime Minister has shared aerial coverage of Ground and Air display captured from indigenously developed Medium Altitude Long Endurance TAPAS UAV during rehearsal from a height of 12000 feet.

About TAPAS:

- Tactical Airborne Platform for Aerial Surveillance-Beyond Horizon-201 (TAPAS BH-201) is a **Medium Altitude Long Endurance (MALE) unmanned aerial vehicle (UAV)**.



- It is being developed in the country by **Aeronautical Development Establishment (ADE)**.
- It operates at altitudes between 10,000 and 30,000 feet and has a flight endurance of up to 48 hours.
- It has the capability to fly autonomously or via remote control, allowing for pre-programmed flight plans and operational use in daylight or darkness.
- However, the Tapas BH-201 drone, **equipped with foreign engines and mission sensors**.

Diyodar meteorite

Context: Diyodar meteorite that hit India in 2022 was India's first aubrite in 170 years

About Diyodar Meteorite:

- A meteorite is a celestial object (made of rocks and metals) that **enters the atmosphere of the earth and reaches the surface**.



- The meteorite is a **“rare, unique specimen” of aubrite**.
- India has been the site of hundreds of meteorite crashes, but this is only the **second recorded crash of an aubrite**.

What are aubrites?

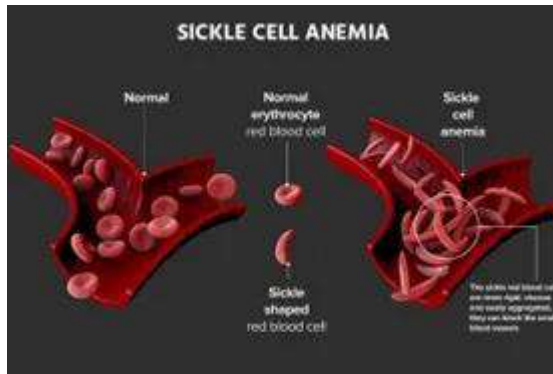
- Aubrites **“are coarse-grained igneous rocks that formed”** in oxygen-poor conditions, and thus **“contain a variety of exotic minerals that are not found on Earth”**.
- For example, the **mineral heideite was first described in the Basti meteorite**.
- **Source of Aubrites :** not yet sure of their origin, but some signs indicate that they could be from **the asteroid 3103 Eger or from the planet Mercury**.

- **Composition:** Around 90% of the meteorite was composed of orthopyroxene. Pyroxenes are silicates consisting of single chains of silica tetrahedra (SiO₄); orthopyroxenes are pyroxenes with a certain structure.

Sickle cell disease (SCD)

Context: Finance Minister recently announced government’s plan to launch a mission to eliminate sickle cell anaemia by 2047.

- It is a group of inherited **red blood cell disorders**.
- In someone who has SCD, the **hemoglobin is abnormal**, which causes the red



blood cells to become hard and sticky and look like a **C-shaped farm tool called a “sickle.”**

- The sickle cells die early, which causes a constant **shortage of red blood cells**.
- Also, when they travel through **small blood vessels**, they get stuck and clog the blood flow.
- This can cause pain and other serious complications (health problems) such as infection, acute chest syndrome and stroke.
- SCD is a genetic condition that is present at birth.
- It is inherited when a child receives two genes—**one from each parent—that code for abnormal hemoglobin**.
- A blood test can determine whether you have SCD or sickle cell trait.
- SCD can also be **diagnosed before a baby is born**.
- SCD can only be cured by bone marrow or stem cell transplantation.

Amorphous Ice

Context: Recently Scientists have created a new type of ice that matches the density and structure of water, perhaps opening a door to studying **water’s mysterious properties**. The ice is called **medium-density amorphous ice**.

About Amorphous Ice:



- The ice is called **medium-density amorphous ice**.
- Amorphous ice **consists of water molecules arranged in a disordered state**, with no large-scale regularity to their orientations or positions.

○ This kind of ice is most often found in space.

- Almost all ice in the universe is amorphous and, in a form, **called low-density amorphous ice**.
 - This forms when water condenses onto dust grains in space.

- **Comets are amorphous ice as well.**
- Amorphous ice’s water molecules are in a **disorganized form resembling a liquid.**
- This kind of ice is **most often found in space.**

Asbestos

Context: Recently Brazil sinks age old aircraft carrier carrying asbestos, other toxins.

About Asbestos:

- It is a naturally occurring **fibrous silicate mineral.**
- Asbestos is a **group of six naturally occurring minerals** made up of heat-resistant fibers.
- It consists of **flexible fibers resistant to heat, electricity and corrosion.**
- Asbestos is an **excellent electrical insulator and is highly fire-resistant**, so for much of the 20th century it was very commonly used across the world as a building material.
- Construction materials contained asbestos because it is an effective insulator.
 - Asbestos in cloth, paper, cement, plastic and other materials makes them stronger.
- Asbestos mainly comes from **Russia, Kazakhstan and China.**
 - The toxic mineral was once mined throughout North America.
- Asbestos has been used on ships as **both a fire retardant and an insulator** to protect sailors from the **constant and jarring vibrations of ships’ engines.**

Health Effects

- It is known to be a **highly toxic material and a carcinogen.**
- Inhaled or swallowed asbestos fibers can become trapped in the respiratory or digestive systems of the body, accumulating over time.
- Repeated exposure can cause **inflammation and damage the DNA.**
- The following illnesses have been associated with asbestos exposure: **lung cancer, COPD, mesothelioma and asbestosis.**

MQ-9B predator Drone



Context: India and the United States are keen for an early conclusion of the 30 MQ-9B predator armed drones deal at a cost of over \$3 billion.

About MQ-9B predator Drone:

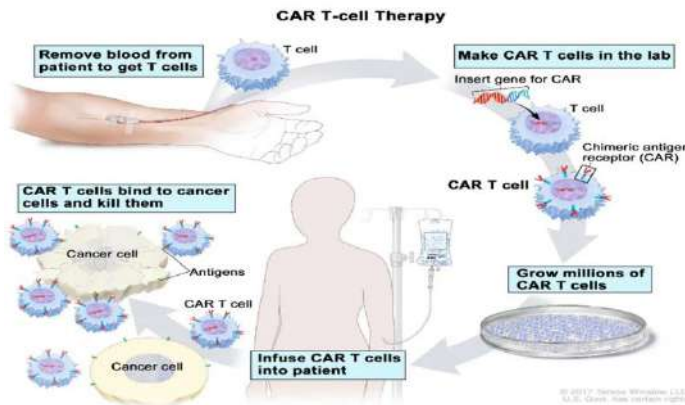
- The MQ-9B predator-armed drones — 10 each for three services — is seen to be a key part of India’s national security and defence needs.

CAR T-cell therapy

Context: Recently, the researchers have said that India’s first indigenously developed Chimeric Antigen Receptor (CAR)-T Cell T therapy for specific types of cancer.

About CART-T cell therapy:

- Chimeric antigen receptor (CAR) T-cell therapies represent a quantum leap in the **sophistication of cancer treatment**.



then infused back into the **patient's bloodstream** after conditioning them to **multiply more effectively**.

- Unlike chemotherapy or immunotherapy, which require mass-produced injectable or oral medication, **CAR T-cell therapies use a patient's own cells**.
- They are modified in the **laboratory to activate T-cells**, a component of immune cells, to attack tumors.
- These modified cells are

How does the therapy work?

- In CAR T-cell therapy, the **patient's blood is drawn to harvest T-cells** which are immune cells that play a major role in **destroying tumor cells**.
- Researchers modify these cells in the laboratory so that they express specific proteins on their surface, known as **chimeric antigen receptors (CAR)**.
- They have an affinity for proteins on the surface of tumor cells.
- This modification in the **cellular structure allows CAR T-cells** to effectively bind to the tumor and destroy it.
- The final step in the **tumor's destruction involves its clearance by the patient's immune system**.

Quasicrystals

Context: Scientists have discovered a third natural source of quasicrystals, extending the latter's reputation for violent origins.

About Quasicrystals:

- Quasicrystal, also called quasi-periodic crystal, matter formed atomically in a manner somewhere between the amorphous solids of glasses and the precise pattern of crystals.
- In quasicrystals, the atoms are arranged in a pattern that **repeats itself at irregular, yet predictable, intervals**.
- The American-Israeli scientist **Dan Shechtman** discovered quasicrystals in the lab in 1982.
- The first natural quasicrystal found was as **microscopic grains in a fragment of the Khatyrka meteorite lying in the Koryak mountains of Russia**.
- The second time scientists found natural quasicrystals in the remains of the Trinity test of the Manhattan Project.



- Recently in the **Sand Hills dunes in northern Nebraska**, where scientists found silicate glass which is a dodecagonal quasicrystal, rare even for quasicrystals.
- Three varieties: **icosahedrite, decagonite and proxidecagonite**.
- **Proxidecagonite** is also known as quasicrystal approximant.
- **Icosahedrite's crystal** structure exhibited fivefold symmetry in two dimensions where the pattern repeated itself after being rotated by 72°.
- **Icosahedrite** exhibited 20-fold symmetry in three dimensions.
- **Decagonite** exhibited 10-fold symmetry by 36°
- They exhibit properties like **electrical properties, optical properties, thermal properties, hardness, anticorrosive properties and hydrogen absorption properties**.

Skye UTM

Context: Recently, Union Minister for Road Transport and Highways unveiled Skye UTM, confirmed as the most cutting-edge unmanned traffic management system in the world.

About Skye UTM:

- It is a **Cloud-based** aerial traffic management system.
- It integrates unmanned air traffic with **manned aviation airspace**.
- It is capable of handling **4,000** flights per hour.
 - In a day, it can handle **96,000 flights**.
- It will help **drone operators** with situational awareness, autonomous navigation, traffic management and risk assessment.
- It will aid in **real-time monitoring** and speed up highway construction while keeping a check on fatal road accidents.
- It will display **real-time UAV movements** and provide verified paths.
- It captures over 255 parameters of UAV movements and stored them in its **'Blackbox'**.
 - **Blackbox:** small machine on an aircraft that records the details of each flight and is useful for finding out the cause of a plane crash
- It will offer the first **3D view** of drone airspace.



AUTISM SPECTRUM DISEASE

Context: Recent studies probed the link between the gut microbiome and autism spectrum disorders.

Key Findings:

- Investigations of the dynamic cross-talk between the gut microbiome and the host environment have revealed **potential connections** to ASD symptoms.

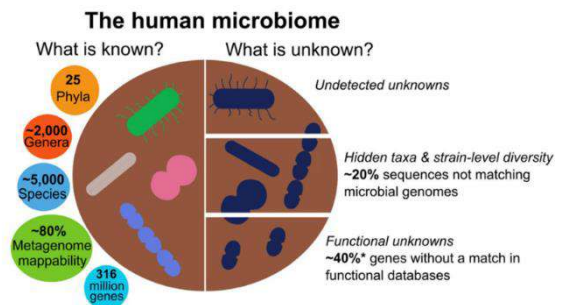
- **Biological crosstalk** :refers to instances in which one or more components of one signal transduction pathway affects another.
- The gut microbiome is believed to have a big impact on **immune modulation** and metabolic activities in the human body.
- **Immune modulation**: refers to the efforts of the immune system to ensure its response is proportionate to a threat.

About Autism Spectrum Disease:

- Autism spectrum disorder (ASD) is the term for a **group of neurodevelopmental disorders**.
- It is characterized by **difficulties** in social interaction, verbal and nonverbal communication, and the presence of repetitive behavior and restricted interests.
- Signs of autism usually appear by **age 2 or 3**. Some associated development delays can appear as early as 18 months.
- There is **no cure for autism**.
- In 2008, the United Nations General Assembly unanimously declared **2nd April** as **World Autism Awareness Day**.

About the Human microbiome:

- The **collective genome of all micro-organisms** contained within the human body, residing inside **tissues and bio-fluids** is called **Human Microbiome**.
- Most of them have either commensal (co-existing without harming humans) or mutualistic (each benefit from the other).
- These organisms play a key role in many aspects of host physiology such as :
 - The **metabolism** of complex indigestible carbohydrates and fats to produce essential vitamins
 - Maintaining **immune systems** and
 - Acting as the **first line of defense** against pathogens.



H5N1 virus/Bird Flue

Context: Monitoring the evolution of the shapeshifting H5N1 virus can add to the preparedness against another potential pandemic.

About H5N1 virus/Bird Flue:

- Bird flu or avian influenza is a disease caused by **avian influenza Type A viruses** found naturally in wild birds worldwide.

New H5N1 variant turns lethal in mammals

Increased H5N1 spread in mammals highlights the need for heightened vigilance due to inherent possibility of the virus jumping to humans

- A new bird flu (H5N1) strain — 2.3.4.4b — emerged in 2020 and spread rapidly across Asia, Africa and Europe. It subsequently spread to North and South America by 2021 and 2022, respectively
- The new H5N1 variant has been found in seals, sea lions, dolphin, lion, otters, and foxes
- The H5N1 genome sequence shows several mutations compared with those from birds. The T272A mutation is known to enhance replication in mammals
- Confirmed intra-mammal transmission of the new H5N1 variant was seen in 2022 in minks at a farm in Spain
- Over half-a-dozen infections and one death in humans from the current global outbreak have been reported
- H5N1 can cause severe illness and death in humans. The rapid spread of the variant among birds and other mammals raises public health concerns
- If the variant evolves to spread between mammals, it could potentially make another evolutionary jump to become transmissible in humans



Over 700 dead seals were found along Russia's Caspian Sea coast where the H5N1 variant was earlier detected in wild birds

- Avian influenza, or bird flu, is a **highly contagious viral infection** that primarily affects birds.
- Infrequently, the **virus can infect mammals from birds**, a phenomenon called **spillover**, and rarely can spread **between mammals**.
- This subtype has caused a number of human infections through close contact with **infected birds or contaminated environments**, and is

often fatal.

- Recent **reports of H5N1** spread between mammals raise concerns about its potential to cause a human pandemic if it were to **spill over and become transmissible among humans**.
- **It can infect** domestic poultry including chickens, ducks, turkeys, pigs, cats, and tigers.

Types of avian influenza:

- Avian Influenza type A viruses are classified based on two proteins on their surfaces – **Hemagglutinin(HA) and Neuraminidase(NA)**.
- There are about **18 HA subtypes and 11 NA subtypes**.
- Several combinations of these two proteins are possible e.g., **H5N1, H7N2, H9N6, H17N10, etc.**

Symptoms:

- A virus infections in humans have ranged from mild to severe influenza-like illness.
- Fever, cough, sore throat, muscle aches, nausea, abdominal pain, diarrhea, vomiting etc.
- Severe respiratory illness (e.g., shortness of breath, difficulty breathing, pneumonia, acute respiratory distress, viral pneumonia, respiratory failure).
- Neurologic changes (altered mental status, seizures).

Prevention of spillovers:

- Preventing H5N1 spillovers and outbreaks requires a combination of measures including:
 - vaccination of poultry,
 - safe disposal of dead birds,
 - wearing personal protective equipment when handling birds,
 - quarantine and culling of affected animals, and

- improved surveillance and monitoring of H5N1 in birds and other animals.
- molecular surveillance of H5N1
- **Genome sequencing can be employed to monitor the emergence of new subtypes**, and keep a close watch on mutations and virulence factors that may increase the ability to infect humans.

Dark galaxy

Context: Recently, Italian researchers have discovered a Dark Galaxy or Invisible Galaxy using Atacama Large Millimeter Array (ALMA).

About Dark Galaxy:

- It is termed invisible because the **light emitted couldn't be seen from the earth.**



- The presence of the galaxy has been discovered using the **gravitational lensing technique.**

Gravitational lensing technique:

- It is an **effect of Einstein's theory of general relativity** – simply put, mass bends light.
- The gravitational field of a massive object will extend far into space, and cause light rays passing close to that object to be bent and refocused somewhere else.

- It is **discovered as compact.**
- It is **young and has interstellar dust.**
- It is forming new stars at the **rate of 1000 times the Milky Way.**

Atacama Large Millimeter Array (ALMA):

- It is an international partnership of the **European Southern Observatory (ESO), with U.S., Japan, Canada, Taiwan, Korea and Chile.**
- It is the **world's largest ground-based facility** for observations in the millimeter/submillimetre regime.
- It is a single **telescope composed of 66 high precision antennas.**
- It is located on the **Chajnantor plateau, 5000 meters altitude in northern Chile.**
- It allows scientists to **unravel longstanding and important astronomical mysteries**, in search of our Cosmic Origins.



MISCELLANEOUS

**Operation
Sadbhavana**

Context: As part of 'Operation SADBHAVANA', Indian Army is undertaking multiple welfare activities in remote areas of Union Territory (UT) of Ladakh.

About Operation Sadbhavana:

- Operation Sadbhavana (Goodwill) is a unique humane initiative undertaken by **Indian Army in the Jammu and Kashmir and Ladakh** to address aspirations of people affected by terrorism, sponsored and abetted by Pakistan.
- As part of '**Operation SADBHAVANA**', Indian Army is undertaking multiple welfare activities such as running of **Army Goodwill Schools, Infrastructure Development Projects and Education Tours** for the children living in **remote areas of Union Territory (UT) of Ladakh**.
- To improve the standard of education and to provide them with quality education, Indian Army is presently running seven (07) **Army Goodwill Schools (AGS) under 'Operation SADBHAVANA' in Ladakh Region**.
- Some of the objectives achieved through '**Operation SADBHAVANA**' are national integration tours, women empowerment, employment generation, education and development activities towards nation building.
- '**Operation SADBHAVANA**' projects are selected after taking local aspirations into consideration, in conjunction with local civil administration and it is ensured that there is no duplicates with projects of civil administration.

**Exercise
TARKASH**

Context: Sixth edition of joint exercise TARKASH recently concluded by The National Security Guard (NSG) and US Special Operations Forces (SOF).

About Exercise TARKASH:

- The exercise for the first time included "**Chemical, Biological, Radiological and Nuclear (CBRN) terror response**" in its drill.
- The objective was to **rapidly neutralise the terrorists, rescue the hostages safely and deactivate the chemical weapons** being carried by the terrorists.

Chemical, Biological, Radiological and Nuclear (CBRN) Weapons:

- CBRN weapons are also classified as **weapons of mass destruction**.
- They have been used by **States and terror elements in the past**.
- The most recent use of CBRN in the form of a sarin gas attack was **witnessed in Syria in 2017 when more than 100 people died**.

International Treaties related to WMD:

	<ul style="list-style-type: none"> • The use of chemical, biological, and nuclear weapons is regulated by a number of international treaties and agreements. <p>Among them are the:</p> <ul style="list-style-type: none"> • Geneva Protocol, 1925, that banned the use of chemical and biological weapons • Biological Weapons Convention, 1972, and Chemical Weapons Convention, 1992, which put comprehensive bans on the biological and chemical weapons respectively. <ul style="list-style-type: none"> ◦ India has signed and ratified both the 1972 and 1992 treaties. • There are very few non-signatory countries to these treaties, even though several countries have been accused of non-compliance. • The use and proliferation of nuclear weapons is regulated by treaties such as Nuclear Non-Proliferation Treaty (NPT) and the Comprehensive Test Ban Treaty (CTBT).
<p>Exercise Desert Flag</p>	<p>Context: India’s indigenously-made light combat aircraft Tejas will be participating in its first international multilateral air exercise — Exercise Desert Flag .</p> <p>About Exercise Desert Flag :</p> <ul style="list-style-type: none"> • Exercise Desert Flag is a yearly multinational warfare exercise held by the UAE Air Force. • This is the eighth edition of the exercise. • The Indian Air Force will be taking part with five LCA Tejas Light Combat Aircraft and two C-17 Globemaster III aircraft. • Other participants in the exercise include air forces from France, Kuwait, Australia, the UK, Bahrain, Morocco, Spain, the Republic of Korea, and the USA. • The objectives for the exercise were to expose coalition participating forces to large force employment, sharpen tactical capabilities, and enhance interoperability along with fostering closer relations between the participating forces. • The Indian Air Force (IAF) participated in the exercise for the first time, in Exercise Desert Flag-VI (2021).

MAINS



POLITY & GOVERNANCE



ChatGPT and the AI challenge

Context: There is a great deal of speculation about how the recently launched ChatGPT will impact a huge number of human job roles, from customer service to computer programming.

**About ChatGPT:**

- ChatGPT is a **prototype dialogue-based AI chatbot** capable of understanding natural human language and generating impressively detailed human-like written text.
- It is the latest evolution of the GPT – or **Generative Pre-Trained Transformer** – family of text-generating AIs.
- It is trained using a **machine learning technique** called **Reinforcement Learning**

from Human Feedback (RLHF).

- It can simulate dialogue, answer follow-up questions, admit mistakes, challenge incorrect premises and reject inappropriate requests.

Core function of ChatGPT:

- Like other language models, Chat-GPT is designed to **generate human-like text based on the input it receives.**
- It is trained on a **large text dataset** and can generate a wide range of responses to various prompts and questions.
- This helps them **mimic speech patterns** while dispatching **encyclopedic knowledge.**
- Basically, that means that it is a computer program that can understand and **“talk” to us in a way that is very close to conversing with an actual human.**
- A very clever and knowledgeable human at that, who knows around **175 billion pieces of information** and is able to recall any of them almost instantly.
- Although the core function of a chatbot is to **mimic a human conversationalist, ChatGPT is versatile.**
- For example, it can **write and debug computer programs, to compose music, teleplays, fairy tales, and student essays;** to answer test questions .

Significance of Chat GPT

- **Increased productivity:** Having Chat GPT implemented can help businesses improve their efficiency, allowing them to provide better and faster service to their clients.
- **Increased Accuracy:** As more data is gathered and the model is fine-tuned on specific tasks, the generated text is expected to increase in both its accuracy and its coherence.
- **Quick responses:** With ChatGPT you can be sure of quick responses. GPT can promptly respond to incoming messages. It makes real-time conversations a breeze.
- **Reduced Expenses:** Providing support and customer care using ChatGPT can be accomplished at a very reasonable cost.
 - Having ChatGPT will allow businesses to hire a smaller number of customer care personnel to handle client inquiries, which in turn will lower the overhead costs of the firm.
- **Support for Various Languages:** ChatGPT is beneficial for individuals and businesses who wish to communicate with speakers of other languages, as Open AI works on models that support several languages.

Limitations:

- It may generate incorrect information, and create “**biased**”.
- It could give “**plausible-sounding but incorrect or nonsensical**”
- It can sometimes **overuse certain phrases**.
- The chatbot displayed clear **racial and sexist biases**.
- The chatbot gives answers which are **grammatically correct and read well**– though some have pointed out that these **lack context and substance, which is largely true**.

Ethical concerns associated with ChatGPT:

- **Malicious and Dangerous Coding:** Some users have been experimenting with the chatbot’s potential to carry out malicious actions.
 - It has been claimed by several users that **malicious and dangerous coding** is generated by the Chatbot despite their claims to be amateurs.
- **Plagiarism Chokepoint:** Plagiarism in academics is not a new issue, but **ChatGPT has altered how AI is utilized to produce original writing**.
 - It is difficult to identify plagiarized information as a result. Teachers and academicians have also expressed concerns over ChatGPT’s impact on written assignments.
- **Creation of Biased Data/information:** One concern is the potential for bias in the generated code, as the training data used to create the code generator may contain biases that are reflected in the generated code.
- **Curtailing the Job Opportunity:** There is a concern that the use of code generators could lead to the loss of jobs for human programmers.
- **Generation of Phishing Email:** ChatGPT is set up to reject requests to write phishing emails or malicious code but in actual sense ChatGPT is producing an outstanding phishing email.

Way Forward:

Anticipating possible futures requires engagement with the opportunities and challenges flagged by ChatGPT. Elon Musk wrote that “**ChatGPT is scary good. we are not far from dangerously strong AI**”. Thus, Current requirement is mapping out and planning for the changes that will be required in the education system, labour codes and new commodities that are bound to emerge as a result.

India's fortified food programme

Context: Recently, a report “Do India’s Food Safety Regulator (FSSAI) and Indian Citizens Need Saving from (Foreign & Indian) Private Players Behind Food Fortification Initiatives?” was released.

About Food Fortification:

- **The Food Safety and Standards Authority of India (FSSAI)** defines fortification as “**deliberately increasing the content of essential micronutrients** in a food so as to improve the nutritional quality of food and to provide public health benefit with minimal risk to health”.
 - For example, **adding iodine and iron to edible salt**.

Recent developments food fortification:

- The Ministry of Consumer Affairs, Food and Public Distribution had launched a centrally sponsored pilot scheme on “**Fortification of Rice and its Distribution under Public Distribution System (PDS)**” for a period of three years beginning 2019-20 with a total budget outlay of Rs.174.64 crore.
- The **pilot scheme focuses on 15 districts in 15 states**.
 - Under the scheme, the **blending of rice is done at the milling stage**.
- **Maharashtra and Gujarat** have started distribution of fortified rice under PDS in the Pilot Scheme.
- The Scheme is funded by the Government of India in the **ratio of 90:10 in respect of North Eastern, hilly and island states and 75:25 in respect of the rest**.

Need of food fortification:

- According to the **National Family Health Survey (NFHS-4)**:
 - 4% of children (6-59 months) are anaemic
 - 1% women in the reproductive age group are anaemic
 - 7% of children under 5 are underweight
 - Also, It is estimated that 50-70% of these birth defects are preventable. One of the major causes is deficiency of Folic Acid.
- India has slipped to **101st position in the Global Hunger Index (GHI) 2021 of 116 countries, from its 2020 position of 94th**.
- Thus, fortification is necessary to address deficiency of micronutrients or micronutrient malnutrition.

Fortification of food in India: Currently government is promoting fortification in following 5 food items:

- **Rice:** Department of Food and Public Distribution (DFPD) has been running a “**Centrally Sponsored Pilot Scheme on Fortification of Rice & its distribution through Public Distribution System**”. The scheme was initiated in 2019-20 for a three-year pilot run.

- This scheme will run till 2023 and rice will be supplied to the **beneficiaries at the rate of Re 1 per kilogram.**
- **Wheat:** The decision on fortification of wheat was announced in 2018 and is being implemented in 12 states under **India's flagship Poshan Abhiyaan** to improve nutrition among **children, adolescents, pregnant mothers and lactating mothers.**
- **Edible oil:** Fortification of edible oil, too, was made compulsory across the country by FSSAI in 2018.
- **Milk:** Fortification of milk was started in 2017 under which the **National Dairy Development Board of India (NDDB) is pushing companies to add vitamin D.**

Benefits of food fortification:

- **Prevent nutritional deficiency-induced ailments:** A nutritional deficiency occurs when your body doesn't get enough nutrients, such as **rickets due to vitamin D deficiency, anaemia osteoporosis or reproductive and nervous system ailments** due to zinc deficiency.
 - The fortified food helps **reduce rates of nutrient deficiency-related diseases.**
- **Beneficial in pregnancy:** There is a link between zinc deficiency and high mortality and morbidity rates in mothers and new-borns.
 - Folate deficiency can cause **faulty neural development in babies** in the womb.
 - Consuming **fortified food during pregnancy** can lower the risks of numerous **congenital deformities in babies and improves the mother and baby's health.**
- **Fulfill dietary requirements:** People who are **strict vegetarians, vegans, lactose-intolerant, or other diet-related conditions** have poor micronutrient levels, which causes various ailments.
 - Adding **fortified foods to your diet** can fulfill your nutrients requirement and improves your overall health.
- **Help in children's growth and development:** It is an evident-based fact that deficiency of iron, zinc, and **vitamins A and D causes growth problems.**
 - Including **fortified foods or micronutrient supplements** in the growing phase have a positive physical and mental growth response among children.
- **Helpful for elderlies:** With aging, our digestive system absorbs fewer nutrients, causing a nutritional deficiency.
 - Adding fortified food to the diet help maintain **healthy nutrient levels for stronger bones, better digestion, and healthy organ functioning.**

Issues with food fortification:

- **Loss of natural protective substances:** Sometimes, fortification can have the opposite effect.
 - Natural foods contain protective substances such as **phytochemicals and polyunsaturated fat** that are adversely affected by the **process of blending micronutrients.**
- **Impact on foetal development:** Consumption of excess iron by pregnant women can adversely affect foetal development and birth outcomes.
 - These children have increased risk of contracting chronic diseases.
- **High cost:** The fortification expenditure of only the rice delivered through the social safety networks will cost the public exchequer about Rs 2,600 crores annually.

- **Market-driven solution:** The researchers are worried that the push towards fortification is more to help the industry than the people and is an international market driven solution and without any scientific logic.
- **Impact on small industries:** Fortification creates an assured market for multinationals. It could threaten the livelihoods of small units across India. Like, in case of rice and oil processing.
- **No direct link between anaemia and iron deficiency:** There is no direct link between anaemia and iron deficiency.
 - **Anaemia is high among poor children in the rural areas** but iron deficiency is more among the urban and rich across the country.

According to stalwarts of nutrition, food fortification is a **cost-effective complementary strategy to address multiple micronutrient deficiencies**. Thus, given its proven **efficacy and cost-effectiveness, food fortification** can help us in **reducing micronutrient deficiencies and address overall health benefits**. The intervention, carried out with precautions, is the key to the malnutrition issue which the nation continues to grapple with.

The Role of Labour Unions/Trade Unions in Emerging Sectors

Context: There have been many reports of layoffs in the last few months, especially in emerging sectors.

- Lay-offs have been taking place not only in India but in major economies like the U.S. too. Large, medium and small enterprises as well as start-ups have let go of dozens or even thousands of workers.

About Labour Union/Trade Union:

History of Trade Union Movement in India

- In 1870, the first **labour organization Working Men's Club** was founded in Calcutta by Sasipada Banerjee. He also published in the journal 'Bharat Sramajibi'.
- In 1875, Sorabjee Sharpoorji Bengalee of Mumbai organized the labour agitation in Bombay against the appalling conditions of workers, especially women and children.
 - Thus, the **first organized labour agitation** was organised by **S. Bengalee**.
 - It results in the **formation of the first factory commission** in the country in 1875.
- In 1875, **Narayan Meghaji Lokhande** was the first to represent the grievances of the Indian working class before the **Labour Commission of Bombay**.
- In 1890, **M Lokhande** set up the first association of Indian workers the '**Bombay Mill-Hands Association**' in Bombay.
- In 1897, the **Amalgamated Society of Railway Servants of India** was established.
- In 1920, the **All Indian Trade Union Congress (AITUC)**, the first trade union on an All-Indian basis, was formed.
 - The four founder fathers of AITUC were **Lala Lajpat Rai, N. M. Joshi, Joseph Baptista, and Diwan Chaman Lal**.
- In 1926, British Government in India passed the **Trade Union Act of 1926**, which was the **first labour enactment to legalize the formation of the Labour Union** in India.

- In 1928, **Girni Kamgar Union** organized the **Bombay Textile Mills strike** under the communists.
- In 1947, **Indian National Trade Union Congress (INTUC)** was formed as the labour wing of the **Indian National Congress (INC)** with the efforts of **Sardar Vallabhbhai Patel and Gulzarilal Nanda**.
- In December 1948, the **Indian Federation of Labour (IFL)** merged with **Hind Mazdoor Sabha (HMS)** and formed **United Trade Union Congress (UTUC)**.
- In 1955, **Jan Sangh (now Bhartiya Janta Party)** also established its labour wing known as **Bharatiya Mazdoor Sangh (BMS)**, founded by **Dattopanti Thengdi**.
- In 1970, the **Centre of Indian Trade Union (CITU)**, affiliated with the **Communist Party of India (Marxist)**, was formed with **T. Ranadive** as its first president.

Major reasons for the lay-offs:

- Impact of COVID-19 pandemic
- Changes in business strategy
- Automation and technology advancements
- Re-evaluation of company goals and priorities
- Mergers and acquisitions
- Financial difficulties
- Frequent changes in government policies and regulations
- Decreased investment
- Decreased demand for goods and services
- Increased competition

The Amazon story:

Labour Union in Amazon:

- Amazon workers at the warehouse at **Staten Island called JFK8** succeeded in forming the **Amazon Labour Union**.
- Amazon reacted by filing numerous objections with the **National Labour Relations Board**, the federal body that protects the rights of private sector employees to join together.
- On the other hand, employees at the warehouse near Albany voted overwhelmingly against unionisation in October 2022 as many of them were sceptical of the bargaining power of a union vis-à-vis a giant like Amazon.

In India:

- Amazon shut down **Amazon Food and Amazon Academy**.
 - It retrenched workers in the Indian facility in a gradual manner.
- The **Deputy Chief Labour Commissioner** in Bengaluru served a notice seeking information from the company.

- But it is well-known how seriously employers, **especially multi-national corporations (MNCs)**, take labour departments; they ignore conciliation meetings more often than trade unions.

Importance of Labour Unions in Emerging Sectors:

- **Job Security and Protection against Mass Lay-offs:**
 - Labour unions play an important role in advocating **for job security and protecting workers against mass layoffs**, particularly in emerging sectors where layoffs may be more widespread.
- **Support for Re-employment and Career Development:**
 - Labour unions can **provide support and resources for re-employment and career development for workers** who have been laid off, helping them to find new job opportunities and secure their financial future.
- **Negotiation of Severance Packages:**
 - Labour unions can **negotiate with employers to provide adequate severance packages for workers** affected by mass lay-offs, helping to mitigate the financial impact of job loss.
- **Collective Bargaining Power:**
 - By pooling their resources and bargaining power, labour unions can **negotiate with employers to secure better wages, benefits, and working conditions for workers**, making them less vulnerable to layoffs and more able to secure their financial future.
- **Advocacy for Workers' Rights and Protections:**
 - Labour unions can use their voice and influence to **advocate for workers' rights and protections against mass lay-offs**, working to prevent layoffs and ensure that workers are treated fairly and equitably.

Landmark Cases About Trade Unions In India

All India Bank Employees' Association v. N.I.Tribunal

- The case laid down the **rights of members of trade unions** that are covered under the **fundamental right to freedom of expression and speech under Article 19(1) (c)**.
- However, the court ruled that **Article 19(1) (c)** does not include a right to achieving all the goals for which the trade union was created.
- The ruling also ruled that **adequate industrial legislation can govern or restrict trade union strikes**.

Balmer Lawrie Workers' Union, Bombay and Anr. v. Balmer Lawrie & Co. Ltd. and Ors

- The SC's underlying assumption was that a recognised union represents all workers in a particular industrial project or industry. In the MRF United Workers case, this matter was also mentioned.

Kalindi and Others v. Tata Locomotive and Engineering Co. Ltd

- The Supreme Court concluded that there is **no right to representation unless it recognises it through its standing orders.**
- In **Bharat Petroleum Corporation Ltd. v. Maharashtra General Kamgar Union and Others**, the decision was upheld.

Way Forward:

- Labour unions play a **crucial role in emerging sectors by advocating** for the rights and interests of workers.
- In industries such as **technology and renewable energy, where working conditions and job security may be uncertain**, unions provide a voice for employees and negotiate fair wages, benefits, and working conditions.
- Historically, the role of trade unions in India was **mostly limited to collective bargaining for economic reasons.**
- On the other hand, **trade unions currently play an important role in employee welfare, cultural programmes, banking, and medical facilities**, as well as raising awareness through training and education of trade union members.
- Despite a few recent events that can mainly be **classified as one-off situations, most trade unions** have succeeded to create a climate that allows for a **constructive conversation between workers and employers** about whatever requests they may have.
- Furthermore, Indian trade unions have ensured that a forum exists to support better industrial relations, industrial growth, and productivity improvement over time.

Significance of Tribal Culture in Sustainable Development

Context: Recently the Prime Minister remarked that the world can learn a lot about sustainable development from Adivasi culture and it can be a solution to global problems like climate change and global warming.

- India comprises **6% tribal population**, has access to an enormous indigenous knowledge which through **recognition, adoption, and mainstreaming** has the potential to **provide sustainable solutions** to concerns related to
 - falling agricultural productivity and soil quality,
 - biodiversity loss,
 - water scarcity, pollution, and
 - Climate Change challenges.
- **Sustainable Development refers** to a way of **achieving economic growth and development** that meets the needs of the present without compromising the ability of future generations to meet their own needs.

About Constitutional Provisions:

- The **Constitution of India** does not endeavour to define the term 'tribe', however, the term 'Scheduled Tribe' was inserted in the **Constitution through Article 342 (i).**

- It lays down that **‘the President may, by public notification**, specify the tribes or tribal communities or parts of or groups within the tribes or tribal communities or parts which shall, for the purposes of this Constitution, be deemed to be Scheduled Tribes.
- The **Fifth Schedule of the Constitution** provides for the setting up a **Tribes’ Advisory Council in each of the States having Scheduled Areas**.

About Tribal Cultures:

- **Communal living:** Many tribal communities in India have a strong emphasis on **communal living and sharing resources**.
 - They live in close-knit communities and often make decisions collectively.
- **Self-Sufficiency:** Tribe is a **synonym for a self-reliant community**, a tribe is a relatively closed society and its openness is inversely related to the **extent of its self-sufficient pursuits**.
- **Connection with nature:** Tribals have a strong connection with nature, with **traditional beliefs and practices** that revolve around the forests and animals.
- **Folk arts and crafts:** Tribals are known for their unique art forms, including **pottery, weaving, and jewellery making**.
 - These crafts often have **spiritual or cultural significance** and are passed down through generations.
- **Spiritual beliefs:** Tribals often have their own unique spiritual beliefs, which may involve the **worship of ancestors, nature spirits, or deities**.

Tribal Lifestyle and Sustainable development:

- **Respect for the natural environment:** Tribal traditional practices, such as using natural materials for **housing, food, and medicine, and living in harmony** with the cycles of nature.
- **Community-based decision-making:** Collective decision-making considers the needs of the community as a whole and ensures that decisions are made in a **sustainable and equitable manner**.
- **Promotion of biodiversity:** Tribals have developed practices to protect and promote diversity which includes traditional methods of agriculture, such as **intercropping and seed-saving, as well as the protection of sacred sites** that are important for the preservation of biodiversity.
- **Conservation of natural resources:** Sustainable practices involve limiting the use of resources to ensure their long-term availability, such as **rotational farming or allowing forests to regenerate before harvesting timber**.
- **Emphasis on intergenerational knowledge sharing:** Passing down knowledge to the next generation includes **traditional knowledge of the natural environment and sustainable practices for managing resources**.
- **Protection of water resources:** Tribal communities rely on water resources and have developed practices that can help to ensure that **water is available for future generations, and can reduce greenhouse gas emissions**.
- **Regenerative agriculture:** tribal communities have been practicing regenerative agriculture for centuries, which involves practices like **crop rotation, intercropping, and regenerating soils with organic matter**.

- These practices help to sequester carbon in the soil, which can help to mitigate climate change.
- **Use of renewable energy:** They have traditionally used renewable energy sources like **wind, solar, and hydropower** which can be expanded and modernized to provide clean energy for more people.

Challenges faced by tribals in performing their lifestyle

- **Discrimination:** Tribal communities often face discrimination and prejudice from the dominant society, including **limited access to education, healthcare, and other basic services**.
- **Land rights:** Tribal communities have been displaced from their traditional lands due to industrialization, and mining which has resulted in the **loss of cultural identity, and social and economic marginalization**.
- **Climate change and environmental degradation:** Climate Change, such as changes in rainfall patterns, increased frequency of natural disasters, loss of biodiversity, deforestation, pollution, and loss of habitat, has negatively impacted their traditional livelihoods and ways of life.
- **Socioeconomic marginalization:** Many tribal communities have limited access to **education, healthcare, and economic opportunities**, which can result in poverty and social exclusion.
- **Lack of political representation:** Tribal communities often lack political representation and may not have a voice in decision-making processes that affect their lives.
- **Health challenges:** Tribal communities often face challenges in accessing quality healthcare, which can result in higher rates of disease, malnutrition, and other health issues.
- **Cultural assimilation:** Many tribal communities face pressure to assimilate into the dominant culture, which can lead to the loss of traditional knowledge, language, and cultural practices.

Government initiatives to conserve tribal culture:

- **National Scheduled Tribes Finance and Development Corporation (NSTFDC)**, an apex Organization under the Ministry of Tribal Affairs in 2001 was brought into existence with the sole aim of economic upliftment of the Scheduled Tribes by way of extending concessional financial assistance to the target group under its various schemes.
- **TRIFED's Initiatives For Tribal Population:**
 - The Government plans to establish **50,000 Van Dhan Vikas Kendras, 3000 Haat Bazaars, etc.**
 - **Central Sector Scheme:** Institutional Support for Development & Marketing of Tribal Products / Produce.
 - **Tribes India Outlets:** The outlets will showcase tribal products from all over the country and the outlets will have a specific geographical indication (GI) and Vandhan corners.
- **Support to Tribal Research Institutes (TRIs)** and Tribal Festivals, Research Information, and Mass Education
- **Pradhan Mantri Van Dhan Yojana:** It is a **market-linked tribal entrepreneurship development program** for forming clusters of tribal Self Help Groups (SHGs) and strengthening them into Tribal Producer Companies.
- Scholarships for **pre-matric, post-matric, and overseas education**

- Support to **National Scheduled Tribes Finance and Development Corporation**
- **Development of Particularly Vulnerable Tribal Groups (PVTGs):** The scheme covers activities like housing, land distribution, land development, agricultural development, animal husbandry, construction of link roads, etc.
- **Vocational Training in Tribal Area:** The aim of the Scheme is to develop the skills of the ST youth for a variety of jobs as well as self-employment and to improve their socio-economic condition by enhancing their income.
- **Centrally Sponsored Scheme: The mechanism for Marketing of Minor Forest Produce (MFP) through (MSP) and Development of a Value Chain for MFP'** as a measure of social safety for MFP gatherers.

Way Ahead

As India celebrates its **75th year of Independence** with '**Azadi ka Amrit Mahostav**', **Janjatiya Gaurav Diwas** would be a thoughtful gift for our tribal community and a recall to Ram Rajya — where the **likes of Guha are given due respect**, their cultural diversity is respected, and their contributions celebrated.

Tribal lifestyles can **offer solutions to climate change and global warming** through sustainable practices that **protect and preserve the natural environment**. Overall, tribal lifestyles can **provide valuable lessons for sustainable development**, particularly in areas with high levels of biodiversity or where development threatens the natural environment.



ECONOMY



Ways to boost the Tax Base in the Country

Context: According to projections by the World Population Review, India has surpassed China as the world's most populous nation.

Key highlights of the world population review:

- India is a **country of 1.4 billion people** with a rising middle class.
 - On the face of it, the **country presents untapped growth potential**.
- According to OECD, **a quarter of our population is less than 15 years old which makes us a very youthful nation indeed**.
- The steady upward trend in the **working age population** is particularly noteworthy as it gives us a **definitive edge over our peers and can help drive growth in the coming years**.
- There are many broader policy implications that arise – **harnessing this workforce effectively to contribute to GDP**, providing them the right skill training, providing jobs, social security etc.
 - But a growing workforce should also result in an **increase in income tax revenue**.
- Tax evasion and avoidance have always been a headache for the government which has a **negative effect on the growth of the Indian economy**.

About the Status of Income Tax Base in the country:

- Recently, the Finance Ministry had revealed that the number of people who filed **income tax returns stood at 6.8 crore in 2020-21**.
- This means that **only 4.8 per cent of the total population** filed IT returns in 2021.
 - Of these, **only 1.69 crore paid tax since 65 percent of the taxpayers earned less than ₹5 lakh**.
- So effectively, **only 1.2 per cent of the population pays income tax as of now**.

Major reasons for the narrow Income Tax base:

- **Larger Workers in Informal Sector:** In India, a large portion of the workforce is employed in the **unorganized or informal sector**.
 - This is one of the reasons why fewer people are filing tax returns.
- **High Income Threshold:** As per the tax laws, the tax incidence arises only if the income is above a certain threshold.
 - According to Statistics, 67 per cent of Indian households had annual income under ₹6 lakh in 2021.
 - This reduces potential income taxpayers to 7.6 crore.
- **Low Worker Population Ratio:** According to the World Bank, 95 crore people were in the working age group of **18 to 64 years out of the total population in 2021**.

- For example, Many women are home-makers or care-givers and may not be in the working cohort.
- The worker population ratio in India is 44.5 per cent, which means that only 42 crore people could be employed in some way or the other in India.
- **False revelation by Non salaried Person:** Although the share of personal income tax in the total tax collection by the Central Government is **only about 15 per cent, it is extremely lopsided.**
 - It was mentioned in the **2018-19 Budget speech** that the **average salary earner pays three times more than a non-salaried taxpayer** and this does not include those who submit income tax returns but pay nil tax.
 - This anomaly is essentially due to non-revelation of true income by the non-salaried.
- **No Tax on Agriculture Income:** The agriculture and allied sector has contributed only to 18 percent of GDP, where about 45 per cent of the population is employed.
 - However, as the income from agriculture is not taxed, irrespective of the level of income, unaccounted money is shown as agricultural income by vested interests.

Suggestive measures to boost tax base:

Tax on Agriculture Income:

- Those who show their annual income from farming of more than a specific amount can be taxed marginally.
- It is politically a very tough move, but definitely it will help to curb tax evasion.

Formalization of Economy:

- According to a paper, '**Measuring Informal Economy in India_ Indian experience**', by **SV Ramana Murthy**, 90.7 percent of the total workforce in 2017-18 was employed by the informal sector.
- The report says that besides agriculture, some sectors such as **construction, trade, restaurants, communication and other services** too have over three-fourth of the entities operating in the informal sector.

Collecting Tax at source:

- Collecting tax at source for purchase of certain goods and services is another way to identify those who earn a tidy sum every year but are not paying any taxes.
 - As of now, **TCS is collected for high value goods such as expensive motor vehicles, gold jewellery or overseas remittances.**
 - This can help identify those operating in the informal sector and earning high income, yet evading tax.
 - While this could hit honest taxpayers, they can reclaim the tax in their annual return based on the form 26AS.

Role of GST regime:

- One of the objectives of the GST regime in its original form was to nudge those in the **unorganized sector to shift to the formal sector and file GST returns** in order to avail input tax credits or to continue supplying to larger buyers.
 - But leeway provided in the initial phase, such as doing away with **invoice matching, dropping reverse charge mechanism etc have diluted this objective.**
 - With the GST system now having settled down, **implementation of these self-policing mechanisms rigorously could help increase the formal economy.**

GST Compliance:

- The more the GST compliance, the better the revelation of true income by **professionals, businessmen and traders, and the increase in income tax from the non-salaried taxpayers.**
 - The **direct and indirect tax departments** should get their act together to generate more income tax from non-salaried taxpayers.
 - Government should work to **plug tax evasion due to illicit trade and smuggling.**

Urban farming

Context:

- A new draft policy by Delhi-based research non-profit People's Resource Centre, says some 60 per cent of Delhi's demand for meat is fulfilled by city-grown produce, as is 25 per cent of its milk and 15 per cent of its vegetable needs.

Did you know ?



55% of the world's population resides in urban areas



800 million people worldwide are involved in UPA (1996)



79% of all food produced is destined for consumption in cities



266 million urban households are involved in crop production in developing countries

- Yet policies on land use and farming in the National Capital do not acknowledge the role of cultivation and distribution of food in urban areas
- India is rapidly urbanising and is estimated to host 50 per cent of its population in cities by 2050. Hence, there needs to be increased focus on urban farming

The "Draft Citizen's Policy for Urban Agriculture in Delhi"

- It was submitted to the Delhi government in 2022
- It aims to provide a holistic framework for urban farming.
- It recommends building on existing practices, promoting residential and community farming through rooftop and kitchen gardens, allocating vacant land for agricultural use, creating a market, developing policies for animal rearing and spreading awareness.
- These recommendations are crucial to ensure food security for urban communities.

Urban agriculture

- Urban and peri-urban agriculture (UPA) can be defined as practices that yield food and other outputs through agricultural production and related processes (transformation, distribution, marketing, recycling) taking place on land and other spaces within cities and surrounding regions.
- It involves urban and peri-urban actors, communities, methods, places, policies, institutions, systems, ecologies and economies, largely using and regenerating local resources to meet changing needs of local populations while serving multiple goals and functions.

Need and Significance

- Rapid urbanisation, population explosion and climate change increases the risk of food shortage – A 2017 study published in **the International Journal on Emerging Technologies**.
- 50 per cent of women and children in urban areas are anaemic due to lack of adequate nutrition – **2010 report by M S Swaminathan Research Foundation, Chennai**. Both studies recommend urban agriculture
- Globally, in 2020, the **UN Food and Agriculture Organization** acknowledged that urban and peri urban farming can contribute to local food and nutritional needs, enable jobs and reduce poverty.
- Our cities already suffer from high population density, unaffordable housing, improper waste disposal, water scarcity most of the year and flooding during the rains, pollution and attendant illnesses, food and nutritional insecurity and urban poverty, among others.

Indian scenario

- Noting the critical need for a paradigm shift in urban planning, **2022-23 budget speech announced the decision to set up a high-level committee** to steer the required changes in urban policy, planning, capacity building and governance.
- Given the current context and future exigencies, this presents an opportune moment to critically engage with **urban land-use planning (ULP)**, especially urban and peri-urban agriculture (UPA), as one of the essential elements of sustainable urbanisation.
- In 2008, Pune’s civic administration launched a city farming project to train and encourage people to take up farming on allocated land.
- Kerala had been food dependent until 2012 when the state government launched a vegetable development programme to encourage gardening in houses, schools, government, and private institutions.
- According to **Kerala State Planning Board**, vegetable production rose from 825,000 tonnes in 2011-12 to 1.3 million tonnes in 2014-15.
- Similarly, in 2014, the Tamil Nadu government introduced a **“do-it-yourself” kit** for city dwellers to grow vegetables on rooftops, houses and apartment buildings under its **Urban Horticulture Development Scheme**.
- Since 2021, Bihar encourages terrace gardening in five smart cities through subsidy for input cost.

Challenges

- **Absence in Planning** – Agriculture, mostly associated with rural practice, hardly finds a place in urban planning guidelines. For instance, India's Urban and Regional Development Plans Formulations and Implementation (URDPFI) guidelines mention agriculture while preparing city plan
- **Policy lacunae** – The recently released draft Master Plan of Delhi for 2041, does not acknowledge the role of the practice. It aims to divide 8,000 hectares of land along the Yamuna into two sub-zones and restrict human activity or settlement in areas directly adjacent to the river.
- **Rapid development** is a hindrance.
- Citing the example of Jaunti village in Delhi, where the Green Revolution began – It has become an 'urban village', making its land non-agricultural.
- Farmers cannot avail benefits under any agricultural schemes such as crop insurance.
- **Environmental degradation** – Excessive use of chemical fertilisers and pesticides in urban farms can lower produce and soil quality.
- **Scalability** – Kitchen gardening or small-scale community farming cannot sustain the large population, but can act as a cushion to protect urban residents from inflation, vulnerabilities of weather or crises such as COVID-19

Way forward;

- It is an appropriate time to introspect and transform the way we produce and consume.
- With climate change, there is a greater need for localising nourishment of humans to prevent starvation and overcome nutritional deficiency
- Apart from governments, citizens and professionals from the field of architecture, planning, agriculture, social sciences and private developers need to cross-learn and co-create productive green urbanism for a resilient future.

Land Monetisation

Context: To expedite the monetisation plans for government-owned land assets across the country, the National Land Monetisation Corporation (NLMC) has decided to rope in international property consultancy firms to help strategize and implement transactions from start to finish.

About Land Monetisation:

- Land Monetisation means transferring **the revenue rights of the asset (could be idle land, infrastructure, PSU)** to a private player for a specified period of time.
- In such a transaction, the **government gets in return an upfront payment from the private entity**, regular share of the revenue generated from the asset, a promise of steady investment into the asset, and the title rights to the monetised asset.
- In the case of **land monetisation of certain spaces like offices**, it can be done through a **Real Estate Investment Trust (REIT)**, a company that owns and operates a land asset and sometimes, **funds income-producing real estate**.

- Assets of the government can also be monetised through the **Public Private Partnerships (PPP) model**.

Benefits of Land Monetisation:

- The **monetisation of several lakh acres of the land pool** with various central government agencies is expected to give a fillip to the **Rs 111-trillion National Infrastructure Pipeline (NIP) in five years through FY25** and **Gati Shakti connectivity projects, as well as the housing sector**.
- The monetisation process aims to **capture the real estate value of public land lying idle in monetary terms** to improve or strengthen the finances of government bodies and local authorities.
- **The 13th Finance Commission of India** also underlined the importance of monetisation of land which has the potential for **generating additional revenues from under-utilized prime lands of Public Sector Undertakings, Port Trusts, Airports, Railways, municipal corporations, etc.**
- There is an estimate of the extent of land held by various government agencies in **excess of 5 lakh hectares, of which, over 160,000 hectares** are held across various airports, seaports, and railways.
- It allows certain **State/ Centre funded projects** to be created and financed from otherwise **defunct assets or under-utilized land parcels**.

Challenges faced in Land Monetization

- **Complex legal and regulatory framework:** The legal and regulatory framework for land ownership, land use, and land development is often complex and varies by region, making it difficult for CPSEs to navigate the process of monetising their land.
- **Lack of fast Dispute Resolution Mechanism:** More than 60% of the litigation in India is land-related and these disputes need to be resolved in a time-bound manner for timely land monetisation.
- **Meeting disinvestment targets:** The success of NLMC will depend on the government's ability to meet its disinvestment targets.
 - The government has not been able to meet its targets in the past, which could affect the performance of the NLMC.
- **Mapping the vacant lands:** The estimation of surplus land may be a contentious issue in the absence of a clear land title, ongoing litigation, and encroachments.
- **Ensuring adequate investment:** Private players must invest adequately in the asset to ensure its growth and sustainability.
 - The government needs to ensure that the **private players are fulfilling their investment commitments**.
- **Market conditions:** The value of land is dependent on market conditions, which can be volatile, and subject to fluctuations.
 - Moreover, the vast difference between the **state gazette valuation and market rate valuation can create problems**.
- **Use of PPPs:** The use of PPPs as a monetisation model can pose challenges, as seen in the case of the **Railways' PPP initiative**, which did not see much interest from private players.

About National Land Monetisation Corporation:

- Introduced in the Union Budget 2021-22, NLMC is a **wholly owned Government of India**.
- The **Board of Directors of NLMC** will comprise **senior Central Government officers** and eminent experts to enable professional operations and management of the company.
- It **falls under the Ministry of Finance** and has been set up with an **initial authorised share capital of Rs.5,000 crore and a paid-up capital of Rs.150 crore**.
- NLMC is a **Special Purpose Vehicle (SPV)** that owns, holds, manages, and monetizes surplus land and assets of CPSEs under closure and the surplus non-core land assets of Government CPSEs under strategic disinvestment.

Recent trend of Current Account Deficit (CAD)

Context: The recent data indicated that the current account deficit (CAD) will moderate despite the global slowdown triggered by rising inflation and interest rates.

- According to the RBI, the CAD is expected to moderate in the second half of 2022-23 and remain eminently manageable and within the parameters of viability.

About Current Account and Current Account Deficit:

- A nation's Current Account maintains a record of the country's transactions with other nations. It comprises the following components:
 - trade of goods and services,
 - net earnings on overseas investments and net transfer of payments over a period of time, such as remittances
 - This account goes into a deficit when money sent outward exceeds that coming inward.
- **Calculation:**
 - It is measured as a percentage of GDP.
 - Trade gap = Exports – Imports.
 - Current Account = Trade gap + Net current transfers + Net income abroad.

Current Account Deficit:

- When the **value of the goods and services** that a country **imports exceed the value of the products it exports**, it is called the current account deficit.
- **CAD and the fiscal deficit** together make up the twin deficits – **the enemies of the stock market and investors**.
- **Difference with the Balance of Trade:**
 - It is slightly different from the Balance of Trade, which measures **only the gap in earnings and expenditure on exports and imports** of goods and services.
- Whereas, the current account also factors in the **payments from domestic capital deployed overseas**.
- For example, **rental income from an Indian owning a house in the UK** would be computed in the Current Account, **but not in the Balance of Trade**.

Significance of CA:

- If the current account – the **country's trade and transactions with other countries** – shows surplus, that indicates **money is flowing into the country**, boosting the **foreign exchange reserves and the value of rupee against the dollar**.
- These are factors that will have **ramifications on the economy** and the stock markets as well as on **returns on investments by people**.

Indicator of Economy:

- CAD may be a **positive or negative indicator** for an economy depending upon why it is running a deficit.
- Foreign capital is seen to have been used to **finance investments in many economies**.
- It may help a debtor nation in the short-term, but it may worry in the long-term as investors begin raising concerns over adequate return on their investments.
- India's current account position is largely on the **deficit side because of the country's dependence on oil imports**.

Ways of reducing CAD:

- The Current Account Deficit can be reduced by boosting exports and curbing non-essential imports such as gold, mobiles, and electronics.

The moderation in CAD, expected to be aided by the following factors:

- The fall in commodity prices,
- Rising worker's remittances and services exports, and
- Abatement of selling pressure by foreign investors, is set to boost sentiment on the investment front, as it will also bring the pressure off the currency.

Reasons for narrowing trade deficit in recent times:

- The trade deficit (for Jan 2023) narrowed to \$17.7 billion, led by a sharp fall in imports, while exports fell by a smaller amount.
- The sharp drop in imports was due to:
 - Non-oil imports falling, mainly due to a price impact (softening in coal prices from mid-December),
 - Likely softening in domestic demand post the festive season (such as lower imports of transport equipment), and
 - Seasonal impact of the Chinese New Year holidays.

WAY Forward:

While rising **CAD raises concerns among investors** as it hurts the currency and thereby the inflow of funds into the markets, a notable decline in CAD has **improved market sentiments**. Experts believe that CAD

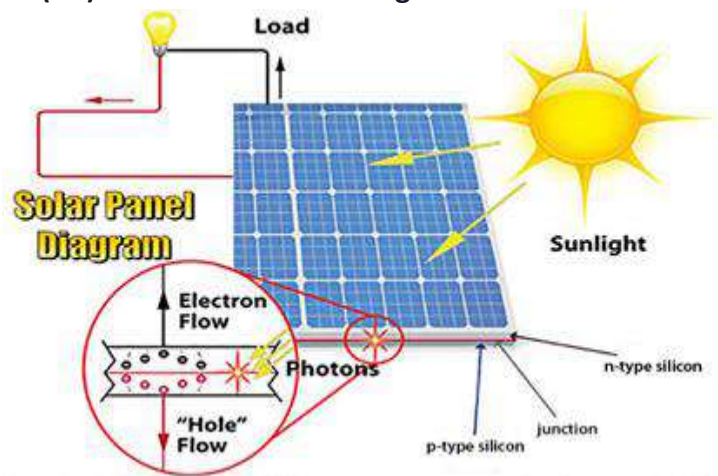
is **very important for the currency**. The value of an economy hinges a lot on the **value of its currency** and thereby, it also supports the equity markets by **keeping the fund flow intact**.

Solar Energy in India

Context: The Union budget increased allocation for the Production-linked incentive (PLI) scheme for high-efficiency solar modules.

About Solar Panel and its working:

- A solar panel is a **collection of photovoltaic (PV) cells that collect sunlight and convert it into electric current**.
- When sunlight hits the **semiconductor in the solar PV cell** the energy from the light in the **form of photons is absorbed**.
- This energy absorption results in exciting a number of electrons, which then drift freely in the cell.
- The solar cell is specifically designed to create an electric field.
 - This **electric field** forces the electrons to flow in a certain direction- towards the electrical terminals that line the cell.
- This flow is known as an **energy current**, and the strength of the current is determined by how much electricity each cell can produce.
 - Once the electrons reach terminals the current is then directed into wires making the **panel a source of electrical energy**.



Solar Energy potential in India:

- From less than 10 MW in 2010, India has added significant PV capacity over the past decade, **achieving over 50 GW by 2022**.
- By 2030, **India is targeting about 500 GW of renewable energy deployment**, out of which **~280 GW is expected from solar PV**.
 - This calls for **30 GW of solar capacity every year until 2030**.
- India's current solar module manufacturing capacity is limited to around **15 GW per year rest is met through imports**.
- An **estimated 85 per cent of this import** need is met by three countries **China, alongside Vietnam and Malaysia**.
 - The value of solar imported since 2014 adds up to \$12.93 billion, or Rs 90,000 crore.

Advantages of Solar Energy in India:

- This is an **inexhaustible source of energy** and the best replacement to **other non-renewable energies in India**.
- Solar energy is **environment friendly**, hence it is very suitable for India as it is being one of the most polluted countries of the world.
- Solar energy can be used for variety of purposes like as **heating, drying, cooking or electricity, which is suitable for the rural areas in India replacing other energy resources**.
- It can also be used in cars, planes, large power boats, satellites, calculators and many more such items, just apt for the urban population.
- In an energy deficient country like India, where power generation is costly, solar energy is the best **alternate means of power generation**.
- Solar panels can be easily installed; hence it is **quite inexpensive compared to other sources of energy**.
- By 2012, a total of 4,600,000 solar lanterns and 861,654 solar-powered home lights were installed.
 - Typically replacing kerosene lamps, they can be purchased for the cost of a few months' worth of kerosene with a small loan.
 - The **Ministry of New and Renewable Energy** is offering a **30- to 40-percent subsidy of the cost of lanterns, home lights and small systems**.
- **Solar photovoltaic water-pumping systems** are used for irrigation and drinking water.

Challenges of solar energy manufacturing in India:

- Solar cell manufacturing needs a **huge amount of capital**.
 - The **cost of debt in India (11%)** is highest in the Asia-Pacific region, while in **China it is about 5%**.
- Solar cell manufacturing is a complicated process that is technology intensive.
 - Establishing **state-of-the-art manufacturing facilities** needs access to technology.
 - It is unlikely that companies that have spent millions of dollars on R&D would make it easy for India to access the latest technologies easily or at a lower cost.
- **Lack of an integrated set-up** and the economies of scale (**despite 100 per cent FDI in the renewable energy sector**) translates into higher cost of domestic production
- Solar panel Manufacturing suffers from a **huge raw material supply crunch**.
 - **Silicon wafer, the most expensive raw material** in the panel, is not manufactured in India.
- Solar cell technology sees upgrades **every 8-10 months making manufacturing inefficient for new entrants**.

Govt. of India Initiatives:

- The govt. of India established a **19,500-crore production linked incentive (PLI) scheme** on 'national programme on high efficiency solar PV modules', seeking to attract Rs 94,000-crore investment in the sector.
- **Modified Special Incentive Package Scheme (M-SIPS)** of Ministry of Electronics & Information Technology offers a **20-25 per cent subsidy for investments** in capital expenditure for setting up a manufacturing facility.

- **Atal Jyoti Yojana (AJAY):** The AJAY scheme was launched in September 2016 for the installation of **solar street lighting (SSL) systems** in states with less than 50% of households covered with grid power (as per Census 2011).
- **PM KUSUM:** The scheme aims to add solar and other renewable capacity of 30,800 MW by 2022 with **total central financial support of Rs. 34,422 Crores.**
- **Solar Park Scheme:** The Solar Park Scheme plans to build a number of solar parks, each with a capacity of nearly 500 MW, across several states.
- **SRISTI Scheme:** Sustainable rooftop implementation of **Solar transfiguration of India (SRISTI) scheme** to promote rooftop solar power projects in India.
- **National Solar Mission:** It is a major initiative of the Government of India and State Governments to **promote ecologically sustainable growth** while addressing India’s energy security challenge.

India’s potential of blue economy

Context: Recently, G20 Environmental and Climate Sustainability Working Group discussed issues of land degradation, blue economy and the circular economy.

About Blue Economy:



- According to the World Bank, It is defined as the “sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ecosystem.”
- The blue economy offers coastal nations like India a huge socioeconomic opportunity to responsibly use ocean

resources for societal benefit.

- The rise in demand of ocean-linked products such as **seafood, energy generation**, etc. has led to the growth of the **blue economy globally**, with **estimated global turnover ranging between US\$ 3-6 trillion annually.**
- The concept began seeping into the consciousness of academics and policymakers after the **United Nations Conference on Sustainable Development in 2012.**

Significance of India’s Blue Economy:

- **India’s blue economy:** It is a subset of the national economy comprising the entire ocean resources system and human-made economic infrastructure in marine, maritime, and onshore coastal zones within the country’s legal jurisdiction.

- India is strategically located between **two important plug points called Strait of Hormuz and Strait of Malacca**, through which most of trade in commercial shipping moves in the **Indian Ocean**.
- **Coastal states and islands:** With some **7,500 kilometres**, India has a **unique maritime position**.
 - Nine of its 29 states are coastal, and it's **geography includes 1,382 islands**.
- **Ports and Exclusive Economic Zone:** There are nearly 199 ports, **including 12 major ports** that handle **approximately 1,400 million tons of cargo each year**.
 - Besides, **India's Exclusive Economic Zone of over 2 million square kilometres** has a bounty of living and non-living resources with significant recoverable resources such as crude oil and natural gas.
- **Coastal settlements:** The coastal economy sustains over 4 million fisherfolk and coastal communities.

Govt of India Initiatives to promote sustainable blue economy:

- **Sagarmala Project:** Vision of the Sagarmala Programme is to reduce logistics cost for export-import and domestic trade with minimal infrastructure investment.
- **Coastal Economic Zones:** The government identifies CEZs in the National Perspective Plan for Sagarmala Programme.
 - CEZs aims to promote exports by providing infrastructure and facilities to entrepreneurs to set up businesses and industries near Ports.
- **Indian Ocean Rim Association:** India has been taking active participation in the IORA for promotion of blue economy in Indian Ocean littoral states.
- **Matsya Sampada Yojana:** It is a flagship scheme for focused and sustainable development of the fisheries sector in the country.
 - It will bring about the Blue Revolution by harnessing fisheries' potential in a sustainable, responsible, inclusive and equitable manner.
- **Polymetallic Nodules:** India has received the sanction from International Seabed Authority for deep-sea mining in the Central Indian Ocean.
- **Deep Ocean Mission:** It was launched with an intention to develop technologies to harness the living and non-living resources from the deep-oceans.
- **India-Norway Task Force on Blue Economy for Sustainable Development:** It was inaugurated jointly by both the countries in 2020 to develop and follow up joint initiatives between the two countries.

Way Forward:

With its vast maritime interests, the blue economy occupies a vital potential position in India's economic growth. It could well be the next multiplier of GDP and well-being, provided sustainability and socio-economic welfare are kept centre-stage.

India should look to adopt the Gandhian approach of balancing economic benefits with sustainability for meeting the broader goals of growth, employment generation, equity and protection of environment.



INTERNATIONAL RELATIONS



India-USA relations



- The talks between India's National Security Advisor Ajit Doval and his American counterpart Jake Sullivan have concluded with the announcement of a **new road map for deeper military and techno-economic cooperation** between the two countries.
- The **bilateral Initiative on Critical and Emerging Technologies (iCET)** could lend a new strategic depth and breadth to the expanding engagement between India and the United States.
- The idea was first mooted in the meeting between Prime Minister Narendra Modi and President Joe Biden on the margins of the **Tokyo summit** of the Quadrilateral Security Dialogue (Quad) in 2022.

Bilateral relations

- The U.S.-India strategic partnership is founded on shared values including a commitment to democracy and upholding the rules-based international system.
- The United States and India have shared interests in promoting global security, stability, and economic prosperity through trade, investment, and connectivity.
- India and the United States cooperate closely at multilateral organizations, including the United Nations, **G-20**, Association of Southeast Asian Nations (ASEAN) Regional Forum, International Monetary Fund, World Bank, and World Trade Organization.
- India is an **ASEAN** dialogue partner, an **Organization for Economic Cooperation and Development** partner, and an observer to the **Organization of American States**.
- Together with Australia and Japan, the United States and India convene as the **Quad** to promote a free and open Indo-Pacific and provide tangible benefits to the region.
- India is also one of twelve countries partnering with the United States on the **Indo-Pacific Economic Framework for Prosperity (IPEF)** to make our economies more connected, resilient, clean, and fair.
- India is a member of the **Indian Ocean Rim Association (IORA)**, at which the United States is a dialogue partner.

Political relations

- President Biden and Prime Minister Modi have participated in multiple engagements of the Quad Leaders mechanism with Japan and Australia

- The **2+2 Ministerial Dialogue** between the U.S. Secretaries of State and Defense and their Indian counterparts is the premier recurring dialogue mechanism between the United States and India.
- The United States hosted the fourth 2+2 Dialogue in 2022.
- The United States welcomed India joining the **UN Security Council** in 2021 for a two-year term and supports a reformed UN Security Council that includes India as a permanent member.
- Various working groups – Civil Space Working Group, the Education and Skills Development Working Group, Trade Policy Forum, Defense Policy Group, and Counternarcotics Working Group.

Economic relations

- In 2021, overall U.S.-India bilateral trade in goods and services reached a record \$157 billion.
- The United States is India's largest trading partner and most important export market.
- Indian companies seek to increase their presence in U.S. markets and at the end of 2020, Indian investment in the United States totaled \$12.7 billion, supporting over 70,000 American jobs.
- USA accounts for 16 percent in the exports of goods exports and 50 percent of IT and BPO services.
- Major items of exports to USA are apparels, diamonds, marine products and footwear – These industries are labour intensive and hence will pave the way for more employment opportunities in the sectors

Environment

- India and USA launched the “**Climate Action and Finance Mobilization Dialogue (CAFMD)**”.
- Under the Climate and Clean Energy Agenda 2030 partnership
- It was launched at the Leaders' Summit on Climate in 2021
- In 2021, the United States joined the **International Solar Alliance** headquartered in India
- In 2022 the **United States Agency for International Development (USAID)** Administrator Samantha Power became Co-chair of the Governing Council of the Coalition for Disaster Resilient Infrastructure (CDRI) where India is a permanent co-chair.
- In 2021, The India-USA Strategic Clean Energy Partnership (SCEP) was launched in accordance with the US – India Climate and Clean Energy Agenda 2030 Partnership announced by both countries at the Leaders' Summit on Climate

Technological

- **The Indo-US Science and Technology Forum (IUSSTF)** – is a bi-national autonomous organization established to promote cooperation in Science, Technology and Innovation has continued to play an important role in strengthening cooperation in this field.
- The **iCET** involves collaboration in a range of areas including quantum computing, semiconductors, 5G and 6G wireless infrastructure, and civilian space projects such as lunar exploration.

- It will be monitored and driven from the PMO in Delhi and the White House in Washington
- **GE Aerospace** has applied for an export licence for jet engine production and phased transfer of technology to Indian entities.
- **ISRO and NASA** are working together to realize a joint microwave remote sensing satellite for Earth observation, named NASA-ISRO Synthetic Aperture Radar (**NISAR**).

Defence and Security

- **The Defense Policy Group (DPG)** provides a platform for a comprehensive review of defense dialogues/mechanisms.
- The last DPG was held in 2021.
- The defense procurement activities are monitored through the Defense Production and Procurement Group (DPPG)
- In August 2022, a U.S. Navy Ship (USNS) Charles Drew visited in Chennai for repairs and allied services. This was the **first ever repair** of a U.S. Navy ship in India.
- US designating India as “**Major Defence Partner**,” a status unique to India, India is now at par with its closest allies.
- There is a new panorama for elevated Indo-US cooperation, like signing of Defence Technologies and Trade Initiative (DTTI), BECA, COMCASA, LEMOA etc
- The signing of Communication Compatibility and Security Agreement (**COMCASA**) – paved the way for supply of equipment with transfer of technology.
- The decision to start exchanges between US Naval Forces Central Command (**NAVCENT**) and Indian navy was another milestone for strengthening maritime cooperation in the Western Indian Ocean.
- **Bilateral exercises** include: Yudh Abhyas (Army); Vajra Prahar (Special Forces), a tri-services exercise– Tiger Triumph (inaugurated in 2019).
- India joined the multilateral **Combined Maritime Force (CMF)** based in Bahrain, as an Associate Partner in 2022.
- S. participated in India’s multilateral Exercise Milan 2022.

Indian Diaspora

- The 3.5-million-plus strong Indian American community is an important ethnic group in the U.S., accounting for about 1% of the total population in the country
- Almost 21% of total international students in the U.S. are Indians. In 2022 close to 82000 student visas were issued in India, mostly for graduate (Masters) programs
- The nearly 200,000 Indian students in the United States contribute \$7.7 billion annually to the U.S. economy.
- With two Indian Americans occupying high level posts of Governor and several representatives of the people, the Indian Diaspora has assimilated into their adopted country and is acting as a catalyst to forge closer and stronger ties between India and the U.S.

- An MOU has been signed in June 2016 to facilitate India's joining of the Global Entry Programme for expedited immigration for eligible Indian citizens at U.S. airport

Way forward

- In recent years, exigencies such as the COVID-19 pandemic have redirected the relationship to a forward-looking assessment of regional and global geopolitics
- The sectors that will be key to shaping the arc of a strong Indo-US relationship in the years ahead are the following: emerging technologies; national security and defence cooperation; counterterrorism; and trade.

India-South Korea Relations

Context: India and South Korea recently acknowledged the 50th anniversary of India-South Korea diplomatic ties.

About India – South Korea bilateral relations:



Political

- During the Korean War (1950- 53), India played a major role in a cease-fire agreement signed between both the warring sides (**North Korea and South Korea**) and the ceasefire was declared in July 1953.
- **Comprehensive Economic Partnership Agreement (CEPA)** was operationalized from in January 2010.

- In May 2015, the bilateral relationship was upgraded to '**special strategic partnership**'.
- India has a major role to play in **South Korea's Southern Policy** under which Korea is looking at expanding relations beyond its immediate region.
- Similarly, South Korea is a major player in India's Act East Policy under which India aims to promote economic cooperation, cultural ties and develop strategic relationships with countries in the Asia-Pacific.

Regional Stability:

- The regional tensions in **South Asia especially between India and China** create a common interest for India and South Korea.
- This could be a collaborative approach for regional stability.

Nuclear:

- South Korea's key interest in managing their nuclear neighbour (North Korea) is similar to India's considerations toward Pakistan.

- The US alliance system, established with **South Korea and Japan**, puts pressure on North Korea to cap its nuclear programme.
- Containing North Korea is beneficial to India's economic and regional ambit in East Asia.
- It also adds to its approach to the nuclear non-proliferation regime as a responsible nuclear state.

Economic:

- The current bilateral trade between India and South Korea is at USD 21 billion and the target that has been set is USD 50 billion by the year 2030.
- India and South Korea have signed the **Comprehensive Economic Partnership Agreement (CEPA)**, 2010 which has facilitated the growth of trade relations.
- To facilitate investment from Korea, India has launched a **"Korea Plus"** facilitation cell under **'Invest India'** to guide, assist and handhold investors.

Diplomatic:

- There is a **long-lasting regional security dilemma** with the continued verbal provocations and a conventional arms race.
- Thus, despite the alliance system, Seoul appears to be searching for a stronger diplomatic stand on imminent regional issues beyond the alliance system.
- South Korea's approach to India comes with **strategic optimism for expanding ties to ensure a convergence of interest** in planning global and regional strategic frameworks.

Cultural:

- Korean Buddhist Monk Hyecho or Hong Jiao visited India from 723 to 729 AD and wrote the travelogue **"Pilgrimage to the five kingdoms of India"** which gives a vivid account of Indian culture, politics and society.
- Nobel Laureate Rabindranath Tagore had composed a short but evocative poem – **'Lamp of the East'** – in 1929 about Korea's glorious past and its promising bright future.

Indian diaspora:

- Many Indian scholars are pursuing post-graduate and Ph. D programmes, mostly in pure sciences live in South Korea.
- During the past few years, many professionals, mainly in the areas of IT, shipping and automobile have immigrated to ROK.
- Coordination Committee by the Indian high commission works to bring all the Indian Associations in ROK onto a common platform.
- The Committee is an effective platform for dissemination of information and coordinating cultural events/activities.

Multilateral Platforms Shared by Both the Countries:

- United Nations

- World Trade Organisation
- ASEAN Plus
- East Asia Summit (EAS)
- G-20

Challenges

- **Inadequate Trade:** In the last few years, India and South Korea have faced serious blockades to their economic ties.
 - Trade between the two countries was sluggish and there was no major inflow of South Korean investment into India.
- **Indian Diaspora:** Within South Korea, the integration of Indians in the local population is far from complete, with some instances of racial prejudice or discrimination toward Indians
- **Inadequate acknowledgment of Korean Culture:** To a certain extent Indians are unable to distinguish between the cultural and social characteristics of South Koreans from that of Japanese/Chinese.
- **Unfulfilled potential of Cultural Centres:** Indian Culture Centre (ICC) was established in Seoul to promote people-to-people contacts.
 - However, ICC has to reach an exponentially wider audience and its focus has to expand beyond the urban, English-speaking elite of Seoul.
 - The same may be applicable to South Korean culture centres in India.
- **Multi-dimensional challenges:** The current emerging alignment between India and South Korea, which has the potential to bring the two countries closer together, may prove short-lived if proper attention is not paid to the multi-dimensional challenges it faces.

Way Forward:

India's significance for South Korea is growing primarily because of the latter's deepening strategic dilemma with China – its largest economic partner. South Korea's shifting perception about its economic engagement with **China has influenced Seoul's strategy** towards other Asian powers. Against this background, policymakers in Seoul see **India as a crucial partner** and their government is taking various steps to upgrade ties under their new policy framework called the '**New Southern Policy.**'

India-Republic of Korea (RoK) relations has made great strides in recent years and has become truly multidimensional. The bilateral relations are spurred by a significant convergence of interests, mutual goodwill and high-level exchanges.

India-Canada Bilateral Relations

Context: The Indo-Pacific strategy announced by Canada uses blunt language against China and sees closer engagement with India as critical to its success.

About India – Canada relations:

Historical Background:

- India established **diplomatic relations with Canada in 1947**.
- Prime Minister of India's visit to Canada in April 2015 elevated the bilateral relation to a strategic partnership.



- In recent years, both countries have been working to enhance bilateral cooperation in a number of areas of mutual importance.

Nuclear Cooperation:

- Indo-Canadian relations deteriorated in the wake of **India's Smiling Buddha nuclear test of**

May 1974 when the Canadian government severed bilateral nuclear cooperation with **both India and Pakistan**.

- However, in June 2010, a **Nuclear Cooperation Agreement (NCA)** with Canada was signed and came into force in September 2013.
- The **Appropriate Arrangement (AA)** for the NCA was signed in March 2013, under which a **Joint Committee on Civil Nuclear Cooperation** was constituted.

Commercial relations:

- An annualised **Trade Ministers dialogue** has been institutionalised to review trade and economic relations.
- Both sides are engaged in technical negotiations for a **Comprehensive Economic Partnership Agreement (CEPA)** including trade in goods, services, investment, trade facilitation etc.

Science and Technology:

- Indo-Canadian Science and Technology cooperation has been primarily focussed on promoting Industrial R and D which has potential for application through the **development of new IP, processes, prototypes or products**.
- Canada was a partner country for the **Technology Summit 2017**.

Security and Defence:

- India and Canada collaborate closely in international fora, particularly through **the UN, Commonwealth and G-20**.
- Defence ties have been expanding with mutual ship visits.
- There is robust cooperation on **counter-terrorism issues**, particularly through the framework of the **JWG on Counter-Terrorism**.

Space:

- India and Canada have been pursuing successful cooperative and commercial relations in the field of Space since the 1990s mainly on space science, earth observation, satellite launch services and ground support for space missions.
- **ISRO and Canadian Space Agency (CSA)** signed two MOUs in the field of exploration and utilisation of outer space in October 1996 and March 2003.
- **ANTRIX, the Commercial arm of ISRO**, has launched several nanosatellites from Canada.
- ISRO in its **100th Satellite PSLV** launched in 2018, also flew the Canadian first LEO satellite, from the Indian spaceport Sriharikota, Andhra Pradesh.

Agricultural cooperation:

- The bilateral MoU on agriculture cooperation was signed at the federal level in 2009.
- The first meeting of the JWG set under this MoU was held in New Delhi in 2010, which led to the creation of three sub-groups
- on knowledge exchange in emerging technologies;
 - animal development and
 - agricultural marketing.
- A Joint Working Group for Pulses has been set up separately.

Indian diaspora:

- Canada hosts one of the largest Indian diasporas in the world, **numbering 1.6 million (PIOs and NRIs)** which account for more than 4% of its total population.
- The diaspora has done commendably well in every sector in Canada.
- In the field of politics, in particular, the present **House of Commons (total strength of 338) has 22 Members of Parliament of Indian origin.**

Cultural Exchanges:

- Canada was the Country of Focus at the **48th International Film Festival of India** held in Goa in November 2017.
- There is also an **India – Canada Coproduction Agreement** in films.
- Diwali has been celebrated on Parliament Hill for the last 18

Challenges in India-Canada ties:

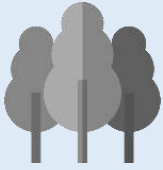
- **Khalistan separatism issue:**
 - There is resurgence of Khalistan separatism and calls for a “**referendum**” amid the Sikh community in Canada.
 - There are also incidents of **vandalism and violence** targeting the Indian community in Canada.
- **Canadian pronouncements on developments in India:**
 - Canadian pronouncements on developments in India, including on **rights and freedoms can always set off diplomatic landmines.**
- **India’s structural impediments:**

- India still has to overcome **structural impediments** such as complex labour laws, market protectionism, and bureaucratic regulations.
- **Inadequate trade:**
 - While India–Canada economic relations have made some progress, Canada remains an insignificant trading partner for India.

Way Forward:

Canada's Indo-Pacific strategy, which says India's strategic importance can only increase as its economy grows and it becomes the world's most populous country, offers a wider staging ground for the two to come together to work for the mutual benefits.

There could also be a defence and security component with Canada's resolve to participate more in maritime security and exercises in the Indo-Pacific, and deeper counter-terrorism cooperation than exists now.



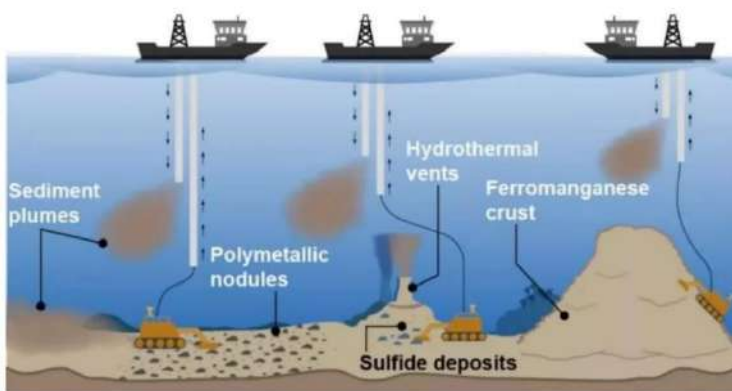
ENVIRONMENT



Deep-Sea Mining

Context: Recently, a study published in the journal *Frontiers in Marine Science* has warned that commercial deep-sea mining could pose a serious risk to ocean ecosystems.

About Deep-Sea Mining:



Source: GAO analysis of peer reviewed journal articles. | GAO-22-105507

- It refers to the **extraction of minerals and other resources** from the seabed, which can be found in large quantities in the deep ocean.
- These minerals include metals such as **copper, nickel, cobalt, and rare earth elements**, as well as valuable resources such as **oil and gas**.
- Despite the risks to ocean ecosystems, the **Pacific Island nation of Nauru plans to start deep-sea mining**, invoking a **two-year**

rule inserted as a part of the UN Convention on Law of the Seas (UNCLOS).

- The **“two-year rule” clause of the UNCLOS** requires the ISA to put in place the governance infrastructure – the rules, regulations, and procedures governing the **contours of deep-sea mining within two years of approval**.
- India has been allotted a site of 75,000 square kilometers in the **Central Indian Ocean Basin (CIOB) by the UN International Sea Bed Authority** for exploitation of polymetallic nodules.
- A fraction of that reserve can meet the **energy requirement of India for the next 100 years**,
- **India’s Exclusive Economic Zone** spreads over 2.2 million square kilometres.
- A manned submersible will be developed to carry **three people to a depth of 6,000 meters** in the ocean with a suite of scientific sensors and tools.

Major types of deep-sea mining:

- **Manganese nodule mining:** This involves collecting nodules of manganese, iron, and other metals that are scattered on the ocean floor.
- **Seafloor massive sulphide (SMS) mining:** This involves extracting mineral deposits formed near hydrothermal vents, which can contain high concentrations of copper, zinc, and other metals.
- **Cobalt crust mining:** This involves collecting crusts of cobalt, nickel, and other metals that form on the surface of seamounts.

Significance of Deep-Sea mining:

- **Growing demand for minerals:** It has the potential to provide a reliable and abundant supply of minerals the demand for which is rapidly increasing, driven by the growth of industries such as **renewable energy, electric vehicles, and consumer electronics**.
- **Depletion of land-based resources:** Deep-sea mining presents an opportunity to access new sources of valuable resources such as **cobalt and rare earth metals** which are essential to modern technology and industry but are becoming increasingly scarce on land.
- **Strategic importance:** Developing a domestic supply of these resources is seen as strategically important for India as **many of the minerals and metals** that are found in deep sea mining, such as **cobalt and rare earth metals, are essential to national security and defence**.
- **Economic benefits:** It has the potential to create jobs, stimulate economic growth, and generate revenue for governments and companies.

Major Issues associated with the deep-sea mining:

- **Environmental impacts:** Mining operations can disturb and damage fragile deep-sea ecosystems, including coral reefs, hydrothermal vents, and other important habitats.
- **Thermal pollution:** The mining vehicles also generate sediment plumes that could smother the benthic species at the bottom of the ocean.
- **Noise pollution:** The process generates noise pollution that can overlap with the frequencies at which cetaceans communicate, causing auditory masking and behavioural changes in marine mammals.
- **Regulatory gaps:** There is currently a lack of international regulations governing deep-sea mining, which could lead to environmental harm and other negative impacts.
- **Social and economic impacts:** The potential benefits of deep-sea mining may not be evenly distributed, and could lead to social and economic disparities between different communities.
- **Technological challenges:** Deep-sea mining requires advanced technologies and equipment that are currently under development, and may not be cost-effective or efficient enough to make the practice commercially viable.

Govt of Initiatives to promote deep sea mining:

- **National Centre for Polar and Ocean Research (NCPOR):** It was established in 2020 by the Ministry of Earth Sciences in Goa, which is tasked with exploring the country's deep-sea mineral wealth.
- **Draft Deep Seabed Mining Regulations, 2021:** It has been formulated by the Indian government to provide a legal framework for the exploration and exploitation of mineral resources in the country's exclusive economic zone (EEZ).
- **International collaborations:** The government is also considering setting up a nodal agency to regulate deep sea mining activities in the country, in line with the **International Seabed Authority (ISA) and the United Nations Convention on the Law of the Sea (UNCLOS)**.

Way Forward:

- **Studies for understanding deep sea:** To understand what species live in the deep sea, how they live, and how they could be affected by mining activities baseline studies are needed with more

funds for **training and educational programmes** focused on **improving our understanding of the deep sea**.

- **Environmental impact assessments:** These assessments are also needed to ensure that the loss of biodiversity as a **result of mining operations** is properly accounted for in mining regulations set by authorities, well before any decision to mine is approved.
- **Enhanced regulation:** The ISA is operating with the dual mandate of promoting the **development of deep-sea minerals** whilst ensuring that this development is not harmful to the environment.
- **Mitigation:** Current technologies may not be sufficient to avoid serious and lasting harm to the environment, including the **loss of biodiversity**.
- **Circular economy:** The repair, recycling and reuse of products should be encouraged to help reduce the **demand for raw materials from the deep sea**.



SOCIAL ISSUES



New policy to help Indian communities displaced by coastal erosion

Context: The National Disaster Management Authority (NDMA) received the final inputs on the draft of India's first national policy for the mitigation and rehabilitation of the people affected by river and coastal erosion.

- The **Union Ministry of Home Affairs** has directed NDMA to draft a policy based on the **15th Finance Commission's report**.

Major highlights of the policy:

Allocations:

- **15th Finance Commission's** report allocates Rs 1,500 crore for 2021-26 for mitigation measures to prevent erosion under NDMF.
- Rs 1,000 crore allocated for resettlement of displaced people affected by erosion under NDRF for the same period.
- **Both funds require state governments to contribute 25% of costs** on a cost-sharing basis, except Northeastern states which only need to *contribute 10% of state funds*.
- NDMA to coordinate allocations and expenses under NDRF and NDMF for mitigation and rehabilitation.

Implementation and institutional mechanisms:

- District disaster management authorities (DDMAs) to implement measures, aided by other **district agencies and a specific panchayat-level committee**.
- DDMA to prepare mitigation and rehabilitation plans and submit them to SDMAs for **appraisal by NDMA and approval by home ministry's high-level committee for disbursement of funds**.
- DDMAs will be responsible for organizing, monitoring, and evaluating efforts under supervision of state and national counterparts.
- NDMA to consultant and emphasize the need for qualified disaster management professionals in all teams.

Challenges and recommendations

- Policy addresses erosion-linked displacement but **not displacement caused by deposition of eroded materials and soil piping**.
- **Financial allocation under policy not yet clear**; funds currently allocated on first-come, first-serve basis for states.
- Population density should be considered during allocation.

- Hazard assessments carried out by central agencies should be made available to SDMAs in GIS formats.
- Policy recommends mapping of fallow areas for rehabilitation with input from affected and vulnerable communities.

Challenges of disaster management:

- **Lack of preparedness:** Despite frequent disasters, there is still a lack of preparedness at all levels of governance and society leading to delays in response time and inadequate resources to deal with disasters effectively.
- **Population density:** India is one of the most densely populated countries in the world, which can make evacuations and relief efforts more difficult during disasters.
- **Climate change:** With the increasing threat of climate change, India is experiencing more frequent and intense disasters, such as floods, droughts, and cyclones putting pressure on the country's disaster management systems to adapt and respond effectively.
- **Funding:** Despite the increasing frequency and severity of disasters, funding for disaster management is often inadequate which often limit the resources available for preparedness, response, and recovery efforts.
- **Lack of coordination:** There is often a lack of coordination between different agencies involved in disaster management, such as the government, NGOs, and international organizations leading to duplication of efforts and inefficiencies.
- **Poor infrastructure:** Many areas in India lack basic infrastructure such as roads, bridges, and communication networks, making it difficult to reach affected areas during disasters.

Way Forward:

Disaster management in India faces various challenges, such as inadequate resources, poor infrastructure, limited awareness and education, weak institutional capacity, inadequate coordination and communication, and inadequate research and innovation.

Therefore, steps such as **continuous improvement and innovation in disaster management**, based on the best available science, technology, and practices, and involving all stakeholders in a participatory and inclusive manner can go a long way in changing the scenario.



SECURITY ISSUES



Left Wing Extremism

Context: Recently, the Union Home Minister stated that the ministry is determined to destroy the entire ecosystem of Left-Wing Extremism (LWE) by “financial choking”.

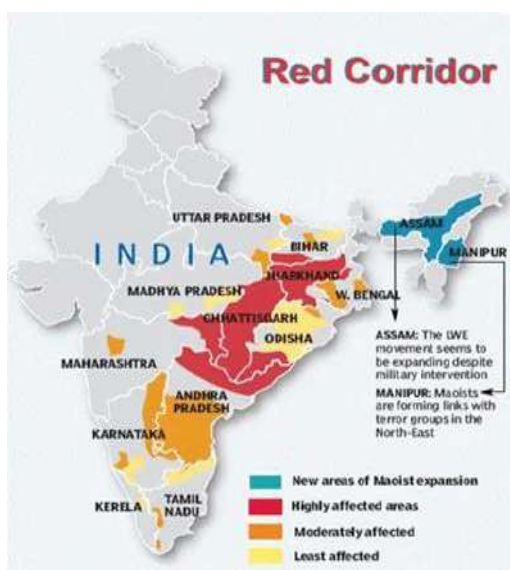
- According to the Union Home Minister, for the first time in four decades, the number of deaths of civilians and security forces in Left Wing Extremism (LWE) came down to under 100 in 2022.
 - Left Wing Extremism had come down by 76% in 2022 as compared to 2010.

About Left-wing Extremism(LWE) in India:

- Left-wing extremists, popularly known as **Maoists worldwide** and as **Naxalites/Naxalism in India**, has been a major threat to India since the 1960s.
- The term Naxalism derives from the name of the **Naxalbari village in West Bengal** where a peasant revolt took place against local landlords over a land dispute in 1967.
- The **origins of Left Wing Extremism (LWE)** in India goes back to the **Telangana peasant rebellion (1946-51)**, the movement was at its peak in 1967, when the peasants, landless labourers, and Adivasis raided the granaries of a landlord in the Naxalbari village in West Bengal.

Red Corridor:

- The influence zone of LWE in India is called the Red corridor, which has been steadily declining in terms of geographical coverage and number of violent incidents.



States data:

- In 2021, Chhattisgarh accounted for **90 percent (45 out of 50) of all security personnel deaths** in the country.
- Jharkhand is the **only state that recorded security personnel deaths (5)** besides Chhattisgarh in 2021.
 - In 2019, when 52 security force personnel deaths were recorded in the country, **Chhattisgarh accounted for just 42 percent (22)** of those with **Maharashtra accounting for 16 deaths and Jharkhand for 12 deaths.**
- Other states for which data has been provided by the government are **Bihar, Odisha and Telangana.**
- **All recorded zero deaths in 2021.**
- In 2022, Odisha recorded three deaths while Jharkhand recorded two.

Reasons for Left Wing Extremism:

Tribal discontent:

- The **Forest (Conservation) Act, 1980** deprives tribals, who depend on forest produce for their living, from even cutting a bark.
- Massive **displacement of tribal population** in the naxalism-affected states due to development projects, mining operations and other reasons.

No Follow-Up from administration:

- It is seen that even after police takes hold of a region, administration fails to provide essential services to the people of that region.
- Confusion over **tackling naxalism as a social issue** or as a security threat.
- State governments considering **naxalism as the central government's issue** and thus are not taking any initiatives to fight it.

Lack of Livelihood:

- People who do not have any source of living are taken into Naxalism by Maoists.
- Maoists provide arms and ammunition and money to such people.

Governance related issues:

- Government measures its success on the **basis of the number of violent attacks** rather than the development done in the Naxal-affected areas.
- Absence of **strong technical intelligence** to fight with Naxalites.
- Infrastructural problems, for instance, some villages are not yet connected properly with any communication network.

Reasons for decline in violence:

- Greater presence of security forces across the LWE affected States.
- Loss of leaders on account of arrests, surrender and desertions.
- Rehabilitation programs by the governments.
- Better monitoring and shortage of funds and arms.
- Intelligence sharing and raising of a **separate 66 Indian Reserve Battalion (IRBs)**, CRPF battalions like **COBRA battalion, Bastariya battalion** etc were done by the government to curb the menace of LWE organisations.

Government Initiatives to Fight LWE:

- **Operation Green Hunt:** It was started in 2009-10 and massive deployment of security forces was done in the Naxal-affected areas
- **Aspirational Districts Programme:** Launched in 2018, it aims to rapidly transform the districts that have shown relatively lesser progress in key social areas.

- **SAMADHAN doctrine** is the one-stop solution for the LWE problem. It encompasses the entire strategy of government from short-term policy to long-term policy formulated at different levels. SAMADHAN stands for-
 - S- Smart Leadership,
 - A- Aggressive Strategy,
 - M- Motivation and Training,
 - Actionable Intelligence,
 - D- Dashboard Based KPIs (Key Performance Indicators) and KRAs (Key Result Areas),
 - H- Harnessing Technology,
 - Action plan for each Theatre,
 - N- No access to Financing.
- **ROSHNI** is a special initiative under, Pandit Deen Dayal Upadhyaya Grameen Kaushalya Yojana (Formerly Ajeevika Skills), launched in June 2013 for training and placement of rural poor youth from 27 LWE affected districts in 09 States.
- **Road Connectivity:** Construction of 17,462 km of roadways had been sanctioned to improve road connectivity, of which work on about 11,811 km had been completed.
- **Mobile connectivity:** For better mobile connectivity, 2,343 mobile towers had been installed in the first phase during the last eight years, and approval given to upgrade them to 4G. This apart, 2,542 new mobile towers were being installed in the second phase.
- **Eklavya Residential Model School:** More than 100 Eklavya Residential Model Schools were sanctioned in 21 years prior to 2019, while in the past three years, 103 have been sanctioned.
 - So far, 245 Eklavya schools had been sanctioned in 90 LWE-affected districts and 121 of them were now functional.
- **Banks, ATMs and Post offices for financial inclusion:**
 - The government also facilitated the opening of 1,258 bank branches and 1,348 ATMs in the worst hit districts, besides 4,903 post offices.

Way Forward:

- Innovative measures are required to be employed in preventing **IED(Improved Explosive Device)** related incidents which have caused significant casualties in recent years.
- Emphasis should be laid on the **capacity-building and modernization of the local police forces.**
- States should rationalize their surrender policy in order to bring innocent individuals caught in the trap of LWE in the mainstream.
- States also need to adopt a **focused time-bound approach** to completely eliminate LWE groups and ensure all-round development of the affected regions.
- What makes the LWE particularly disturbing is its correlation with the **demographic youth bulge in the general Indian population.**
- The Centre and the States should make efforts in synchronise that are crucial in eliminating such **radicalization amongst groups.**

Cyberattacks

Context: Ransomwares have emerged as the most predominant of malicious cyberattacks worldwide.

About Cyberattacks:

- Cyberattacks are **unwelcome attempts to steal, expose, alter, disable or destroy information** through **unauthorized access to computer systems**.
- Typically such forms of attacks to keep networks from functioning after encrypting data, are carried out by **ransomware-seeking entities**.

WATCH OUT FOR COMMON CYBERATTACKS

 <p>Malware</p> <p>Users accidentally install bad software when they click on bad links or download fraudulent files.</p> <p>Malicious software blocks network access, transmits data, or renders your system inoperable.</p>	 <p>Phishing</p> <p>Hackers steal sensitive information or convince users to install malware by posing as a legitimate source or company.</p> <p>Email is one of the easiest targets for phishers. They can easily impersonate businesses and attack unsuspecting users.</p>	 <p>Man in the Middle Attack</p> <p>Attackers intercept messages between two trusting parties.</p> <p>Capable of stealing important information, just like eavesdropping on a conversation.</p>	 <p>Zero-Day Exploits</p> <p>Hackers find new security vulnerabilities in software regularly. This is a major cause for recurring software updates.</p> <p>After hackers discover a vulnerability, they network to install as much malware and gather as much sensitive data as possible.</p>	 <p>Distributed Denial of Service (DDoS)</p> <p>Attackers overwhelm systems or networks by directing a high volume of unwanted traffic at them.</p> <p>The goal is to paralyze the target by exhausting the available bandwidth and network resources.</p>	 <p>Password</p> <p>Users leave their password laying around and hackers get a hold of it.</p> <p>Once hackers get into the system, they can install malware or steal sensitive information.</p>
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- In ransomware, the **perpetrators demand hefty payments** for the release of withheld data.

Reasons for increasing Cyberattacks:

- **Increasing dependency on technology:**
 - As we grow faster, **more and more systems are being shifted to virtual space** to promote

access and ease of use. However, the downside to this trend is the increased vulnerability of such systems to cyber-attacks.

- **Asymmetric and covert warfare:** Unlike, conventional warfare with loss of lives and eyeball-to-eyeball situations, cyber warfare is covert warfare with the scope of plausible deniability, i.e. **the governments can deny their involvement even when they are caught.**
 - Therefore, cyber warfare has increasingly become the chosen space for conflict between nations.
- **Lack of robust law enforcement mechanisms:** India’s approach to cyber security has so far been ad hoc and unsystematic.
 - Despite a number of agencies, policies and initiatives, their implementation has been far from satisfactory.
- **Adverse relations with China:** China is considered one of the world leaders in information technology.
 - Therefore, it is expected to have capabilities to disable or partially interrupt the information technology services in another country.
 - Combined with the **recent border standoff and violent incidents** between the armies of the two countries, the adversity in relations is expected to spill over to attacking each other’s critical information infrastructure.
- **Asymmetric and covert warfare:** Unlike conventional warfare with loss of lives and eyeball to eyeball situations, cyber warfare is covert warfare with the scope of plausible deniability, i.e. **the governments can deny their involvement even when they are caught.**
- **Lack of International Coordination:** International cooperation and consensus is missing in this field.

- **Low digital literacy among the general public and digital gaps** amongst nations create an unsustainable environment in the cyber domain.
- It is often reported that **people are duped easily by click-baiting** them into clicking interesting content, which often has malware attached to itself.

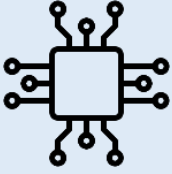
India's Preparedness to Ensure Cybersecurity:

- **Banning of unsafe apps:** India had banned apps that posed a threat to security.
 - India had banned many apps (mostly of Chinese origin), which were found to be unsafe for usage by Indian citizens.
- **Awaited National cybersecurity strategy:** Comprehensive plan in preparing & dealing with cyber-attacks (Pre, Post and During the attack).
- **Indian Cyber Crime Coordination Centre (I4C):** Launched in 2018, It is an apex coordination centre to deal with cybercrimes.
- **Evolving Technology:** Cyber attackers are continuously working on novel ways to sabotage the systems.
- **CERT-In (Cyber Emergency Response Team, India):** is an office within the **Ministry of Electronics and Information Technology** of the Government of India.
 - It is the **nodal agency to deal with cyber security threats** like hacking and phishing.
 - It strengthens security-related **defence of the Indian Internet domain**.
- **National Cyber Security Policy, 2013:** The policy provides the vision and strategic direction to protect the national cyberspace.
- **Cyber Swachhta Kendra:** Launched in 2017, these helps users to analyse and keep their systems free of various **viruses, bots/ malware, Trojans, etc.**
- **Indian Cyber Crime Coordination Centre (I4C):** Launched in 2018, It is an apex coordination centre to deal with cybercrimes.
- **Cyber Surakshit Bharat:** It was launched by the **Ministry of Electronics and Information Technology (MeitY) in 2018** with an aim to spread awareness about cybercrime and building capacity for safety measures for **Chief Information Security Officers (CISOs)** and frontline IT staff across all government departments.
- **The Cyber Warrior Police Force:** It was organised on the lines of the Central Armed Police Force in 2018.
- **Personal Data Protection Bill:** The bill mandates the strengthening of data infrastructure by private companies to safeguard the data of individuals.
- **Information Technology Act, 2000 (Amended in 2008):** It is the main law for dealing with cybercrime and digital commerce in India.
 - **National Critical Information Infrastructure Protection Centre (NCIIPC)** was created under Section 70A of IT Act 2000 to protect Cyberinfrastructure.

Way Forward:

- Human resource is crucial and there is an **urgent need to create an informal Indian team of Cyber Warriors**.

- The **critical infrastructure managers** should also be well trained in cyber warfare and well equipped with all the **technologies for isolating viruses and attacks**.
- There should be a reward for white **hackers who can highlight their shortcomings**.
- The **managers and common mass** must be made aware.
- There is a need to enhance the **general awareness levels of the government installations** as well as the **general public to counter such threats**.
- Separate wing under **Army or Navy as Cyber Command on lines of US**.
- The need of the hour is to come up with a **futuristic National Cyber-Security Policy** which **allocates adequate resources and addresses the concerns of the stakeholders**.
- Similarly, there is a **need for quicker up-gradation of the existing infrastructure** as information technology is a **fast-evolving field and there is a need to stay ahead of the competition**.



SCIENCE & TECHNOLOGY



The Problems associated with the Data Protection Bill

Context: A data protection law must safeguard and balance peoples' right to privacy and their right to information, which are fundamental rights **flowing from the Constitution**.

Key features of the Digital Personal Data Protection Bill:

- The Ministry of Electronics and Information Technology has drafted a Digital Personal Data Protection (DPDP) Bill.

Significance of the bill:

- The purpose of the bill is to provide for the processing of digital personal data in a manner that recognises both the right of individuals to protect their personal data and the need to process personal data for lawful purposes.
- It is India's first attempt to domestically legislate on the issue of data protection.

The categories of Data created by the Bill are as follows:

Personal data:

- Data from which an individual can be identified like name, address etc.
- No Data Mirroring is required.
- Individual consent will suffice.

Sensitive personal data (SPD):

- Some types of personal data like as financial, health, sexual orientation, biometric, genetic, transgender status, caste, religious belief, and more.
- To be stored **only in India**.
- It can be processed abroad **only under certain conditions including approval of a Data Protection Agency (DPA)**.

Critical personal data:

- Anything that the government at **any time can deem critical, such as military or national security data**.
- Critical personal data must be **stored and processed in India**.

Non-Personal Data:

- The Bill mandates fiduciaries to provide the government **any non-personal data when demanded**.
- The **'data fiduciary'** may be a service provider who collects, stores and uses data in the course of providing such goods and services.
- Non-personal data refers to **anonymised data, such as traffic patterns or demographic data**.
- The previous draft did **not apply to this type of data**, which many companies use to fund their business model.

Impact on Social Media Companies:

- **Significant Data Fiduciaries** (the fiduciaries with huge volume and processing sensitive data) have to develop their own user verification mechanism.
- It will reduce the **anonymity of users and decrease trolling, fake news and cyberbullying**.
- Exemptions for **Data Processing without consent**:
- They have been provided for reasonable purposes like
 - Security of the state.
 - Detection of any unlawful activity or fraud.
 - Whistleblowing etc

Creation of Independent Regulator:

- The Bill calls for the **creation of an independent regulator Data Protection Authority**, which will oversee assessments and audits and definition-making.
- Each company will have a **Data Protection Officer (DPO)** who will liaison with the DPA for auditing, grievance redressal, recording maintenance and more.
- The Bill proposes **"Purpose limitation" and "Collection limitation"** clause, which limit the collection of data to what is needed for **"clear, specific, and lawful" purposes**.

Control Over Data:

- It also grants individuals the **right to data portability and the ability to access and transfer one's own data**.
- The **right to be forgotten** is also given.
- With historical roots in European Union law, **General Data Protection Regulation (GDPR)**, this right allows an individual to remove consent for data collection and disclosure.

Penalty – The Bill stated the penalties as:

- Rs 5 crore or 2 percent of worldwide turnover for minor violations and Rs 15 crore or 4 percent of total worldwide turnover for more serious violations.
- Also, the company's executive-in-charge can also face jail terms of up to three years.

Problems associated with the Bill:

In conflict with RTI Act:

- The Bill is criticised for seeking to dilute the **provisions of the Right to Information (RTI) Act**, which has empowered citizens to access information and hold governments accountable.
- The RTI Act includes a provision **to protect privacy through Section 8(1)(j)**.
 - In order to invoke this **section to deny personal information**, at least one of the following grounds has to be proven.
- The information sought has **no relationship to any public activity or public interest** or is such that it would cause unwarranted **invasion of privacy and the Public Information Officer** is satisfied that there is **no larger public interest that justifies disclosure**.
- The proposed bill seeks to amend this section to expand its purview and exempt all personal information from the ambit of the RTI Act.

In conflict with the Right to privacy:

- By empowering the executive to draft rules on a range of issues, the proposed Bill creates wide **discretionary powers for the Central government** and thus fails to safeguard people's right to privacy.

No autonomy for the Data Protection Board:

- The **bill does not ensure autonomy of the Data Protection Board**, the institution responsible for enforcement of provisions of the law.
- Given that the government is the **biggest data repository**, it was imperative that the oversight body set up under the **law be adequately independent to act on violations of the law by government entities**.

Digital by design:

- The Bill stipulates that the **Data Protection Board shall be 'digital by design'**, including receipt and disposal of complaints.
- As per the latest **National Family Health Survey**, only 33% of women in India have ever used the Internet.
- The Bill, therefore, **effectively fails millions of people** who do not have meaningful access to the Internet.

Way Forward:

Therefore the challenge lies in finding an adequate balance between the right to privacy of data principles and reasonable exceptions, especially where government processing of personal data is concerned. The DPDP Bill needs to be suitably amended and harmonised with the provisions and objectives of the RTI Act.

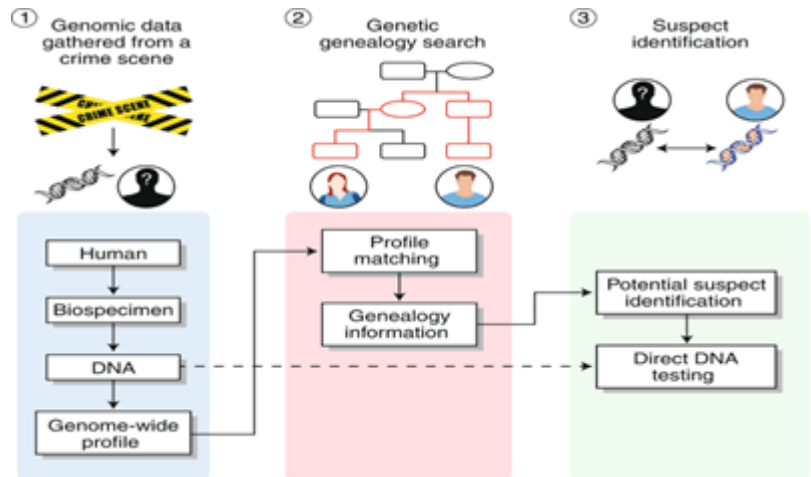
Given the rate at which technology evolves, an optimum data protection law design needs to be future proof — it should not be unduly detailed and centred on providing solutions to contemporary concerns while ignoring problems that may emerge going forward.

Genetic Information and Right to Privacy

Context: Recently, the Supreme Court (SC) has held in a judgment that children cannot be subjected to DNA tests in each and every case to establish proof of infidelity.

About Genetic Privacy:

- It is a term that seeks to prevent a **third party from using a person’s genetic data without his permission.**
- A person’s genes are the **blueprint of his or her physical or biological being**, personal life and information about the future, present and history.
- **Other information that can be abstracted:** alcoholism, depression, aggressiveness, sexual orientation, mental productivity etc.
 - When a person’s genetic data is used for **testing, medical purposes, or other purposes, his privacy should be protected.**
- Genetic data is made up of a **person’s deoxyribonucleic acid (DNA) and chromosomes.**
- **DNA sample sources:** hair, teeth, blood etc.



SC rulings on genetic information:

- Genetic information is **personal and intimate.**
- Thus, a child’s genetic information is **part of his fundamental right to privacy.**
- Children have the right to not have their legitimacy questioned before a court of law.
- DNA tests would harm the **reputation and dignity of the mother.**
- The children should not to be **subjected to forensic/DNA testing during the divorce proceedings.**
- Family courts should direct for a **DNA test only in the situations** where it is a last resort and in the interest of justice.

Status of Genetic Privacy in India:

- In 2018, **The Delhi High Court** stated that discrimination in health insurance against people based on their **genetic origin, in the absence of genetic test is unconstitutional.**
- **Genetic discrimination breaches Article 14**, which guarantees equality before the law.
- In **Justice KS Puttaswamy (Retd.) & Anr. v. Union of India**, SC stated that the Right to Privacy is a **fundamental Right under Article 21.**

Genetic discrimination in other countries:

- In 2008, the **United States** had passed the **Genetic Information Non-discrimination Act (GINA)**, to protect people from genetic discrimination in health care and jobs.
- **Council of Europe** has adopted the **Guidelines on the use of genetic knowledge** for insurance purposes.
- **Under Canada's Genetic Non-discrimination Act**, it is illegal for insurers or employers to request **DNA testing or findings**.

Advantages of genetic information:

- Genetic information may disclose information about a **disease, illness, or a person's health status**.
- It can make a person more aware of his or her health.
- A person can learn about **his ancestors and distant relatives**.
- One's data can be used in medical research.
- If a person learns about his illness early on, he would be able to take more preventative steps to treat it.

Disadvantages of genetic Information:

- Based on the profile available in the domain, genetic evidence can be fabricated in any crime scene through **engineered DNA samples not taken from a real individual**.
- Data such as **person's personal life, health, family members**, and other private information when assessed by a third party can be misused.
- If such information is revealed, it can negatively impact individuals lives, such as **discrimination from employers, insurance providers, the government, and others**.

UN Convention on the Rights of the Child:

- It is a treaty adopted by the **United Nations General Assembly in 1989**.
- It recognises a **child as every human being under 18 years old**.
- It is an international agreement that is **legally binding on the members**.
- It sets out the civil, political, economic, social and cultural rights of every child, regardless of their race, religion or abilities.
- It includes rights such as **Right to Education, Right to Rest and Leisure, Right to Protection from Mental or Physical Abuse including Rape and Sexual Exploitation**.
- It has been **ratified by all members of the UN except for the United States**.
- It is the most widely ratified human rights treaty in the history of the world.

Way Forward:

Thus with improvements in encryption, safe storage, and data transfer protocols, there may be potential to improve privacy protections technologically. From an ethical standpoint, it will be **crucial to keep educating the public** about the **benefits and dangers of genetic testing and data sharing**. It may entail activities to provide **fair access to genetic testing and benefits** as well as efforts to **support transparency, openness, and accountability around the collection, use, and sharing of genetic data**.

National Science Day and the Raman Effect

Context: In 1986, the Government of India, under then Prime Minister Rajiv Gandhi, designated **February 28 as National Science Day** to commemorate the announcement of the discovery of the “Raman Effect”.

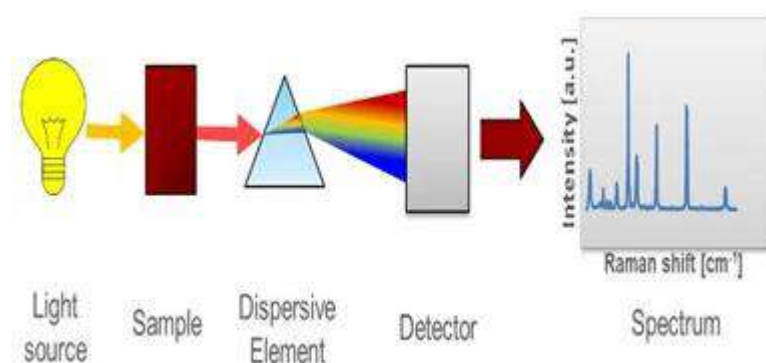
- This year’s edition is being celebrated under the theme of “**Global Science for Global Wellbeing**”, in light of India’s G20 presidency.

About Sir Chandrasekhara Venkata Raman:

- Raman was born on 7 november 1888 in **Tirucirapalli, Madras Presidency to Tamil Parents.**
- He joined **Indian Financial Service in Calcutta** as Assistant Accountant General at the age of 19.
- In 1926, he established the **Indian Journal of Physics as the first editor.**
- In February 1928, Raman led an experiment with K.S. Krishnan, on the **scattering of light, when he discovered what is called Raman Effect.**
- He was the **president of the 16th session of the Indian Science Congress in 1929.**
- He won the **1930 Nobel Prize in Physics for his Raman Scattering and for the discovery of Raman Effect.**
- He founded the **Indian Academy of Sciences in 1934** and started publishing the proceedings of the Academy.
- He **retired from IISc Bangalore** in 1948 and established the **Raman Research Institute in Bangalore in 1949.**
- He was **against the control of research programmes by the government** such as the establishment of Bhabha Atomic Research Centre (BARC), Defense Research and Development Organization (DRDO), and the Council of Scientific and Industrial Research (CSIR).

About Raman Effect:

- Raman is the **inelastic scattering of a photon by molecules** which are excited to higher **vibrational or rotational energy levels.** It is also called **Raman scattering.**



- In simpler words, it is a **change in the wavelength of light** that occurs **when a light beam is deflected by molecules.**
- When a **beam of light traverses a dust-free, transparent sample of a chemical compound**, a small fraction of the light emerges in directions other than that of the incident (incoming) beam.
- Most of this scattered light is

of **unchanged wavelength.**

- A small part, however, has **wavelengths different from that of the incident light** and its presence is a **result of the Raman Effect.**
- The Raman effect **forms the basis for Raman spectroscopy** which is used by chemists and physicists to gain information about materials.

- Spectroscopy is the **study of the interaction between matter and electromagnetic radiation.**

Raman Spectroscopy:

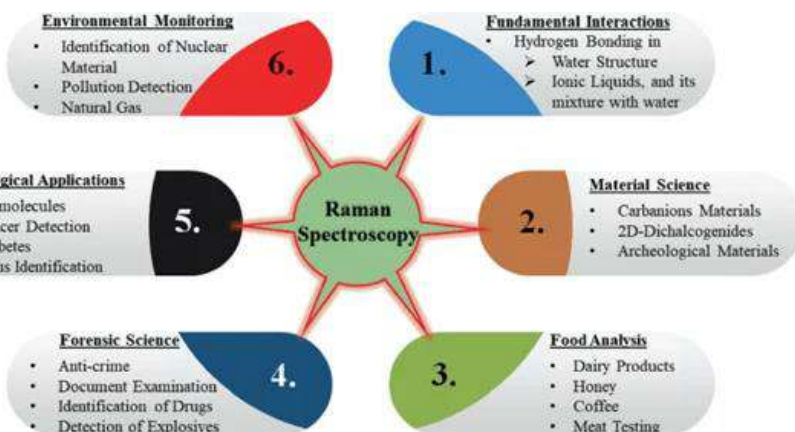
- Raman Spectroscopy is a **non-destructive chemical analysis technique** which provides detailed information about **chemical structure, phase and polymorphy, crystallinity and molecular**

interactions.

- It is based upon the **interaction of light with the chemical bonds** within a material.

- In this, a molecule scatters incident light from a **high intensity laser light source.**

- Most of the scattered light is at the same wavelength (or colour) as the laser source and does not



provide useful information which is called **Rayleigh Scatter.**

- However, a **small amount of light (typically 0.000001%)** is scattered at different wavelengths (or colours), which depend on the **chemical structure of the analyte which is called Raman Scatter.**

Significance of the discovery:

- CV Raman’s discovery took the world by storm as it had deep implications far beyond Raman’s original intentions.
- As Raman himself remarked in his 1930 Nobel Prize speech, **“The character of the scattered radiations enables us to obtain an insight into the ultimate structure of the scattering substance.”**
 - For quantum theory, in vogue in the scientific world at the time, Raman’s discovery was crucial.
- The discovery would also find its use in chemistry, giving birth to a new field known as **Raman spectroscopy as a basic analytical tool to conduct non-destructive chemical analysis** for both **organic and inorganic compounds.**
- With the **invention of lasers and the capabilities to concentrate** much stronger beams of light, the **uses of Raman spectroscopy have only ballooned over time.**
- This method has a **wide variety of applications**, from studying art and other objects of cultural importance in a **non-invasive fashion to finding drugs hidden inside luggage at customs.**



PRACTICE QUESTIONS



Q.1) With reference to Consumer price index – Industrial workers, consider the following statements

1. It is released by Department of Economic Affairs, Ministry of Finance
2. It considers 2001 as its base year for calculations

Which of the following statements are *incorrect*?

- a. 1 only
- b. 2 only
- c. **Both 1 and 2**
- d. Neither 1 nor 2

Q.2) The word ‘Thalattosuchian’ is sometimes mentioned in media in reference to

- a. **fossils of a kind of crocodile**
- b. an early human species
- c. a cave system found in South India
- d. a geological period in the history of Indian subcontinent

Q.3) Consider the following statements regarding Finance Commission of India:

1. It is constituted by the President Article 279 of the Constitution.
2. The First Finance Commission was constituted vide Presidential Order under the chairmanship of Shri N K Singh in 1952.
3. The Fifteenth Finance Commission was constituted in 2017 against the backdrop of the abolition of Planning Commission.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 only
- c. **3 only**
- d. 1 and 3 only

Q.4) Recently in news, MISHTI scheme is related to which of the following

- a. Upliftment of marginalised sections like street vendors
- b. Upskilling minority communities to reduce industry-academia mismatch
- c. **Mangrove plantation along the coastline**
- d. None of the above

Q.5) With reference to ‘Agriculture Infrastructure Fund’, which of the following statements is/are correct?

1. It is a scheme of Ministry of Finance
2. It includes start-ups along with Self Help Groups (SHG)

Select the correct answer using the code given below:

- a. 1 only
- b. **2 only**
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.6) Which of the following articles of the Indian Constitution explicitly mentions about the privileges of members of the Parliament?

- a. Article 72
- b. **Article 105**
- c. Article 102
- d. Article 211

Q.7) consider the following statements:

1. Asiatic black bear is naturally found in India only.
2. Asiatic black bear lives up to 25 years of age.

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

Q.8) With reference to 'Additional surveillance mechanism (ASM)', which of the following statements is/are correct?

- 3. It aims to protect investors from market volatility
- 4. It is jointly decided by Reserve Bank of India and Exchanges.

Select the correct answer using the code given below:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.9) Consider the following pairs:

Indigenous cattle breed and state

- 1. Kasargod Dwarf – Tamil Nadu
- 2. Vechur Cattle – Kerala
- 3. Ongole Cattle – Telangana
- 4. Malnad Gidda – Maharashtra

How many pairs given above is/are correctly matched?

- a. One pair only
- b. Two pairs only
- c. Three pairs only
- d. All four pairs

Q.10) Consider the following pairs:

Indigenous tribal language and script

- 1. Gondi – Telugu
- 2. Mundari - Mundari bani
- 3. Idu Mishmi - Idu Azobra

How many pairs given above is/are correctly matched?

- a. None
- b. One pair only
- c. Two pairs only
- d. All three pairs

Q.11) Consider the following countries:

- 1. Australia
- 2. Switzerland
- 3. China
- 4. Russia
- 5. India

Which of the above are part of Paris Club of Nations?

- a. 1 2 and 5 only
- b. 1 3 and 4 only
- c. 1 2 and 4 only
- d. 2 3 and 5 only

Q.12) Consider the following pairs:

Famous product and region

- 1. Markhana marbles – Pune
- 2. Kala namak – Siddharth Nagar
- 3. Byadagi chillies – Gadag

How many pairs given above is/are correctly matched ?

- a. None
- b. One pair only
- c. Two pairs only
- d. All three pairs

Q.13) Consider the following statements regarding Exim bank:

- 1. It was established by the Government of India, under the Export-Import Bank of India Act, 1981.
- 2. It extends Lines of Credit (LOCs) to overseas financial institutions, regional development banks, sovereign governments and other entities overseas.

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

Q.14) Which of the following statements is not correct with regard to saint Ravidas:

- a. He was the founder of the Ravidassia religion during the 15th to 16th century CE
- b. He advocated for the worship of a formless God
- c. His disciples came to be known as Ravidaspanthis and followers came to be known as Ravidassias.

d. All statements are correct

Q.15) Consider the following statements regarding Pradhan Mantri Kisan Urja Suraksha Evam Uttham Mahabhiya (PM KUSUM):

- 1. It was launched recently by the Ministry of Power
- 2. The scheme would ensure renewable energy-based power is available for feeding rural load centres and agriculture pump-set loads

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

Q.16) Consider the following statements regarding National Legal Services Authority:

- 1. It is constituted under the Legal Services Authorities Act, 1987.
- 2. The Chief Justice of India is the Patron-in-Chief of the authority.
- 3. The State Legal Services Authority is headed by the Chief Justice of the respective High Court.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3**

Q.17) The wild ass wildlife sanctuary is located in

- a. Rajasthan
- b. Kerala

c. Gujrat

d. Andhra Pradesh

Q.18) Which of the following organizations recently launched “ Green Deal Industrial Plan ” to cut red tape and provide massive subsidies in a bid to support and expand its green industry ?

- a. International Monetary Fund
- b. World Bank

c. European Union

d. United Nations Environment Programme

Q.19) Which of the following Harapan sites is the largest among all in the Indian Subcontinent?

- a. Banawali
- b. Rakhigarhi**
- c. Dholavira
- d. Surkotada

Q.20) Asbestos is known to be a highly toxic material and a carcinogen. When Inhaled or swallowed asbestos fibers can become trapped in the respiratory or digestive systems of the body, accumulating over time causing severe health hazards.

Asbestos is used in which of the following industries?

- 1. Ship building industry
- 2. Textile Industry
- 3. Cement Industry
- 4. Paper Industry

Select the correct answer using the code given below:

- a. 1 2 and 3 only
- b. 2 3 and 4 only
- c. 1 2 and 4 only
- d. 1 2 3 and 4**

Q.21) The Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) has been conceived amalgamating which of the following schemes:

- 1. Accelerated Irrigation Benefit Programme

2. Integrated Watershed Management Programme
3. The On Farm Water Management

Select the correct answer using the code given below:

- a. 1 2 and 3
- b. 1 and 2 only
- c. 2 and 3 only
- d. 1 and 3 only

Q.22) With reference to medieval Indian history, consider the following statements:

1. The economy of the kingdom was largely dependent on agriculture
2. It was established by Harihara I and Bukka Raya I of the Sangama dynasty
3. The administrative and court languages of the Empire were Sanskrit and Tamil

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3

Q.23) Consider the following statements regarding Wildlife Institute of India:

1. It is an autonomous institution under the Department of Animal husbandry and Dairying
2. It offers training programs, academic courses, and advisory in wildlife research and management.

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

Q.24) Which of the following statements regarding Primary Agricultural Credit Societies (PACS) is/are correct?

1. Deposits can be made by members of the PACS only
2. Individual farmers can become members of the PACS
3. The membership fee is low enough that even the poorest agriculturist can join

Select the correct answer using the code given below:

- a. 1 and 2 only
- b. 2 only
- c. 3 only
- d. 2 and 3 only

Q.25) Consider the following pairs:

Trade Union and associated person

1. Centre of Indian Trade Union - B. T. Ranadive
2. Indian National Trade Union Congress - Sardar Vallabhbhai Patel
3. All Indian Trade Union Congress - Lala Lajpat Rai

How many of the pairs given above is/are correctly matched?

- a. None
- b. One pair only
- c. Two pairs only
- d. All three pairs

Q.26) Article 356 of the Indian Constitution deals with

- a. President's rule
- b. National Emergency
- c. Financial Emergency
- d. None of the above

Q.27) Consider the following statements regarding Grishneshwar Temple:

1. It is one of the shrines dedicated to Lord Vishnu that is referenced in the Vishnu Purana.

2. The Grishneshwar temple is an illustration of Maratha temple architectural style and structure.
3. It is the largest Jyotirlinga temple in India.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 only**
- c. 3 only
- d. 1 and 3 only

Q.28) Consider the following statements regarding the Treaty of Alinagar:

1. It was signed between Robert Clive of the British East India Company and the Nawab of Bengal, Mirza Muhammad Siraj Ud Daula.
2. It laid foundations for the Battle of Buxar.
3. All British goods that passed through Bengal would be exempt from duties under the treaty.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only**
- d. 1 2 and 3

Q.29) Consider the following statements regarding Quality Council of India:

1. It was established as a National body for Accreditation on recommendations of Expert Mission of EU.
2. QCI was set up through a PPP model as an independent autonomous organization with the support of Government of India and the Indian Industries.

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

Q.30) Consider the following statements regarding Lithium reserves:

1. The first lithium reserve in India was discovered at a site in Mandya, Karnataka.
2. China is by far the world's top producer of lithium.

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

Q.31) Consider the following statements regarding Pradhan Mantri Kaushal Vikas Yojana (PMKVY):

1. It is a flagship program of the Ministry of Rural Development
2. It is implemented by the National Skill Development Corporation
3. Under PMKVY, training and assessment fees are paid completely by the respective state govts.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 only**
- c. 3 only
- d. 1 and 3 only

Q.32) Consider the following statements regarding Sukanya Samriddhi Scheme:

1. The scheme comes under the Ministry of Women and Child Development
2. It is a small deposit scheme for girl child, launched as a part of the 'Beti Bachao Beti Padhao' campaign.

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

Q.33) With reference to Indian polity, consider the following statements:

1. The Governor is appointed by the President
2. The Salary and Allowances of Governor are charged from Consolidated Fund of State.
3. The Governors may promulgate the Ordinances under certain circumstances.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. **1 and 3 only**
- d. 1 2 and 3

Q.34) Consider the following statements regarding National Action for Mechanised Sanitation Ecosystem (NAMASTE):

1. It was launched in 2022 as a Centrally Sponsored Scheme.
2. The scheme is being undertaken jointly by the Ministry of Housing and Urban Affairs and the Ministry of Social Justice & Empowerment.

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

Q.35) The Inclusive Forum on Carbon Mitigation Approaches aims to help improve the global impact of emissions reduction efforts around the world through better data and information sharing, evidence-based mutual learning and inclusive multilateral dialogue. It was recently launched by

- a. World Bank

- b. World Economic Forum
- c. **Organisation for Economic Co-operation and Development**
- d. United Nations Environmental Programme

Q.36) The Balukhand-Konark Wildlife Sanctuary is located in

- a. West Bengal
- b. **Odisha**
- c. Karnataka
- d. Rajasthan

Q.37) Consider the following statements regarding Geological Survey of India:

1. It is an attached office to the Ministry of Earth Sciences
2. It declares geo-heritage sites/ national geological monuments for protection and maintenance

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

Q.38) Consider the following statements regarding Office of Profit:

1. It has been defined in the Constitution of India
2. The Parliament (Prevention of Disqualification) Act, 1959 provides for statutory backup against office of profit

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

Q.39) Consider the following statements regarding H5N1 disease:

1. It is a disease caused by avian influenza Type A viruses

2. Avian Influenza type A viruses are classified based on two proteins on their surfaces – Hemagglutinin(HA) and Neuraminidase(NA)
3. It is a highly contagious viral infection that primarily affects birds.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3**

Q.40) Consider the following statements regarding Central Board of Direct Taxes (CBDT):

1. It is a statutory body
2. It is administered by the Department of Revenue under the Ministry of Finance.

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

Q.41) Consider the following:

1. Breaking waves
2. Mineral dust
3. Volcanoes
4. fossil fuel combustion

Which of the above are sources of aerosol pollution?

- a. 1 2 and 3 only
- b. 2 3 and 4 only
- c. 1 2 and 4 only
- d. 1 2 3 and 4**

Q.42) The Kambalakonda Wildlife Sanctuary is located in

- a. Arunachal Pradesh
- b. Andhra Pradesh**
- c. Telangana

- d. Odisha

Q.43) Consider the following statements regarding Payment Aggregators”

1. A payment aggregator or merchant aggregator is a third-party service provider that allows merchants to accept payment from customers.
2. A merchant must have a merchant account directly with the bank

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

Q.44) Consider the following:

1. Exercise Dharma Guardian
2. Exercise Malabar
3. SHINYUU Maitri

Which of the exercises mentioned above is/are coordinated by the members of India and Japan?

- a. 1 and 2 only
- b. 2 only
- c. 3 only
- d. 1 2 and 3**

Q.45) The Corporate Climate Responsibility Monitor 2023 report was recently released by

- a. United Nations Environment Programme
- b. Germany-based think-tank New Climate Institute**
- c. International non-profit organisation – the Climate Group
- d. NITI Aayog

Q.46) Consider the following statements regarding National Disaster Management Authority (NDMA):

1. It is a statutory body established under the Disaster Management Act, 2005.

2. It is headed by the President of India.

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

Q.47) Vinyl Chloride, a cause of concern, is a structural/key component in the manufacture of which of the following kinds of plastics?

- a. Low-density polyethylene
- b. **Polyvinyl Chloride**
- c. Polycarbonate
- d. Polyethylene terephthalate

Q.48) Consider the following statements regarding Atacama Large Millimeter Array (ALMA):

1. It is an international partnership of the European Southern Observatory (ESO), with U.S., Japan and other countries.
2. It is located on the Chajnantor plateau.
3. It is the world's largest ground-based facility for observations in the millimeter/submillimetre regime.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. **1 2 and 3**

Q.49) With reference to India's biodiversity, consider the following statements:

1. Pangolin is the only scaly mammal on the planet.
2. Indian Pangolin listed as Critically Endangered in the IUCN Red list.
3. Both Indian and Chinese Pangolins are listed under Schedule I Part I of the Wildlife (Protection) Act, 1972.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. **1 and 3 only**
- d. 1 2 and 3

Q.50) Consider the following statements regarding election symbols allocated by the Election Commission of India (ECI):

1. Political parties are allotted the symbols by the ECI under the Representation of the People Act, 1951.
2. A reserved symbol is one that is allocated to a registered political party while a free symbol is available to be allocated to non-recognized parties and independent candidates.

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

Q.51) Consider the following statements regarding Central Water Commission (CWC):

1. CWC is an attached office of the Ministry of Rural Development
2. CWC is headed by a chairman, with the status of Ex-Officio Secretary to the Government of India.
3. CWC headquarters at Lucknow.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. **2 only**
- c. 3 only
- d. 1 and 3 only

Q.52) Consider the following statements regarding Polio Virus:

1. It is a crippling and potentially deadly viral infectious disease that affects the nervous system.
2. It is a communicable disease which can transmit from person to person.
3. It largely affects children under 5 years of age.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3**

Q.53) The Services trade restrictiveness index (STRI) is often mentioned in the news is released by

- a. World Bank
- b. Organization for Economic Co-operation and Development**
- c. World Trade Organization
- d. Asian Development Bank

Q.54) A recent report by the European Union (EU), has confirmed that the ecological disaster that killed hundreds of tonnes of fish in the Oder river in 2022 was caused by toxic algal bloom. In this context, the Oder river borders with which of the following countries?

- a. Poland and Germany**
- b. Ukraine and Russia
- c. Germany and France
- d. Syria and Turkey

Q.55) Consider the following statements regarding Employees State Insurance Corporation (ESIC):

1. It is a state-run organization set up under the Employee State Insurance Act of 1948.
2. It works under the Ministry of Labour and Employment.

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

Q.56) Consider the following statements regarding stock market in India:

1. The BSE is one of Asia's oldest stock exchanges, with a long history of fast trading.
2. Stock market in India is regulated by the Securities and Exchange Board of India (SEBI).
3. The Chairman of SEBI is nominated by the Union Government of India.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3**

Q.57) Consider the following countries:

1. Kazakhstan
2. Kyrgyzstan
3. Mongolia
4. Tajikistan

Which of the above countries borders with Uzbekistan?

- a. 1 2 and 4 only**
- b. 2 3 and 4 only
- c. 1 3 and 4 only
- d. All of the above

Q.58) Consider the following statements Survey of India:

1. It is the national survey and mapping organization of the country works under the Ministry of Earth Sciences.
2. It is headquartered in Delhi.

3. It is headed by the Surveyor-General of India.

Which of the statements given above is/are correct?

- 1 and 2 only
- 2 only
- 3 only**
- 1 and 3 only

Q.59) Consider the following pairs:

Grasslands and location

- Savanna – Western Africa
- Pampas – Argentina
- Prairies – USA
- Down – New Zealand

How many pairs given above is/are correct?

- One pair only
- Two pairs only**
- Three pairs only
- All four pairs

Q.60) Consider the following statements Investor Education and Protection Fund Authority (IEPFA):

- It is a statutory body established under the Companies Act 2013.
- It works under the Ministry of Education.

Which of the following statements given above is/are correct?

- 1 only**
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Q.61) Consider the following statements regarding Comptroller and Auditor-General of India (CAG):

- CAG is an independent authority under the Constitution of India.
- He is the head of the Indian Audit and Accounts Department.

3. According to Fifth schedule, the District Council or Regional Council should be kept in such form as the CAG prescribes with the approval of the President.

Which of the statements given above is/are correct?

- 1 and 2 only**
- 1 and 3 only
- 2 and 3 only
- 1 2 and 3

Q.62) Consider the following statements regarding temples of Khajuraho:

- They are a magnificent example of the Nagara style of temples architecture.
- These are a collection of Hindu and Buddhist temples at the Khajuraho.
- They got the status of UNESCO's World Heritage Site in 1986.

Which of the statements given above is/are correct?

- 1 and 2 only
- 2 and 3 only
- 1 and 3 only**
- 1 2 and 3

Q.63) It originated in the state of Kerala. The dance is performed by women in honor of the Hindu god Vishnu in his incarnation as the enchantress Mohini. It is characterized by graceful, swaying body movements with no abrupt jerks or sudden leaps. It belongs to the Lasya style which is feminine, tender, and graceful. The references to this dance can be found in the texts Vyavaharamala written in 1709 by Mazhamagalam Narayanan Namputiri and in Ghoshayatra, written later by poet Kunjan Nambiar. It is exclusively danced by women.

The above passage describes which of the following classical dances/

- Kathakali
- Mohiniyattam**
- Bharatanatyam

d. Odissi

Q.64) Consider the following statements regarding Indian Council of Historical Research (ICHR):

1. It is an autonomous organization under the Ministry of Culture.
2. It is statutory body established under the Societies Registration Act 1980.

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

Q.65) With reference to India's biodiversity, consider the following statements:

1. Assam has more than 90 % of the total Rhino in India.
2. Only the Great One-Horned Rhino is found in India.
3. One -horned Rhinos are listed under Schedule II of the Wildlife Protection Act.

Which of the statements given above is/are correct?

- a. 1 and 2 only**
- b. 2 only
- c. 3 only
- d. 1 and 3 only

Q.66) Consider the following statements regarding Nagoya protocol:

1. This protocol was established at the United Nations Convention on Biological Diversity.
2. India signed the Nagoya Protocol in 2011.
3. Protocol is an international agreement that aims to fairly and equitably distribute the advantages that result from the use of genetic resources.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only

d. 1 2 and 3

Q.67) Consider the following statements regarding National Agriculture Market or eNAM:

1. It was launched with the objective of integrating the existing Mandis into a "One Nation One Market" for agricultural commodities in India.
2. Small Farmers Agribusiness Consortium (SFAC) is the lead agency for implementing e-NAM.
3. It functions under the aegis of the Ministry of Electronics and Communications.

Which of the statements given above are correct?

- a. 1 and 2 only**
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3

Q.68) Consider the following statements regarding National Agricultural Cooperative Marketing Federation of India Ltd.(NAFED):

1. It is registered under the Multi-State Co-operative Societies Act.
2. Agricultural farmers are the main members of Nafed, who have the authority to say in the form of members of the General Body.

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

Q.69) Consider the following rivers:

1. Dhanei
2. Badanadi
3. Ken

Which of the above is/are tributaries of Rushikulya river:

- a. 1 and 2 only
- b. 2 only
- c. 3 only
- d. 1 and 3 only

Q.70) Consider the following statements regarding India Municipal Bond Index:

- a. It is India's first municipal bond index released by Bombay Stock Exchange Indices Ltd.
- b. It will track the performance of all municipal bonds issued by Indian municipal corporations.
- c. Smart Cities Mission scheme have been funded by municipal bonds.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only**
- c. 1 and 3 only
- d. 1 2 and 3

Q.71) Consider the following statements regarding Interior of the structure:

1. The Mohorovich Discontinuity is the separation between the crust and mantle.

2. Guttenberg's Discontinuity divides the mantle from the core.
3. Silica and Aluminum are the two main components of the crust.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3**

Q.72) With reference to Indian art and culture, consider the following statements:

1. Sursingar is a stringed instrument made of ivory and wood.
2. Karakattam is an ancient folk dance of Kerala.
3. Sakthi Karakam is performed only in temples as a spiritual offering.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only**
- d. 1 2 and 3

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